
Zoonotic Disease Investigations Acute and Communicable Disease

February 2nd 2022

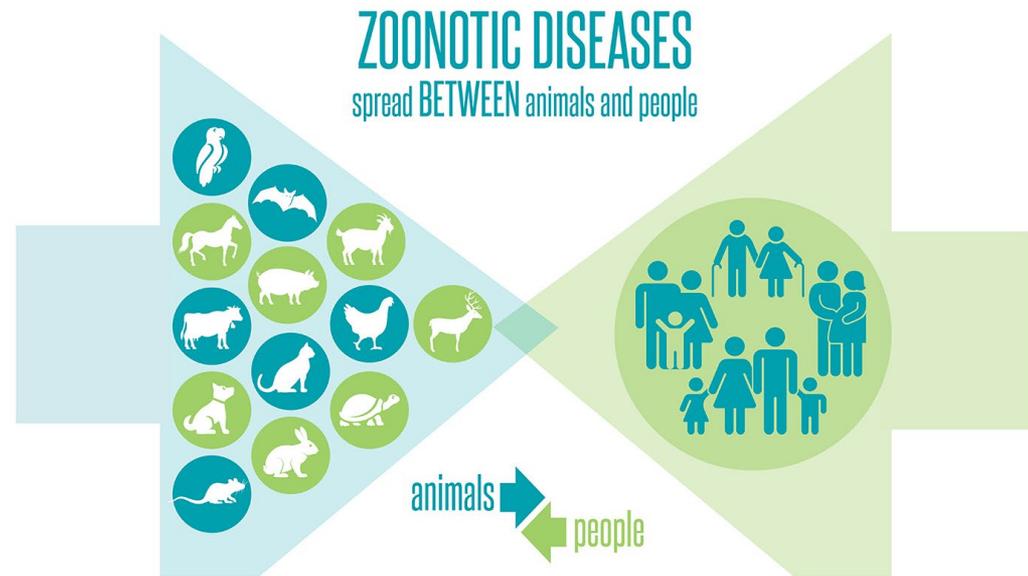
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The logo for the Oregon Health Authority. It features the word "Oregon" in a smaller, orange, serif font positioned above the word "Health". "Health" is written in a large, dark blue, serif font. Below "Health", the word "Authority" is written in a smaller, orange, serif font. A thin blue horizontal line is positioned below the word "Health".

Oregon
Health
Authority

Seventy-five percent of all new infectious diseases originate from nonhuman animals.

Zoonotic Disease Transmission



Oregon
Health
Authority

A BRIEF HISTORY OF OUTBREAKS

Covid-19 is not the first pandemic to hit the world. Here's a look at the complex relationship humans have had with deadly viruses and infectious diseases.

Black Death

1347-52

DEATHS

200 million

Rats and fleas,
bubonic plague



The Black Death struck Europe and other parts of the world in 1347. It was caused by the same bacterium, *Yersinia pestis*, that was responsible for the Justinian Plague and remains one of the biggest catastrophes the world has ever seen.

Spanish Flu

1918

DEATHS

40-50 million

H1N1 virus



At a time when World War 1 was raging, a deadly strain of influenza killed an estimated 50 million people. Its effects were felt in India as well. The H1N1 virus strain had avian origins and remains the deadliest flu pandemic recorded in human history.

Asian Flu

1957-58

DEATHS

1.1 million

H2N2 virus



A new influenza virus, H2N2, emerged in 1957 in East Asia and claimed roughly 1.1 million lives worldwide. The virus strain transformed, a phenomenon described as antigenic shift, and led to the 1968-70 Hong Kong flu pandemic.

SARS

2002-04

DEATHS

774

Coronavirus
from bats
and civet
cats



Despite the low number of deaths, what made the SARS virus so deadly was its case-fatality ratio of 15%. It affected almost 8,000 people and 29 countries—a similar strain of the coronavirus is responsible for the current covid-19 pandemic.

Swine Flu

2009

DEATHS

200,000

H1N1 virus
from pigs



The first cases of the 2009 pandemic were detected in Mexico and the US. According to studies, the virus infected more than a billion people globally. The pandemic was declared over by the World Health Organization in August 2010 but cases were reported across the world as recently as this year.

Ebola

2013-16

DEATHS

11,000

Ebolavirus,
bats and
bushmeat
consumption



Although not yet deemed a pandemic, the highly contagious Ebola disease has wreaked havoc in parts of Africa over the last few years. First discovered in 1976, the most recent outbreak of this deadly viral disease was recorded in western Africa in 2013-16. It led to more than 11,000 deaths.

