Correspondence

International Pediatric Association Statement on MPOX: What Pediatricians Need to Know and Can Do to Help Their Communities

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Background

As pediatricians are trusted sources of health information in their community, they have the important role of helping communities deal with Mpox as the World Health Organisation has declared the outbreak a Public Health Emergency of International Concern in mid-August 2024. While the majority of recent cases involving children have been in Africa, families and communities from there and elsewhere may have questions and concerns. The following IPA statement summarizes information about Mpox and also provides links to useful resources. The IPA encourages pediatricians to be information resources to help local public health and civil society organizations on raising community awareness of Mpox, work to avoid stigmatization and address disinformation and provide advice on community care of Mpox infected infants and children.

Mpox: the organism

Mpox formerly known as monkeypox is a zoonotic infection caused by the Mpox virus an orthopox virus in the poxviridae family to which the eradicated smallpox virus belongs. The animal reservoir is unknown but is thought to be a small rodent. The Mpox virus has two distinct genetic clades- Clade I (which has subtypes I a and I b) and Clade II (with subtypes II a and II b). The clade I is endemic in Central Africa and tends to cause more severe disease while clade II is endemic in West Africa. The first case of Mpox was reported in Democratic Republic of Congo in 1970 and since then there have been sporadic cases in various countries in West and Central Africa. The first cases of Mpox reported outside the African continent were 47 cases related to wild animals transported to the USA as part of pet trade in 2003. More recently, there have been increasing reports of Mpox starting in 2017 with Nigeria reporting an outbreak. Since 2022 there has been a global spread of Mpox(about 110 countries so far reporting. See figure 1) with the African continent having multi country outbreaks and the highest number of cases being reported by Nigeria and the Democratic Republic of Congo(DRC). Five (5) countries with no recent reports of Mpox in Africa have since reported cases. See figure 2 The African Centre for Disease Control has declared the situation a public health emergency of continental security.

Transmission

Mpox is thought to be transmitted from animals to humans, human to human and from contaminated environment to humans. Contact with the body fluids of infected animals during hunting, trapping, skinning and playing with carcasses of wild animals as well as eating of inadequately cooked infected animals are thought to be methods of transmission. Transmission from handling of monkeys, Gambian giant rats and squirrels has been documented in Africa. Close physical contact including sexual contact, respiratory droplets and contact with skin lesions of infected persons, contaminated beddings and fomites are considered transmission routes for the virus. Clade I a is more likely transmitted from animals to humans with children younger than 15 years more represented in those affected. Clade I b has a mutation that enables sustained human to human transmission and has been associated with heterosexual networks: hence adults over 15 years are more represented amongst cases.

However, close contacts remain susceptible to being infected. Clade I a is responsible for the outbreak in DRC and other central African countries while clade II is responsible for the outbreak in Europe and other countries outside Africa. Nigeria's outbreak is also due to clade II. In the epidemic in the high income countries cases seemed to be more among men who sleep with men also suggesting a sexual transmission route. Vertical transmission has also been reported. While children are said to be more affected in Africa, most literature tend to report findings about adults without much attention to children creating a knowledge gap. Immunocompromised persons especially People living with HIV (PLWHA), neonates and pregnant women are at risk for severe disease. Previous vaccination with the smallpox vaccine seems to confer protection explaining some of the epidemiological profile of the disease which indicates that fewer older persons are affected.

Clinical features

Mpox usually is mild to moderate in severity and presents in two phases following an incubation period of 5 to 21 days.

- Invasion/prodromal period (0-5 days)- characterized by fever, intense headache, myalgia, back ache, lymphadenopathy (a distinguishing feature from chickenpox) and lack of energy. Other features are cough, pruritus, mouth ulcers, sore throat, nausea and vomiting.

- Skin eruption- appears within 1-3 days of onset of fever. The rash starts in the face and progresses to other parts of the body (trunk, legs, arms, genitalia, hands and soles of the feet). The face (95%) and palms/soles (75%) are mostly affected. Some persons have a few skin lesions while others have hundreds or more. The rash progresses through maculopapular, vesicles, pustular and crusting over a 10 day period. The oral mucosa, conjunctiva and cornea may be affected. The rash in a particular area are usually at the same stage of development. The patient remains infectious until skin lesions have dried and scabs have fallen off. The rash heals leaving hypo/hyperpgimented patches which fade over time. Permanent scarring occasionally occurs especially if the ulcers are not well managed. (see https://ncdc.gov.ng/themes/common/docs/protocols/96_1577798337.pdf, especially images on page 29)

The illness is self-limited in most persons but may be complicated resulting in mortality.

Mpox Case definitions

Suspected case

• An acute illness with fever >38.3°C, intense headache, lymphadenopathy, back pain, myalgia, and intense asthenia followed by a progressively developing rash often beginning on the face (most dense) and then spreading elsewhere on the body & may involve the soles of the feet and palms of the hand.

Probable case

• A case that meets the clinical case definition and has an epidemiological link to a confirmed case.

Confirmed case

• A clinically compatible case that is laboratory-confirmed

Contact

• Any person who has been in direct or indirect contact with a confirmed case since the onset of symptoms, i.e., contact with skin lesions, oral secretions, urine, feces, vomitus, blood, sexual contact, sharing a common space (anyone who has been in proximity with or without physical contact with a confirmed case)

Diagnosis- is confirmed by isolation of the virus through culture or by PCR. Antibody ELISA tests and antigen detection tests are only used to detect recent exposure. These tests may however not be available in resource limited settings and management may be carried out based on clinical diagnosis.

