Understanding Monkeypox and the Risk of Zoonotic Threats

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The Northwest Center for Public Health Practice acknowledges the land we occupy today as the traditional home of the Tulalip, Muckleshoot, Duwamish and Suquamish tribal nations.

Without them we would not have access to this working, teaching and learning environment. We humbly take the opportunity to thank the original caretakers of this land who are still here.

Question for the Viewers

Describe your level of knowledge or experience with the current outbreak of monkeypox:

A. A lot

B. Some

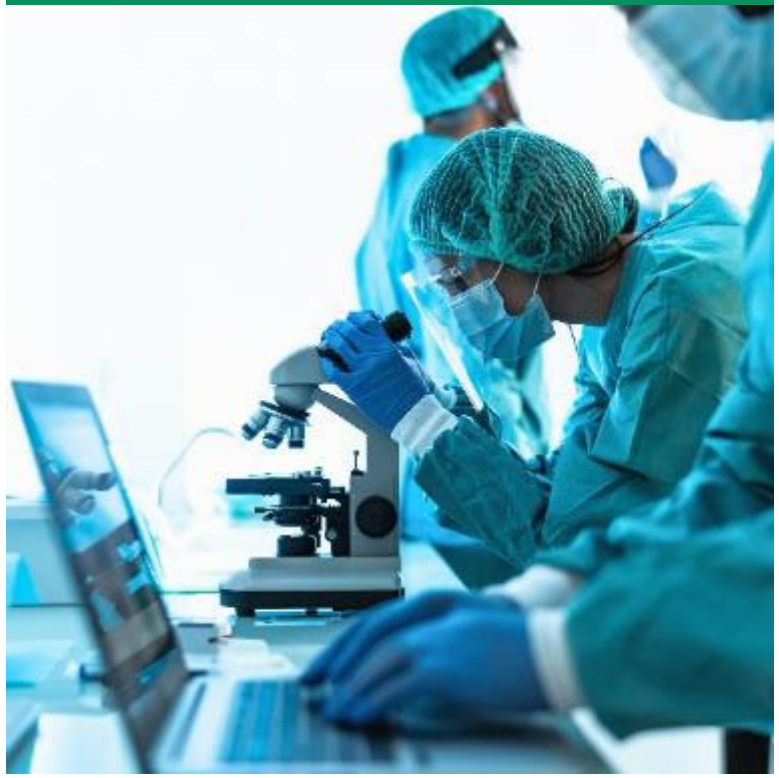
C. Little

D. None

