

I. Agents typified by fever ≥100°F with cough and systemic symptoms (chills, headache, myalgia, malaise, anorexia)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
Influenza (A, B, C)	2 days (1–4 days)	Fever, cough, coryza, myalgia, prostration Vomiting, diarrhea in children	3–7 days Possible shedding one day before symptom onset	Mostly droplet; maybe via aerosol or contaminated surfaces	Humans, but spread of novel viruses from birds & various mammals is possible	<p>Positive rapid test (sensitivity 50-70%), RT-PCR or isolation of virus on culture (rarely performed at clinical labs).</p> <p>*****</p> <p>Influenza C not tested at the OSPHL. For Influenza A and B: Preferred: nasopharyngeal swab using Dacron polyester or flocked swabs on a plastic shaft, collected 3-7 days after illness onset. Submit swabs in viral transport media. Store and transport specimens at refrigerated temperatures for receipt at the OSPHL within 3 days of specimen collection</p> <p>Acceptable: nasal swabs, throat swabs, combination nasopharyngeal swabs (2 swabs in one vial), nasal aspirates, nasal washes, bronchoalveolar lavages, bronchial washes, tracheal aspirates, sputum, lung tissue, or cell culture isolates.</p>

I. Agents typified by fever ≥100°F with cough and systemic symptoms (chills, headache, myalgia, malaise, anorexia) (continued)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p>Adenovirus</p> <p>(several serotypes. Adeno 7 and 14 circulate in Oregon and have caused several outbreaks. Adeno 7 is associated with severe infections.)</p>	2–14 days	Depending on serotype, can present as sore throat, “croup” with runny nose in kids; serotype 14 commonly causes fever, cough, headache, muscle aches; occurs any time of year.	"Shortly" before onset & for duration of symptoms	Respiratory droplets, can be fecal/oral	Humans	<p>PCR testing for adenovirus and specifically for adenovirus serotype 14 are available. *****</p> <p>Preferred: use Dacron polyester or flocked swabs on a plastic shaft, collected 3-7 days after illness onset. Submit swabs in viral transport media. Store and transport specimens at refrigerated temperatures for receipt at the OSPHL within 3 days of specimen collection</p> <p>Acceptable: nasal swabs, throat swabs, combination nasopharyngeal swabs (2 swabs in one vial), nasal aspirates, nasal washes, bronchoalveolar lavages, bronchial washes, tracheal aspirates, sputum, lung tissue, or cell culture isolates</p>
<p>Haemophilus influenzae</p>	Unknown (probably 2–4 days)	Abrupt onset fever, anorexia, vomiting, cough, lethargy. Headache, stupor suggest meningitis.	As long as organism is present in discharges from nose or throat. Exposure >7 days before symptom onset in case imparts low risk. Hib cases most infectious during the 3 days prior to sx onset.	Droplet	Humans	<p>Culture of <i>H. flu</i> from a normally sterile site. *****</p> <p>Original testing laboratory will send specimen to the OSPHL. OSPHL accepts actively growing isolated organism in pure culture, on an agar slant, or plate media. Primary specimens from sterile sites are accepted if previously tested using culture-independent diagnostic tests and approved for forwarding to the OSPHL. Store and transport at ambient or refrigerated temperatures for receipt at the OSPHL within 24 hours of culture.</p>

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Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
Human meta-pneumovirus	2–8 days	Runs the gamut from mild URI to severe pneumonia, the latter more common in the elderly	Not well defined	Droplet, Contact	Humans	<p>Viral culture or either RT-PCR or IFA of cell supernatant.</p> <p>*****</p> <p>Preferred: use Dacron polyester or flocked swabs on a plastic shaft, collected 3-7 days after illness onset. Submit swabs in viral transport media. Store and transport specimens at refrigerated temperatures for receipt at the OSPHL within 3 days of specimen collection.</p> <p>Acceptable: nasal swabs, throat swabs, combination nasopharyngeal swabs (2 swabs in one vial), nasal aspirates, nasal washes, bronchoalveolar lavages, bronchial washes, tracheal aspirates, sputum, lung tissue, or cell culture isolates</p>
<i>Streptococcus pneumoniae</i> (<i>Pneumococcus</i>)	Unknown (probably 1–4 days)	Productive cough, fever/chills, shortness of breath, chest pain. People look sick! Often follows viral infection.	As long as the organism appears in respiratory secretions.	Droplet	Humans (carriage is more common in children than in adults)	<p>Isolation on culture from sputum, though this can be difficult. Characteristic gram-positive diplococci on gram stain of sputum is suggestive.</p> <p>*****</p> <p>The OSPHL does not provide this testing. If submitted to the OSPHL, will be forwarded for public health surveillance. Specimen will be obtained in hospital and tested in a private laboratory.</p>

