

Rare Disease of Public Health Significance

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To understand the epidemiology of emerging and uncommon diseases in Washington State residents and to inform public health and healthcare organizations about conditions that have been diagnosed in residents.
2. To assist in the diagnosis and treatment of cases.
3. If applicable, to identify potentially exposed close contacts, healthcare workers, and laboratory personnel and to provide counseling.
4. To identify sources of transmission and to prevent further transmission.
5. To raise the index of suspicion of a possible bioterrorism event if no natural exposure source is identified.

B. Legal Reporting Requirements

The requirements below relate to rare conditions without separate guidelines.

1. Healthcare providers: emerging condition with outbreak potential, monkeypox, or smallpox **immediately notifiable to local health jurisdiction**; varicella-associated death notifiable in 3 days; other rare diseases notifiable in 24 hours.
2. Healthcare facilities: emerging condition with outbreak potential, monkeypox, or smallpox virus **immediately notifiable to local health jurisdiction**; varicella-associated death notifiable in 3 days; other rare diseases notifiable in 24 hours.
3. Laboratories: smallpox **immediately notifiable to the local health jurisdiction**; other rare disease agents notifiable in 24 hours.
4. Veterinarians: animal cases of some conditions notifiable to Washington State Department of Agriculture (see: <https://app.leg.wa.gov/WAC/default.aspx?cite=16-70>).
5. Local health jurisdictions: emerging condition with outbreak potential or smallpox **immediately notifiable to the Washington State Department of Health (DOH) Office of Communicable Disease Epidemiology (CDE) at 206-418-5500 or 877-539-4344.**

C. Local Health Jurisdiction Investigation Responsibilities

1. Responsibilities are dependent on the disease under investigation. Report any immediately notifiable condition to CDE.
2. Report any case to CDE through the Washington Disease Reporting System (WDRS) as a Rare Disease of Public Health Significance, including entering the 'Rare disease of public health significance' in the Clinical and Laboratory tab.

2. THE DISEASES AND THEIR EPIDEMIOLOGY

Rare diseases with separate guidelines and separate WDRS data entry screens or forms include: anthrax, arboviral diseases (e.g., dengue, western equine encephalitis), *Burkholderia* infection, brucellosis, carbapenem-resistant Enterobacteriaceae documented

to be carbapenemase-positive, cholera, coccidioidomycosis, cryptococcosis (*C. gattii* only), hantavirus infection, influenza-associated death, MERS-CoV, human infection with novel influenza, plague, polio, prion disease, Q fever, human rabies, tickborne diseases, vancomycin-resistant *S. aureus* and other highly resistant organisms, viral hemorrhagic fever, West Nile virus, yellow fever, and cases for the category Unexplained Critical Illness or Death.

This guideline covers additional conditions that are rare in Washington State; exposures may be within or outside of Washington. According to the 2011 revision of Washington Administrative Code (WAC) 246-101, the conditions may be explicitly included in the WAC case definition for rare disease of public health significance; may be specified as notifiable in the WAC's individual tables for healthcare providers, healthcare facilities, laboratories or veterinarians; or may be communicable diseases that would be of general public concern if detected in Washington. If a condition described below is not specified in the WAC and is not of high significance, reporting is requested. With the exceptions noted above, the conditions are generally sufficiently rare that a separate guideline has not been developed. Conditions that should be reported to Office of Communicable Disease Epidemiology (CDE) as Rare Diseases of Public Health Significance include:

- African sleeping sickness*
- Amebic meningitis (*Acanthamoeba*, *Balamuthia*, *Naegleria*)⁺
- Baylisascariasis⁺
- Chagas disease*
- Cysticercosis*
- Echinococcus
- Emerging condition with outbreak potential
- Histoplasmosis*
- Monkeypox
- Paragonimiasis*
- Ricin poisoning
- Smallpox
- Taeniasis
- Typhus*

* Condition not generally considered to be endemic to the state recently identified in a Washington resident

⁺ A *Balamuthia* infection in 2017 was locally acquired, a *Baylisascaris* infection also in 2017 was locally acquire <https://www.cdc.gov/mmwr/volumes/67/wr/mm6702a6.htm>

Additional rare conditions investigated by local health jurisdictions can be included in this category to document workload and can be reported to CDE via WDRS if desired. The Washington State Annual Communicable Disease Report has a summary of cases: <https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/AnnualCDSurveillanceReports.aspx>

3. CASE DEFINITIONS

National cases definitions for rare conditions including smallpox, histoplasmosis, and varicella-associated death can be found at: <https://wwwn.cdc.gov/nndss/>. Additional case definitions may have been developed by Office of Communicable Disease Epidemiology.

