The Ravalli Republic (local Hamilton MT newsrag) has published an article this week about the NIH facility in Hamilton Montana – The Rocky Mountain Laboratory – an NIAID (Institute for Allergies and Infectious Diseases) in which they describe the November 2025 incident as due to a "breach in protective equipment" that exposed the employee to Crimean Congo hemorrhagic fever. That is misleading at best. It is only true if you realize that the "breach" of the protective suit" happened due to a monkey bite that penetrated the protective suit.

Animal handler, [redacted] was bitten by an infected monkey (macaque) that was being tortured (infected and sickened with no pain mitigation) as an experiment for Crimean Congo Hemorrhagic fever.

This occurred in November 2025 and it was hidden from even most of the employees at the facility. [redacted] was taken away for a couple of weeks. He did not go to the local St Patrick's hospital in Missoula, MT where there is an agreement with the hospital to quarantine patients but was flown out elsewhere. When he returned he was flown back in (to Spokane most likely) and then secretly returned to the facility.

This is old news though, even though it is now leaking out into the public realm.

The more disturbing incident occurred in January 2026.

You may remember the name Vincent Munster. He's the Fauci acolyte and all around egotistical, arrogant, foreigner that joined his research project (to aerosolize covid virus) to Ralph Baric's project (to weaponize it). Vincent's [redacted] and co-researcher is [redacted] Also a condescending, America-hating foreigner. Vincent has a new minion, [redacted] who works on the team also. All three are employees at the Rocky Mountain Laboratory.

The three went to Africa in January for 'research'. On Sunday, January 25, 2026 they came back into the United States through Detroit. At customs in Detroit the authorities found dozens of vials in his baggage. When questioned, Vincent arrogantly told them that it was 'science stuff' and just 'reagents'. This was a lie. He later admitted to the RML biosurety staff that it was 'dna samples'. I don't think it has been determined what exactly the samples are. I think they are in the custody of the FBI or Customs still. Since they were studying African based infectious diseases (CCHF?) it would follow that they were patient samples.

The NIH powers did not inform the RML campus and went into full coverup mode. On Monday, January 26, the three subjects were allowed to come and go as they pleased onto

the facility, into the high containment BSL4 building, and into their offices, getting their belongings etc. – completely unsupervised and unrestricted.

Only on Tuesday, January 27, 2026 was the campus access restricted for the three. Foreigner employees. And still they were allowed to have a "personal representative" access their offices and get any belongings that they wanted including computers, laptops, tablets, etc. The personal representative seen entering campus on foot and leaving 15 minutes later with a heavy, laden-down backpack was Vincent and [redacted]s BFF. Her name is [redacted] She is another America-hating foreign national just as bad as the others.

As of February 17th , 2026 [redacted]s access has been restored and the powers have decreed that she is allowed "unimpeded" access to the facility.

These decisions have come from the main NIH campus in Bethesda. Dr. [redacted] (Bethesda), Dr. [redacted] (RML), biosurety officials [redacted] and [redacted] (RML) and others are in full coverup mode. The "breach in protective equipment" story is likely a diversion (dumbed down and misleading although true) for the fact that three foreign nationals with TDS who hate America and worked to weaponize the Covid virus got caught trying to sneak VHF samples into the United States from Africa.

The decisions made by the deep state, Fauci acolytes ([redacted] etc) seem designed to prevent any attempts at accountability and to thwart the new administrations attempts to reign in the NIH bureaucratic kingdoms that have developed and thrived under the Fauci system of bioweapons research.

They have been successful at hiding and misdirecting their dangerous activities in the past. No doubt the powers are working on covering this up, convoluting it beyond any way to prosecute, and Vincent et. Al. will be back torturing animals and working on gain of function before we know it.

Select Agents at RML
Information Sheet

BSL-3 Select Agents at RML

*BSL-3: for work with agents which may cause serious or potentially lethal disease as a result of **exposure by the inhalation route**.*

BSL-3 agents are associated with serious or lethal human disease but vaccines or specific treatments may be available.

Brucella abortus, Brucella melitensis. Laboratory acquired infections with *B. abortus* and *B. melitensis* are manifested by a generalized infection of the reticuloendothelial system. The incubation period is highly variable and can range from 5 to 60 days. The clinical manifestations are varied and nonspecific. They include fever, sweats, fatigue, malaise, anorexia, weight loss, headache, arthralgia and back pain. Brucellosis may persist and progress to a chronically incapacitating disease with severe complications if the person is not treated in a timely manner with appropriate antibiotics. Acute Brucellosis during pregnancy can be associated with spontaneous abortion and fetal death. Person-to-person transmission is rare but has been reported. *B. abortus* and *B. melitensis* can also be acquired by direct contact with animal reservoirs such as cattle, sheep, or goats or their infected products.

Burkholderia mallei is the cause of glanders. The disease appears in three forms: a chronic pulmonary form with cough, mucopurulent discharge; Farcy, a form characterized by multiple abscesses in the skin, subcutaneous tissues and lymphatics; and an acute septicemic form with fever, chills, prostration and death in 7-10 days. Incubation period is 1-14 days. Person-to-person transmission is rare but has been reported. Effective antibiotic treatments are available. Treatment should be administered without delay.

Burkholderia pseudomallei is the cause of melioidosis. Clinical symptoms vary from asymptomatic infection to chronic infection to rapidly fatal septicemia; may simulate typhoid fever or more commonly tuberculosis, with symptoms as empyema, chronic abscesses and osteomyelitis. Incubation period is from 2 days to several years (reactivation). Melioidosis can spread from person to person by contact with the blood and body fluids of an infected person. Laboratory workers with diabetes are at increased risk of contracting melioidosis. Effective antibiotic treatments are available. Treatment should be administered without delay.

Coxiella burnetii is the cause of Q fever. Typical sign and symptoms of Q fever include headache, fever, malaise, and muscular aches & pains. Up to half of all infections are asymptomatic, and are usually self-limiting. The incubation period depends on size of the infectious dose; usually 2-3 weeks. Infection is not directly transmitted from person-to-person. Chronic infection mainly involves endocarditis so individuals with valvular heart disease should not work with *C. burnetii*. The organism is extremely resistant to drying and is stable under a variety of environmental conditions.

Francisella tularensis is the cause of tularemia. Infection with *F. tularensis* can result in typhoidal and pneumonic tularemia within 3-5 days, but the incubation period can range from 3 to 14 days. Fever, sweating, and malaise characterize infection. Signs and symptoms may vary depending how they are exposed. Possible other symptoms include skin ulcers, swollen or painful lymph glands, inflamed eyes, sore throat, mouth sores, or diarrhea. Tularemia can be fatal if the person is not treated in a timely manner with appropriate antibiotics. *F. tularensis* can be transmitted by aerosol, ticks, biting flies and direct contact with infected animal carcasses. Infection is not directly transmitted from person-to-person.

Rickettsia rickettsii is the cause of Rocky Mountain spotted fever, tick-borne typhus, Sao Paulo fever. Typical signs and symptoms include fever (sudden onset, can persist for 2-3 weeks), severe headache, malaise, muscular

aches & pains, and rash. Incubation period is from 3 to 14 days. There is a 15-20% case fatality rate in the absence of therapy, but with treatment death is uncommon. Not directly transmitted from person-to-person.

Rickettsia prowazekii is the cause of louse-borne typhus, epidemic typhus. Variable onset, often sudden, with headache, chills, fever, prostration and general pains. Incubation period can range from 1 to 2 weeks, commonly 12 days. A rash occurs on the 5th and 6th day across the upper trunk and spreads to the entire body (except face, palms or soles). Pronounced toxemia is present. Disease terminates approximately two weeks after onset of fever. Case fatality rate ranges from 10-40% in absence of treatment; may recrudesce years later as Brill-Zinsser disease. Not directly transmitted from person-to-person.

