



Situational Awareness: Monkeypox Outbreak—United States, June 2022

Agam Rao, MD

CAPT, USPHS

Poxvirus and Rabies Branch

ACIP meeting


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Monkeypox

- Rare, sometimes life-threatening zoonotic infection
- Endemic in west and central Africa
- Specific animal reservoir unknown but likely small mammals
- Caused by *Monkeypox virus* (which is an orthopoxvirus)

- Can spread from infected animals to humans and person-to-person
 - Respiratory secretions
 - Skin-to-skin contact with infected body fluids (e.g., fluid from vesicles and pustules)
 - Fomites (e.g., shared towels, contaminated bedding)

Pre-2022 U.S. cases

- 2003: Outbreak linked to small mammals imported from Ghana
 - Cases: 47, multistate involving upper midwest United States
 - Cause was traced to spread of Monkeypox virus from:
imported African rodents → pet prairie dogs → people who had contact with pet prairie dogs
 - 2021: 2 unrelated cases in travelers from Nigeria
 - July (Texas) and November (Maryland)
 - Similar to imported cases during 2018-2021 reported in travelers to U.K. (4), Singapore (1), Israel (1)
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Classic lesions



2003 U.S. monkeypox outbreak



Reed KD, Melski JW, Graham MB, Regnery RL, Sotir MJ, Wegner MV, Kazmierczak JJ, Stratman EJ, Li Y, Fairley JA, Swain GR, Olson VA, Sargent EK, Kehl SC, Frace MA, Kline R, Foldy SL, Davis JP, Damon IK. The detection of monkeypox in humans in the Western Hemisphere. *N Engl J Med.* 2004 Jan 22;350(4):342-50.

Lesions observed in endemic countries



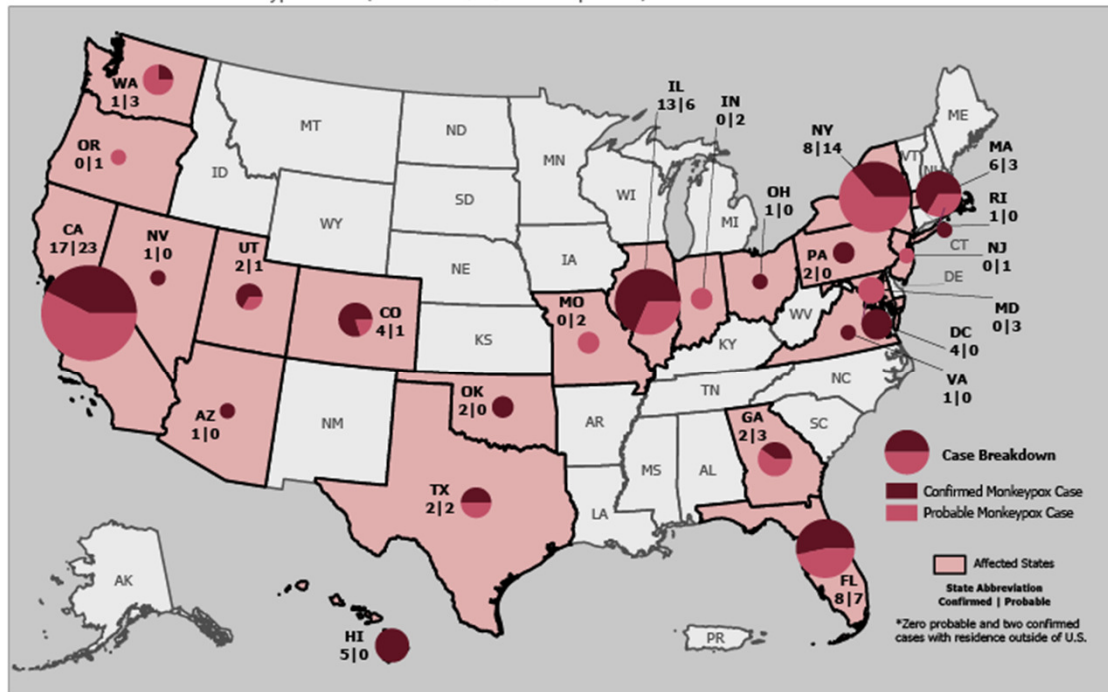
May 2022

- United Kingdom: cases in 3 distinct clusters announced May 7, 14, and 16
 - Travel-associated: 1
 - Family cluster of unknown etiology: 3
 - Cases identified at sexual health clinics among gay, bisexual, or other men who have sex with men (MSM): 4
- United States: first suspected case identified on May 17
 - Resident of Massachusetts who had traveled to Canada
 - Rash began as anogenital rash (vesicles and pustules) which spread to face and trunk
 - OPX generic positive at Massachusetts Laboratory Response Network laboratory

Probable and confirmed cases* by U.S. state

United States Monkeypox Cases

Confirmed and Probable Monkeypox Cases (Data as of 6/22/2022 at 2pm EDT)