Disease Trends and Landscape

Misinformation and Stigmatization

Preparing for What's Next



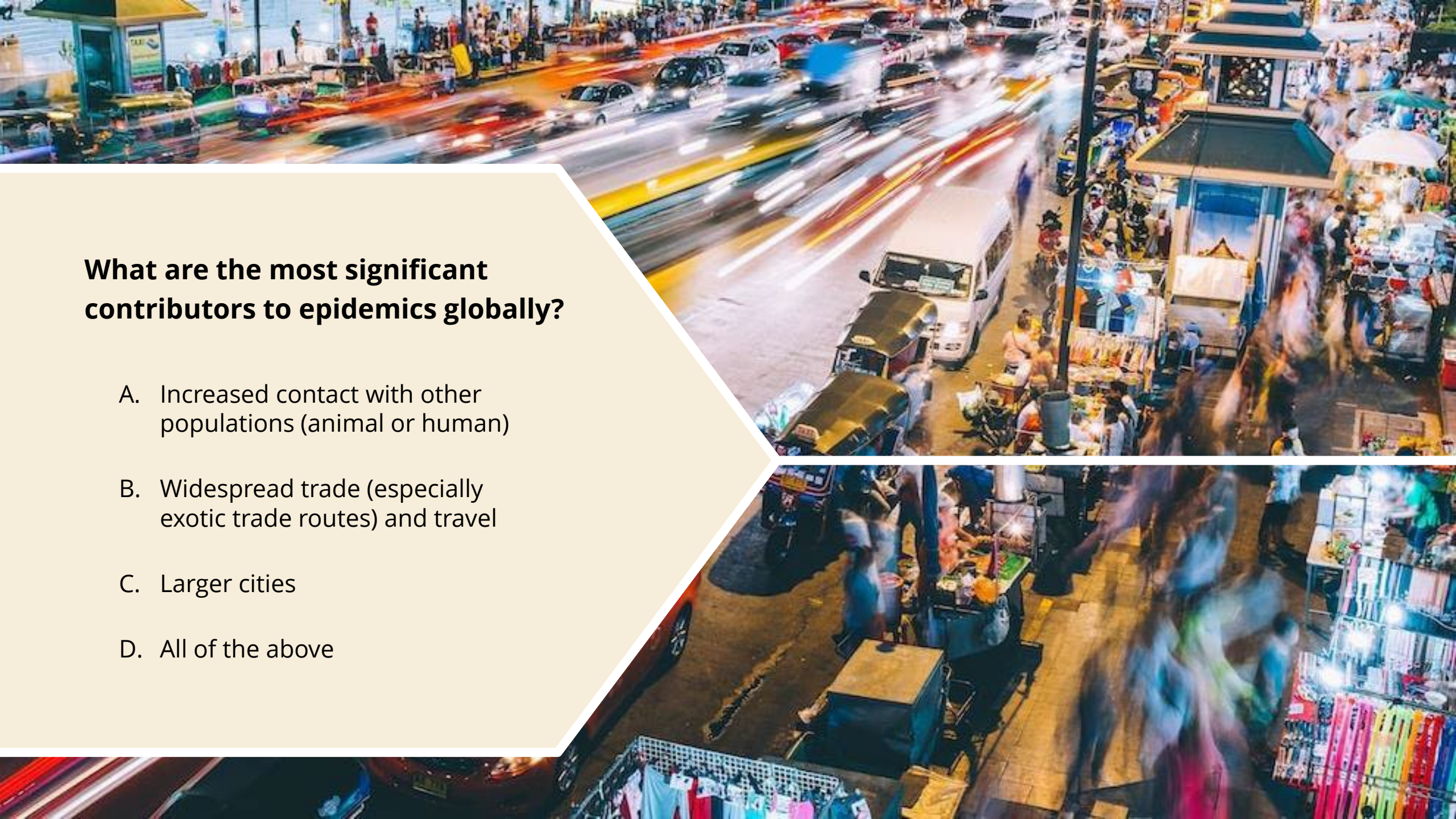
Disease Trends and Landscape

How Far Have We Come?

History of Pandemics

Societies shift to agrarian communities

- Scale and spread of diseases increases dramatically
- Death rates gradually reduce over time



What are the most significant contributors to epidemics globally?

A. Increased contact with other populations (animal or human)

B. Widespread trade (especially exotic trade routes) and travel

C. Larger cities

D. All of the above

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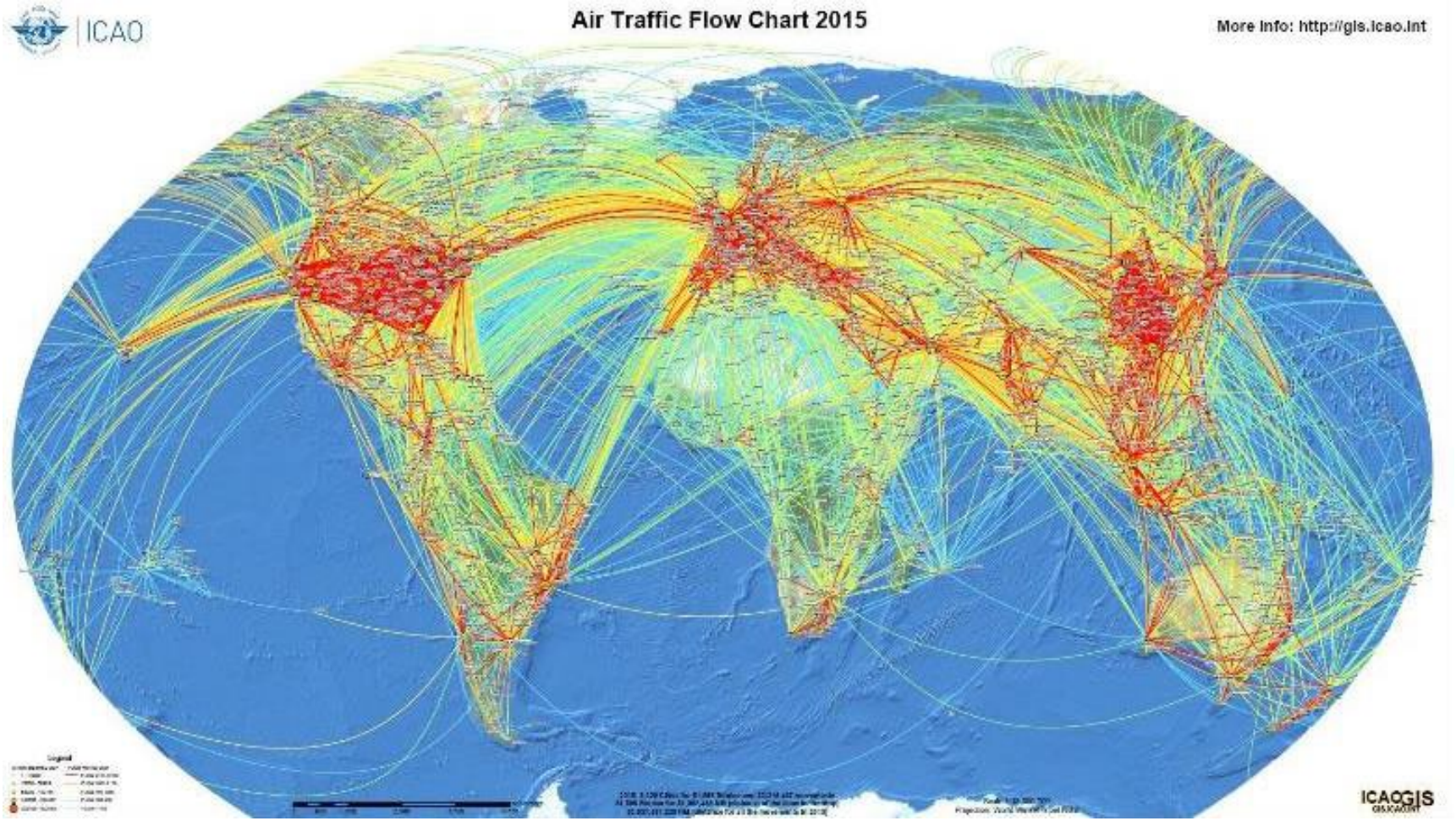
History of Pandemics