Yersinia pestis is the cause of plague, which occurs in two major forms. Bubonic plague results from fleabite; exposure of open wounds, cuts, or other breaks in the skin to infected materials; or from inadvertent needle stick. Typical initial symptoms of bubonic plague include fever, headache, chills, malaise, and tenderness and swelling of lymph nodes. These symptoms develop within 2 to 6 days after exposure. Primary pneumonic plague occurs after inhalation of aerosols. It also begins with non-specific febrile flu-like symptoms that develop within the first 24-36 hours, followed by a persistent dry cough and symptoms of pneumonia. Sputum production may be limited at first, but then abundant thin, syrupy sputum is produced that is tinged with blood and sometimes frothy. Gastrointestinal symptoms can also occur in either bubonic or pneumonic plague. Pneumonic plague is the only form of plague which is readily transmissible from person to person. Both forms of plague progress very rapidly to life-threatening disease, so it is critical that medical advice be sought immediately and antibiotic therapy started without delay.

Bovine Spongiform Encephalopathy Agent (BSE). The infectious agent in BSE is believed to be a specific type of misfolded protein called a prion. Prion proteins carry the disease between organisms and cause deterioration of the brain. BSE is a type of transmissible spongiform encephalopathy (TSE) that has been linked to a human form of the disease, variant Creutzfeldt-Jakob disease (vCJD). BSE transmission to humans is not efficient and the infectious dose of BSE is unknown, though laboratory experiments have shown that an increased dose shortens the incubation period. vCJD is an incurable degenerative neurological disorder (brain disease) that is ultimately fatal, with the earliest symptoms being prominent psychiatric/behavioral changes. Neurological signs develop into physical problems such as speech impairment, jerky movements (myoclonus), balance and coordination dysfunction (ataxia), changes in gait, rigid posture and seizures. The duration of the disease varies greatly and in some people the symptoms can persist for years. Human to human transmission of vCJD has been documented via blood transfusion or blood products. vCJD cannot be transmitted by casual contact or aerosols. Due to the rarity of vCJD, the incubation period for this particular TSE is unknown; however, a recent risk assessment model estimates that for individuals who have become clinically ill the mean incubation period is 15 years. The incubation time range is estimated anywhere from 5-35 years.

Select Agents at RML Information Sheet

BSL-4 Select Agents at RML

*BSL-4: for work with dangerous and exotic agents that pose a high individual **risk of aerosol-transmitted lab infections and life-threatening disease**.*

BSL-4 agents are associated with high lethality. No available vaccines or specific treatments exist.

Avian influenza virus (highly pathogenic). Initial symptoms of H5N1 influenza may include fever (typically greater than 100.4F (> 38°C), headache, malaise, myalgia, sore throat, cough, and rhinitis (although upper respiratory symptoms may be absent), gastrointestinal manifestations and conjunctivitis. In two reports, diarrhea was a prominent feature along with shortness of breath. Watery diarrhea may be present well before pulmonary symptoms develop. The infectious dose is unknown, but estimated to be between 10 and 100 viral particles. Current data for H5N1 infection indicate an incubation period ranging from two to eight days and possibly as long as 17 days. The primary laboratory hazard is inhalation of virus from aerosols, direct inoculation of mucus membranes through virus contaminated gloves following handling of tissues, feces or secretions from infected animals. The spread of avian influenza A viruses from one ill person to another has been reported very rarely, and has been limited, inefficient and unsustained. Antiviral treatment is available (oseltamivir/zanamivir).

Ebola virus. Illness is characterized by sudden onset with high fever, malaise, abdominal pain, myalgias, vomiting, diarrhea; maculopapular rash (seen in <50% of cases), renal and hepatic involvement and excessive bleeding are also seen. 40%-90% case fatality rate. The infectious dose is unknown. Incubation period is 2-21 days (5 -12 days in most cases). Person to person transmission by intimate contact is the main route of infection (direct contact with infected blood, secretions, organs or semen). All Ebola subtypes have displayed the ability to be spread through airborne particles (aerosols) under research conditions and there is some evidence to indicate aerosol transmission of Ebola in human outbreaks is an important route of transmission. Communicable as long as blood and secretions contain virus (which have been isolated as far out as 61 days after onset of illness). Secondary infections occur in 5-15% of cases. Transmission through semen has occurred 7 weeks after clinical recovery.

Marburg virus. Illness is characterized by sudden onset with high fever, malaise, myalgias, vomiting, diarrhea; maculopapular rash (not always observed), renal and hepatic involvement and hemorrhagic diathesis. Recent outbreaks have displayed fatality rates of 83-90%. The infectious dose is unknown. Incubation period is 3-15 days. Transmitted by direct contact with infected blood, secretions, organs, or semen. There is some evidence to indicate aerosol transmission may occur. Communicable as long as blood and secretions contain virus (which have been isolated as far out as 7 weeks from semen).

South American Hemorrhagic Fever viruses (Guanarito, Junin, Machupo, Sabia)
Guanarito virus. Characteristic features are fever, toxicity, headache, arthralgia, diarrhea, conjunctivitis, and pharyngitis. Other features include facial edema, cervical lymphadenopathy, nausea/vomiting, cough, chest or abdominal pain, and convulsions. The infectious dose is unknown. In nature, man most likely acquires infection from infected rodents and their excreta. Viral Hemorrhagic Fevers (VHF) in general may be transmitted by direct contact with infected blood, secretions, organs, or semen and by the aerosol route. Contaminated syringes and needles are responsible for many nosocomial infections. The incubation period is unknown; however VHF incubation period usually ranges from 7-14 days, with extremes of 5 -21 days occurring.

Junin, Machupo, and Sabia virus. Illness is characterized by insidious onset of fever, malaise, headache and muscular pains. Petechiae may appear on the upper trunk and oral mucosa. Bleeding may occur from the nose, gums, stomach and intestine. Severe cases may present with hypotensive shock and neurologic crisis with a case fatality range of 5-30%.The infectious dose is unknown. The route of transmission is aerosol transmission via dust contaminated with infected rodent excreta. Abraded skin may also be a portal of entry for virus. The incubation period is 7 to 15 days. Direct person-to-person transmission has been reported.

Crimean-Congo hemorrhagic fever virus. Illness is characterized by sudden onset of fever, malaise, weakness, irritability, headache, severe pain in the limbs and loins and marked anorexia. Vomiting, abdominal pains and diarrhea may occur. Hemorrhagic exanthem of soft palate, uvula and pharynx and a petechial rash are generally associated with this disease. Case fatality rate ranges from 2 to 50%. The infectious dose is not known. Infection can occur through the bite of an infective adult tick (Hyalomma spp.) or through the crushing of an infective tick with bare skin. Primary laboratory hazards include exposure of the mucous membrane to infective blood; aerosols; accidental parenteral inoculation. The incubation period is usually 1 to 3 days following tick bite; 5–6 days after exposure to infected blood or tissues. (Range 1 to 12 days). The virus is highly infectious, especially through the familial and nosocomial route due to exposure to hemorrhagic discharges.

Lassa fever virus. Illness is characterized by gradual onset of fever, malaise, sore throat, nausea, vomiting, diarrhea, chest and abdominal pain. Fever is persistent or spikes intermittently. About 80% of human infections are mild or asymptomatic. Disease is more severe in pregnancy; fetal loss occurs in more than 80% of cases. Overall case fatality rate is 1%, up to 15% among hospitalized cases. The infectious dose is unknown. The virus is transmitted by aerosol, direct contact with infected rodent excreta, inoculation with contaminated needles, contact with patient's pharyngeal secretions or urine. The incubation period is 6-21 days. Direct person-to-person transmission has been reported.

Reconstructed 1918 influenza virus. The most common symptoms are fever (temperature greater than 100.4F (>38.0°C)), headache, malaise, sore throat and cough. Nausea, vomiting and diarrhea are rare. The two most important features of 1918 influenza are the epidemic nature of illness and the mortality that arises from pulmonary complications of the disease. The infectious dose is unknown, but estimated to be between 10 and 100 viral particles. The incubation period is between 1 and 7days. Airborne spread is the predominant mode of transmission. Transmission may also occur through direct contact since influenza viruses may persist for hours on surfaces particularly in the cold and under conditions of low humidity. Occupationally-acquired, nosocomial infections are documented. Laboratory animal-associated infections have not been reported although this may be due to the low number of animal studies with this virus. Such infections have frequently been observed for seasonal influenza viruses so there is the possibility of human infection from ferrets infected with 1918 flu and vice versa.

