

Emerging Pathogens – Monkeypox and Parechovirus: What PCPs Need to Know

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Q&A

- Q:** If the disease is more prevalent in E.U. and U.S., why is it not more reported in Africa?
- A:** Monkeypox is endemic in West and Central Africa. Prior to this current outbreak almost all cases were reported in Africa or linked to international travel to countries where the disease commonly occurs, or through imported animals. The current outbreak is mainly occurring in Europe, North America and South America.
- Q:** Are airborne/N95 precautions required only if doing a procedure such as intubation, or in all confirmed cases?
- A:** To clarify, the requirement for a N95 mask is a separate requirement distinct from patient room placement. **PPE to be used by healthcare personnel seeing someone with suspected or confirmed monkeypox include gown, gloves, eye protection (i.e., goggles or a face shield that covers the front and sides of the face) and a N95 mask or PAPR.** The patient does not need to be in an airborne infection isolation room (otherwise known as a negative pressure room) unless performing a procedure such as intubation or extubation.
- Q:** When swabbing lesions, is it ok to swab multiple ones with the same swab?
- A:** No, I suggest only swabbing one lesion per swab. If clinically indicated, consider submitting additional swabs if multiple lesions with different stages are present. Multiple specimens collected from a single patient should be submitted separately.
- Q:** When you say swab the base of the lesion, is the technique to go around the edges of the raised portion (assuming it's in that stage) or are you supposed to roll across the whole lesion?
- A:** The entirety of the lesion should be swabbed, not just the edges. Swab vigorously!
- Q:** Are kids with eczema at greater risk for complications?
- A:** Yes, children and adults with eczema who are infected with monkeypox are at increased risk of severe disease.
- Q:** What dosage is the Tecovirimat down to?
- A:** Dosing is available down to 3 kg.



Q: Any tricks for distinguishing between monkeypox and HFM?

A: The following comparison table may be helpful:

	Monkeypox	Hand-Foot-and-Mouth Disease
Incubation period	5-21 days	3-7 days
Fever	May occur, most commonly 1-3 days before rash onset	1-2 days before oral vesicles
Lymphadenopathy	May occur	Less common
Rash appearance	Appears at the site of inoculation, then may appear on other parts of the body, including: <ul style="list-style-type: none"> • oral mucosa, • genital area, • conjunctiva, • palms of the hands, and • soles of the feet 	Usually, vesicles appear in or on the mouth, then may appear on other parts of the body, including <ul style="list-style-type: none"> • palms of the hands, • soles of the feet, • knees, • elbows, • buttocks, or • genital area
Rash progression	Slowly progresses through macules, papules, vesicles, pustules, and crusting/scab. May have central umbilication. Lesions may develop simultaneously and evolve together on any given part of the body (i.e., monomorphic)	Macules, sometimes with Vesicles Vesicles may break open and progress to crusting/scab
Rash duration	14-28 days	7-10 days

Q: Will you accept patients in your clinic between 18-21 years old?

A: We routinely see those age groups in our practices, and these are the most likely ages to present with monkeypox. We see patients up to 21 years of age in ID clinic.

Q: Anyone who is considered high risk for treatment, pediatric age range, can call Children's National Hospital ID/ email ID clinic for evaluation?

A: Yes!

Q: Obviously the biggest challenge for us in primary care is the sheer volume of patients we see who have had fevers and then develop rashes. Are we swabbing all these patients (who previously we would assume had HFM) and keeping them out of daycare for the 4 day turn around?

A: I suggest swabbing those who have a characteristic monkeypox rash as well as those who meet one of the current CDC epidemiologic criteria for monkeypox as below:

Within 21 days of illness onset:

- Reports having contact with a person or people with a similar appearing rash or who received a diagnosis of confirmed or probable monkeypox, OR
- Had close or intimate in-person contact with individuals in a social network experiencing monkeypox activity, this includes men who have sex with men (MSM) who meet partners through an online website, digital application (“app”), or social event (e.g., a bar or party), OR
- Traveled outside the U.S. to a country with confirmed cases of monkeypox or where monkeypox virus is endemic, OR
- Had contact with a dead or live wild animal or exotic pet that is an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.).