Widespread trade networks emerge

- New opportunities for human and animal interactions speed up epidemics (malaria, tuberculosis, leprosy, influenza, smallpox)
- Larger cities and new trade routes accelerate likelihood of pandemics

Increased Travel



International travel is an inescapable part of today's world, and a major influencer of disease spread

History of Pandemics

Societies move toward public health interventions

- Practice of quarantine begins in 14th century Venice
- Geography and statistical analysis used to solve cholera outbreak in mid-19th century London

History of Pandemics

Antonine Plague (165 – 180)

- Thought to be smallpox or measles

5M deaths

30M – 50M deaths

Plague of Justinian (541 – 542)

- *Yersinia pestis*

Black Death (1347 – 1351)

- *Yersinia pestis*

200M deaths

56M deaths

New World Smallpox Outbreak (1520 – 1980)

- *Variola major virus*

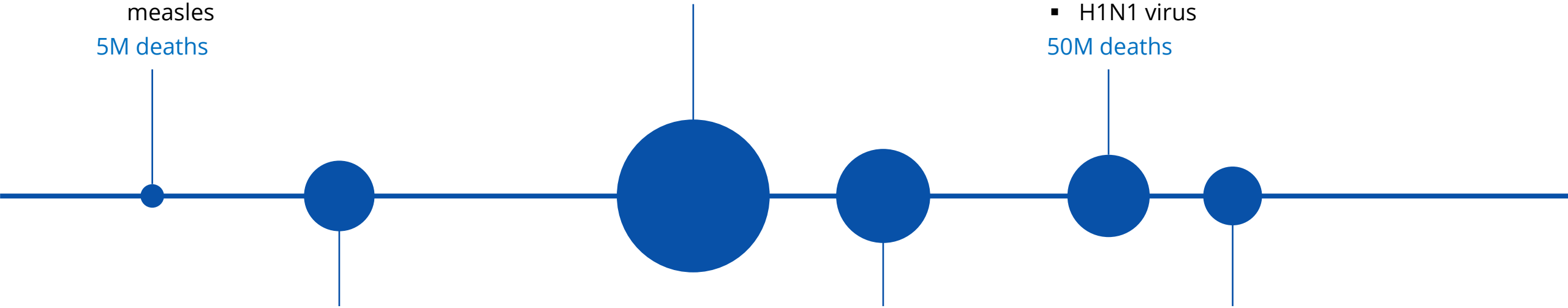
Spanish Flu (1918 – 1919)