4. DIAGNOSIS AND LABORATORY SERVICES

Appropriate diagnostic testing depends on the suspected agent. Commercial laboratory tests may be unreliable for many of these rare diseases so confirmation by a reference laboratory may be appropriate. See Section 6 for brief reviews of diagnostic testing for selected conditions. Consult with Office of Communicable Disease Epidemiology (CDE) for assistance with interpreting results, diagnosis and testing (206-418-5500).

Note that Washington State Public Health Laboratories (PHL) require all clinical specimens have two patient identifiers, a name **and** a second identifier (e.g., date of birth) both on the specimen label and on the submission form. Due to laboratory accreditation standards, specimens will be rejected for testing if not properly identified. Also include specimen source and collection date.

Consult with CDE for appropriate shipping temperature. Use the applicable PHL form. The PHL Microbiology Test Menu lists specific agents by scientific name, (i.e., genus): <https://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/PublicHealthLaboratories/MicrobiologyLabTestMenu>

Microbiology and Parasitology form:

<https://www.doh.wa.gov/Portals/1/Documents/5230/302-013-Micro.pdf>

Serology/Virology form:

<https://www.doh.wa.gov/Portals/1/Documents/5230/302-017-SerVirHIV.pdf>

Bioterrorism form:

<https://www.doh.wa.gov/Portals/1/Documents/5230/302-018-BioterrorismSpecimen.pdf>

Biothreat Environmental Chain of Custody form:

<https://www.doh.wa.gov/Portals/1/Documents/5230/302-019-PHLBiothreatEnvironmentalSampleSubmissionChainOfCustody.pdf>

5. ROUTINE CASE INVESTIGATION

The case investigation depends on the suspected agent, its mode of transmission, and its communicability. In general, evaluate the diagnosis for a reported case including obtaining copies of laboratory reports. Call Office of Communicable Disease Epidemiology (CDE) to arrange confirmatory testing (206-418-5500). Determine if others are at risk, either by sharing the case's exposure or by being exposed to a case. See Section 6 for brief descriptions of investigations for selected conditions. Consult with CDE for assistance with performing a public health investigation for other agents. The reporting form for Rare Disease of Public Health Significance is available at: <https://www.doh.wa.gov/Portals/1/Documents/5100/210-067-ReportForm-Rare.pdf>

Infection control measures depend on the suspected agent (see Section 6). Healthcare settings should institute airborne precautions for suspected SARS, smallpox, vaccinia, and varicella. Consult with CDE if needed.

6. MANAGING SPECIFIC DISEASES

Select rare conditions endemic to this country or of public health concern are briefly described below and should be reported to Office of Communicable Disease Epidemiology (CDE). Conditions with a national case definition have year of last

revision of the case definition: <https://wwwn.cdc.gov/nndss/>. Testing availability at Department of Health (DOH) or CDC is indicated. Coccidioidomycosis, *C. gattii* infection, prion disease and viral hemorrhagic fever have separate guidelines (see Section 2) but are reported as Rare Diseases through WDRS. Carbapenem-resistant Enterobacteriaceae documented to be carbapenemase-positive and *Candida auris* infection are reported in WDRS as Highly Antibiotic- Resistant Organisms.

A. Primary Amebic Meningoencephalitis (*Naegleria*, *Balamuthia*, *Acanthamoeba*)

1. Disease and its epidemiology:

- Agent: *Naegleria fowleri* – primary amebic meningoencephalitis; *Acanthamoeba* – dermatitis, pneumonitis, corneal lesions; *Balamuthia* – dermatitis, pneumonitis, rarely granulomatous encephalitis
- Illness: meningoencephalitis – acute onset of severe headache, fever, vomiting followed by stiff neck, confusion, seizures, hallucinations that is usually fatal within 3-7 days; granulomatous disease – progressive lesions, rhinitis, pneumonitis
- Incubation period: 1-14 days
- Differential diagnosis: other amoebic causes, cryptococcosis, cysticercosis, bacterial meningitis, viral meningitis, intracranial hemorrhage, connective tissue disease, malignancy, rabies, taeniasis, toxoplasmosis, tuberculosis
- Reservoir: soil, warm fresh water; rarely contaminated tap water or poorly maintained swimming pool. In the United States mainly but not entirely southern tier states, with recent Midwest cases. A case of *Balamuthia* infection in 2017 had in-state exposures.
- Transmission is contaminated water entering the nose by swimming, diving, facial submersion, sinus irrigation (e.g., neti pot) with passage via olfactory nerve to the brain and meninges; break in the skin or cornea; inhalation of aerosols or dust
- Communicability: none; *Balamuthia* has been transmitted by organ transplant
- Treatment of severe infections with antiparasitic agents; poor success. Provider can consult CDC 24/7 (404-718-4745 or 770-488-7100) about diagnosis and treatment including miltefosine.