Tick-borne encephalitis complex (flavi) viruses (Central European, Kyasanur Forest, Omsk, Russian Spring Summer)

Russian Spring - Summer Encephalitis Virus and Central European Tick-borne Encephalitis Virus. Infection usually presents as a mild, influenza-type illness or as benign, aseptic meningitis, but may result in fatal meningoencephalitis. Of the two subtypes, RSSE is the more severe infection, having a mortality of up to 25% in some outbreaks, whereas mortality in CEE seldom exceeds 5%, usually between 1-2%. However, the CEE subtype usually presents with a much longer disease course, up to three weeks. Infectious dose is unknown. The incubation period is usually 7-14 days. The primary laboratory hazards are accidental parenteral inoculation, droplet exposure of the mucous membranes and bite of an infected tick. The viruses are not directly transmitted from person-to-person.

Kyasanur Forest virus. Illness characterized by sudden onset of fever and severe headache, followed by backpain, severe pain in the lower and upper extremities and prostration. Biphasic course of illness and fever; central nervous abnormalities develop after an afebrile period of 1-2 weeks. Estimated case fatality rate is between

1-10%. The infectious dose is unknown. The virus is transmitted by the bite of an infective tick (Haemaphysalis spinigera), especially nymphal ticks. The incubation period is usually 3 to 8 days. The virus is not directly transmitted from person-to-person.

Omsk virus. Illness characterized by sudden onset of fever, chills, headache, pain in lower and upper extremities and severe prostration. A papulovesicular rash on the soft palate, cervical lymphadenopathy and conjunctival suffusion are usually present. Central nervous system abnormalities develop after one to two weeks, and severe cases present with hemorrhages - no cutaneous rash. Estimated case fatalities are 1-10%. The infectious dose is not known. The mode of transmission is by the bite of an infective tick (Dermacentor reticulatus and D. marginatus, Ixodes persulcatus). The incubation period is usually 3-8 days. The virus is not directly transmitted from person-to-person.

Hendra virus. Only three human cases of Hendra virus disease have been recognized. Two of the three individuals known to be infected had a respiratory illness with severe flu-like signs and symptoms, including fever, headache, shortness of breath, dizziness, drowsiness and confusion. Two of the three recorded cases of Hendra virus in humans were fatal. One death was due to septic pneumonia while the other was due to severe encephalitis. The infectious dose is not known. In Australia, humans became ill after exposure to body fluids and excretions of horses infected with Hendra virus. Laboratory hazards include direct contact with broken skin or mucous membranes, accidental parenteral inoculation, exposure to infectious aerosols, and animal bites and scratches. The incubation period of Hendra virus infections varies from 4 -18 days. A more prolonged incubation period of up to three months is suspected with one case of Hendra virus infection. No human to human transmission has been reported. However, given the small number of total cases, this possibility cannot be discounted.

Nipah virus. In many cases the infection is mild or inapparent (sub-clinical). In symptomatic cases, the clinical features of Nipah virus infection are high fever, severe headache and myalgia. The disease may progress to encephalitis with drowsiness, disorientation, convulsions and coma. Approximately 40% of clinically apparent cases have proven fatal. The infectious dose is not known. Transmission appears to be associated with close contact with the body fluids or excretions of pigs infected with Nipah virus. All infectious materials from infected animals pose a risk for exposure to Nipah virus. These include, blood, body fluids, excretions and all tissues. The risk for aerosol infection has not been assessed, and must therefore be considered as likely. The incubation period is between 4 and 18 days Human-to-human transmission should be considered likely until more information becomes available.

Rift Valley fever virus. Mild form of RVF in humans: Those infected either experience no detectable symptoms or develop a mild form of the disease characterized by a feverish syndrome with sudden onset of flu-like fever, muscle pain, joint pain and headache. Some patients develop neck stiffness, sensitivity to light, loss of appetite and vomiting. In these patients the disease, in its early stages, may be mistaken for meningitis. The symptoms of RVF usually last from four to seven days. Severe form of RVF in Humans: While most human cases are relatively mild, a small percentage of patients develop a much more severe form of the disease. This usually appears as one or more of three distinct syndromes: ocular (eye) disease (0.5-2% of patients), meningoencephalitis (less than 1%) or hemorrhagic fever (less than 1%). The infectious dose is not known. The incubation period is reported to be 2-6 days. To date, no human-to-human transmission of RVF has been documented. The primary laboratory hazards are accidental parenteral inoculation, contact of the virus with broken skin or mucous membranes, bites of infected laboratory arthropods, or inhalation of infectious aerosols.

Definitions

abscess	a localized collection of pus in any part of the body
anorexia	loss of appetite
arthralgia	joint pain
conjunctivitis	inflammation of the mucous membranes of the eye
empyema	pus in a body cavity, especially in the membrane that enfolds the lungs (pleura)
endocarditis	inflammation of the lining membrane of the heart
exanthem	any eruption of the skin accompanied by inflammation (such as with measles)
lymphadenopathy	disease of the lymph nodes
maculopapular	consisting of discolored spots or patches (macules) or red elevated areas (papules) on the skin
malaise	discomfort, uneasiness, associated with illness
meningitis	inflammation of the membranes of the spinal cord or brain
mucopurulent	consisting of mucus and pus
myalgia	muscle aches
nosocomial	infection acquired in a hospital
osteomyelitis	inflammation of the bone, especially the marrow
petechiae	small, purplish, hemorrhagic spots on the skin which appear in certain severe fevers
prostration	absolute exhaustion
reticuloendothelial system	term applied to those cells scattered throughout the body which have the power to ingest (phagocytose) particulate matter (bacteria, etc.)
rhinitis	inflammation of the mucous lining of the nose
septicemic	relating to presence of pathogenic bacteria in the blood
subcutaneous	beneath, or introduced beneath, the skin

National Select Agent Registry

301-851-3300 404-718-2000

Last Updated: Monday, September 19, 2011

Select Agents and Toxins List

The following biological agents and toxins have been determined to have the potential to pose a severe threat to both human and animal health, to plant health, or to animal and plant products. An attenuated strain of a select agent or an inactive form of a select toxin may be excluded from the requirements of the Select Agent Regulations. The list of excluded agents and toxins can be found at: http://www.selectagents.gov/Select%20Agents%20and%20Toxins%20Exclusions.html.

HHS SELECT AGENTS AND TOXINS

Abrin
Botulinum neurotoxins
Botulinum neurotoxin producing species of *Clostridium*
Cercopithecine herpesvirus 1 (Herpes B virus)
Clostridium perfringens epsilon toxin
Coccidioides posadasii/Coccidioides immitis
Conotoxins
Coxiella burnetii
Crimean-Congo haemorrhagic fever virus
Diacetoxyscirpenol
Eastern Equine Encephalitis virus
Ebola virus
Francisella tularensis
Lassa fever virus
Marburg virus
Monkeypox virus
Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
Ricin
Rickettsia prowazekii
Rickettsia rickettsii
Saxitoxin
Shiga-like ribosome inactivating proteins
Shigatoxin
South American Haemorrhagic Fever viruses
- Flexal
- Guanarito
- Junin
- Machupo
- Sabia

Staphylococcal enterotoxins
T-2 toxin
Tetrodotoxin
Tick-borne encephalitis complex (flavi) viruses
- Central European Tick-borne encephalitis
- Far Eastern Tick-borne encephalitis
- Kyasanur Forest disease
- Omsk Hemorrhagic Fever
- Russian Spring and Summer encephalitis

Variola major virus (Smallpox virus)
Variola minor virus (Alastrim)
Yersinia pestis

OVERLAP SELECT AGENTS AND TOXINS

Bacillus anthracis
Brucella abortus
Brucella melitensis
Brucella suis
Burkholderia mallei (formerly Pseudomonas mallei)
Burkholderia pseudomallei (formerly Pseudomonas pseudomallei)
Hendra virus
Nipah virus
Rift Valley fever virus
Venezuelan Equine Encephalitis virus