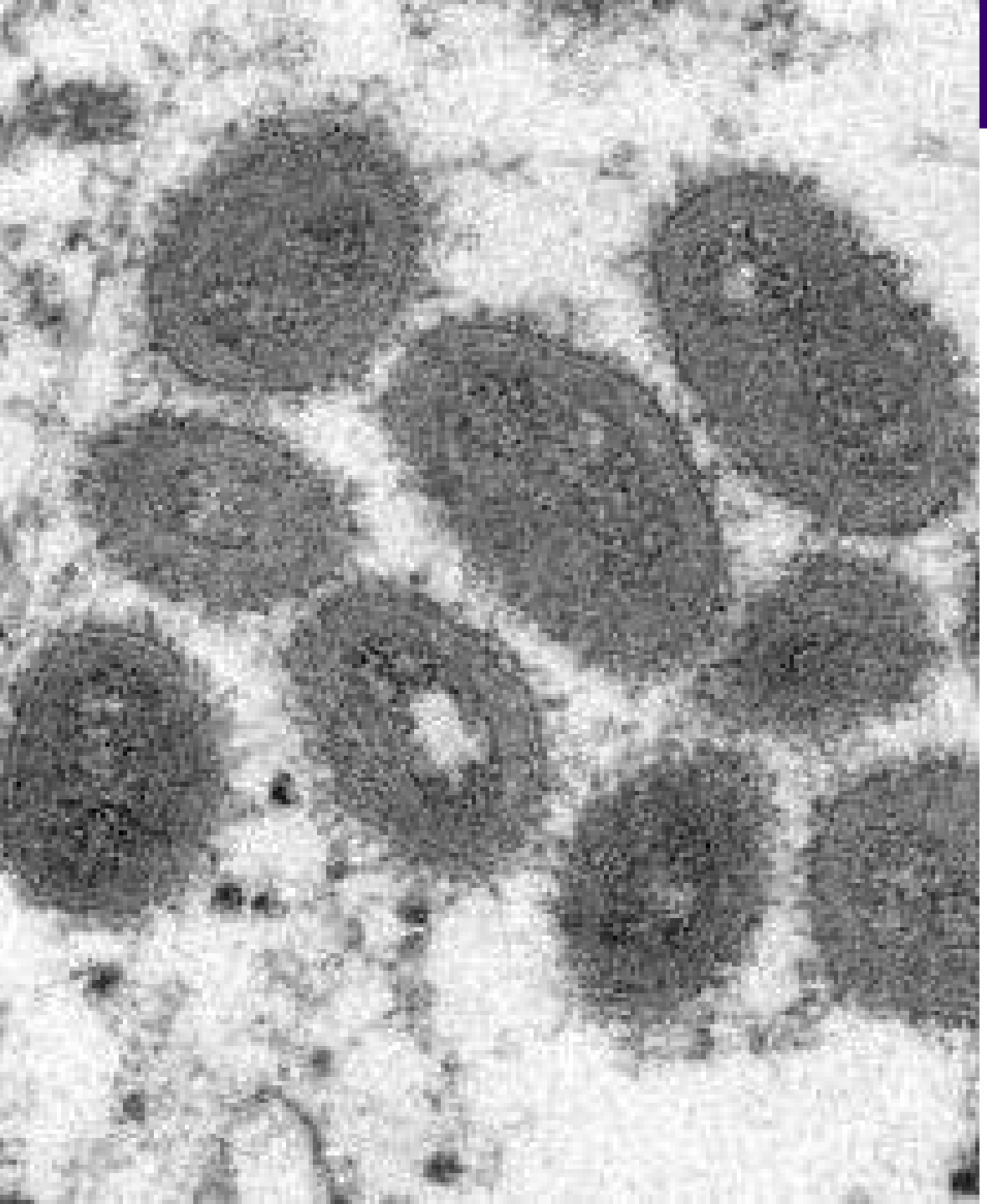
- H1N1 virus

50M deaths

35M deaths

HIV/AIDS (1981 – Present)





Monkeypox Virus (MPV)

Genus *Orthopox* includes:

- Monkeypox
- *Variola* virus (smallpox)
- *Vaccinia* virus (smallpox vaccine)
- Cowpox
- Camelpox, horsepox, rabbitpox, raccoonpox, skunkpox, volepox

Two strains of monkeypox (with substrains)

