



ASA/APSF Statement on Monkeypox

August 31, 2022

The following statement provides anesthesia professionals with background information on monkeypox that is supportive of the recommendations at the end of this statement.

Monkeypox has been endemic in central and western Africa since its discovery in humans in 1970. The pathogen, the monkeypox virus, was first identified in monkeys and hence the origin of its name. Sporadic outbreaks typically originate from contact with wildlife reservoirs (rodents and primates) with subsequent spread to humans by close contact. Clusters of monkeypox infections have occurred outside of these endemic regions of Africa; these outbreaks were travel-associated and secondary spread was limited. In 2003, a cluster of monkeypox infections was reported in the U.S.; this outbreak was associated with direct contact with pet prairie dogs. Recently, a canine pet in a family where members were infected acquired monkeypox.

In late April and early May 2022, another cluster of cases outside of the African endemic region was reported; subsequently, a series of outbreaks have occurred in several different countries. At present, 48,844 cases have been reported worldwide; about one-third of those cases (18,101) were reported in the U.S. Not including previously endemic regions, 82 countries worldwide have reported cases, prompting the World Health Organization to declare monkeypox an “evolving threat of moderate public health concern” on June 23, 2022. On August 4, 2022, the U.S. Department of Health and Human Services Secretary Xavier Becerra announced that the ongoing spread of monkeypox virus in the United States is a Public Health Emergency. Current information on daily reported cases of monkeypox in the U.S. and their distribution by state is found on the CDC website at <https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html>.

The monkeypox virus is a double-stranded DNA virus classified within the Orthopoxvirus genus. Other viral species within the Orthopoxvirus genus include variola (causing smallpox), vaccinia (the virus component of the current vaccine for smallpox), and cowpox (which is not spread human-to-human).

Transmission of monkeypox virus occurs primarily through close, personal, often skin-to-skin contact. Spread may occur by means of:

1. Direct contact with monkeypox rash, scabs, or body fluids of a person with monkeypox;
2. Touching objects, fabrics (clothing, bedding, or towels), and surfaces that have been used by someone with monkeypox;
3. Large respiratory droplets.

There is no clear evidence of sexual transmission through seminal or vaginal fluids. Vertical transmission and fetal deaths have been described.

Illness typically begins with fever, headache, myalgia, back pain, respiratory symptoms such as congestion and cough, and lymphadenopathy. Approximately three days later, macular, deep-seated, and well demarcated lesions develop, often in the genitorectal area and mouth. The lesions are painful until they begin to heal; intense pruritis may continue even after the lesions crust over. Eventually the lesions are replaced by normal skin, at which time the lesions are deemed to be no longer infectious.

The skin lesions typically manifest within 5-21 days (mean 7-8 days). 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. Typically, the infectious period lasts 2-4 weeks after symptoms are first noted (e.g., fever, adenopathy); those infected generally require isolation for four or more weeks until the lesions heal. Screening studies have demonstrated asymptomatic carriage in which a few later developed symptomatic lesions.

Compared with COVID-19, monkeypox has significant morbidity, but less mortality (global mortality currently 0.04% or 4/10,000 cases) for this strain. Mortality between 3% to 10% has been reported with other clades (strains). Children under 8 years old have higher morbidity and mortality in outbreaks with other clades. Complications include bacterial superinfection of skin lesions, conjunctivitis and keratitis, which may lead to corneal scarring and resultant blindness, pneumonitis and encephalitis. In the U.S., hospitalization has mainly been the result of lesions within the perineum causing severe rectal pain and bleeding.

Current statistics currently show a high non-exclusive prevalence in men who have sex with men (97%). However, monkeypox may infect any exposed human. Children have contracted and spread the disease, especially in daycare settings and this may increase when school is in session. Care must be taken by policy makers and health care professionals to not inadvertently attach social stigma to monkeypox infection. Such stigma could create barriers to both timely diagnosis and treatment, and impair containment strategies, such as ring vaccination and contact tracing. Further, stigmatization has the potential to cause downstream discrimination, especially for an illness known to cause visible scarring. For the well-being of both patients and health care providers, an apolitical, evidence-based, public health approach to monkeypox must be deployed.

Compared to COVID-19, the spread of monkeypox by aerosolized liquid respiratory particles is less likely but can occur in experimental settings. In addition, monkeypox infectivity is associated with symptomatic disease with relatively uniform manifestations, which presents fewer barriers to effectively isolating infectious individuals.

The monkeypox virus genome is relatively large virus. Poxviruses are large (200–450 nm in size), brick- or ovoid-shaped double-stranded DNA viruses that are especially adapted to infect epidermal cells. By comparison, the SARS-CoV-2 viruses are 70–110 nm and have affinity for the

angiotensin converting enzyme II receptors. Monkeypox virus has over 200,000 base pairs, as compared to 30,000 base pairs for the SARS-CoV-2 virus. Because the virus is several times larger and heavier than SARS-CoV-2, liquid respiratory particles small enough to become airborne contain fewer pathogens and may be less infectious. According to the World Health Organization (WHO), "the virus can spread through direct contact with the mouth, respiratory droplets and possibly through short-range aerosols. Possible mechanisms of transmission through the air for monkeypox are not yet well understood and studies are underway to learn more."

Replication-competent monkeypox virus was isolated from samples taken from the air and hard surfaces within hospital rooms occupied by infected patients. The air samples were primarily taken during changes in the bed linen. How long airborne or surface-deposited particles remain infectious is not known; experts indicate that infectiousness may persist for hours, but not days.

Like any other virus potentially transmitted by expelled respiratory particles, the risk of spread is most when indoors and during prolonged and close contact, and during aerosolizing-procedures, which include but are not limited to endotracheal intubation/ extubation, supraglottic airway management, endotracheal suctioning, and airway endoscopic procedures.

The monkeypox virus is an encapsulated virus that is destroyed by EPA-registered disinfectants. The manufacturer provides directions for the effective concentration and contact time. Linens can be laundered using regular detergent and warm water. Soiled laundry should be gently and promptly contained in a laundry bag and never be shaken or handled in a manner that may disperse infectious material.

Tecovirimat (also known as TPOXX or ST-246) is FDA-approved for the treatment of human smallpox disease in adults and children. However, TPOXX is not approved for treatment of other infections with orthopox viruses, including monkeypox. The CDC has a "non-research, expanded access Investigational New Drug (EA-IND) protocol" whereby TPOXX can be dispensed for primary or early empiric treatment monkeypox. TPOXX may be considered for patients with severe disease (e.g., hemorrhagic disease, confluent lesions, sepsis, encephalitis, or other conditions requiring hospitalization), who are at high risk of severe disease (e.g., those with immunocompromising conditions), pregnant or breastfeeding women, children under 8 years of age, those with exfoliating lesions, or those with complications associated with monkeypox.

Two FDA licensed vaccines available include a live vaccinia virus vaccine and an attenuated (cannot replicate) vaccinia virus vaccine. ACAM2000 is administered as a live Vaccinia virus preparation that is inoculated into the skin by pricking the skin surface. Individuals who receive vaccination with ACAM2000 must take short-term precautions to prevent the spread of the vaccine virus and are considered vaccinated within 28 days. The former vaccine is contraindicated in individuals with immunocompromising conditions (e.g., HIV).

JYNNEOSTM is administered as a live virus that is non-replicating. It is administered as two subcutaneous injections four weeks apart. People who receive JYNNEOS™ are not considered vaccinated until 2 weeks after they receive the second dose of the vaccine.

The CDC, in conjunction with the Advisory Committee on Immunization Practices (ACIP), provides recommendations on who should receive smallpox vaccination in a non-emergency setting. At this time, vaccination is recommended only for military personnel and laboratory workers handling certain orthopoxviruses.

Smallpox and monkeypox vaccines are effective at protecting people against monkeypox when given before exposure to monkeypox. Experts also believe that vaccination after a monkeypox exposure may help prevent the disease or make it less severe. The CDC recommends that the vaccine be given within 4 days from the date of exposure to prevent the disease; the sooner an exposed person gets the vaccine, the better. If given between 4–14 days after the date of exposure, vaccination may reduce the symptoms of disease, but may not prevent it.

People with prolonged close contact or intimate contact with infected individuals are good candidates for preventive vaccination. Known as “ring vaccination,” this strategy may limit the spread of monkeypox by vaccinating those who are most likely to be infected. Ring vaccination of potentially exposed staff should be considered under the auspices of infectious disease consultants and hospital infection control guidance.

There is crossover protection from smallpox vaccine, which was widely administered to those born before 1972 in the U.S. The level of effective immunity conferred by the smallpox vaccine, especially if administered several decades ago, is not known.

Unprotected exposure of staff to monkeypox patient(s) may require isolation for up to three weeks. Those HCW who develop monkeypox lesions may not be available for patient care until all lesions are healed, often 3-4 weeks or more.

Department of anesthesia/anesthesiology staff may expect consults on adult or pediatric patients infected with monkeypox to provide emergency airway management to those acutely injured and regional or general anesthesia to parturients in labor.

Recommendations:

- The American Society of Anesthesiologists (ASA) and the Anesthesia Patient Safety Foundation (APSF) supports the recommendations of the Centers for Disease Control and Prevention (CDC) regarding personal protective equipment for those providing care to patients known or suspected of infection with monkeypox.
- The CDC recommends that health care professionals wear gloves, a well-fitting N95 mask, full eye protection, and a gown when in the same room as a patient known or suspected of infection with monkeypox. The goal is to minimize exposed skin, mucosa and eyes. This is especially important during aerosolizing procedures.

- Elective surgery should be deferred until all lesions are healed. Urgent surgery should be contemplated on an individualized basis. During emergency surgery and peripartum procedures, efforts at limiting the number of perioperative staff exposed to a single emergency patient or parturient to provide optimal care is prudent.
- Isolating perioperative patients with monkeypox in preferably negative pressure rooms, or alternatively single patient isolation rooms is recommended for aerosolizing procedures including intubation, extubation, tracheobronchoscopy and nebulized airway treatments in non-intubated patients.
- After a monkeypox exposure, vaccination may help prevent or decrease the severity of disease manifestations. Consult an infectious disease clinician as soon as possible after an exposure. The CDC recommends that the vaccine be given within 4 days and as soon as possible post-exposure.
- Currently, pre-exposure, preventive vaccination is recommended only for military personnel and laboratory workers handling certain Orthopoxviruses.
- Departments and groups should provide appropriate paid medical leave for health care workers who require quarantine or isolation due to monkeypox exposure or infection.