2. Case definition *Naegleria* (2012):

Confirmed: Presentation of meningoencephalitis or encephalitis with laboratory confirmation (detection of antigen, nucleic acid, or organism from a clinical specimen via direct fluorescent antibody, PCR, or microscopy)

3. Diagnosis and laboratory services: CDE can arrange testing at CDC. Submit CSF, biopsy, or tissue specimens with microbiology/parasitology form (see Section 4).
4. Routine case investigation: identify recent fresh water activities, use of undertreated pools, use of nasal irrigation systems, non-sterile cleaning of contact lenses
5. Controlling further spread: address water source
6. Routine prevention: consider nasal clips during swimming; use sterile water in nasal irrigation systems and for cleaning contact lenses

7. Resources: <https://www.cdc.gov/parasites/naegleria/>
<https://www.cdc.gov/parasites/acanthamoeba/>
<https://www.cdc.gov/parasites/balamuthia/audience-hcp.html>
https://www.cdc.gov/parasites/health_professionals.html (for providers)

B. Baylisascariasis

1. Disease and its epidemiology:
 - Agent is roundworm *Baylisascaris* primarily *B. procyonis* (raccoons; United States, Europe, and Japan)
 - Illness: varies with dose and body site; may be nausea, tiredness, hepatomegaly; spinal cord infection can result in loss of muscle control; cerebral infection can result in encephalitis; eye involvement can lead to blindness
 - Incubation period: 1 – 4 weeks
 - Differential diagnosis: varies with symptoms; consider other nematode infections (e.g., ascariasis, trichuriasis, hookworm, enterobiasis, strongyloidiasis, filariasis, trichinosis, dirofilariasis, or angiostrongyliasis)
 - Reservoir in Washington is raccoons; eggs take 2-4 weeks in the environment to become infectious
 - Transmission: typically by ingesting contaminated soil, water or objects; also through handling animal carcasses
 - Communicability: none
 - Treatment: albendazole initiated as soon as possible for high risk exposures with alternatives mebendazole or ivermectin; albendazole and corticosteroids for clinical illness
2. Case definition
 - a. *Confirmed*: No CDC definition – consult with CDE for suspected case
3. Diagnosis and laboratory services: CDE can arrange testing at CDC. Submit serum, CSF, biopsy, or tissue specimens with microbiology/parasitology form (see Section 4). Diagnosis is supported by eosinophilic pleocytosis, peripheral eosinophilia, deep white matter abnormalities on MRI, or ocular examination.
4. Routine case investigation: determine any potential exposure to raccoon feces, particularly in a play area for children or a work area for adults, and identify any others sharing that exposure
5. Controlling further spread: none
6. Routine prevention: avoid contact with raccoon and their feces, particularly raccoon dens or latrines. Promptly remove any feces identified while using appropriate precautions. Outside surfaces such as decks or patios can be treated with boiling water.
7. Resources: <https://www.cdc.gov/parasites/baylisascaris/>

C. Chagas disease (American trypanosomiasis)

1. Disease and its epidemiology:

- Agent is protozoan parasite *Trypanosoma cruzi*
- Illness acute phase may be asymptomatic or involve weeks to months of fever, rash, headache, body aches, eyelid swelling, loss of appetite, diarrhea, and vomiting; chronic phase usually asymptomatic but may involve enlarged heart, esophagus, or colon, causing conduction abnormalities, aneurysm, dysphagia, regurgitation, prolonged constipation, and other cardiac and gastrointestinal manifestations. Positive serology at blood donation typically reflects prior asymptomatic infection. Illness is more severe in persons with AIDS (may be cerebral chagoma) or in younger children.
- Incubation period: 5-14 days for bug bite, 30-40 days for transfusion
- Differential diagnosis varies with presentation: acute (leishmaniasis, malaria, meningitis), cardiac (angina/infarct, arrhythmias, dilated cardiomyopathy), intestinal (acute or chronic megacolon, esophageal abnormality, obstruction)
- Reservoir is humans, dogs, rabbits, guinea pigs, swine, rodents, and other animals, primarily in Mexico, Central America, and South America, rarely in United States though reservoirs and vectors occur in some southern and southwestern states. Cases reported in Washington in 2016 and 2018 had exposures in Central or South America.
- Transmission: mainly triatomine bug (reduviid or “kissing” bugs) bites or bug feces contaminating a wound or mucous membrane (eye), less commonly by food containing but feces, congenital infection, blood transfusion, or organ transplant
- Communicability only congenitally or through blood transfusion
- Treatment for acute infection, congenital infection, reactivated infections if immunosuppressed, and pediatric chronic infections is with antiparasitic medications (nifurtimox and benznidazole available from CDC) combined with appropriate medical management of chronic complications