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Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p><i>Legionella pneumophila</i></p> <p>Legionellosis, Legionnaires' disease, Pontiac fever</p>	<p>Legionnaires' disease: 5–6 days</p> <p>Pontiac fever: 24-48 hrs</p>	<p>Present with anorexia, malaise, myalgia, headache, and fever. Legionnaires' disease characterized by pneumonia and a non-productive cough. Pontiac fever is accompanied by cough but does not progress to pneumonia or death.</p>	<p>Person-to-person transmission has not been documented</p>	<p>Airborne, aspiration of contaminated water droplets</p>	<p>Water systems (potable, air conditioning, spas, decorative fountains)</p>	<p>Positive urine antigen or isolation on culture of respiratory secretions (culture for legionella must be specifically requested). In some cases, direct fluorescent antibody staining or paired serologies may confirm diagnosis. Note: these tests aren't available at OSPHL.</p> <p>*****</p> <p>The OSPHL has a validated multiplex molecular assay to test for <i>Legionella</i> spp. Please contact the OSPHL for submission guidance.</p> <p>Some private laboratories also offer testing.</p>
<p>Coronavirus Middle Eastern Respiratory Syndrome (MERS)</p> <p>(Call ACDP, pronto, if suspected)</p>	<p>4–5 days (2–14 days)</p>	<p>Can range from asymptomatic to fever, cough, and chills, to severe respiratory distress. See: www.cdc.gov/coronavirus/mers/interim-guidance.html for testing criteria</p>	<p>Unknown</p>	<p>Unknown. CDC recommends standard, contact, and airborne precautions</p>	<p>Camels; appears transmissible, with low infectivity, from person to person</p>	<p>Positive PCR on lower respiratory specimen, serum, or nasopharyngeal or oropharyngeal swab.</p> <p>*****</p> <p>The OSPHL provides PCR testing for MERS; Information about specimen collection and handling is available at: www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html</p>

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Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p>Coronavirus Severe Acute Respiratory Syndrome (SARS)</p> <p>(Call ACDP, immediately, if suspected)</p>	2–10 days	Fever, cough, rapidly progressing shortness of breath. CXR consistent with pneumonia or acute respiratory distress syndrome. Can also present with milder disease.	Poorly defined; may be up to 21 days.	Droplet, contact	Humans, Civets (not many around!)	<p>Viral culture or PCR. Visualization of characteristic virus on electron microscopy. Detection of viral antigens on immunohistochemistry.</p> <p>*****</p> <p>Not tested by the OSPHL.</p>
<p>Coronavirus Disease-2019 (COVID-19)</p>	4–7 days (2–14 days)	Fever, cough, anosmia, ageusia, rapidly progressing shortness of breath. CXR consistent with pneumonia or acute respiratory distress syndrome. Can also present with milder disease.	2 days before to 10 days after illness onset.	Droplet, contact	Humans, probably originally from bats	<p>Positive nucleic acid amplification test (NAAT) or antigen test from any respiratory tract specimen.</p> <p>*****</p> <p>OSPHL offers two different tests for SARS-CoV-2, the virus that causes COVID-19. For complete instructions for specimen collection, storage, and transport, visit www.healthoregon.org/labtests.</p>