Six out of every 10 infectious diseases in people are zoonotic, which makes it crucial that the nation strengthen its capabilities to prevent and respond to these diseases using a One Health approach

What do we track

- We have rules that require the report of different conditions
- Such as but not limited to
- Anthrax
- Rabies
- Plague
- Avian flu and other infectious conditions

IN PUBLIC HEALTH DIVISION REPORTING PUBLIC HEALTH DIVISION REPORTING FOR CLINICIANS

LABORATORIES

Laboratories must report all human and specific for the conditions, microorganisms and varying table. These results isolation or identification; acid sequences.

to the patient's local nce within one

themselves with at have potential to clude the patient's a, specimen on date, lab test, rdering clinician

s should also

clinician is egardless of rts on out-of that state's Division of the reports in a log, ort an mit the data in the Oregon Electronic

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report data y in Oregon's Data fied in the Oregon andatory Electronic

rtis shall meet relevant



CIVIL PENALTIES FOR VIOLATIONS OF OREGON REPORTING LAW

A civil penalty may be imposed against a qualifying laboratory that fails to seek or obtain ELR approval, or against a clinical laboratory for failing to report a reportable disease according to Oregon Administrative Rules.⁵

Civil penalties shall be imposed

- First violation \$100, second third or subsequent violation
- Each day out of compliance with a new violation.

Laboratories must report diagnoses of diseases and conditions lab-confirmed and rtable. The parallel obviate the clinician's ns (e.g., uncommon ; animal bites, pesticide poisoning, identified by labs.

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\$200,

OTHER IM REPORT

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- ☎ Report by phone immediately, day or night. **New reportables are highlighted.**
- 🕒 Report within 24 hours.

NOTE: Those items below without a symbol next to them require reporting within one local public health authority working day.

- 🏠 Forward isolate to the Oregon State Public Health Laboratory (OSPHL).
- 🧫 Forward isolate if cultured; otherwise, send the test-positive specimen to OSPHL.

BACTERIA

- Anaplasma
- Bacillus anthracis¹ 🏠 🧫
- Bacillus cereus
- biovar anthracis² 🏠 🧫
- Bordetella pertussis
- Borrelia
- Brucella³ 🏠 🧫
- Burkholderia mallei² 🏠 🧫
- Burkholderia pseudomallei² 🏠 🧫
- Campylobacter
- Chlamydia trachomatis
- Chlamydia psittaci
- Clostridium botulinum³ 🏠
- Clostridium tetani
- Corynebacterium diphtheriae 🏠 🧫
- Coxiella burnetii² 🏠 🧫
- Ehrlichia
- Enterobacteriaceae family isolates that are resistant to any carbapenem antibiotics by current CLSI breakpoints.^{2,8} 🏠 🧫
- Escherichia coli, enterotoxigenic (E. coli O157 and other serogroups)⁸ 🏠 🧫
- Francisella tularensis² 🏠 🧫
- Grimontia 🏠
- Haemophilus ducreyi
- Haemophilus influenzae 🏠 🧫
- Legionella
- Leptospira
- Listeria monocytogenes 🏠 🧫
- Mycobacterium bovis 🏠
- Mycobacterium tuberculosis 🏠

- Mycobacterium, other (non-respiratory only)
- Neisseria gonorrhoeae
- Neisseria meningitidis 🏠 🧫
- Rickettsia prowazekii² 🏠 🧫
- Rickettsia, non-prowazekii
- Salmonella 🏠
- Shigella 🏠
- Treponema pallidum
- Vibrio cholerae 🏠 🧫
- Vibrio, non-cholerae 🏠 🧫
- Yersinia pestis¹ 🏠 🧫
- Yersinia, non-pestis 🏠

FUNGI

- Coccidioides 🏠
- Cryptococcus 🏠

PARASITES

- Amebic infections⁹ (central nervous system only)
- Babesia
- Cryptosporidium
- Cyclospora
- Giardia
- Plasmodium
- Taenia solium and undifferentiated Taenia spp.
- Trichinella

PRION DISEASES

- Creutzfeldt-Jakob disease (CJD), other prion diseases

VIRUSES

- Arboviruses¹⁰

- Arenaviruses^{2,11} 🏠 🧫
- Filoviruses^{2,11} 🏠 🧫
- Hantavirus
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis D (delta)
- Hepatitis E
- Hemorrhagic fever
- HIV infection and /
- Influenza, novel st
- Measles (rubeola)
- Mumps
- Polio 🏠 🧫
- Rabies 🏠 🧫
- Rubella 🏠 🧫
- SARS-coronavir
- Variola major (s
- West Nile
- Yellow fever 🏠
- Zika

New reportables are highlighted.