Q: Please confirm availability of vaccine for kids under 18 years—I am understanding that is not yet available.

A: The JYNNEOS vaccine can be offered for pediatric cases using a single-patient EA IND authorization from the U.S. Food and Drug Administration, which can be acquired in coordination with state and local health departments and CDC.

Q: Does it tend to spare hands, palms and soles?

A: Monkeypox lesions can involve the palms and soles.

Q: Does ID at CNH only see pediatric patients?

A: We see patients up to 21 years of age in the ID clinic.

Q: How to triage suspicion for monkeypox versus common hand, foot and mouth, molluscum, or other rashes?

A: See chart above.

Q: Do we know if one infection with monkeypox confers lifetime immunity?

A: We don't know the answer to this question yet.

Q: How long does it typically take for monkeypox testing to result?

A: Turnaround time for commercial lab monkeypox PCR testing is 2-5 days.

Q: Do you always have to have the prodrome for monkeypox before the rash develops?

A: No. In the current outbreak, typical prodromal symptoms may be mild or absent.

Q: Can patients 18 years or older, in other Maryland counties, come to DC Children's if they are high risk for JYNNEOS? If not, where can they receive the vaccine.

A: The JYNNEOS vaccine is not currently available at Children's National Hospital. It is being given via local health departments.

- Q:** Is there a cut-off time for treatment for monkeypox with Tecovirimat?
- A:** No. However, in an individual for whom treatment is indicated if lesions have resolved or significantly improved then we would likely not give Tecovirimat. If lesions are still active and/or the person has other complications, we would likely treat with Tecovirimat regardless of when the infection first started.
- Q:** Can healthcare workers get the monkeypox vaccine at the local health department?
- A:** If a health care worker meets the criteria for vaccine at their local health department, they can receive the vaccine. However, simply being a healthcare worker is not a current criterion for vaccine eligibility at MD, VA, or DC Departments of Health.
- Q:** Question is regarding how itchy the monkeypox lesions can be. Is the itchiness really simply due to the healing/scab and not specifically related to monkeypox itself? If we have a patient with concerning rash that is VERY itchy, but not yet healing, should we still consider monkeypox?
- A:** Monkeypox lesions may be itchy, but the sensation of itching alone is not a classic symptom of monkeypox. There isn't data available about when in the course of lesion progression itchiness is most likely to occur. If you have a patient with a concerning rash that is VERY itchy but not yet healing, you should consider monkeypox.
- Q:** If a child comes after being tested in a different center (MD), results are pending, do we still need to report to infection control/DOH?
- A:** No, not if results are still pending. But all confirmed monkeypox cases should be reported to infection control and the local DOH.
- Q:** I'm Suzanna Martin, PEM at Shady Grove. We sent you two cases of neonatal parechovirus in the past month who presented initially with fever only. One case had mildly elevated blood inflammatory markers (PCT and CRP) but the other has normal labs. Both had normal LPs, only positive for parechovirus on BioFire. The second case had an LP due to elevated inflammatory markers, but the first was well appearing and did not meet AAP criteria for LP until 36 hrs after initial presentation when he had a seizure. Given the AAP recommendations for no LP after DOL 21 in a well appearing infant with normal labs, are there any guidelines on who should receive an LP in the era of parechovirus? And if a well appearing infant has parechovirus detected on LP, what is the disposition? Home? Inpatient at local hospital? Transfer to Children's National?
- A:** There has been no discussion about changing the febrile infant guidelines in the setting of this parechovirus outbreak that I am aware of. I can't say how common is it for a baby that ends up having severe parechovirus infection to have a normal CRP and procalcitonin as we don't have the data to answer that question. The ID team discussed your question about not using the AAP clinical practice guideline and instead doing an LP on all well appearing febrile infants between 22-60 days of age and as a group we did not recommend that you change your practice away from the guideline as we think this would lead to unnecessary hospital admission and/or antibiotic use without evidence at this time that infants with mild PeV infection with aseptic meningitis have significant sequelae. All kids with viral sepsis, hepatitis, myocarditis, encephalitis/seizures should be transferred. However, the other kids are harder to speak to. The vast majority of the patients we have admitted have had mild disease and wouldn't need to come to Children's National for a higher level of care. Those children with mild disease also