USDA VETERINARY SERVICES (VS) SELECT AGENTS

African horse sickness virus
African swine fever virus
Akabane virus
Avian influenza virus (highly pathogenic)
Bluetongue virus (exotic)
Bovine spongiform encephalopathy agent
Camel pox virus
Classical swine fever virus
Ehrlichia ruminantium (Heartwater)
Foot-and-mouth disease virus
Goat pox virus
Japanese encephalitis virus
Lumpy skin disease virus
Malignant catarrhal fever virus (Alcelaphine herpesvirus type 1)
Menangle virus
Mycoplasma capricolum subspecies *capripneumoniae* (contagious caprine pleuropneumonia)
Mycoplasma mycoides subspecies *mycoides* small colony (*Mmm* SC) (contagious bovine pleuropneumonia)
Peste des petits ruminants virus
Rinderpest virus
Sheep pox virus
Swine vesicular disease virus
Vesicular stomatitis virus (exotic): Indiana subtypes VSV-IN2, VSV-IN3
Virulent Newcastle disease virus [1]

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS

Peronosclerospora philippinensis (Peronosclerospora sacchari)
Phoma glycinicola (formerly *Pyrenochaeta glycines*)
Ralstonia solanacearum race 3, biovar 2
Rathayibacter toxicus
Sclerophthora rayssiae var zeae
Synchytrium endobioticum
Xanthomonas oryzae
Xylella fastidiosa (citrus variegated chlorosis strain)

9/19/11

[redacted]

[1]A virulent Newcastle disease virus (avian paramyxovirus serotype 1) has an intracerebral pathogenicity index in day-old chicks (Gallus gallus) of 0.7 or greater or has an amino acid sequence at the fusion (F) protein cleavage site that is consistent with virulent strains of Newcastle disease virus. A failure to detect a cleavage site that is consistent with virulent strains does not confirm the absence of a virulent virus.

Click here for the List of Select Agents and Toxins (revised September 19, 2011) *(PDF 53KB)*

Animal and Plant Health Inspection Service
Agricultural Select Agent Program
4700 River Road Unit 2, Riverpark 22, Cubicle 1A07
Riverdale, MD 20737
FAX: 301-734-3663
E-mail: [redacted]

Centers for Disease Control and Prevention
Division of Select Agents and Toxins
1600 Clifton Road NE, Building A-46
Atlanta, GA 30333
FAX: 404-718-2000
E-mail: [redacted]

ANIMAL EXPOSURE PROGRAM (AEP)

Program	Mandatory	Elective	Follow-up
Small Animals Rodents, Rabbits, Guinea Pigs, and Fish	☐ Standard Precautions and allergy counseling ☐ Discussion of relevant zoonoses (give HOs) ☐ Discussion of first aid measures and the need to report all work-related injuries and illnesses	☐ Tdap if not received as an adult and a Td booster every 10 yrs	☐ None
Large Animals Dogs, Cats, Sheep, Cattle, Pigs, Poultry	All in Small Animals and: ☐ Rabies immunization, if warranted ☐ Toxo titer, if working with cats and a female of child bearing capacity ☐ Q Fever counseling, if warranted	☐ Tdap if not received as an adult and a Td booster every 10 yrs	☐ None
Nonhuman Primates (NHP) Working with live NHP or breathing their air	All in Small Animals and: ☐ TB testing; if positive and clinically indicated, quiz and CXR ☐ Positive rubeola titer; if negative, receipt of the MMR	☐ If tuberculin testing on enrollment was a TST and it was negative, a second is strongly encouraged ☐ Tdap if not received as an adult and a Td booster every 10 yrs	☐ TB testing every 12 months, unless earlier testing was positive
NHP Tissues Working with NHP lymph nodes or lungs	☐ None	☐ If tuberculin testing on enrollment was a TST and it was negative, a second is strongly encouraged ☐ Tetanus boost every 10 yrs ☐ TB testing; if positive and clinically indicated, quiz and CXR	☐ TB testing every 12 months, unless earlier testing was positive

- Bacteria, viruses, fungi, prion agent, and toxins listed on last page of handout
- Recombinant nucleic acids and synthetic nucleic acids that can produce infectious forms of any of the select agent viruses (e.g. purified genomes of TBEV, SARS)
- Recombinant and/or synthetic nucleic acids that encode for the functional form(s) of any of the select agent toxins.
- Recombinant or synthetic organisms

The following are also considered Select Agents:

- Any animals (including arthropods) intentionally or accidentally exposed to or infected with a select agent
  - An accurate, current accounting of any animals intentionally or accidentally exposed to or infected with a select agent must be maintained, including number and species, location, and appropriate disposition.
  - This is documented in the animal census log in each animal holding room and freezer logs located at each freezer
  - Need for securing animals (in addition to select agents) upon emergencies or loss of all systems

Veterinary, animal care staff, and laboratory staff must be aware of the possibility that unexpected illnesses in animals in other parts of the select agent facility may be due to accidental exposure to a select agent.

If it is discovered that any unexpected illness is due to infection with a select agent, the RO or AROs must be notified immediately.

- Experiments that involve the deliberate transfer of, or selection for, a drug resistant trait to select agents that are not known to acquire the trait naturally, if such acquisition could compromise the control of disease agents in humans, veterinary medicine, or agriculture.
- Experiments involving the deliberate formation of synthetic or recombinant DNA-containing genes for the biosynthesis of select toxins lethal for vertebrates at an LD[50] <100ng/kg body weight

An individual or entity may not conduct, or possess products … resulting from, a restricted experiment….unless approved by and conducted in accordance with any conditions prescribed by the HHS Secretary.

- Approval for the introduction of any antibiotic resistance gene into a Select Agent, or the possession of such a Select Agent, requires the approval of:
  - The RML Institutional Biosafety Committee (IBC)
  - AND
  - The CDC Division of Select Agents and Toxins
- Introduction of any antibiotic resistance that is not approved, or the possession of such a strain, is a violation of both the NIH Guidelines for rDNA Research and the Select Agent regulations!

NIH

At RML, all Select Agents are worked with in BSL3 o
BSL-4 laboratories.

NIH

Coxiella burnetii	Q Fever	10 organisms	14 to 21 days
Francisella tularensis**	Tularemia	6 – 10 organisms	1 to 14 days
Rickettsia prowazekii	Louse-borne typhus, epidemic typhus	Less than 10 organisms	7 to 14 days
SARS-associated coronavirus (SARS-CoV)	Acute respiratory disease	Unknown	2 to 14 days
Yersinia pestis**	Plague	Less than 100 organisms	1 to 6 days

** Denotes Tier 1 agents

NIH

Ebola virus**	Hemorrhagic Fever	Unknown	5-12 days
Marburg virus**	Hemorrhagic Fever	Unknown	3-7 days
South American Hemorrhagic Fever viruses (Guanarito, Junin, Machupo, Sabia)	Hemorrhagic Fever	Unknown	7-16 days
Crimean-Congo hemorrhagic fever virus	Hemorrhagic Fever	Unknown	3-5 days (1-3 days in tick bite)
Lassa fever virus	Lassa fever	Unknown	6-21 days
Lujo virus	Hemorrhagic Fever	Unknown	7-13 days
Chapare virus	Hemorrhagic Fever	Unknown	7-? days
Reconstructed 1918 Influenza virus	Influenza	Unknown, est. between 10 and 100 viral particles	1-7 days

** Denotes Tier 1 agents

NIH

Tick-borne encephalitis (TBE) viruses: Far Eastern and Siberian subtypes	Encephalitis	Unknown	7-14 days (for Eastern)
Omsk hemorrhagic fever virus	Hemorrhagic Fever	Unknown	3-8 days
Kyasanur Forest Disease virus	Hemorrhagic Fever	Unknown	3-8 days
Hendra virus	Hendra virus disease	Unknown	5-16 days
Nipah virus	Nipah virus disease	Unknown	5-16 days
Rift Valley fever virus	Rift Valley Fever	Unknown	2-6 days
SARS-associated coronavirus (SARS-CoV)	Acute respiratory disease	Unknown	2-14 days

NIH

NIH Biosurety Program

NIH

Annual re-certification required to maintain enrollment:

Completion of:

- Annual training requirements
- Behavioral Health Screen
- Medical Assessment
- CO sign-off

Employees enrolled in the Biosurety Program are responsible for:

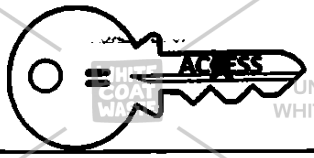
Self-and peer-reporting of incidents or conditions (specific life events) that could affect an individual's ability to safely have access to or work with select agents and toxins, or to safeguard select agents and toxins from theft, loss, or release.