- Central African
- West African

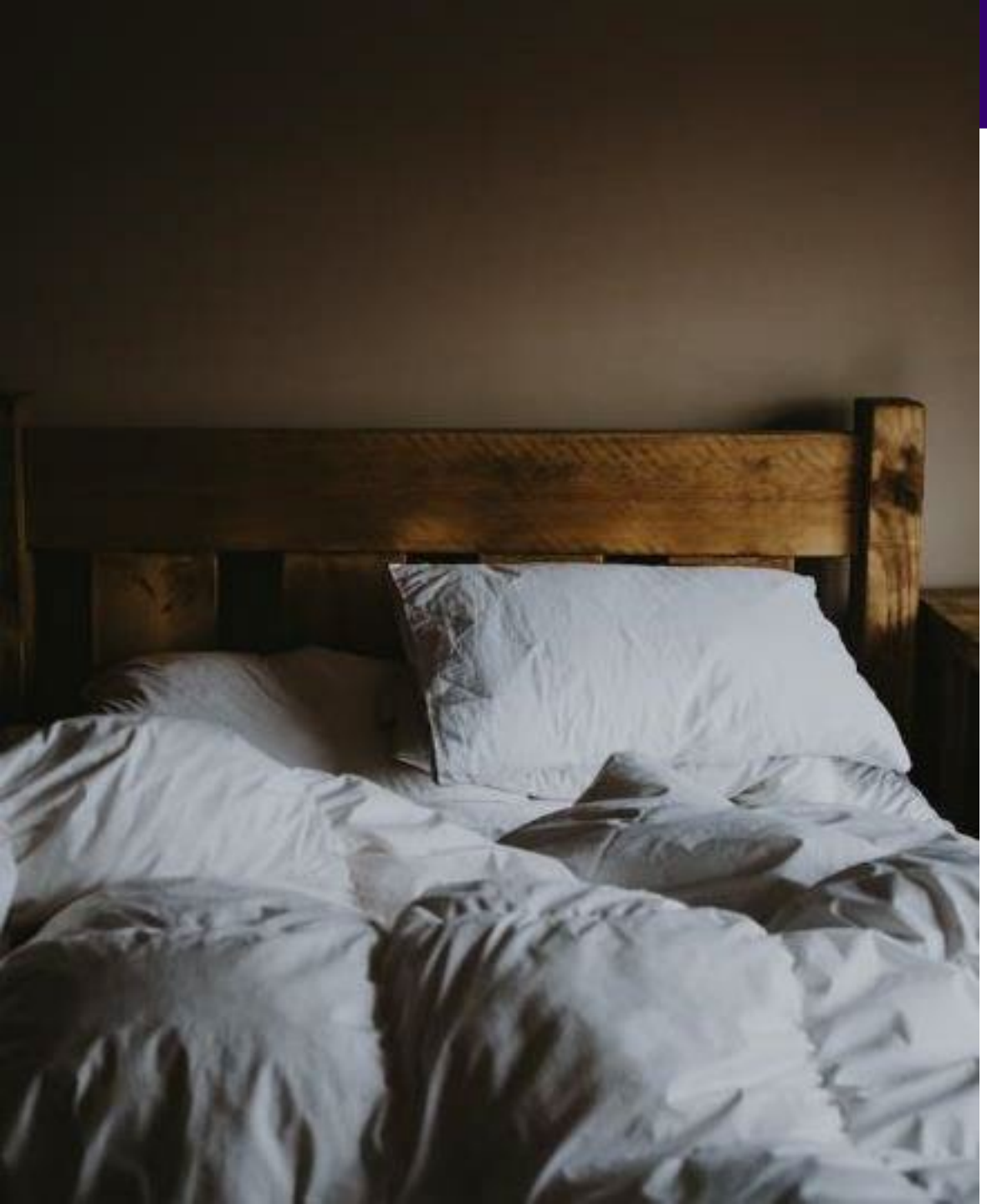
Monkeypox Epidemiology

Globe

- Identified 1958 during outbreaks in monkey research colonies
  - Major reservoir is likely rodents
- First human case 1970; outbreaks since
- Endemic cases and outbreaks in some central and western African countries
  - Outbreaks tend to die down ($R_o < 1$)

United States

- Sporadic travel-related cases
- 2003 outbreak of 81 cases linked indirectly to imported exotic pets



Monkeypox Transmission

- Contact with lesions, lesion fluid, scabs, sexual fluids, saliva
  - Entry through skin, mucous membrane (eye, genitals)
- Transmission through fomites – dried scabs (e.g., bedding, clothing)
- Respiratory droplets if prolonged face-to-face contact (in theory)
- Transmission occurred in healthcare settings including through bedding

Monkeypox Clinical

- Usual incubation: 7 - 14 days (range 5 – 21)
- Common early symptoms:
  - Fever, chills, headache, muscle aches, sore throat, cough, backache, swollen lymph nodes, exhaustion
- Rash: 1 – 3 days later, progresses
  - Macule (flat, red) to papule (raised) to vesicle (fluid) to pustule (pus) to scab (may scar)
  - Often starts on face, can be limited to anus/genitals
- Total duration: 2 – 4 weeks (contagious)
- Case fatality varies with strain, age, secondary infections