wouldn't qualify for our NIH neonatal viral sepsis study (another potential reason for transfer). As it pertains to getting a brain MRI, the majority of our patients were discharged before 3 days after onset of symptoms and would need to have their MRI scheduled as an outpatient (so no advantage to admission here to get MRI). Can you all get those kids scheduled for an MRI before 6 weeks of age (as there is a standard protocol for non-sedated non-contrasted MRI before 6 weeks of age) and then arrange follow up with Dr. Mulkey at 3 to 6 months of life? If so, then I don't think they need to be sent to Children's. (Appointment requests for Dr. Mulkey can be emailed to Nadia Jadeed at ojadeed@childrensnational.org)

Q: I work as a pediatric hospitalist at a community hospital. Do you recommend we transfer neonates with parechovirus to Children's?

A: See answer above.

Q: We have a patient who presented to the office with viral myocarditis/sepsis and was admitted to Fairfax. This mother was in labor for several hours, ROM 30 hours prior to delivery. I don't know the results of the viral panel which was sent. Is this transmitted through vaginal canal, or systemic infection through the mother's bloodstream? Or infection and incubation in that 96-hour period?

A: The chief modes of perinatal transmission of parechoviruses (and enteroviruses) are by intrapartum exposure to maternal blood and/or genital secretions, as well as the fecal-oral and respiratory routes after delivery.

Q: What are we supposed to tell all the parents calling in worried about that their child's rash is monkeypox? What specific HPI can we obtain to help?

A: I would take a history and ask to see photos if possible as you may easily be able to reassure them that the rash is most consistent with another diagnosis. See the children with a rash or history concerning for monkeypox in your office (with appropriate PPE) for further evaluation and if indicated, testing. Helpful HPI questions include questions related to the current CDC epidemiologic criteria for monkeypox as below:

Within 21 days of illness onset:

- Reports having contact with a person or people with a similar appearing rash or who received a diagnosis of confirmed or probable monkeypox, OR
- Had close or intimate in-person contact with individuals in a social network experiencing monkeypox activity, this includes men who have sex with men (MSM) who meet partners through an online website, digital application ("app"), or social event (e.g., a bar or party), OR
- Traveled outside the U.S. to a country with confirmed cases of monkeypox or where monkeypox virus is endemic, OR
- Had contact with a dead or live wild animal or exotic pet that is an African endemic species or used a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.).

Q: Which patient do you decide to test for parechovirus?

A: For neonates or children with meningitis, encephalitis, or meningoencephalitis I would send a CSF multiplex PCR panel as it includes PCR testing for parechovirus. Febrile infants that are having CSF sent should also have a CSF multiplex PCR panel ordered. I would send serum and stool testing for parechovirus for neonates with sepsis, hepatitis, and/or myocarditis.

Q: I got the question if you can get monkeypox at gym from shared equipment. Would wiping off the equipment with available wipes be enough to prevent transmission?

A: Monkeypox can spread by touching objects, fabrics (clothing, bedding, or towels), and surfaces that have been used by someone with monkeypox. However, the main route of transmission is from direct contact with monkeypox rash, scabs, or body fluids from a person with monkeypox. Wiping off equipment using an EPA-registered disinfectant in accordance with the manufacturer's instructions is sufficient to prevent transmission. See a list of EPA-registered disinfectants here (<https://www.epa.gov/pesticide-registration/disinfectants-emerging-viral-pathogens-evps-list-q#search>).