- Medical care for substance abuse
- Job performance or conduct issues
- Injuries or illnesses, new medications
- Security issues

Report to Dr. Shvorc, OMS Nurses, Ron Frost, Dr. Wilson

- A re-evaluation, if it results in the inability to meet requirements of any part of the BSP will result in temporary removal of access to the Select Agent laboratories
- RO or ARO will be notified by CO
- Access will be restored once specific requirement(s) are met.

Background Investigation √
Security Risk Assessment √
Behavioral Health √
Medical Assessment √
Training √



- The PI or supervisor must immediately notify the RML SAP when a person no longer needs access to select agents.
- The RML SAP can authorize removal of access and/or removal from the select agent program for any instance of non-compliance.

Notification of non-compliance will be reported to the Deputy Director of Intramural Research by the Certifying Official

- Access to SA will be removed
- May be suspended from conducting SA research

Definition of Visitor: Anyone who does not have authorized access (PIV card does not work) to lab (this includes RML employees)

PRIOR to entering lab with a Visitor:
Confirm individual's status with RML SAP!
At a minimum:

1. Need to receive training and/or agent summaries from Safety Staff
2. Respirator fit testing
3. If applicable
   1. Proof of vaccinations
   2. Med clearance for positive pressure suit

Scenario:

– The sink in the BSL-3 lab is leaking and you need ORF to fix it. You talk to one of the maintenance staff directly and they are happy to schedule a time that you can escort them into the lab. No additional action on your part is necessary.

– True or False?

FALSE - you need to check with RML SAP

- **Fill out the logbook completely and legibly**
- **Continuous escort: If you get inside the anteroom and need to leave to get more PPE . . Take them with you and sign in/out on log**
- **Someone else inside the lab can take over as escort but this must be documented in the log**
- **NEVER leave a visitor alone, even during lab shutdowns!**

Nancy Hoe	Thomas Stevens	11/14/11	8:45 AM	9:00 AM	CDC Inspection	
Nancy Hoe	Thomas Stevens	11/14/11	8:55	11:15	CDC Inspection	
Richard Norman	James Albrecht	11/30/11	8:45 AM	11:15 AM	Maintenance	Joe Hanrahan took over as escort in the lab as I had to leave briefly. R. Norman 11/30/11

Each registered entity must implement the following written plans:

- Security
- Biosafety
- Incident Response

Each plan must be reviewed annually. Refresher training must be provided if the plans are substantially updated.

Drills and Exercises must be conducted annually to test effectiveness of the plans

Plans must be reviewed after each drill or exercise or real incident and revised as necessary

RML share Biosafety folder

Biosafety Plans/Lab Manuals

- Must be kept up to date, if work practices change, PI must notify the RO immediately. Changes may required IBC and/or CDC DSAT approval.
- May need new SOPs or update current SOPs
- Be sure you know how to find these documents in case an inspector asks!

- **Loss or compromise of keys, passwords, or combinations controlling access to Select Agents must be reported to Security and the RO immediately.**
- **It is a criminal act to share or let someone else use your ID card to enter an authorized area**
- **Upon staff changes, lock combinations or electronic pass-codes of devices where freezer keys or inventory records are stored must be changed and this change documented**

Any unauthorized, unaccompanied individuals, signs of forced entry, or suspicious activity within or around the IRF shall be reported immediately to Security (dial "0" or 363-9400).

- Records related to Select Agents are considered "Security sensitive" but unclassified.
  - inventory/audit records, animal census records, Form 2/intra-entity transfer/chain-of-custody, autoclave logs, training records
  - Includes electronic and hard copies

- Hard copies, flash drives, CDs, etc. must be physically secured from unauthorized access.
- Electronic information must be stored only on non-networked computers or on a computer system that uses FIPS 140-2 encryption.
- Records must be retained for 3 years and promptly produced upon request.
- If discarding, copies must be shredded. Destruction of original documents or files must be documented.

- If you suspect any fraudulent alterations of the records you must report it to the RO immediately
- For ALL records related to Select Agents
  - PRINT CLEARLY!!!!
  - PRINT FIRST AND LAST NAME
  - NO SCRATCHOUTS: draw a single line through the error and write your initials and the date next to it
  - NEVER erase or use whiteout!

Correction of mistakes in Select Agent records

What is Meant by "Insider Threat?"

An individual who has access to select agents or toxins as part of his or her job and has the potential to misuse these materials.

An individual:

- with malicious intent who infiltrates a facility under the guise of a legitimate researcher in order to steal, release or divert SA
- with access to SA who is coerced or manipulated into providing access or expertise to unauthorized individuals
- with access to SA but who may misuse, release or divert SA as a result of a significant life-changing event.

Suspicious Activity or behavior:

Personnel who:

- do not properly account for material
- display nervous or evasive behavior when accounting for material
- attempt to create additional inventory not authorized or required
- attempt to "cover up" and not report inventory discrepancies
- attempt to remove inventory without authorization

Suspicious Activity or behavior (cont):

Personnel who:

- threaten or support those who threaten to do harm to other people
- work after hours without authorization or apparent reason
- attempt to access areas they are not authorized for
- attempt to probe or gain access to sensitive information or access control systems

- **This goes beyond laboratorians and includes support staff with access to select agents and toxins**
- **Who to report to?**
  - PI, Supervisor, NIH Police, RML OMS, Dr. Skvorc, RO/ARO

If you observe suspicious packages in, around, or being transported into or out of registered areas immediately notify Security (dial 0) and the RO.

- Unattended
- Badly taped or sealed
- Unusual size or shape
- Excessive taping or string
- Protruding wires
- No return address

- **Upon discovery of the theft, loss, or release of a Select Agent, notify the RO/ARO**
- **Once the area is secure, all pathogen-containing freezers and equipment shall be checked for breech of security and re-inventoried if necessary**

Release: a discharge of a Select Agent or toxin outside the primary containment barrier due to a failure in the containment system, an accidental spill, occupational exposure, or a theft.

- Spill inside a centrifuge in a BSL-3 lab
- Bite from infected animal considered exposure/release
- Spill outside of a BSC in a BSL-4 lab may not necessarily be considered a release as lab considered primary containment barrier. Reportable to DSAT if there is a failure of the building containment systems or a breach of the positive pressure suit.

- **Inventory Records must include:**
  - The agent used and purpose of use
    - Need to include project or ASP number. Some way to be able to match freezer activity with specific experiment.
  - A written explanation of any discrepancies
    - Need to discriminate between mistakes and theft or loss.

Purpose of Use

Name	Characteristics	When removed from storage (date)	By Whom	When returned to storage (date)	By Whom	Purpose of Use	Written explanation of any discrepancies
V. pestis	CO92	9/3/14	J. Work	9/5/14	J. Work	Inoculate culture for exp. 0078	

Explanation of Discrepancies

Record				Animal Species			Animals Infected with:	
Date	Cage #	Animal Infected? (Y/N)	# Infected	Animal Euthanized? (Y/N)	# Euthanized	Total # of Infected animals in room	name	Description of Discrepancy
9/1/14	0305	Y	5	N	NA	5	J. Worker	
9/4/14	0302	Y	5	N	NA	10	J. Worker	
9/1/14	0305	N	NA	Y	2	8	J. Worker	Wrote wrong number by mistake

Tissues or other specimens from animals infected with Select Agents that are placed in long-term freezer storage do not need usage tracked BUT must be labeled with:

- Date placed in storage
- Agent contained in the sample
- Reference ID that is recorded in written record

Other material kept in Select Agent freezers should be clearly labeled as to contents

- Do not co-mingle select agents and non-select agents in the inventory
- All records must be maintained for 3 years
- Any missing or suspected missing material or any unexplained inventory discrepancy (e.g. missing vial, unauthorized transfers) must be reported to the RO immediately.