IMMEDIATELY

- Anthrax (*Bacillus anthracis*)
- Bacillus cereus biovar anthracis**
- Botulism (*Clostridium botulinum*)
- Brucellosis (*Brucella*)
- Cholera (*Vibrio cholerae* O1, O139, or toxigenic)
- Diphtheria (*Corynebacterium diphtheriae*)
- Eastern equine encephalitis
- Glanders (*Burkholderia mallei*)
- Hemorrhagic fever caused by viruses of the filovirus (e.g., Ebola, Marburg) or arenavirus (e.g., Lassa, Machupo) families
- Influenza (novel¹)
- Marine intoxication (intoxication caused by marine microorganisms or their byproducts (e.g., paralytic shellfish poisoning, domoic acid intoxication, ciguatera, scombroid)
- Measles (rubeola)
- Meitoidosis (*Burkholderia pseudomallei*)
- Plague (*Yersinia pestis*)
- Polio
- Q fever (*Coxiella burnetii*)
- Rabies (human)
- Rubella
- SARS (Severe Acute Respiratory Syndrome or SARS-coronavirus)
- Smallpox (variola)
- Tularemia (*Francisella tularensis*)
- Typhus, louse-borne (*Rickettsia prowazekii*)
- Yellow fever

Outbreaks and uncommon illnesses (any known or suspected common-source outbreak; any uncommon illness of potential public health significance)

WITHIN ONE LOCAL HEALTH AUTHORITY WORKING DAY

- Amebic infections⁹ (central nervous system only)
- Anaplasmosis (*Anaplasma*)
- Animal bites (of humans)
- Arthropod vector-borne disease (e.g., California encephalitis, Colorado tick fever, dengue, Heartland virus infection, Kyasanur Forest disease, St. Louis encephalitis, Western equine encephalitis, etc.)
- Babesiosis (*Babesia*)
- Campylobacteriosis (*Campylobacter*)
- Chancroid (*Haemophilus ducreyi*)
- Chlamydia
- Chlamydia trachomatis; lymphogranuloma venereum
- Coccidioidomycosis (*Coccidioides*)
- Creutzfeldt-Jakob disease (CJD) and other transmissible spongiform encephalopathies
- Cryptococcosis (*Cryptococcus*)
- Cryptosporidiosis (*Cryptosporidium*)
- Cyclosporiasis (*Cyclospora cayentensis*)
- Ehrlichiosis (*Ehrlichia*)
- Enterobacteriaceae family isolates that are resistant to any carbapenem antibiotic by current CLSI breakpoints⁷
- Escherichia coli (enterotoxigenic, Shiga toxinogenic, including E. coli O157 and other serogroups)
- Giardiasis (*Giardia*)
- Gonococcal infections (*Neisseria gonorrhoeae*)
- Grimontia spp. infection
- Hantavirus
- Hemolytic uremic syndrome (HUS)
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis D (delta)
- Hepatitis E
- HIV infection (does not apply to anonymous testing) and AIDS
- Influenza (laboratory-confirmed death of a person <18 years old)
- Lead poisoning⁸
- Legionellosis (*Legionella*)
- Leptospirosis (*Leptospira*)
- Listeriosis
- Listeria (*Listeria monocytogenes*)
- Lyme disease (*Borrelia burgdorferi*)
- Malaria (*Plasmodium*)
- Mumps
- Non-tuberculous mycobacteria infection (non-respiratory)
- Pertussis (*Bordetella pertussis*)
- Psittacosis (*Chlamydia psittaci*)
- Relapsing fever (*Borrelia*)
- Rocky Mountain spotted fever and other Rickettsia (except louse-borne typhus, which is immediately reportable)
- Salmonellosis (*Salmonella* including typhoid)
- Syphilis (*Treponema pallidum*)
- Taeniasis (including cysticercosis and tapeworm infections)
- Tetanus (*Clostridium tetani*)
- Trichinosis (*Trichinella*)
- Tuberculosis (*Mycobacterium tuberculosis* and *M. bovis*)
- Vibriosis (other than cholera)
- West Nile
- Yersiniosis (other than plague which is immediately reportable)
- Zika

FOOTNOTES

¹ In addition to reporting updates, please be aware of new OAR 333-019-01 requiring health care professionals to observe standard precautions as described in Centers for Disease Control and Prevention's Guidelines for Infection Prevention: Transmission of Infectious Agents in Healthcare Settings (2016). <https://www.cdc.gov/infectioncontrol/guidelines/infection/>

The zoonotic diseases of most concern in the U.S.