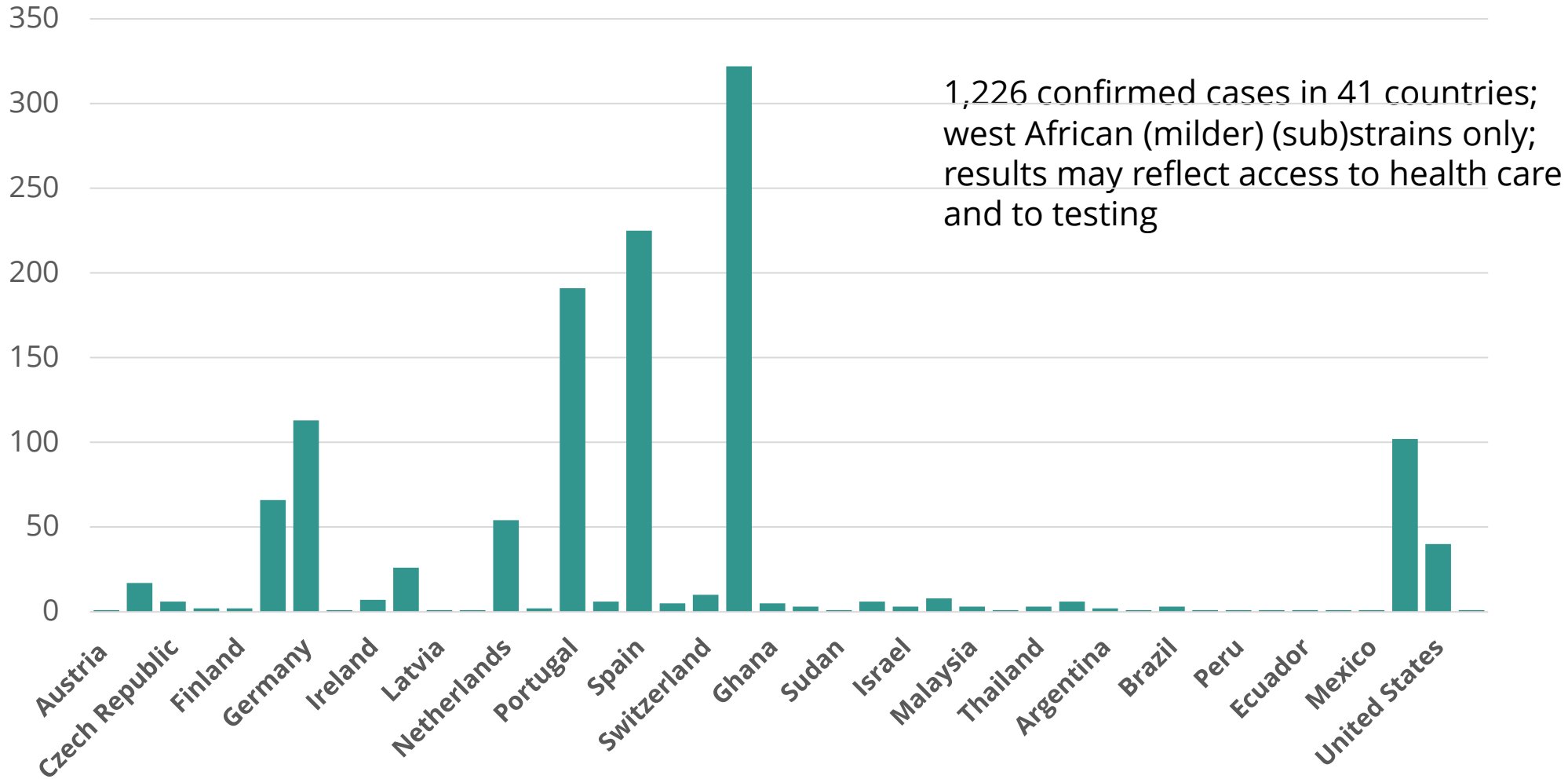
Identifying Monkeypox Rash

- Vesicles and pustules with well-circumscribed border
- Deep, may be dent in middle; often painful
  - Rash may start in mouth
  - May be on palms, soles
  - Any part of the body has lesions at the same stage usually but not always
  - Lesions can be only in genital area
  - May scar

Similar Rashes

1. **Pox:** deep; one stage on a body site
2. **Chickenpox:** shallow, many stages on body site
3. **Molluscum contagiosum:** raised, may be dimpled
4. **Syphilis:** red, scaly, superficial
5. **Smallpox vaccine:** rash from wearing shirt of somebody with recent vaccine
6. **Herpes simplex:** superficial blisters