2. Case definition

Confirmed: Acute: parasites seen (thick or thin smears) or PCR; Chronic: clinical assessment and at least two modalities of serological tests (e.g., ELISA and IFA)

3. Diagnosis and laboratory services: If no exposure risks, retest commercially. If risk factors, CDE can arrange testing at CDC (<https://www.cdc.gov/laboratory/specimen-submission/>). PCR assay is sometimes diagnostic and can be used to monitor after known accidental or iatrogenic exposure. Submit serum with the appropriate virology/serology form (see Section 4).
4. Routine case investigation: Refer chronic case for examination and EKG. Identify travel exposures, bug bites, and exposure to bug habitats with emphasis on possible U.S.-acquired infection. Identify and test all blood donors or recipients associated with a case.
5. Controlling further spread: No isolation or restrictions apply. Defer donating blood if ever diagnosed with Chagas. Educate those sharing case’s exposure about Chagas.

6. Routine prevention: in risk area use bed nets, protective clothing, and insect repellents
7. Resources: Chagas disease – <https://www.cdc.gov/parasites/chagas/>
https://www.cdc.gov/parasites/chagas/health_professionals/index.html
Chagas Biovigilance Network –
<https://www.aabb.org/research/hemovigilance/Pages/chagas.aspx>

D. Echinococcosis

1. Disease and its epidemiology:
 - Agent is one of several species of *Echinococcus*, *E. granulosus* (cystic echinococcosis), *E. multilocularis* (alveolar echinococcosis), *E. vogeli* (polycystic form of neotropical echinococcosis) and *E. oligarthrus* (unicystic form of neotropical echinococcosis). Life cycle is complex with intermediate and definitive hosts of different species.
 - Illness: varies with organ involved. Liver and lung are most commonly involved, but cysts can occur in the spleen, kidneys, heart, bone, brain or eyes. Rupture of a cyst can cause anaphylaxis as well as dissemination.
 - Incubation period: asymptomatic until cysts are large enough to affect an organ.
 - Differential diagnosis: amoebic or bacterial abscess, fungal infection, malignancy
 - Transmission: accidental consumption of water, food, or soil contaminated by feces of an infected dog or other canid; cysts in soil are viable up to a year
 - Reservoir is wild and domestic canids, ungulates, and camels for *E. granulosus*, foxes, other canids and rodents for *E. multilocularis*, canids and rodents for *E. vogeli*, and wild felids, rodents and lagomorphs for *E. oligarthrus*.
 - Communicability: none
 - Treatment: surgery for cystic disease, with 1-6 months of chemotherapy (benzimidazole such as albendazole), cyst puncture, and PAIR (percutaneous aspiration, injection of chemicals and reaspiration) as other options; two years of chemotherapy for alveolar disease but sometimes requiring radical surgery.
2. Case definition
 - a. *Confirmed*: No CDC definition – consult with CDE for suspected case
3. Diagnosis and laboratory services:
4. Routine case investigation: determine any potential exposure to likely host animals, particularly in a play area for children or a work area for adults, and identify any others sharing that exposure
5. Controlling further spread: identify animal sources and prevent additional exposures
6. Routine prevention: prevent dog infections; wash hands after handling dogs and before handling rood, particularly in areas with endemic disease
7. Resources: <https://www.cdc.gov/parasites/echinococcosis/>

E. Histoplasmosis

1. Disease and its epidemiology:

- Agent is *Histoplasma capsulatum*, an environmental fungus
- May be asymptomatic, or illness may range from self-limited respiratory disease to disseminated infection. Symptoms of acute pulmonary histoplasmosis generally include fever, malaise, cough, chest pain, and myalgias.
- Incubation is generally 3-14 days (up to 18 days documented)
- Differential diagnosis includes other fungal pneumonias, bacterial pneumonia, *Legionella*, *Mycoplasma* infections, pneumococcal infections, tuberculosis, cancer, viral pneumonia
- Transmission: generally through inhalation of spores found in soil contaminated with bird or bat droppings. Endemic areas include central and eastern United States, parts of Central and South America, Africa, Asia, and Australia. Cases have been reported in Washington in the absence of a travel history.
- Communicability: none
- Treatment with antifungals is indicated for moderate to severe acute pulmonary, chronic pulmonary, disseminated, and CNS histoplasmosis