- Zoonotic influenza
- Salmonellosis
- West Nile virus
- Plague
- Emerging coronaviruses (e.g., severe acute respiratory syndrome and Middle East respiratory syndrome)
- Rabies
- Brucellosis
- Lyme disease



Exotic Emerging Zoonoses

- Ebola – primates, reservoir unknown
- Nipah – bats
- West Nile – birds, mosquitoes
- SARS – masked palm civets, bats
- Avian Influenza – poultry, wild birds
- Monkeypox – rodents, primates

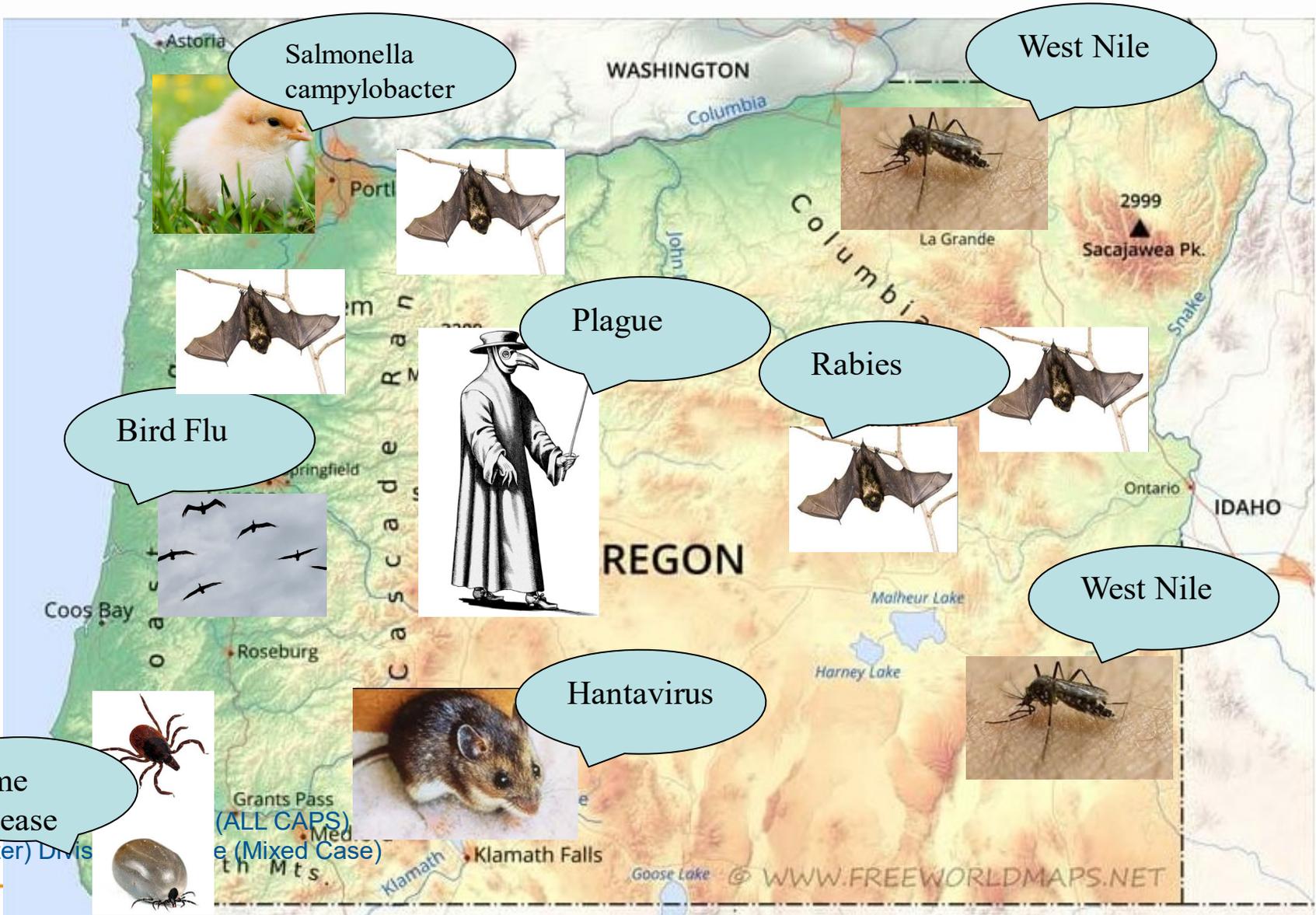


2001, Pam & Brett Whitsett



EM, Marburg virus, CDC gallery





Salmonella campylobacter



West Nile



Plague



Rabies



Bird Flu



West Nile



Hantavirus



Lyme Disease (Enter) Dms



Grants Pass (ALL CAPS) e (Mixed Case)

With animal importation other animals, such as ticks, may also come along.

What do Asian longhorned ticks look like?



Nymph and adult female, top view.



Nymph and adult female, underside.

What we know about Asian longhorned ticks

- Not normally found in the Western Hemisphere, these ticks were reported for the first time in the United States in 2017.
- Asian longhorned ticks have been found on pets, livestock, wildlife, and people.

Protect yourself, your pets, and your livestock

- Use Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. Always follow product instructions.
- Wear permethrin-treated clothing.

What to do if you think you have found an Asian longhorned tick

- Remove ticks from people and animals as quickly as possible.
- Save the ticks in rubbing alcohol in a jar or a ziplock bag, then:
 - Contact your health department about steps you can take to