2022 Outbreak – Cases 6/9/2022

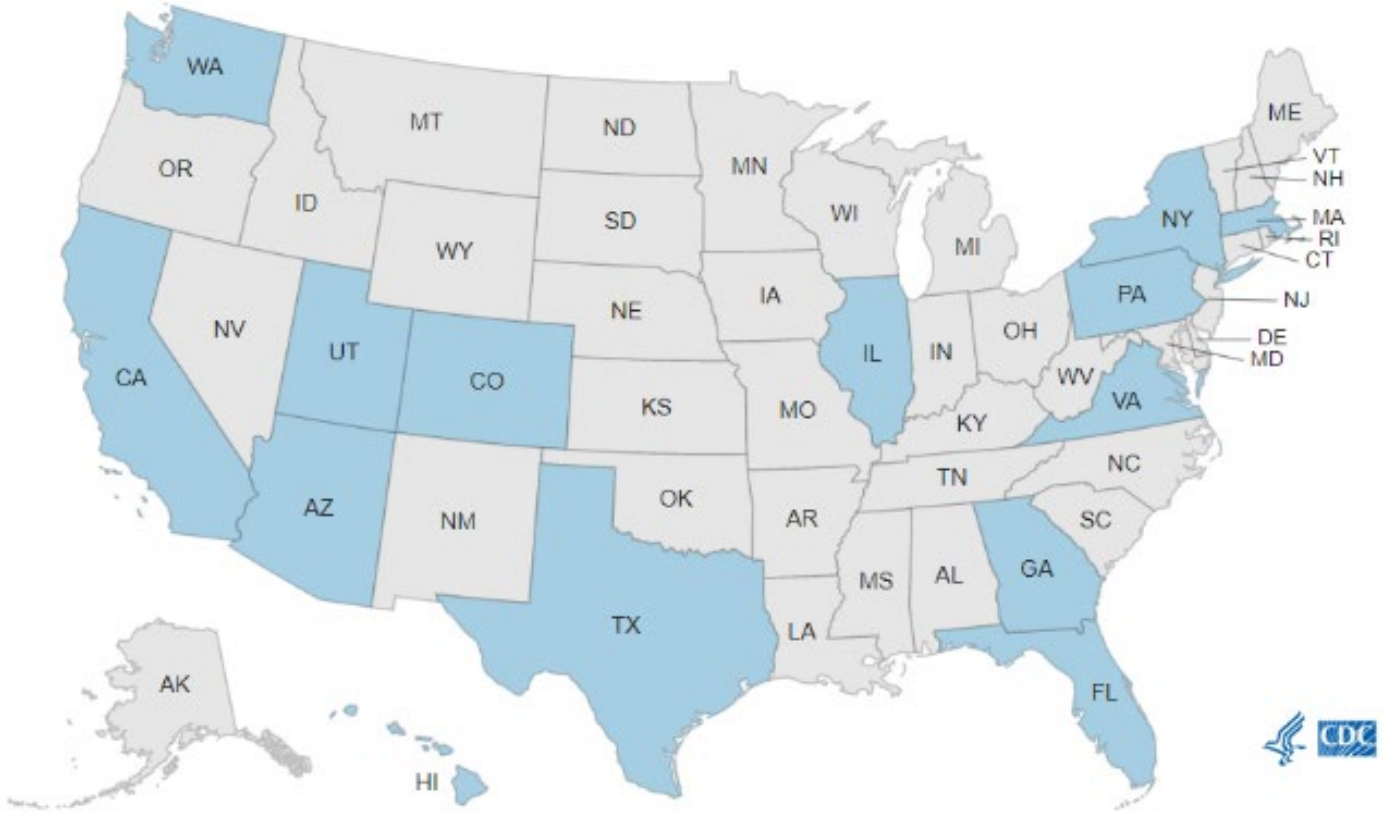


1,226 confirmed cases in 41 countries; west African (milder) (sub)strains only; results may reflect access to health care and to testing

Source: Our World in Data, https://ourworldindata.org/monkeypox

Initial Timeline - 2022

- First non-travel case reported in UK on May 13th, 2022
- Awareness and testing resulted
- First US case identified on May 18th
- Currently reported in around 40 countries (all continents except Antarctica) and around 15 US states



Source: Centers for Disease Control & Prevention, https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

Washington State Data

Source: Washington State Department of Health, Monkeypox (MPV) Data https://doh.wa.gov/you-and-your-family/illness-and-disease-z/monkeypox/monkeypox-mpv-data

Monkeypox Therapeutics

- Vaccination to prevent
- Two antiviral agents theoretically active against the virus
  - Limited experience
  - Side effects
- Consider treatment for person:
  - With severe disease or complications
  - At high risk for severe disease (immunocompromised)
  - Aged <8 years
  - Pregnant or breastfeeding

Question for the Viewers

How would you assess the following statement?
"In my organization, we feel adequately prepared to respond to the next zoonotic disease outbreak."

A. Agree

B. Disagree

C. I'm not sure

Misinformation and Stigmatization

Racial and Economic Inequities

Monkeypox has not affected all Washingtonians equally:

MPV Immunization Data as of October 26, 2022

	No.		No.
King	21,172	Jefferson	29
Pierce	1,396	Douglas	25
Spokane	639	Island	23
Clark	555	San Juan	17
Thurston	251	Chelan	14
Kitsap	169	Grays Harbor	<10
Whatcom	211	Pacific	<10
Snohomish	122	Cowlitz	<10
Yakima	114	Franklin	<10
Walla Walla	86	Grant	<10
Clallam	55	Kittitas	<10
Benton	51	Okanogan	<10
Skagit	43	OR State	55
Klickitat	23		
Whitman	23		
total	**25,133 ***		

Hospitalizations	Deaths	Pediatric Cases	Older Adult Cases	Non-human Cases
18	0	3	5	0

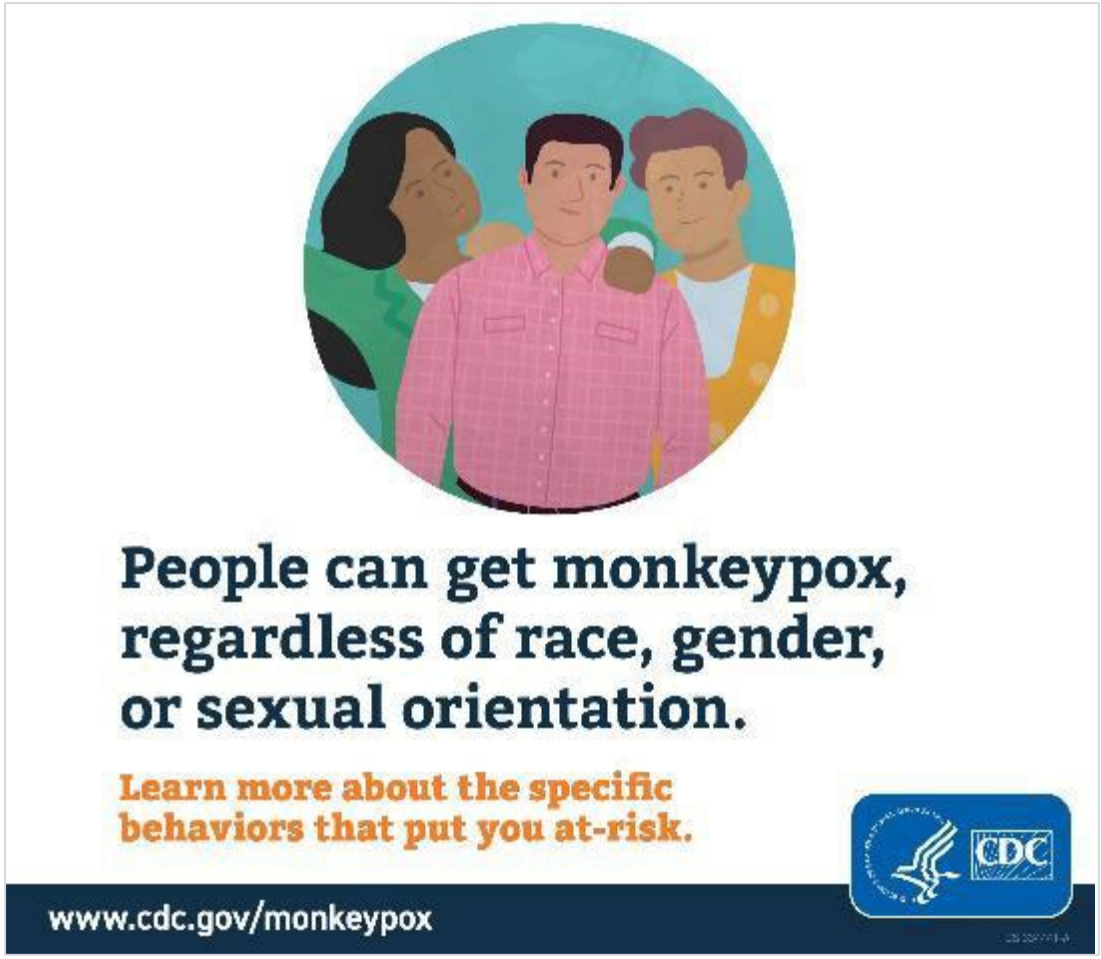
Confirmed and probable cases by race and ethnicity