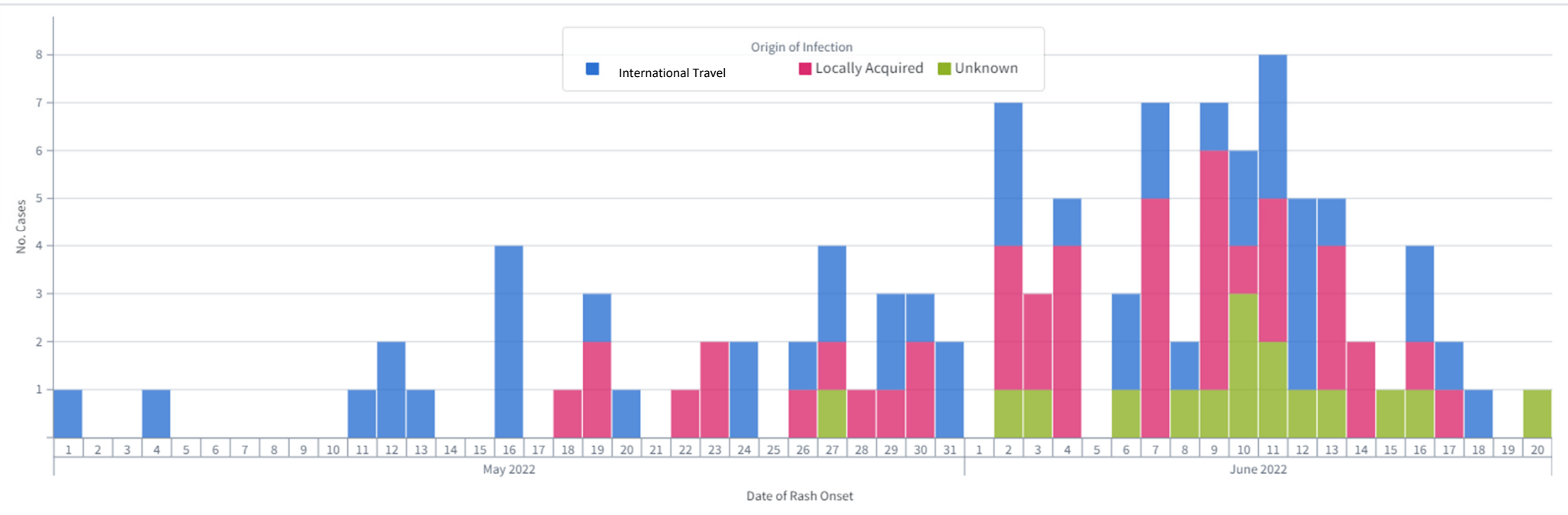
Total: As of 2pm ET on Wednesday June 22nd, 155 cases diagnosed in the United States† among residents of 24 states and the District of Columbia

*A probable case is presence of orthopoxvirus DNA by PCR of a clinical specimen OR orthopoxvirus using immunohistochemical or electron microscopy testing methods OR demonstration of detectable levels of anti-orthopoxvirus IgM antibody during the period of 4 to 56 days after rash onset in a person in whom there is no suspicion of other recent orthopoxvirus exposure (e.g., Vaccinia virus in ACAM2000 vaccination) Confirmed case is demonstration of Monkeypox virus DNA by polymerase chain reaction testing or Next-Generation sequencing of a clinical specimen OR isolation of Monkeypox virus in culture from a clinical specimen

†One patient is currently being monitored in Florida, but laboratory confirmation occurred in another country. This case is not included in some U.S. case counts

Probable and confirmed cases by date of rash onset

Confirmed and Probable Cases by Origin of Infection and Rash Onset Date



Demographics, N=155


- Median age: 37 (range 20-76)
- Male sex at birth
 - Cisgender man: 56
 - Unknown gender identity: 82
 - Refused: 1
- Female sex at birth: 5
 - Includes transgender males and cisgender women