2. Case definition: (2017)

Clinical presentation includes at least two of the following: fever, chest pain, cough, myalgia, shortness of breath, headache, or erythema nodosum/erythema multiforme rash **OR** at least one of the following: abnormal chest imaging; gastrointestinal ulcerations or masses, skin or mucosal lesions; peripheral lymphadenopathy; pancytopenia; enlargement of the liver, spleen, or abdominal lymph nodes; meningitis, encephalitis, or focal brain lesion

Confirmed: A clinically compatible case with evidence of *H. capsulatum* by any of: culture, histopathology, ≥ 4 -fold rise in complement fixation (CF) antibody titers taken at least 2 weeks apart, detection of H band by immunodiffusion, documented seroconversion by detection of M band by immunodiffusion, or nucleic acid detection.

Probable: A clinically compatible case with identification of *H. capsulatum* by any of: cytopathology, serum or CSF CF titer 1:32 or greater, detection of M band without a previously negative test, or antigen detection, **OR** a case that meets confirmatory laboratory criteria, but no clinical information is available, **OR** a clinically-compatible case that does not meet laboratory criteria but is epi-linked to a confirmed case (e.g. common environmental exposure).

3. Diagnosis and laboratory services: CDE can arrange testing. Submit serum, CSF or fungal isolate with appropriate virology/serology or microbiology forms (see Section 4).
4. Routine case investigation: ask about travel to endemic areas, potential exposure to soil, bird feces or bat feces. If endemic exposure is possible, ask detailed location information.
5. Controlling further spread: Educate those sharing a case's exposure about signs and symptoms of histoplasmosis.

6. Routine prevention: Large amounts of bird or bat droppings should be cleaned up by professional companies that specialize in the removal of hazardous waste.
7. Resources: <https://www.cdc.gov/fungal/diseases/histoplasmosis/>

F. Leishmaniasis

1. Disease and its epidemiology
 - Agents are *Leishmania* protozoans, obligate intracellular parasites
 - Illness: cutaneous, mucosal, and visceral forms
 - Cutaneous: indolent ulcers lasting up to a year, may recur
 - Mucosal (espundia): follows cutaneous lesions, progressive nasopharyngeal destruction
 - Visceral (kala-azar): fever, hepatosplenomegaly, anemia, leukopenia, thrombocytopenia, weight loss, may be dermal lesions
 - Incubation period: week to months
 - Differential diagnosis: fungal, cutaneous diphtheria, mycobacterioses, orf, pyogenic granuloma, plaque psoriasis, traumatic ulcers, granulomatosis, lymphoma, carcinoma, brucellosis, leukemia, HIV infection, malnutrition, African trypanosomiasis, impetigo, leprosy, malaria, pinta, sarcoidosis, lupus, syphilis, tularemia, yaws, others
 - Reservoirs vary locally, including humans, wild rodents, sloths, and marsupials for cutaneous/mucosal and humans, wild canids, and dogs for visceral
 - Transmission: bite of infected sandflies
 - Communicability: very rare transmission by transfusion or needle sharing with concurrent HIV infection
 - Treatment: antimonials, liposomal amphotericin B
2. Case definition: consistent symptoms with laboratory confirmation
3. Diagnosis and laboratory services: CDE can arrange testing at CDC
4. Routine case investigation: identify travel-associated exposures
5. Controlling further spread: no blood donation, no needle sharing. Educate those sharing exposure about signs and symptoms.
6. Routine prevention: no vaccine; in risk areas avoid sandfly bites
7. Resources: https://www.cdc.gov/parasites/leishmaniasis/health_professionals/index.html

G. Monkeypox

1. Disease and its epidemiology:
 - Agent is monkeypox virus in the genus *Orthopoxvirus*
 - Illness is typically fever, headache, myalgia, backache, and lymphadenopathy followed by vesicular-pustular rash like smallpox; cases in Africa up to 10% fatal

- Incubation period: about 12 days
 - Differential diagnosis: smallpox, chickenpox, shingles, measles, coxsackievirus (hand foot mouth disease), scabies, drug allergy, insect bites, rubella, syphilis, molluscum contagiosum, mononucleosis, impetigo, scarlet fever, erythema toxicum
 - Reservoir is presumed to be primates and squirrels in central and western Africa
 - Transmission is from an infected animal by bites or contact with body or rash fluids
 - Communicability: person-to-person spread can occur through respiratory droplets or body fluids
 - Treatment is supportive
2. Case definition (for 2003 outbreak)
 - Suspect*: case with exposure (to wild animal or exotic pet) AND fever or unexplained rash AND two or more consistent signs or symptoms within 21 days of last exposure
 - Probable*: case with exposure (wild animal or exotic pet) AND fever AND either vesicular-pustular rash within 21 days of last exposure or no rash but IgM elevated
 - Confirmed*: case with viral isolation, PCR, electron microscopy, or immunohistochemistry confirmation
 3. Laboratory and diagnostic services: CDE can arrange serology, microscopy, and confirmation of culture. Submit serum, tissues slides, or culture (consult with CDE first) with virology/serology form (Section 4).
 4. Routine case investigation: notify CDE immediately for suspected or confirmed case; using personal protective equipment, obtain specimens as soon as possible for testing
 5. Controlling further spread: contact and droplet precautions, post-exposure smallpox vaccine for those providing direct patient care; notify Environmental Health Program for animal containment issues
 6. Routine prevention: animal importation regulations
 7. Resources: <https://www.cdc.gov/poxvirus/monkeypox/>