Race	Hispanic, Latino/a, Latinx	Non-Hispanic, Latino/a, Latinx	Unknown	Total
White	69	234	7	310
Black or African American	3	55	1	59
Asian	0	29	1	30
American Indian or Alaska Native	3	8	0	11
Native Hawaiian or Other Pacific Islander	1	3	0	4
Multiracial or Other Race	58	23	4	85
Unknown	18	37	71	126
Total	**152**	**389**	**84**	**625**

Monkeypox Messaging

Messaging matters

- What are the messages?
- Who is the audience?
- How is the audience best reached?



Source: Centers for Disease Control & Prevention, https://www.cdc.gov/poxvirus/monkeypox/resources/social-media.html

> *The world seems to be repeating a historical script of perpetuating stigma and structural inequity that has plagued responses to other outbreaks. HIV, for example, is recurrently portrayed as a disease of gay men and Africans, and early depictions of COVID-19 focused on Asians.*
>
> — Vinay Kampalath, "Monkeypox is recapitulating the stigma and structural inequity of HIV, Ebola, and other diseases"

Source: STAT article by Vinay Kampalath, June 5, 2022, https://www.statnews.com/2022/06/05/monkeypox-recapitulating-stigma-structural-inequity-of-hiv-ebola-other-diseases/

What Diseases Create the Most Stigma?

- HIV/AIDS
- Tuberculosis
- Plague
- COVID-19
- Smallpox
- Monkeypox
- Obesity
- Diabetes
- Lung cancer
- Ebola
- HPV

Preparing for What's Next

Key Takeaways and Messaging for MPV

- ✓ **Anyone who has close contact** with a person with symptoms of MPV and/or an MPV-like rash can get MPV and be infected.
- ✓ While MPV is disproportionately impacting the LGBTQ+ community right now, anyone can get it, **regardless of sexual orientation or gender identity**.
- ✓ **Show compassion and support** for individuals and communities most closely impacted and anyone who might be sick.
- ✓ As the outbreak wanes, the next public health focus is **preventing additional cases**.
- ✓ People at high risk of infection or who have had a recent close contact with someone who had a rash that looks like MPV, or someone who was diagnosed with MPV, should **talk with a health care provider** about getting vaccinated.
- ✓ Those who received their first dose need to **come back for their second dose** so that they have more durable protection against MPV.

What Is My Biggest Concern?

- A novel infectious disease
  - Low community immunity
  - Little clinical experience with this agent
  - Media hype
- Respiratory spread
- High R_o
- Limited diagnostic capability
- No vaccine available
- No treatment beyond supportive care

A Chat with Scott Lindquist

Allene Mares

Scott Lindquist

QUESTIONS?

To ask a question, please click the

icon in the Zoom toolbar to open your Q&A Pod.

Resources

Monkeypox
Washington State Department of Health
https://doh.wa.gov/you-and-your-family/illness-and-disease-z/monkeypox

Monkeypox (MPV) Data
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Monkeypox is recapitulating the stigma and structural inequity of HIV, Ebola, and other diseases
STAT News article by Vinay Kampalath
https://www.statnews.com/2022/06/05/monkeypox-recapitulating-stigma-structural-inequity-of-hiv-ebola-other-diseases/

Reducing Stigma in Monkeypox Communication and Community Engagement
Centers for Disease Control and Prevention
https://www.cdc.gov/poxvirus/monkeypox/resources/reducing-stigma.html

Toolkits for Community, Work, and School
Centers for Disease Control and Prevention
https://www.cdc.gov/poxvirus/monkeypox/resources/reducing-stigma.html

A guide to preventing and addressing social stigma associated with COVID-19
World Health Organization
https://www.who.int/publications/m/item/a-guide-to-preventing-and-addressing-social-stigma-associated-with-covid-19