II. Agents associated with severe disease in infants & children						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p><i>Bordetella pertussis</i> whooping cough pertussis</p>	7–10 days	Paroxysmal coughing w/ whoop & vomiting	Highly contagious during 1st week of symptoms; negligible after 5 days of treatment.	Respiratory droplets or direct contact w/ respiratory secretions	Humans	<p>See Pertussis investigative guideline.</p> <p>*****</p> <p>Collect as soon as possible after illness onset, and not later than 3 weeks or after antibiotics have been started.</p> <p><u>For PCR</u>, collect nasopharyngeal specimen using Dacron tip swab on a flexible wire shaft and submit in a dry plastic specimen tube. Store and transport at refrigerated temperatures for receipt at the OSPHL within 24 hours of specimen collection.</p> <p><u>For Culture</u>, collect nasopharyngeal specimen using a Dacron tip swab on a flexible wire shaft and submit in Regan-Lowe transport media. Store and transport at refrigerated temperatures for receipt at the OSPHL within 3 days of specimen collection.</p>
<p>Respiratory syncytial virus (RSV)</p>	Often 2 days (1-8 days)	In infants, croup w/ barking cough, wheezing, inspiratory stridor; Older kids/adults have URI, cough; “season” is Oct.-May	1-5 days after onset; longer (weeks) in infants & the immune-compromised	Droplet, Contact	Humans, rarely chimpanzees	<p>RT-PCR, rapid antigen test, viral isolation</p> <p>***** Preferred: use Dacron polyester or flocked swabs on a plastic shaft, collected 3-7 days after illness onset. Submit swabs in viral transport media. Store and transport specimens at refrigerated temperatures for receipt at the OSPHL within 3 days of specimen collection.</p> <p>Acceptable: nasal swabs, throat swabs, combination nasopharyngeal swabs (2 swabs in one vial), nasal aspirates, nasal washes, bronchoalveolar lavages, bronchial washes, tracheal aspirates, sputum, lung tissue, or cell culture isolates</p>

III. Agents associated with exposure to animals or animal settings (kennels, aviaries, abattoirs, laboratories, etc.)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p><i>Bacillus anthracis</i></p> <p>inhalational anthrax</p> <p>(Call ACDP, pronto, if suspected)</p>	1–7 days (1–60 days)	Fever, malaise, mild cough, shortness of breath, headache, chills; <u>then</u> abrupt onset of sweats, spiking fever, ARDS & shock; mediastinal widening, pleural effusions on CXR	Not communicable	Inhaling aerosols from tissues, hair, wool, hides of ill herbivores	<p>Herbivores (cattle, goats, sheep, bison, etc.)</p> <p>Potential bio-terrorism agent</p>	<ul style="list-style-type: none"> • Culture and identification from clinical specimens by Laboratory Response Network (LRN)5,6; • Demonstration of <i>B. anthracis</i> antigens in tissues by immunohistochemical staining using both <i>B. anthracis</i> cell wall and capsule monoclonal antibodies; • Evidence of a four-fold rise in antibodies to protective antigen between acute and convalescent sera or a fourfold change in antibodies to protective antigen in paired convalescent sera using Centers for Disease Control and Prevention (CDC) quantitative anti-PA immunoglobulin G (IgG) ELISA testing in an unvaccinated person; <p>*****</p> <p>Specimen will be submitted by the original testing laboratory. Submit actively growing isolated organism, in pure culture, on an agar slant or plate media. Store and transport at ambient temperatures for receipt at the OSPHL as soon as possible. Do not freeze. Notify the OSPHL before shipment.</p> <p>If PCR testing is indicated, please contact the OSPHL to discuss specimen submission requirements.</p>

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Acute and Communicable Disease Prevention (ACDP) 800 NE Oregon St. Suite 772, Portland, Oregon 97232 / 971-673-1111

III. Agents associated with exposure to animals or animal settings (kennels, aviaries, abattoirs, laboratories, etc.) (continued)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<i>Brucella</i> species brucellosis	2–4 weeks	Fever, chills, sweats, headache, myalgia, arthralgia, anorexia, fatigue, weight loss	Not well known: sexual and neonatal transmission have both been documented.	<ul style="list-style-type: none"> • Primarily foodborne • Respiratory transmission is possible, (e.g., aerosolizing medical procedures, slaughter-houses). • Contact with mucous membranes (handling infected animal tissues, blood, urine, vaginal discharges, aborted fetuses & placentas). • Needle jabs with <i>Brucella</i> vaccine (RB51) • Organ transplants 	Cattle, goats, pigs (including wild pigs), dogs, sheep, bison, marine animals Potential bioterrorism agent	Culture confirmation, 1:160 BMAT result following symptom onset, PCR, any paired, 4-fold increase in <i>Brucella</i> antibodies by non-agglutination-based tests ***** For isolation and identification, specimen will be submitted by the original testing laboratory. Submit actively growing isolated organism, in pure culture, on an agar slant or plate media. Store and transport at ambient temperatures for receipt at the OSPHL as soon as possible. Notify the OSPHL before shipment. For antibody testing, submit 5–7 mL blood or 1–2 mL serum in a red top or serum separator tube. Store and transport at refrigerated temperatures for receipt at the OSPHL within 5 days.