Differential diagnosis: These include conditions that result in vesicular eruptions such as chickenpox, impetigo, staphylococcal or streptococcal skin sepsis as well as maculopapular rash such as measles and other rashes such as scabies. Adverse drug reactions resulting in rashes are also a differential diagnosis for Mpox.

Mpox

- Illness is usually mild to moderate in severity, but can be fatal. Illness presenting with fever, headache, lymphadenopathy, back pain, myalgia (soreness in muscle) and asthenia (decrease in muscle strength)
- Rash which follows fever starts from face, then spreads usually in a centrifugal pattern to other parts of the body especially extremities
- Rash progresses from maculopapules to vesicles, pustules (rash with pus) and crusts (dried blisters)
- Rashes in a particular area are usually at the same stage of development

Chicken pox

- Mild/moderate childhood infection which can also affect adults In whom it tends to be more severe
- Fever, tiredness, loss of appetite and headaches
- Rash that turns into itchy, fluid-filled blisters that eventually turn into scabs
- The rash may first show up on the face, chest, and back then spread to the rest of the body, including inside the mouth, eyelids, or genital area
- Rash is usually not pustular
- Rashes are usually at different stages of development
- Lymphadenopathy is not a common feature

Measles

- High fever, cough, watery nose (coryza), and conjunctivitis (red, watery eyes). Tiny white (Koplik) spots may appear inside mouth 2-3 days after symptoms but usually before rash begins
- Flat red (maculo-papular) rashes appear on face around hairline, and spread downward to the neck, trunk, arms, legs, and feet
- Small raised bumps may also appear on top of the flat red spots

Scabies

- Intense itching, with onset of pimple-like itchy rash
- The itching and rash usually affects the wrist, elbow, armpit, webbing between the fingers, nipple, penis, waist, belt-line, and buttocks
- Tiny raised lines (burrows) are sometimes seen on the skin which are caused by the female scabies mite tunneling just beneath the surface of the skin
- The head, face, neck, palms, and soles may be involved in infants and very young children.

Syphilis

- Fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and fatigue
- Painless chancre in primary stage of the disease
- Skin rashes and/or mucous membrane lesions (sores in the mouth, vagina, or anus) mark the second stage

Bacterial skin sepsis(bullous impetigo)

Mostly affects young children (<2years). Small vesicles are first observed which progress to bullae which are flaccid. The bullae contain clear or yellow fluid which eventually become purulent. The bullae rupture resulting in an erythematous base with a rim of scale but no crusting.

Source: Nigeria Centre for Disease Control. National Monkeypox Public Health Response Guidelines. 2019

Principles of Management

Mild cases of Mpox may be managed at home with observance of infection control practices to limit intrafamilial spread. One dedicated caregiver is recommended. Contact with uninfected family members and others should be limited. Do not share potentially contaminated bed linens, clothing, towels, drinking glasses and eating utensils. When these are handled, disposable gloves should be worn. Routine cleaning and disinfection of touched surfaces and items. Person with Mpox should avoid contact with animals including household pets. Hand washing with soap and water should be performed by those with Mpox and by household contacts. A mask is recommended for the patient when in close contact with household member and those in contact with the patient should also to wear a mask Cover all skin rashes to extent possible by wearing long sleeved shirts and/or long pants. Dispose of contaminated waste (dressings and bandages) in consultation with local health authorities. Do not dispose into open dumps or landfills.

In-hospital care should be done with the patient in isolation. Standard precautions should be followed in addition to contact and droplet precautions. The major principles of case management of human Mpox include:

a) Protection of compromised skin and/or mucous membranes
b) Rehydration therapy
c) Alleviation of distressful symptoms
d) Provision of nutritional support
e) Treatment of complications
f) Psychosocial support
g) Treatment of comorbidities

There is no specific treatment for Mpox. However Tecovirimat an antiviral is being researched as a potential treatment option.

Prevention Mpox can be prevented by the avoidance of contact with individuals who have symptoms compatible with Mpox especially those with skin lesions. Regular hand washing with soap and water or hand sanitization using alcohol based hand rubs is recommended. If caring for a person with suspected Mpox, protective gear such as hand gloves and masks should be worn. Contact with animals that may harbor the virus should be avoided and meat should be thoroughly cooked before eating Health care workers should have a high index of suspicion for Mpox in patients presenting with fever, rash and other symptoms compatible with Mpox. History of travel to affected areas or contact with suspected cases should heighten suspicion. Suspected cases

should promptly be isolated to avoid health care associated transmission. Isolation should continue until all lesions have healed. Mpox is a notifiable disease and health care workers should report suspected cases to local/national authorities and appropriate samples for confirmation of the disease should be collected. Vaccination is recommended for persons at high risk of exposure in the setting of an outbreak and this may include children. Persons with multiple sexual partners, health care workers and contacts of persons with Mpox should be considered for vaccination in this setting. In non-outbreak setting laboratory staff working with Mpox virus should be vaccinated.

References and additional resources

1. https://www.who.int/news-room/fact-sheets/detail/mpox
2. https://www.cdc.gov/poxvirus/mpox/clinicians/infection-control-home.html"
3. Source: Nigeria Centre for Disease Control. National Monkeypox Public Health Response Guidelines. 2019
4. Africa Centre for Disease Control and Prevention. Mpox surveillance: Reporting protocol for African Union member states. August 2024