H. Paragonimiasis

1. Disease and its epidemiology:
 - Agent is any of more than 10 species of lung flukes in the genus *Paragonimus* infecting humans, occurring through the North America (*P. kellicotti* in Midwest and South], Central and South America (*P. mexicanus*), Africa (*P. africanus*), and parts of Asia (*P. westermani*).
 - Illness: acute phase (invasion and migration of the agent) results in diarrhea, abdominal pain, fever, cough, urticarial rash, hepatosplenomegaly, pulmonary abnormalities, and eosinophilia. Chronic phase has pulmonary symptoms including cough, discolored sputum, bloody sputum, and abnormal chest x-ray. Rare extrapulmonary disease can involve other organs including the brain (causing headaches, seizures, or meningitis) or liver, spleen, and intestines.

- Incubation period: 2 – 15 days for acute illness, months to years for pulmonary or cerebral symptoms
 - Differential diagnosis: any agent causing diarrhea for acute symptoms; for pulmonary symptoms tuberculosis or fungal agents; for cerebral disease multiple bacteria, fungal or parasitic agents
 - Reservoir is snails and crustaceans with a complex life cycle
 - Transmission is through eating freshwater crab or crayfish that is inadequately cooked or preserved (pickled, salted)
 - Communicability: none; eggs from lungs or feces can perpetuate the life cycle
 - Treatment: praziquantel; steroids may be needed for cerebral disease
2. Case definition
 - a. *Confirmed*: No CDC definition – consult with CDE for suspected case
 3. Diagnosis and laboratory services: CDE can arrange testing. Submit stool, sputum or tissue samples with microbiology/parasitology form (Section 4). Peripheral eosinophilia supports the diagnosis.
 4. Routine case investigation: determine any crab or crayfish consumption, particularly from a commercial source, and identify any others sharing that exposure
 5. Controlling further spread: none
 6. Routine prevention: do not consume raw freshwater crabs or crayfish
 7. Resources: <https://www.cdc.gov/parasites/paragonimus/>
https://www.cdc.gov/parasites/paragonimus/health_professionals/index.html#tx

I. Ricin poisoning

1. Disease and its epidemiology
 - Agent is ricin toxin which is temperature stable; occurs as powder or liquid
 - Illness from inhalation is fever, cough, dyspnea, sweating, nausea, and joint pains progressing to pulmonary edema, respiratory distress, hypoxia and cyanosis; illness from ingestion is severe abdominal pain, vomiting, diarrhea, hallucinations, seizures, and vascular collapse; high mortality with either form can occur by 36 hours
 - Incubation period: 4-8 hours from inhalation to onset, pulmonary edema by 36 hours
 - Differential diagnosis: cholera, other toxins (paraquat, arsenic, mercury, thallium, phosgene), radiation, chemotherapeutic drugs, Stevens-Johnson syndrome, Q fever, sepsis, tularemia
 - Reservoir is extraction from castor beans, which occur worldwide
 - Transmission: through deliberate release in the air or food contamination
 - Communicability – none
 - Treatment is supportive; there is no antidote

2. Case definition: consistent symptoms with laboratory confirmed exposure
3. Diagnosis and laboratory services: CDE can arrange testing; supportive laboratory results include metabolic acidosis, impaired liver and renal function, hematuria, and leukocytosis
4. Routine case investigation: notify CDE immediately for suspected or confirmed case; evaluate the diagnosis. Recommend appropriate healthcare personal protective equipment to first responders or law enforcement collecting specimens: plant material, beans, swabs, wipes, powder, liquids, soil, food. Submit with Biothreat environmental chain-of-custody form.
5. Controlling further spread: environmental decontamination
6. Routine prevention: no vaccine
7. Resources: <https://emergency.cdc.gov/agent/ricin/clinicians/index.asp>