III. Agents associated with exposure to animals or animal settings (kennels, aviaries, abattoirs, laboratories, etc.) (continued)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<i>Chlamydia psittaci</i> psittacosis	10 days (5–14 d)	Acute onset fever, chills, headache, keratoconjunctivitis, myalgia, rash, pneumonia w/o cough. CXR with lobar consolidation, patchy infiltrates	Minimal risk. Theoretically possible during paroxysmal coughing	Inhalation of desiccated bird feces, feathers, dust	Psittacine birds (parrots, parakeets, love birds), pigeons and some poultry (primarily turkeys & ducks; not much in chickens)	4-fold rise in psittacosis complement-fixing antibody titer (to $\geq 1:32$) in specimens obtained > 2 weeks apart. PCR can be used in the acute stage of the disease in sputum, pleural fluid and blood. ***** Birds in the household should be tested by PCR. (See your vet.)
<i>Francisella tularensis</i> tularemia (Call ACDP, pronto, if suspected)	3–5 days (1 – 21 d)	Rapid onset high fever, chills, fatigue, pleuretic chest pain, dyspnea, lymphadenopathy, myalgia, headache, malaise, mild cough; <u>then</u> pneumonia, ARDS	Not communicable	Inhaling infectious aerosols and contaminated dust generated while handling hides, carcasses, contaminated grain; animal or insect bite.	Lagomorphs (rabbits, hares, etc.), rodents, hard ticks, biting flies Potential bio-terrorism agent	Confirmed: Isolation by culture of <i>F. tularensis</i> in a clinical specimen, or a fourfold or greater rise in serum antibody titer to <i>F. tularensis</i> antigen between acute and convalescent titers. Presumptive: elevated titers to <i>F. tularensis</i> without documented fourfold change, in the absence of prior tularemia vaccination, or detection of <i>F. tularensis</i> in a clinical specimen by fluorescent assay. ***** For isolation and ID, submit actively growing isolate, in pure culture, on an agar slant or plate media to OSPHL. Store and transport at ambient temps. for receipt at the lab ASAP; notify lab prior to shipment. For antibody testing, submit to the OSPHL according to CDC instructions, see https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10314

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Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p>Hantavirus</p> <p>hantavirus pulmonary syndrome</p>	1–7 weeks	Fever, myalgia, GI pain; then abrupt onset ARDS, sepsis thrombocytopenia leukocytes, hemo-concentration; interstitial lymphocyte infiltrates, alveolar pulmonary edema	No person-to-person transmission documented	Inhaling aerosolized rodent excreta	Rodents	<p>Four-fold rise in hantavirus EIA (reactive or not) test IgM and IgG; draw one sample acutely and, if negative, a specimen no sooner than 15 days from symptom onset & convalescent 2 weeks after acute specimen</p> <p>*****</p> <p>Submit 5-7 mL blood or 1-2 mL serum or plasma in a red top or serum separator tube. Store and transport at refrigerated temperatures for receipt at the OSPHL within 5 days.</p>
<p>Leptospira spp.</p> <p>Leptospirosis Weil's disease (icteric)</p>	7 to 12 days, with a range of 2 to 29 days	Sudden onset fever, headache, chills, myalgia in legs & conjunctival suffusion; <u>then</u> pneumonia, hemoptysis, ARDS	Rare person-to-person transmission	Contact with mucous membranes or ingestion	Rodents, racoons, livestock, dogs, amphibians, reptiles, sealions; animal products of conception or urine; contaminated water, soil, mud	<p>Indirect hemagglutination (titer)</p> <p>*****</p> <p>For antibody testing, submit to the OSPHL according to CDC instructions, available at: https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDC_TestCode=CDC-10201</p>

