

## Differential Diagnosis for a Respiratory Disease Outbreak: Risk Factors for Disease

Pathogen	Institutional clusters?	Specific group settings often affected	Occupation or avocation	Animal exposure risk factor	Environmental exposure	High risk activities	Persons with increased susceptibility or disease severity	Potential for bioterrorism agent?
Adenovirus	Yes	Day Care/School, Military Barracks, Dormitory	Military	None	Swimming pools, Ophthalmology offices		Infants, Post-transplant, Adults in crowded and stressful conditions	No
<i>Bacillus anthracis</i>	Yes	Occupational	Laboratory worker, Wood sorter, Drum maker, Animal handler	Infected livestock, Animal products from infected animal	Deceased animals, Aerosol (bioterrorism)	Processing of infected animal products		Yes
<i>Blastomyces dermatitidis</i>	No	None	Construction worker, Farmer	None	Soil, Dust clouds, Woods near water	Outdoor activity in mud or water	HIV, Post-transplant, Malignancy, Steroids	No
<i>Bordetella pertussis</i>	Yes	Day Care/School, Military Barracks, Dormitory	Healthcare worker	None	No		Unvaccinated communities	No
<i>Chlamydia (Chlamydomphila) psittaci</i>	No	None	Bird handler, Laboratory worker	Birds (especially psittacine)	Bird feces	Cleaning bird cages		No
<i>Chlamydia (Chlamydomphila) pneumoniae</i>	Yes	Day Care/School		None	No			No
<i>Coccidioides immitis</i>	Yes	Military	Farmer, Construction worker	None	Soil, Dust clouds	Excavation	HIV, Post-transplant, Filipinos, African-Americans	No
Coronavirus	Yes	None	Healthcare or Laboratory worker (SARS-HCoV)	None	No	Travel to affected areas (for SARS-HCoV infections)	Infants, Elderly, Diabetes mellitus	No
<i>Coxiella burnetti</i>	Yes	None	Animal handler, Laboratory worker	Primarily cattle, sheep, goats	Animal products of conception, Aerosol (bioterrorism), ticks	Occupational contact with animal or animal products	Pregnant, Immunocompromised, Existing cardiac valvulopathy	Yes
<i>Francisella tularensis</i>	No	None	Hunter, Animal handler, Landscaper, Farmer, Laboratory worker	Lagomorphs, Rodents, Ticks, Biting flies	Contaminated hay, mud or water	Mowing, Weed-wacking, Skimming, dressing, or eating game, Hunting, Outdoor activities	HIV (Typhoidal)	Yes
Group A <i>Streptococcus</i>	Yes	Day Care, Long-Term Care Facility/Nursing Home, Military	Military	None	No		Elderly, HIV, Diabetes, Skin breakdown, Malignancy	No

<i>Haemophilus influenzae</i>	Yes	Day Care/School		None	No		Asplenic, HIV, Sickle cell disease, Malignancy, American Indian/Alaska native children	No
Hantaviruses, New World	No	None	Construction worker, Grain farmer, Mammologist	Rodents	Rodent excreta	Outdoor activities, Cleaning/entering rodent-infested structures, Handling rodents		No
<i>Histoplasma capsulatum</i>	No	None	Construction worker, Spelunker	Bats, Birds	Soil enriched by bird guano, Bat guano	Excavation	HIV, Hematologic malignancies, Immunosuppressive medications	No
Human metapneumovirus	Yes	Long-Term Care Facility/Nursing Home		None	No		Infants, Children, Elderly	No
Influenza viruses (Human influenza A, B, C viruses)	Yes	Day Care/School, Long-Term Care Facility/Nursing Home, Hospital ward/unit, Correctional facility/Shelter, Military Barracks/Dormitory, Cruise ship passengers		None	No		Children <5 years of age, Elderly, Persons with underlying diseases	No
Influenza viruses (Avian influenza A viruses, low and highly pathogenic)	No		Poultry workers, persons involved in poultry disposal operations	Sick or dead poultry; dead wild birds	Visiting a live poultry market	Direct unprotected contact with sick or dead birds; Close, prolonged unprotected contact with an ill human case	Unknown for most avian influenza A viruses; blood relatives of a human case of highly pathogenic avian influenza A (H5N1) virus infection	No
Influenza viruses (swine influenza A viruses)	No		Swine workers, swine veterinarians	Sick pigs				No
<i>Legionella</i> spp.	Yes	Travel Destinations, Healthcare settings		None	Aspirated potable water, Aerosolized water	Travel	Elderly, Chronic lung disease, Tobacco smoking, Post-transplant, HIV, Other immunosuppression	No
<i>Mycobacterium tuberculosis</i>	Yes	Correctional facility/Shelter	Healthcare worker	Airborne transmission from other mammals (very rare)	No	Living in homeless shelter, Incarceration, Participation in medical procedures (e.g.,	HIV, Post-transplant, TNF alpha blockade, Other immunosuppression, Homeless, Alcoholic, Incarcerated	No

						bronchoscopy) that generate aerosols		
<i>Mycoplasma pneumoniae</i>	Yes	Day Care/School, Long-Term Care Facility/Nursing Home, Prison/Shelter, Military Barracks/Dormitory		None	No		Asplenia, Sickle cell disease, Hemaglobinopathies, Hypogammaglobulinemia	No
Parainfluenza virus type 1-4	Yes	Day Care/School, Hospitals		None	No		Infants, Post-transplant	No
Respiratory syncytial virus	Yes	Day Care/School, Long-Term Care Facility/Nursing Home		None	No		Post-transplant, Malignancy, Chronic lung disease, Congenital heart disease, Premature infants, Elderly	No
Rhinovirus	Yes	Day Care/School, Long-Term Care Facility/Nursing Home		None	No		Post-transplant, Elderly	No
SARS CoV-2	Yes	Day Care/School, Long-Term Care Facility/Nursing Home, Hospital ward/unit, Correctional facility/Shelter, Military Barracks/Dormitory, Cruise ship passengers	Healthcare or laboratory worker	None	No	Travel to high community levels	Elderly, Persons with underlying diseases, immunocompromised persons	No
<i>Streptococcus pneumoniae</i>	Yes	Day Care/School, Long-Term Care Facility/Nursing Home, Correctional Facility/Shelter, Military Barracks/Dormitory	Military	None	No		Asplenia, HIV, Immunoglobulin deficiencies, Complement deficiencies, Chronic lung disease, Native Americans/Alaskans	No
<i>Yersinia pestis</i> (secondary to bubonic plague)	No	None	Hunter, Animal handler, Dog or cat owner	Fleas Rodents (rats, squirrels, prairie dogs) Pets with fleas	No	Outdoor activities Ingestion or handling contaminated tissues		No

<i>Yersinia pestis</i> (primary pneumonic plague)	No	None	Veterinarian, Cat owner, Healthcare or laboratory worker	Cats with pneumonic plague	Aerosol (bioterrorism)	Caring for plague- infected person or animal		Yes
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