J. Smallpox

1. Disease and its epidemiology:
 - Agent is variola virus, considered extinct in nature; potential agent of bioterrorism
 - Illness begins as febrile flu-like illness followed by rash progressing through stages of macules, papules, vesicles, pustules, and scabs; rash at same stage of development on a body area; no naturally-occurring cases worldwide since 1977
 - Incubation period: 7-19 days
 - Differential diagnosis: chickenpox/shingles, vaccinia (smallpox vaccine), measles, coxsackievirus, scabies, drug allergy, impetigo, insect bites, monkeypox, rubella, syphilis, molluscum contagiosum, mononucleosis, scarlet fever, erythema toxicum
 - Reservoir was humans, now only laboratory specimens exist
 - Transmission: respiratory droplets and fomites or through deliberate release of weaponized material; scabs contain virus and are infectious even when dried
 - Communicability is high through respiratory secretions while lesions are present
 - Treatment is supportive; antivirals may be considered
2. Case definition (2004): <https://www.cdc.gov/nndss/>

Suspect: case with fever followed in 1-4 days by generalized, acute vesicular or pustular rash

Probable: case with acute onset of fever $\geq 101^{\circ}$ F ($\geq 38.3^{\circ}$ C) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development without other apparent cause OR clinically consistent case with epi link to a confirmed case

Confirmed: laboratory confirmed case (PCR or virus isolation) OR case with acute onset of fever $\geq 101^{\circ}$ F ($\geq 38.3^{\circ}$ C) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development on a body area without other apparent cause with epi link to a laboratory-confirmed case

3. Diagnosis and laboratory services: CDE can arrange testing; submit vesicle, scab, skin, and serum specimens (consult CDE first) with virology/serology form (Section 4).
4. Routine case investigation: notify CDE immediately for suspected or confirmed case; evaluate the diagnosis particularly if lesions are deep-seated firm well-circumscribed vesicles or pustules at same stage of development. Recommend appropriate healthcare personal protective equipment. Submit with the bioterrorism form (Section 4): 10 ml serum; three lesions (skin top layer, glass slide touched to scraping of lesion base, EM grid or swab touched to base of open lesion); scabs; full thickness skin punch-biopsies.
5. Controlling further spread: strict contact and airborne precautions in healthcare setting; consider quarantine for exposed persons
6. Routine prevention: no routine vaccination.
7. Resources: <https://www.cdc.gov/smallpox/index.html>

K. Taeniasis

1. Disease and its epidemiology:
 - Agent is species of *Taenia* parasites including *T. saginata* (beef tapeworm), *T. solium* (pork tapeworm) and *T. asiatica* (Asian tapeworm) which have complex life cycles involving cysts in muscle tissue and eggs in feces
 - Illness: varies with dose, body site, and stage of the parasites and the level of inflammatory response; symptoms due to intestinal tapeworms include abdominal pain, loss of appetite, or weight loss which may be more pronounced for the larger *T. saginata* (to several meters in length); infection with *T. solium* eggs can result in cysticercosis including involvement of various organs (eye, heart, skin) or neurocysticercosis resulting in seizures, confusion, loss of balance, chronic meningitis, hydrocephalus, or death. *T. asiatica* may affect the liver.
 - Incubation period: months to years; up to a year after initial infection, degenerating cysts can cause an inflammatory response
 - Differential diagnosis: varies with symptoms; can include other parasitic intestinal infections, brain abscess, tuberculosis, neurosarcoidosis, malignancy
 - Reservoir is cattle for *T. saginata*, pigs and swine for *T. solium*, and pigs and swine for *T. asiatica*; a particular risk for pigs or swine as the source is their opportunity to consume human feces
 - Transmission: ingesting contaminated food, soil, water or objects; tapeworm infection results from consuming food containing cysts while neurocysticercosis results from ingesting tapeworm eggs; *T. solium* eggs in human feces of a tapeworm carrier can cause infection in a person (including repeat autoinfection).
 - Communicability: none
 - Treatment: praziquantel or alternative niclosamide
2. Case definition
 - a. *Confirmed*: No CDC definition – consult with CDE for suspected case

3. Diagnosis and laboratory services: serologic testing and neuroimaging for cysticercosis are available commercially. If needed, CDE can arrange testing at CDC. Submit serum with virology/serology form (see Section 4). *T. saginata* and *T. asiatica* can be difficult to distinguish.
4. Routine case investigation: determine unusual meat consumption, particularly wild game from a commercial source or meals during international travel, and identify any others sharing that exposure
5. Controlling further spread: infected persons should not prepare food for others; persons with *T. solium* infection should dispose of feces to prevent ingestion by pigs or humans
6. Routine prevention: thoroughly cook beef and pork; avoid contact with cattle or pig feces in affected regions
7. Resources: <https://www.cdc.gov/parasites/cysticercosis/>