- A select agent or toxin is not considered inactivated until it has been subjected to a method that has been validated to be effective on a specific agent or toxin.
- Validation data must be reviewed, and validation procedures approved by the RML IBC before samples can be moved to lower containment.
- Any changes to a validated procedure requires revalidation and reapproval

Inactivated samples of select agents must be clearly identified as being inactivated.

Options for primary containers:

- Labeling with method of inactivation
- Using specific types of containers for specific inactivation methods
- Using color-coded primary containers

– Secondary containers labeled with agent name, inactivation method, sample type, date, and individual's name

1. Immediately initiate first aid if necessary
2. Notify your Supervisor, RO, or IRF Biosafety Manager (Megan Morgan)
3. Call the OMS Nurse (Marcie Caldwell, Sue Mallal)

OR

In Nurse's absence or on Nights and weekends: call NIH OMS and ask for the on-call physician

Emergency Procedures for Exposure to Blood Body Fluids and Infectious Materials

3

IJ colored flip chart

- **CHECK the area to confirm is safe for you to respond**
- **CALL "0" for security to get help on the way**
- **CARE:**
  - If the individual is conscious and can be moved, exit the facility immediately using normal procedures
  - If individual is unconscious:
    - BSL-3: Assist RML 1st responders with entry into lab
    - BSL-4: Use the creeper to remove the person from the facility. Transfer person via the emergency exit to care of emergency responders.

- **Generators are in place in the event of a loss of power; however in the event of a complete power failure, secure all Select Agents (including animals) and hazardous substances, and evacuate the facility in a safe manner.**
- **Do not enter Bldg 25 or 28 unless instructed by the IRF Biosafety Manager**

Regarding Select Agent Regulations

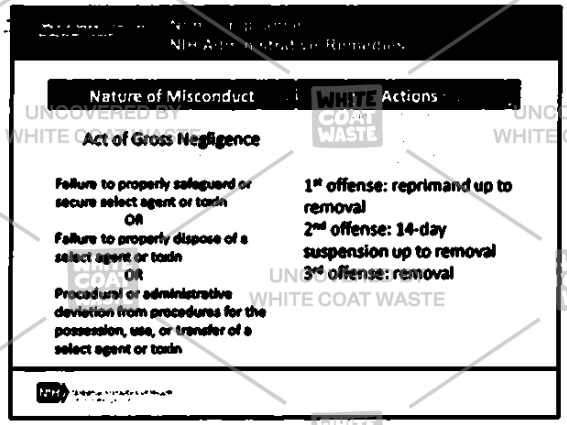
– "The Inspector General of the DHHS is delegated authority to conduct investigations and to impose civil money penalties against any individual or entity….for violations of the regulations….."

What are the potential fines for violating the Select Agent Program regulations?

- Companies and other entities can be fined up to $500,000 for <u>each</u> violation.
- An individual can be fined up to $250,000 for <u>each</u> violation.
- There is no cap on penalties.

Are there criminal penalties for violating the Select Agent Program?

- Yes. Any person found guilty can be imprisoned for up to 5 years.



Nature of Misconduct	Actions
Act of Gross Negligence	
Failure to properly safeguard or secure select agent or toxin OR Failure to properly dispose of a select agent or toxin OR Procedural or administrative deviation from procedures for the possession, use, or transfer of a select agent or toxin	1st offense: reprimand up to removal 2nd offense: 14-day suspension up to removal 3rd offense: removal

HHS AND USDA SELECT AGENTS AND TOXINS
7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73

HHS SELECT AGENTS AND TOXINS

Abrin
Botulinum neurotoxins*
Botulinum neurotoxin producing species of *Clostridium**
Conotoxins (Short, paralytic alpha conotoxins containing the following amino acid sequence $X_1CCX_2PACGX_3X_4X_5X_6CX_7$)
Coxiella burnetii
Crimean-Congo haemorrhagic fever virus
Diacetoxyscirpenol
Eastern Equine Encephalitis virus
Ebola virus*
*Francisella tularensis**
Lassa fever virus
Lujo virus
Marburg virus*
Monkeypox virus
Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
Ricin
Rickettsia prowazekii
SARS-associated coronavirus (SARS-CoV)
Saxitoxin
South American Haemorrhagic Fever viruses:
- Chapare
- Guanarito
- Junin
- Machupo
- Sabia

Staphylococcal enterotoxins A,B,C,D,E subtypes
T-2 toxin
Tetrodotoxin
Tick-borne encephalitis complex (flavi) viruses:
- Far Eastern subtype
- Siberian subtype
- Kyasanur Forest disease virus
- Omsk hemorrhagic fever virus

Variola major virus (Smallpox virus)*
Variola minor virus (Alastrim)*
*Yersinia pestis**

OVERLAP SELECT AGENTS AND TOXINS

Bacillus anthracis *
Bacillus anthracis Pasteur strain
Brucella abortus
Brucella melitensis
Brucella suis
*Burkholderia mallei**
*Burkholderia pseudomallei**
Hendra virus
Nipah virus
Rift Valley fever virus
Venezuelan equine encephalitis virus

USDA SELECT AGENTS AND TOXINS

African horse sickness virus
African swine fever virus
Avian influenza virus
Classical swine fever virus
Foot-and-mouth disease virus*
Goat pox virus
Lumpy skin disease virus
Mycoplasma capricolum
Mycoplasma mycoides
Newcastle disease virus[1]
Peste des petits ruminants virus
Rinderpest virus*
Sheep pox virus
Swine vesicular disease virus

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS

Peronosclerospora philippinensis (Peronosclerospora sacchari)
Phoma glycinicola (formerly Pyrenochaeta glycines)
Ralstonia solanacearum
Rathayibacter toxicus
Sclerophthora rayssiae
Synchytrium endobioticum
Xanthomonas oryzae

*Denotes Tier 1 Agent

1 A virulent Newcastle disease virus (avian paramyxovirus serotype 1) has an intracerebral pathogenicity index in day-old chicks (Gallus gallus) of 0.7 or greater or has an amino acid sequence at the fusion (F) protein cleavage site that is consistent with virulent strains of Newcastle disease virus. A failure to detect a cleavage site that is consistent with virulent strains does not confirm the absence of a virulent virus.

12/4/2012

Select Agents at RML

Information Sheet (* denotes Tier 1 Agents)

BSL-3 Select Agents at RML

*BSL-3: for work with agents which may cause serious or potentially lethal disease as a result of **exposure by the inhalation route**.*

BSL-3 agents are associated with serious or lethal human disease but vaccines or specific treatments may be available.

Coxiella burnetii is the cause of Q fever. Typical sign and symptoms of Q fever include headache, fever, malaise, and muscular aches & pains. Up to half of all infections are asymptomatic, and are usually self-limiting. The incubation period depends on size of the infectious dose; usually 2-3 weeks. Infection is not directly transmitted from person-to-person. Chronic infection mainly involves endocarditis so individuals with valvular heart disease should not work with *C. burnetii*. The organism is extremely resistant to drying and is stable under a variety of environmental conditions.

Francisella tularensis is the cause of tularemia. Infection with *F. tularensis* can result in typhoidal and pneumonic tularemia within 3-5 days, but the incubation period can range from 3 to 14 days. Fever, sweating, and malaise characterize infection. Signs and symptoms may vary depending how they are exposed. Possible other symptoms include skin ulcers, swollen or painful lymph glands, inflamed eyes, sore throat, mouth sores, or diarrhea. Tularemia can be fatal if the person is not treated in a timely manner with appropriate antibiotics. *F. tularensis* can be transmitted by aerosol, ticks, biting flies and direct contact with infected animal carcasses. Infection is not directly transmitted from person-to-person.

