Monkeypox 101: What Clinicians Need to Know

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CDC Monkeypox Response

Council of Medical Specialty Societies
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Monkeypox virus

• Monkeypox is a rare disease caused by infection with monkeypox virus

• *Monkeypox virus* belongs to the *Orthopoxvirus* genus in the family *Poxviridae*
  - *Orthopoxviridae* genus includes *Variola virus* (which causes smallpox), *Vaccinia virus* (used in the smallpox vaccine), and *Cowpox virus*

• First discovered in 1958 following two outbreaks of a pox-like disease in colonies of monkeys kept for research (hence the name ‘monkeypox’)

• Specific animal reservoir unknown, but likely small African mammals
## Case Count: 2,593  July 21, 2022

![Monkeypox Map](image)

Below is a summary of the case count by state as of July 21, 2022:

<table>
<thead>
<tr>
<th>STATE</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>830</td>
</tr>
<tr>
<td>California</td>
<td>356</td>
</tr>
<tr>
<td>Illinois</td>
<td>230</td>
</tr>
<tr>
<td>Florida</td>
<td>226</td>
</tr>
<tr>
<td>Georgia</td>
<td>158</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: [2022 U.S. Map & Case Count | Monkeypox | Poxvirus | CDC](#)
Case Count: 15,848  July 21, 2022

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>3,125</td>
</tr>
<tr>
<td>United States</td>
<td>2,592</td>
</tr>
<tr>
<td>Germany</td>
<td>2,191</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2,137</td>
</tr>
<tr>
<td>France</td>
<td>1,453</td>
</tr>
<tr>
<td>Netherlands</td>
<td>712</td>
</tr>
</tbody>
</table>

Source: [2022 Monkeypox Outbreak Global Map](https://www.cdc.gov/poxvirus/monkeypox/outbreaks.html) | [Monkeypox](https://www.cdc.gov/poxvirus/monkeypox/| [Poxvirus](https://www.cdc.gov/poxvirus/) | [CDC](https://www.cdc.gov/)
Selected epidemiological metrics from enhanced surveillance questionnaires in confirmed monkeypox cases in England as of 6 July 2022 (N=445)

<table>
<thead>
<tr>
<th>Metric</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gay, bisexual, or men who have sex with men</td>
<td>427 (96.2%)</td>
</tr>
<tr>
<td>Travel abroad prior to symptom onset (21 days)</td>
<td>136 (30.6%)</td>
</tr>
<tr>
<td>Age under 30 years</td>
<td>86 (21.5%)</td>
</tr>
<tr>
<td>History of STI in the last year</td>
<td>233 (53.7%)</td>
</tr>
<tr>
<td>One or no sexual partners in last 3 months</td>
<td>67 (15.7%)</td>
</tr>
<tr>
<td>10+ sexual partners in last 3 months</td>
<td>134 (31.3%)</td>
</tr>
<tr>
<td>Living with HIV</td>
<td>123 (29.5%)</td>
</tr>
<tr>
<td>On HIV treatment (among living with HIV)</td>
<td>121 (99.2%)</td>
</tr>
<tr>
<td>Ever used PrEP (among HIV negative)</td>
<td>222 (79.3%)</td>
</tr>
</tbody>
</table>

Source: Monkeypox - Our World in Data and Investigation into monkeypox outbreak in England: technical briefing 3 - GOV.UK (www.gov.uk)
Clinical Illness: ‘Classic’

• **Incubation period:** 5–13 days on average (range 4–17 days)
• **Prodrome:** fever, malaise, headache, weakness, and lymphadenopathy that may be generalized or localized to several areas (e.g., neck and armpit)
• **Rash:** appears shortly after prodrome starts
  - Typically lesions develop simultaneously and evolve together on any given part of the body
  - Four stages – macular, papular, vesicular, to pustular – before scabbing over and resolving
  - Well-circumscribed, deep seated with umbilication, painful
  - When disseminated tend to be centrifugal: more on arms, legs, hands, feet
  - Can involve palms and soles
• **Illness duration is typically 2–4 weeks**
**Clinical Illness: ‘Classic’ Lesions**

Lesions observed during 2003 U.S. monkeypox outbreak

Lesions observed in endemic countries

Source: https://www.cdc.gov/poxvirus/monkeypox/clinicians/clinical-recognition.html
Clinical Illness: ‘2022’ Lesions

- Pattern: scattered or localized to a body site rather than diffuse

- Rash often starts in mucosal areas (e.g., genital, perianal, oral mucosa) and may not develop simultaneously in all body areas
  - **Proctitis**: anorectal pain, tenesmus, and rectal bleeding; associated with visible perianal vesicular, pustular, or ulcerative skin lesions and proctitis
  - **Oropharyngitis**: complicated by tonsillar swelling and abscess

- “Prodromal” symptoms can be absent follow rash onset
Clinical Illness: ‘2022’ Lesions

Transmission

- Spread person-to-person through:
  - **Direct contact** with the infectious rash, scabs, or body fluids
  - **Respiratory secretions** during prolonged, face-to-face contact, or during intimate physical contact, such as kissing, cuddling, or sex
  - **Touching items (such as clothing or linens)** that previously touched the infectious rash or body fluids
  - **Through placenta** in an infected pregnant person to their fetus

- Patients are infectious once symptoms begin (whether prodromal or rash symptoms) and remain infectious until lesions form scabs, scabs fall off, and a fresh layer of skin forms
Examination and Diagnosis

• Collect a complete sexual and travel history for past 21 days
  ▪ Consider possibility of foreign or domestic animal or animal product contact

• Perform a thorough skin and mucosal examination (e.g., genital, anal, oral) in a room with good lighting

• If rash present, consider a broad differential (e.g., syphilis, varicella zoster, herpes simplex, molluscum contagiosum), especially if the person has epidemiologic risk factors for monkeypox infection in the current outbreak

• Evaluate for STIs per the 2021 CDC STI Treatment Guidelines
  ▪ Persons with monkeypox have had STIs including acute HIV
If you suspect you have a case...

• Obtain specimens
  ▪ [https://www.cdc.gov/poxvirus/monkeypox/clinicians/prep-collection-specimens.html](https://www.cdc.gov/poxvirus/monkeypox/clinicians/prep-collection-specimens.html)
  ▪ NB: testing in population with low prevalence more likely to have falsely positive results

• Notify health department and your facility’s infection control team
  ▪ Can be helpful with contact tracing and identifying person eligible for post-exposure prophylaxis

• Consider consultation for treatment (contact health department)
  ▪ Antivirals (tecovirimat, cidofovir, brincidofovir)
  ▪ Vaccinia immune globulin
For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions of this report represent the opinion of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention