Mpox

Traveler Summary

Key Points

- Mpox (formerly known as monkeypox) is a viral infection caused by the monkeypox virus that is native to Central and West Africa (but has now spread globally) and is acquired through direct contact with bodily fluids, secretions, and lesion material from infected persons or animals or through consumption of inadequately cooked contaminated meat from infected animals (bush meat).
- Risk exists for travelers going to more than 40 currently affected countries and is increased for those who engage in risk behaviors (e.g., contact with infected persons [including sexual contact, mainly men having sex with men], infected animals [dead or alive], or rodent droppings or handling or consuming inadequately cooked bush meat).
- Symptoms include fever, chills, headache, swollen lymph nodes, and blistering rashes, which begin on the face and may spread to other body parts. Blistering rashes may start in the genital area if the infection was acquired by sexual contact.
- Consequences of infection include bacterial infections, dehydration, and brain inflammation. For the most usual strain, death may occur in about 1% of cases.
- Prevention includes avoiding risk behaviors and contact with persons with rashes or compatible illness.
- Jynneos, a vaccine that is safe for use in all adults regardless of health status, is given as a 2-dose schedule (4 weeks apart) for persons at risk for mpox infection due to a high degree of exposure to the virus, including from sexual contact or health care work or from occupational exposure (e.g., handling the virus in a laboratory or taking care of infected patients).
- Vaccine side effects include headache, nausea, tiredness, and injection-site reactions.
- Duration of vaccine protection following a completed series is about 2 years. A booster dose is recommended every 2 years for those at continued risk because of their occupation.

Introduction

Mpox is a viral disease similar to smallpox (but milder), which historically was mainly transmitted from infected animals to humans but increasingly is transmitted from infected humans to other humans. Mpox is regarded as the most important orthopoxvirus disease in humans since smallpox, which was eradicated globally in the 1970s. Most cases of mpox have been acquired in Africa, except for a 2003 outbreak in the US due to imported African rodents, a hospital-acquired case in the UK in 2018, and a 2022 multicountry outbreak mostly among men who have sex with men (MSM). A vaccine has recently been approved for the prevention of mpox (as well as smallpox) in adults, and conventional smallpox vaccines are likely to be effective.

Risk Areas

Mpox most commonly occurs in the Democratic Republic of the Congo (DRC), with cases ranging from 1,000 to more than 5,000 cases per year; however, recent outbreaks have been occurring in tropical rainforests in the Congo basin and West Africa, including Cameroon, Central African Republic, Liberia, Nigeria, Republic of the Congo, and Sierra Leone. In 2020, more than 6,000 mpox cases (and > 220 deaths) were reported from 17 provinces in DRC. The number of cases in affected areas is increasing, likely due to waning immunity from previous smallpox vaccination (which provided cross-protection against mpox) and closer contact between humans and animals as a result of population movement, civil unrest, deforestation, and climate change. Exported cases in foreigners living in or visiting Nigeria have been reported since 2018. The May 2022 outbreak, now affecting over 40 countries (mostly in Europe but including the US), started with several superspreading events at community gatherings in Europe among MSM.

Transmission

The reservoir host of the monkeypox virus is thought to be the rope squirrel, tree squirrel, dormouse, or Gambian pouched rat. Mpox is less transmissible than smallpox and is mainly transmitted from animals to humans through direct contact with droplets (bodily fluids, respiratory secretions, or lesion material) or droppings from infected animals, especially rodents (dead or alive) and is spread to humans through bites, scratches, or intact skin or through consumption of inadequately cooked contaminated bush meat. Human-to-human transmission may occur between sexual partners due to contact during sex with infectious skin, genital lesions, and mucosal (including oral) lesions; the role of saliva and semen in transmission is unknown. Other human-to-human

methods of transmission include direct contact with bodily fluids or lesion material and indirect contact with lesion material, such as through contaminated material (e.g., clothing, linens, bedding, electronics) and through inhalation of infected respiratory droplets and possibly short-range aerosols (usually requiring prolonged face-to-face contact). Transmission of monkeypox virus is more common during the onset of lesions in the mouth and on the tongue but may occur during the early symptomatic period (swollen lymph nodes, fever, malaise, headache), if it occurs. A person is generally infectious during the period of these first lesions until all the lesions have crusted (scabbed), those crusts have separated, and a fresh layer of healthy skin has formed, which may take several weeks (about 21 days). See Symptoms.

Transmission from mother to fetus through the placenta and hospital-acquired infections have also been reported. No transmission was ever detected on aircraft while smallpox was circulating. Health care workers (HCWs) and household members outside of endemic areas have been infected.

Risk Factors

Risk for travelers going to mpox affected areas includes:

- Having multiple sexual partners, especially those with genital lesions, including MSM (moderate risk); mass gatherings can substantially increase this risk.
- Having contact with infected bodily fluids or sleeping in the same room/bed with an infected person
- Caring for and transporting mpox patients, especially HCWs or volunteers actively involved in an outbreak; infections have occurred despite the use of personal protective equipment.
- Having contact with contaminated materials used by ill persons (such as clothing or bedding)
- Living, working, or participating in recreational activities in proximity to infected animals
- Contact with ill mammals or materials soiled by animals such as rodents, marsupials, or nonhuman primates that are dead or alive or exotic pets that are an African species or using a product derived from such animals (e.g., game meat, creams, lotions, powders, etc.), including consuming inadequately cooked bush meat
- Living in forested areas

Symptoms

Not all persons infected with monkeypox virus have symptoms; however, in most cases, symptoms most commonly appear 7 to 14 days (range: 5-21 days) following exposure and include fever, chills, swollen lymph nodes, extreme tiredness, headache, and muscle aches. A few days after the fever appears, a uniformly evolving blistering rash (lesions numbering from a few to several thousand) often begins on the face (most affected) and spreads to other parts of the body (especially the palms, soles, and mouth) and may last for about 2 to 4 weeks. Rashes may also appear on the genitals and inside the eyelids. However, genital and perianal lesions without the preceding fever, headache, muscle aches and spread of the rash to other parts of the body reflect a unique aspect of a sexually transmitted outbreak reported in 2022; additional symptoms of this outbreak following the rash include fever, swollen lymph nodes, and pain when swallowing, likely due to oral lesions.

Although symptoms of mpox may be similar to that of smallpox, mpox infection usually causes milder disease.

Consequences of Infection

Complications can include bacterial infections, difficulty breathing, pneumonia, dehydration (due to vomiting, diarrhea, or the inability to eat or drink because of painful lesions in the mouth), permanent corneal scarring, brain inflammation, and enlarged lymph nodes. Death from the most common strain occurs in about 1% of symptomatic cases in Africa (mostly among young children).

Need for Medical Assistance

Any degree of exposure to mpox requires monitoring of signs and symptoms (e.g., fever ≥ 38°C [≥ 100.4°F], chills, new swollen lymph nodes, and new skin rash) through 21 days after the exposure to the infected person or their clothing or bedding. Travelers who develop symptoms of mpox, especially persons with weakened immune systems, should seek immediate medical attention. Treatment is mainly supportive, and hospitalization may be required. Specialized antivirals, if given as soon as possible, may reduce the duration and severity of illness in severe cases.

Prevention

Nonvaccine

Avoid sexual contact with infected persons. Avoid contact with infected persons (who should be in isolation in a medical facility), blood or bodily fluids from such persons, or materials (e.g., clothing) that have been in contact with an infected person or animal. Practice rigorous disinfection techniques in case of accidental contact with infected animals or humans. Avoid public transportation if any symptoms of mpox are present.

Avoid handling or consuming bush meat and avoid direct contact with rodents (including rodent droppings) or other infected animals (dead or alive).

Vaccine

Jynneos is a vaccine (containing a live, nonreplicating, weakened virus) that provides protection against both mpox and smallpox in adults, including elderly persons regardless of a previous history of cardiac events. Although this is a live vaccine, the vaccine virus is unable to replicate in the human body to cause illness and can be safely used by all adults regardless of health status, including persons with weakened immune systems.

Smallpox vaccines stockpiled by public health authorities may also provide protection against mpox, although none are licensed for this indication or are commercially available. One study from the 1980s indicates that persons vaccinated against smallpox with older replication-competent vaccinia-virus vaccines similar to the current vaccine had 85% protection against mpox; duration of the cross-protection was not studied.

Side Effects

The most common vaccine side effects of Jynneos include injection-site reactions (redness, pain, swelling, and itching), as well as tiredness, headache, muscle aches, nausea, and, rarely, chills or fever. Serious side effects are rare.

Persons with underlying medical conditions or who have concerns about the vaccine should speak to their health care provider before vaccine administration.

Timing

The primary series of Jynneos consists of 2 doses (given 4 weeks apart) to persons 18 years and older.

Duration of vaccine protection following a completed primary series is about 2 years. A booster dose is recommended every 2 years for those at continued risk of exposure to mpox because of their occupation.

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