Rickettsia prowazekii is the cause of louse-borne typhus, epidemic typhus. Variable onset, often sudden, with headache, chills, fever, prostration and general pains. Incubation period can range from 1 to 2 weeks, commonly 12 days. A rash occurs on the 5th and 6th day across the upper trunk and spreads to the entire body (except face, palms or soles). Pronounced toxemia is present. Disease terminates approximately two weeks after onset of fever. Case fatality rate ranges from 10-40% in absence of treatment; may recrudesce years later as Brill-Zinsser disease. Not directly transmitted from person-to-person.

Yersinia pestis is the cause of plague, which occurs in two major forms. Bubonic plague results from fleabite; exposure of open wounds, cuts, or other breaks in the skin to infected materials; or from inadvertent needle stick. Typical initial symptoms of bubonic plague include fever, headache, chills, malaise, and tenderness and swelling of lymph nodes. These symptoms develop within 2 to 6 days after exposure. Primary pneumonic plague occurs after inhalation of aerosols. It also begins with non-specific febrile flu-like symptoms that develop within the first 24-36 hours, followed by a persistent dry cough and symptoms of pneumonia. Sputum production may be limited at first, but then abundant thin, syrupy sputum is produced that is tinged with blood and sometimes frothy. Gastrointestinal symptoms can also occur in either bubonic or pneumonic plague. Pneumonic plague is the only form of plague which is readily transmissible from person to person. Both forms of plague progress very rapidly to life-threatening disease, so it is critical that medical advice be sought immediately and antibiotic therapy started without delay.

SARS-CoV infections result in a respiratory syndrome that initially presents with a fever greater than 100.4 degrees Fahrenheit, accompanied with myalgia, malaise, chills, and a non-productive cough. Within 2 to 7 days, respiratory symptoms follow including a dry cough,

shortness of breath, and difficulty breathing or hypoxia. Some cases become more severe and patients require oxygen support and mechanical ventilation. Diarrhea is the most common extra-pulmonary manifestation, followed by hepatic dysfunction, dizziness, abnormal urinalysis, petechiae, myositis, neuromuscular abnormalities and epileptic fits. Case fatality rate is 11%. In patients over the age of 65, the case fatality rate rises above 50%. Pregnant women have a significant risk of mortality. The infectious dose is unknown. Transmission occurs through human to human contact via direct contact with mucous membranes, respiratory droplets and/or infected body fluids. Transmission usually occurs on or after the 5th day of illness, which coincides with peak viral load. The incubation period ranges from 2 to 14 days.

Select Agents at RML
*Information Sheet (* indicates Tier 1 Agents)*

BSL-4 Select Agents at RML

*BSL-4: for work with dangerous and exotic agents that pose a high individual risk **of aerosol- transmitted lab infections and life-threatening disease.***

BSL-4 agents are associated with high lethality. No available vaccines or specific treatments exist.

Avian influenza virus (highly pathogenic). Initial symptoms of H5N1 influenza may include fever (typically greater than 100.4F (> 38°C), headache, malaise, myalgia, sore throat, cough, and rhinitis (although upper respiratory symptoms may be absent), gastrointestinal manifestations and conjunctivitis. In two reports, diarrhea was a prominent feature along with shortness of breath. Watery diarrhea may be present well before pulmonary symptoms develop. The infectious dose is unknown, but estimated to be between 10 and 100 viral particles. Current data for H5N1 infection indicate an incubation period ranging from two to eight days and possibly as long as 17 days. The primary laboratory hazard is inhalation of virus from aerosols, direct inoculation of mucus membranes through virus contaminated gloves following handling of tissues, feces or secretions from infected animals. The spread of avian influenza A viruses from one ill person to another has been reported very rarely, and has been limited, inefficient and unsustained. Antiviral treatment is available (oseltamivir/zanamivir).

***Ebola virus.** Illness is characterized by sudden onset with high fever, malaise, abdominal pain, myalgias, vomiting, diarrhea; maculopapular rash (seen in <50% of cases), renal and hepatic involvement and excessive bleeding are also seen. 40%-90% case fatality rate. The infectious dose is unknown. Incubation period is 2-21 days (5 -12 days in most cases). Person to person transmission by intimate contact is the main route of infection (direct contact with infected blood, secretions, organs or semen). All Ebola subtypes have displayed the ability to be spread through airborne particles (aerosols) under research conditions and there is some evidence to indicate aerosol transmission of Ebola in human outbreaks is an important route of transmission. Communicable as long as blood and secretions contain virus (which have been isolated as far out as 61 days after onset of illness). Secondary infections occur in 5-15% of cases. Transmission through semen has occurred 7 weeks after clinical recovery.

***Marburg virus.** Illness is characterized by sudden onset with high fever, malaise, myalgias, vomiting, diarrhea; maculopapular rash (not always observed), renal and hepatic involvement and hemorrhagic diathesis. Recent outbreaks have displayed fatality rates of 83-90%. The infectious dose is unknown. Incubation period is 3-15 days. Transmitted by direct contact with infected blood, secretions, organs, or semen. There is some evidence to indicate aerosol transmission may occur. Communicable as long as blood and secretions contain virus (which have been isolated as far out as 7 weeks from semen).

South American Hemorrhagic Fever viruses (Guanarito, Junin, Machupo, Sabia)

Guanarito virus. Characteristic features are fever, toxicity, headache, arthralgia, diarrhea, conjunctivitis, and pharyngitis. Other features include facial edema, cervical

lymphadenopathy, nausea/vomiting, cough, chest or abdominal pain, and convulsions. The infectious dose is unknown. In nature, man most likely acquires infection from infected rodents and their excreta. Viral Hemorrhagic Fevers (VHF) in general may be transmitted by direct contact with infected blood, secretions, organs, or semen and by the aerosol route. Contaminated syringes and needles are responsible for many nosocomial infections. The incubation period is unknown; however VHF incubation period usually ranges from 7-14 days, with extremes of 5 -21 days occurring.

Junin, Machupo, and Sabia virus. Illness is characterized by insidious onset of fever, malaise, headache and muscular pains. Petechiae may appear on the upper trunk and oral mucosa. Bleeding may occur from the nose, gums, stomach and intestine. Severe cases may present with hypotensive shock and neurologic crisis with a case fatality range of 5-30%.The infectious dose is unknown. The route of transmission is aerosol transmission via dust contaminated with infected rodent excreta. Abraded skin may also be a portal of entry for virus. The incubation period is 7 to 15 days. Direct person-to-person transmission has been reported.

Chapare virus. Illness is characterized by fever, headache, arthralgia, myalgia and vomiting followed by hemorrhagic symptoms and death 14 days post-onset. The infectious dose is unknown. The infectious dose is unknown. In nature, man most likely acquires infection from infected rodents and their excreta. The incubation period is 7-14 days for other hemorrhagic Arenaviruses and is likely the same for Chapare virus infections.

Lujo virus. Illness is characterized by onset of fever, headache, myalgia, with development of diarrhea and pharyngitis, followed by respiratory distress, neurologic signs, and circulatory collapse. Other symptoms can include rash, facial and neck swelling, and chest pain. In 4 of the 5 patients infected during the outbreak, death occurred 10-13 days after the onset of symptoms. The infectious dose is unknown. The route of transmission is aerosol transmission or direct contact with infected rodent excreta. Inoculation with contaminated needles, contact with patient's pharyngeal secretions, blood, or urine. Infection can also spread from person to person by sexual contact.

Crimean-Congo hemorrhagic fever virus. Illness is characterized by sudden onset of fever, malaise, weakness, irritability, headache, severe pain in the limbs and loins and marked anorexia. Vomiting, abdominal pains and diarrhea may occur. Hemorrhagic exanthem of soft palate, uvula and pharynx and a petechial rash are generally associated with this disease. Case fatality rate ranges from 2 to 50%. The infectious dose is not known. Infection can occur through the bite of an infective adult tick (Hyalomma spp.) or through the crushing of an infective tick with bare skin. Primary laboratory hazards include exposure of the mucous membrane to infective blood; aerosols; accidental parenteral inoculation. The incubation period is usually 1 to 3 days following tick bite; 5–6 days after exposure to infected blood or tissues. (Range 1 to 12 days). The virus is highly infectious, especially through the familial and nosocomial route due to exposure to hemorrhagic discharges.