Q: You reported it's skin to skin, what about items touched outside of household? What is the length of time an item may be contagious, like door handles?

A: See above. Per the CDC, "Poxviruses can survive in linens, clothing and on environmental surfaces, particularly when in dark, cool, and low humidity environments. In one study, investigators found live virus 15 days after a patient's home was left unoccupied. Studies show that other closely related Orthopoxviruses can survive in an environment, similar to a household, for weeks or months. Porous materials (bedding, clothing, etc.) may harbor live virus for longer periods of time than non-porous (plastic, glass, metal) surfaces. Orthopoxviruses are very sensitive to UV light. Despite the ability of Orthopoxviruses to persist in the environment, they are also sensitive to many disinfectants."

However, transmission from simply touching a door handle is highly unlikely. See this CDC website for details on disinfecting home and other non-healthcare settings (<https://www.cdc.gov/poxvirus/monkeypox/specific-settings/home-disinfection.html>).

Q: Would you please give us the contact email address for Sarah Mulkey? Thanks!

A: Appointment requests for Dr. Mulkey can be emailed to Nadia Jadeed at ojadeed@childrensnational.org.

Q: What criteria to send child back to school?

A: CDC recommends that people with monkeypox remain isolated at home or at another location for the duration of illness, but that might not be possible in all situations. These considerations may change as we learn more from the 2022 global outbreak of monkeypox. **Ideally, people with monkeypox would remain in isolation for the duration of illness, which typically lasts two to four weeks. However, if a person with monkeypox is unable to remain fully isolated throughout the illness, they should do the following:**

- While symptomatic with a fever or any respiratory symptoms, including sore throat, nasal congestion, or cough, remain isolated in the home and away from others unless it is necessary to see a healthcare provider or for an emergency:

- This includes avoiding close or physical contact with other people and animals.
- Cover the lesions, wear a well-fitting mask (more information below), and avoid public transportation when leaving the home as required for medical care or an emergency.
- While a rash persists but in the absence of a fever or respiratory symptoms:
 - Cover all parts of the rash with clothing, gloves, and/or bandages.
 - Wear a well-fitting mask to prevent the wearer from spreading oral and respiratory secretions when interacting with others until the rash and all other symptoms have resolved.
 - Masks should fit closely on the face without any gaps along the edges or around the nose and be comfortable when worn properly over the nose and mouth.
- Until all signs and symptoms of monkeypox illness have fully resolved:
 - Do not share items that have been worn or handled with other people or animals. Launder or disinfect items that have been worn or handled and surfaces that have been touched by a lesion.
 - Avoid close physical contact, including sexual and/or close intimate contact, with other people.
 - Avoid sharing utensils or cups. Items should be cleaned and disinfected before use by others.
 - Avoid crowds and congregate settings.
 - Wash hands often with soap and water or use an alcohol-based hand sanitizer, especially after direct contact with the rash."

Q: Regarding parechovirus, do you anticipate a change in decision making re: obtaining LP in febrile 22-56 day old who otherwise would not have met criteria for LP?"

A: See answer above.

Q: How long is the isolation period for monkeypox and when can someone return to work or school, etc.?

A: See answer above.

Q: Any news on Polio?

A: Luckily, other than the single case reported in Rockland County, New York, no other recent cases have been reported in the U.S. The Rockland County case was in an unvaccinated young man who was infected with the live virus vaccine strain.

Q: Other than Children's, where all can babies/kids be tested in the DMV area?

A: Testing can be done in any office/hospital as testing is available via commercial labs (LabCorp, Quest).

Q: When are you no longer considered contagious?

A: A person with monkeypox can spread it to others from the time symptoms start until the rash has fully healed and a fresh layer of skin has formed.

Q: Do we have data on if the smallpox vaccine is effective in preventing monkeypox?

A: Past data suggests that the smallpox vaccine is at least 85% effective in preventing monkeypox for three to five years after vaccination. However, percent effectiveness of smallpox vaccine in preventing monkeypox after that time frame is not known.