III. Agents associated with exposure to animals or animal settings (kennels, aviaries, abattoirs, laboratories, etc.) (continued)						
Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<p><i>Yersinia pestis</i> pneumonic plague (Call ACDP at 971-673-1111, pronto, if suspected)</p>	<p>2–4 days (1–7 d)</p>	<p>Acute-onset of fever, chills, headache, malaise & myalgias; <u>then</u> cough w/ bloody sputum, pneumonia, ARDS, circulatory collapse & death</p>	<p>From onset of symptoms, usually w/in 24–48hrs of exposure, until done w/ 72hrs of appropriate antibiotics</p>	<p>Person-to-person transmission via respiratory droplets aerosol (bioterrorism)</p>	<p>Fleas, wild rodents (rats, squirrels, prairie dogs), pets with fleas Potential bioterrorism agent</p>	<p>Isolation by culture from a sputum specimen; four-fold rise in serum antibody titer to <i>Y. pestis</i> F1 antigen in acute & convalescent serum specimens; antibody titer of ≥1:128 to <i>Y. pestis</i> F1 antigen not explained by past infection or vaccination; detection of F1 antigen in a clinical specimen by fluorescent assay ***** For isolation and identification, specimen will be submitted by the original testing laboratory. Submit actively growing isolated organism, in pure culture, on an agar slant or plate media. Store and transport at ambient temperatures for receipt at the OSPHL as soon as possible. Notify the OSPHL before shipment. For antibody testing, submit to the OSPHL according to CDC instructions, available at: https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDC_TestCode=CDC-10419</p>

IV. Other pathogens

Agent	Incubation Period	Symptoms	Communicable Period	Mode of Transmission	Reservoir	Case Definition and Lab-related Information
<i>Mycobacterium tuberculosis</i>	See TB Guidelines:	Classically cough, blood in sputum, fever, night sweats.	See TB Guidelines:	Aerosol	Humans, mammals (elephants, cattle, some primates)	See TB Guidelines: healthoregon.org/iguides
<i>Mycoplasma pneumoniae</i>	1-4 weeks	URI possible with cough/congestion. Sub-acute “Walking pneumonia” in ~10% w usually non-productive cough/fever.	Unclear. Perhaps ten or more days after onset.	Droplet	Humans	Isolation on culture is not that easy. PCR may be helpful, as is a fourfold rise in complement fixation antibody titers on samples collected 4 weeks apart. ***** PCR and culture can be done on sputum, oropharyngeal swabs, or nasopharyngeal swabs. Testing for Mycoplasma is available through commercial labs, but not through OSPHL.
Parainfluenza virus types 1-4	Often ~2 days (0.5-7 d)	Types 1 and 2 commonly cause URIs, or croup in kids (barking cough or hoarseness); Type 3 can lead to bronchiolitis and pneumonia.	1 day before to 5 days after sx onset.	Droplet, Contact	Humans	Isolation on culture ***** The OSPHL cannot test for parainfluenza virus type 4. For parainfluenza types 1-3: Preferred: using Dacron polyester or flocked swabs on a plastic shaft, collected 3-7 days after illness onset. Submit swabs in viral transport media. Store and transport at refrigerated temperatures for receipt at the OSPHL within 3 days. Acceptable: nasal or throat swabs, combined nasopharyngeal swabs (2 swabs in one vial), nasal aspirates or washes, bronchoalveolar lavages, bronchial washes, tracheal aspirates, sputum, lung tissue, or cell culture isolates.

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Revision History

June 2020 – Added COVID-19 and adjusted formatting (Cieslak, Leman, Byster)

April 2018 – Pathogen descriptions, lab confirmation instructions, OSPHL address and formatting updated; added MERS and removed Q Fever (Allain, Ariail, Boyd, Crawford, DeBess, Humphrey, Leman, Liko, Poissant, Scott, Tran)

April 2012 – Contact information for OSPHL and availability of testing at OSPHL updated.

October 2010 – Original posted