L. Typhus

1. Diseases and their epidemiology:
 - Agents are *Rickettsia typhi* or *R. felis* (fleaborne – endemic or murine typhus) and *R. prowazekii* (louseborne – epidemic typhus).
 - Illness is febrile rash illness for louseborne with case fatality rate up to 40% if untreated; milder illness for fleaborne. Reservoirs for fleaborne are rats (reported from tropics and subtropics), reservoirs for louseborne are humans (Andes region of South America, Burundi, Ethiopia) and rarely flying squirrels in eastern United States. Washington’s last reported case was in 2017 following travel to Hawaii.
 - Incubation period 7 to 14 days.
 - Differential diagnosis: ehrlichiosis/anaplasmosis, mononucleosis, leptospirosis, spotted fever rickettsiosis, syphilis, tularemia, typhoid
 - Transmission: infected flea or louse feces entering a wound; fleas and lice typically defecate while feeding.
 - Communicability for louseborne is through the human lice.
 - Treatment is with doxycycline for both; for louseborne also use a pediculocide.
2. Case definition
 - Probable*: Clinically compatible illness with single IgM or IgG antibody titer.
 - Confirmed*: Clinically compatible illness with confirmatory laboratory including fourfold antibody rise, PCR positive, or positive immunohistochemical stain.
3. Diagnosis and laboratory services: CDE can arrange testing at CDC. Submit serum and tissue samples with appropriate virology/serology or microbiology forms (Section 4).
4. Routine case investigation: notify CDE immediately for suspected or confirmed case; obtain appropriate specimens as soon as possible for testing.
5. Controlling further spread: delouse a lice-infested patient, educate those sharing a case’s exposure about signs and symptoms of typhus.

6. Routine prevention: keep rats away from human habitation.
7. Resources: <https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/rickettsial-spotted-and-typhus-fevers-and-related-infections-including-anaplasmosis-and-ehrlichiosis>

M. Emerging condition with outbreak potential

An emerging condition is one whose incidence in humans has recently increased or threatens to increase in the near future. Of particular concern are conditions of high severity with high potential for person-to-person spread. Public health seeks to rapidly detect such conditions, control their spread, and identify risk factors for acquisition.

Newly emerging conditions have included SARS, MERS-CoV, SARS-CoV-2 and 2009 H1N1. Until the condition is identified it cannot be specified for notifiable conditions reporting. Similarly, the transmission, laboratory testing, case definition, and control and prevention measures will have to be determined after the condition is identified. Initial healthcare provider judgment is necessary to recognize and report an unusual condition.

Report any newly identified condition with potential for person-to-person transmission.

7. ROUTINE PREVENTION

Routine prevention measures depend on the suspected agent. See Section 6 for comments about selected conditions. Consult with Communicable Disease Epidemiology for any other conditions (206-418-5500).

ACKNOWLEDGEMENTS

This document is a revision of the Washington State Guidelines for Notifiable Condition Reporting and Surveillance published in 2002 which were originally based on the Control of Communicable Diseases Manual (CCDM), 17th Edition; James Chin, Ed. APHA 2000. We would like to acknowledge the Oregon Department of Human Services for developing the format of this document.

UPDATES

September 2008: The definition of “rare diseases of public health significance” was made consistent with the definition provided in WAC 246-101-010.

January 2011: Section for Specific Diseases including expanded descriptions of certain rare diseases is included. Reporting requirements were revised to reflect the 2011 Notifiable Conditions Rule revision.

January 2014: Section 2 shortened, minor wording changes elsewhere.

December 2014: Viral hemorrhagic fever was removed from this guideline and a full guideline was created.

March 2015: *Coccidioides* was removed from this guideline and a full guideline for *Coccidioidomycosis* was created.

August 2015: Carbapenam Resistant Enterobacteriaceae removed from this guideline and a full guideline was created.

April 2016: Vancomycin-resistant *Staphylococcus aureus* moved to a separate guideline and amebic meningitis added.

February 2017: 2016 CSTE case definition added for amebic meningitis; Histoplasmosis added

March 2018: Update for WDRS. Added leishmaniasis and ricin poisoning. Removed conditions that will have separate guidelines (burkholderia, ehrlichiosis and anaplasmosis, MERS/SARS, prion disease, tickborne diseases, viral hemorrhagic fever)

March 2019: routine review, update of recent cases

January 2022: added requested reporting for conditions specified in WAC 246-101 updated scheduled for 1/2023
(baylisascariasis, *Candida auris* infection, echinococcosis, taeniasis)