MSMC*: 120/121 (98%)
Unknown: 29

No deaths

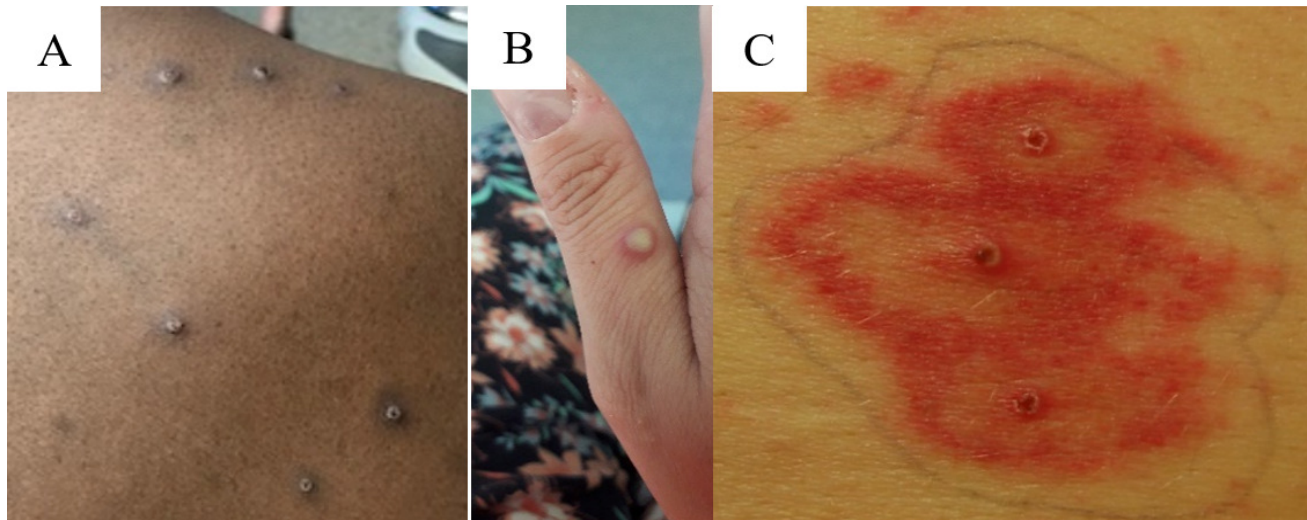
*male-to-male sexual contact

Clinical symptoms

- Rash or enanthem in all patients
 - Lesions in different phases of development seen side-by-side
 - Rash either scattered or diffuse; sometimes limited to one body site and mucosal area (e.g., anogenital region or lips/face)
 - Presenting complaint sometimes anorectal pain or tenesmus; physical examination yields visible lesions and proctitis
 - Prodromal symptoms mild or not occurring
 - Fever, lymphadenopathy not occurring in all patients
 - Some co-infections with sexually transmitted infections
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Lesions observed during May and June 2022*

- Firm, deep-seated, well-circumscribed and sometimes umbilicated
- Small lesions
- May rapidly progress through stages (papules, vesicles, pustules, and scabs)
- Papulovesicular and pustular lesions may be seen on same body site



Photos A and B from NHS England High Consequence Infectious Diseases Network; photo C from Reed KD, Melski JW, Graham MB et al. The detection of monkeypox in humans in the Western Hemisphere. Page 346. Copyright © 2004. Massachusetts Medical Society. Reprinted with permission

*As data continues to be collected, what is known about the clinical presentation may change

For additional images

- 1) Ogoina D et al. Clinical course and outcome of human monkeypox in Nigeria. Clin Infect Dis. 2020; 71(8): 210-214
- 2) Antinori A et al. Epidemiological, clinical, and virological characteristics of four cases of monkeypox support transmission through sexual contact, Italy, May 2022. Euro Surveill. 2022 June; 27 (22).

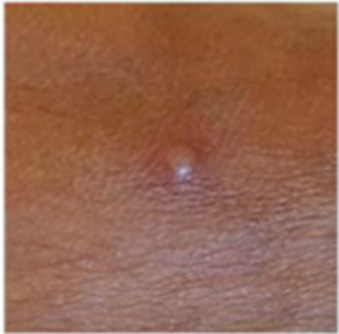


Photo Credit: NHS England High Consequence Infectious Disease Network


Monkeypox lesions, United States 2022



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patients, CDC

From Basgoz N, Brown CM, Smole SC, et al. Case 24-2022: A 31-Year-Old Man with Perianal and Penile Ulcers, Rectal Pain, and Rash. Epub ahead of print. Copyright © Jun 15 2022. Massachusetts Medical Society. Reprinted with permission from Massachusetts Medical Society

CDC guidance to clinicians

- Observation of classic monkeypox rash OR
 - Observation of rash that could be consistent with monkeypox in persons with epidemiologic risk factors:
 - Contact with a person or people a) with similar appearing rash or b) diagnosed with monkeypox
 - Close or intimate in-person contact with people in a social network experiencing monkeypox activity (e.g., men who have sex with men who meet partners through an online website, digital app or social event)
 - History of recent international travel to country currently reporting cases
 - When lesions are not consistent with classic lesions, full body skin exam should be done to evaluate whether some classic lesions are observed
 - Diagnosis of STI does not rule-out co-infection with monkeypox
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Selected listing of current CDC priorities

- Understanding clusters and cases including risk factors
- Sequencing of genomes
- Launching retrospective and prospective serosurveys
- Developing natural history study
- Expanding testing capacity to commercial laboratories
- Providing case-by-case consultations for treatment and post-exposure prophylaxis

Interim information and tools for healthcare providers and public health authorities

www.cdc.gov/monkeypox

- Case definitions
 - Clinical recognition
 - Contact-tracing
 - Exposure risk assessment
 - Guidance for monitoring exposed persons
 - Infection control in home and healthcare settings
 - Specimen collection
 - Considerations for medical countermeasures
- ← Topic of next presentation

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

National Center for Emerging and Zoonotic Infectious Diseases
Division of High-Consequence Pathogens and Pathology