Lassa fever virus. Illness is characterized by gradual onset of fever, malaise, sore throat, nausea, vomiting, diarrhea, chest and abdominal pain. Fever is persistent or spikes intermittently. About 80% of human infections are mild or asymptomatic. Disease is more severe in pregnancy; fetal loss occurs in more than 80% of cases. Overall case fatality rate is 1%, up to 15% among hospitalized cases. The infectious dose is unknown. The virus is transmitted by aerosol, direct contact with infected rodent excreta, inoculation with contaminated needles, contact with patient's pharyngeal secretions or urine. The incubation period is 6-21 days. Direct person-to-person transmission has been reported.

Reconstructed 1918 influenza virus. The most common symptoms are fever (temperature greater than 100.4F (>38.0°C)), headache, malaise, sore throat and cough. Nausea, vomiting and diarrhea are rare. The two most important features of 1918 influenza are the

epidemic nature of illness and the mortality that arises from pulmonary complications of the disease. The infectious dose is unknown, but estimated to be between 10 and 100 viral particles. The incubation period is between 1 and 7days. Airborne spread is the predominant mode of transmission. Transmission may also occur through direct contact since influenza viruses may persist for hours on surfaces particularly in the cold and under conditions of low humidity. Occupationally-acquired, nosocomial infections are documented. Laboratory animal-associated infections have not been reported although this may be due to the low number of animal studies with this virus. Such infections have frequently been observed for seasonal influenza viruses so there is the possibility of human infection from ferrets infected with 1918 flu and vice versa.

Tick-borne encephalitis complex (flavi) viruses (Far Eastern Tick-borne Encephalitis virus)

Far Eastern Tick-borne Encephalitis Virus. Infection usually presents as a mild, influenza-type illness or as benign, aseptic meningitis, but may result in fatal meningoencephalitis. Far Eastern Tick-borne encephalitis virus has a mortality of up to 25% in some outbreaks. The incubation period is usually 7-14 days. The primary laboratory hazards are accidental parenteral inoculation, droplet exposure of the mucous membranes and bite of an infected tick. The viruses are not directly transmitted from person-to- person.

Kyasanur Forest virus. Illness characterized by sudden onset of fever and severe headache, followed by backpain, severe pain in the lower and upper extremities and prostration. Biphasic course of illness and fever; central nervous abnormalities develop after an afebrile period of 1-2 weeks. Estimated case fatality rate is between 1-10%. The infectious dose is unknown. The virus is transmitted by the bite of an infective tick (Haemaphysalis spinigera), especially nymphal ticks. The incubation period is usually 3 to 8 days. The virus is not directly transmitted from person-to-person.

Omsk virus. Illness characterized by sudden onset of fever, chills, headache, pain in lower and upper extremities and severe prostration. A papulovesicular rash on the soft palate, cervical lymphadenopathy and conjunctival suffusion are usually present. Central nervous system abnormalities develop after one to two weeks, and severe cases present with hemorrhages - no cutaneous rash. Estimated case fatalities are 1-10%. The infectious dose is not known. The mode of transmission is by the bite of an infective tick (Dermacentor reticulatus and D. marginatus, Ixodes persulcatus). The incubation period is usually 3-8 days. The virus is not directly transmitted from person-to- person.

Hendra virus. Only three human cases of Hendra virus disease have been recognized. Two of the three individuals known to be infected had a respiratory illness with severe flu-like signs and symptoms, including fever, headache, shortness of breath, dizziness, drowsiness and confusion. Two of the three recorded cases of Hendra virus in humans were fatal. One death was due to septic pneumonia while the other was due to severe encephalitis. The infectious dose is not known. In Australia, humans became ill after exposure to body fluids and excretions of horses infected with Hendra virus. Laboratory hazards include direct contact with broken skin or mucous membranes, accidental parenteral inoculation, exposure to infectious aerosols, and animal bites and scratches. The incubation period of Hendra virus infections varies from 4 -18 days. A more prolonged incubation period of up to three months is suspected with one case of Hendra virus infection. No human to human transmission has been reported. However, given the small number of total cases, this possibility cannot be discounted.

Nipah virus. In many cases the infection is mild or inapparent (sub-clinical). In symptomatic cases, the clinical features of Nipah virus infection are high fever, severe headache and myalgia. The disease may progress to encephalitis with drowsiness,

disorientation, convulsions and coma. Approximately 40% of clinically apparent cases have proven fatal. The infectious dose is not known. Transmission appears to be associated with close contact with the body fluids or excretions of pigs infected with Nipah virus. All infectious materials from infected animals pose a risk for exposure to Nipah virus. These include, blood, body fluids, excretions and all tissues. The risk for aerosol infection has not been assessed, and must therefore be considered as likely. The incubation period is between 4 and 18 days Human-to-human transmission should be considered likely until more information becomes available.

Rift Valley fever virus. Mild form of RVF in humans: Those infected either experience no detectable symptoms or develop a mild form of the disease characterized by a feverish syndrome with sudden onset of flu-like fever, muscle pain, joint pain and headache. Some patients develop neck stiffness, sensitivity to light, loss of appetite and vomiting. In these patients the disease, in its early stages, may be mistaken for meningitis. The symptoms of RVF usually last from four to seven days. Severe form of RVF in Humans: While most human cases are relatively mild, a small percentage of patients develop a much more severe form of the disease. This usually appears as one or more of three distinct syndromes: ocular (eye) disease (0.5-2% of patients), meningoencephalitis (less than 1%) or hemorrhagic fever (less than 1%). The infectious dose is not known. The incubation period is reported to be 2-6 days. To date, no human-to-human transmission of RVF has been documented. The primary laboratory hazards are accidental parenteral inoculation, contact of the virus with broken skin or mucous membranes, bites of infected laboratory arthropods, or inhalation of infectious aerosols.

SARS-CoV infections result in a respiratory syndrome that initially presents with a fever greater than 100.4 degrees Fahrenheit, accompanied with myalgia, malaise, chills, and a non-productive cough. Within 2 to 7 days, respiratory symptoms follow including a dry cough, shortness of breath, and difficulty breathing or hypoxia. Some cases become more severe and patients require oxygen support and mechanical ventilation. Diarrhea is the most common extra-pulmonary manifestation, followed by hepatic dysfunction, dizziness, abnormal urinalysis, petechiae, myositis, neuromuscular abnormalities and epileptic fits. Case fatality rate is 11%. In patients over the age of 65, the case fatality rate rises above 50%. Pregnant women have a significant risk of mortality. The infectious dose is unknown. Transmission occurs through human to human contact via direct contact with mucous membranes, respiratory droplets and/or infected body fluids. Transmission usually occurs on or after the 5th day of illness, which coincides with peak viral load. The incubation period ranges from 2 to 14 days.

Definitions

abscess	a localized collection of pus in any part of the body
anorexia	loss of appetite
arthralgia	joint pain
conjunctivitis	inflammation of the mucous membranes of the eye
empyema	pus in a body cavity, especially in the membrane that enfolds the lungs (pleura)
endocarditis	inflammation of the lining membrane of the heart
exanthem	any eruption of the skin accompanied by inflammation (such as with measles)
lymphadenopathy	disease of the lymph nodes
maculopapular	consisting of discolored spots or patches (macules) or red elevated areas (papules) on the skin
malaise	discomfort, uneasiness, associated with illness
meningitis	inflammation of the membranes of the spinal cord or brain
mucopurulent	consisting of mucus and pus
myalgia	muscle aches
nosocomial	infection acquired in a hospital
osteomyelitis	inflammation of the bone, especially the marrow
petechiae	small, purplish, hemorrhagic spots on the skin which appear in certain severe fevers
prostration	absolute exhaustion
reticuloendothelial system	term applied to those cells scattered throughout the body which have the power to ingest (phagocytose) particulate matter (bacteria, etc.)
rhinitis	inflammation of the mucous lining of the nose
septicemic	relating to presence of pathogenic bacteria in the blood
subcutaneous	beneath, or introduced beneath, the skin

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