Updated Interim Infection Control and Exposure Management Guidance in the Health-Care and Community Setting for Patients with Possible Monkeypox Virus Infection

The Centers for Disease Control and Prevention (CDC) and state and local health departments continue to investigate cases of monkeypox among persons who had close contact with wild or exotic mammalian pets or persons with monkeypox. Results of serologic testing, polymerase-chain-reaction analysis, viral culture and gene sequencing performed at the CDC indicate that the causative agent is monkeypox virus, a member of the orthopoxvirus group of viruses. CDC is updating previous interim guidance concerning infection control precautions and exposure management in the health-care and community settings. The guidance will be further updated as additional information about the epidemiology of disease transmission is better understood.

Limited data on transmission of monkeypox virus are available from studies conducted in Africa. Person-to-person transmission is believed to occur primarily through direct contact and also by respiratory droplet spread. Transmission of monkeypox within hospitals has been described, albeit rarely. Extrapolating from smallpox for which airborne transmission has been clearly described, airborne transmission of monkeypox virus cannot be excluded, especially in patients presenting with cough.

To date in the United States there has been no evidence of person-to-person transmission of monkeypox. However, recovery of monkeypox virus from skin lesions and tonsillar tissue demonstrates the potential for contact and droplet transmission, and at least a theoretical risk for airborne transmission.
The following modification of CDC's infection control guidance is based on the accumulating experience in the United States that suggests a relatively low risk of person-to-person transmission. All health-care settings, i.e., hospitals, emergency departments, physician offices, have the capacity to care for monkeypox patients and protect health-care workers and other patients from exposure.

Infection Control: General Precautions

Persons seeking medical care with fever and vesiculopustular rash should be asked about possible exposure to wild or exotic mammalian pets (e.g., prairie dogs and rodents imported from Africa) or persons with monkeypox. If a patient with suspect monkeypox infection is seen as an outpatient or admitted to the hospital, infection control personnel should be notified immediately. A combination of Standard, Contact, and Droplet Precautions (www.cdc.gov/ncidod/hip/isolat/isolat.htm) should be applied in all health-care settings. In addition, because of the theoretical risk of airborne transmission, Airborne Precautions should be applied whenever possible.

These include:

1. Hand hygiene after all contact with an infected patient and/or the environment of care.
2. Use of gown and gloves for patient contact
3. Protection from virus spread through droplets or aerosols. Use of a NIOSH-certified N95 (or comparable) filtering disposable respirator that has been fit-tested for the health-care worker is preferred, especially for extended contact in the inpatient setting.[1] If N95 or comparable respirators are not available for health-care workers, then surgical masks should be worn to protect against transmission through contact or large droplets. The respirator or mask should be applied before entering the patient room.

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4. Eye protection (e.g. face shield or goggles) if splash or spray of body fluids is likely, as recommended for Standard Precautions
5. Contain and dispose of contaminated waste (e.g., dressings) in accordance with facility-specific guidelines for infectious waste or local regulations pertaining to household waste.
6. Use care when handling soiled laundry (e.g., bedding, towels, personal clothing) to avoid contact with lesion exudates. Soiled laundry should not be shaken or otherwise handled in a manner that may aerosolize infectious particles.
7. Handle used patient-care equipment in a manner that prevents contamination of skin and clothing. Ensure that used equipment has been cleaned and reprocessed appropriately.
8. Ensure that procedures are in place for cleaning and disinfecting environmental surfaces in the patient care environment. Any EPA-registered hospital detergent-disinfectant currently used by health-care facilities for environmental sanitation may be used. Manufacturer's recommendations for use-dilution (i.e., concentration), contact time and care in handling should be followed.

Patient Placement

Outpatient settings. Patients who present to an emergency room or outpatient clinical setting with fever and vesiculopustular rash should be placed in a private examination room as soon as possible. (Particularly in the absence of a known association with other monkeypox cases, in addition to monkeypox, the differential diagnosis should include chickenpox, vaccinia in a person recently vaccinated against smallpox, and even the unlikely possibility of smallpox.) If a negative pressure room is available, it should be used. Before these precautions can be implemented, or in areas in which personal protective equipment or separation from others is not feasible (e.g., residential settings in which health-care may be provided), place a surgical mask over the patient's nose and mouth (if tolerated) and cover exposed skin lesions with a sheet or gown.

Inpatient settings. In this outbreak, the majority of patients with monkeypox have not required hospitalization for medical management. Patients who do require hospitalization should be placed in a negative pressure isolation room on Contact, Droplet, and Airborne Precautions. If a negative pressure room is not available, a private room should be used.

Vaccination of Health-Care Workers and Household Contacts of Suspected Cases of Monkeypox

Vaccination with smallpox vaccine is recommended for health care workers and household contacts of confirmed monkeypox cases. Whenever possible, preference for providing care to suspected or confirmed monkeypox patients should be given to vaccinated health-care workers and health-care workers without contraindications to vaccination in the pre-event smallpox vaccination setting. Pre-exposure vaccination is preferred, however, vaccination can be administered after laboratory confirmation of an infection is obtained and when vaccine is available. (www.cdc.gov/ncidod/monkeypox/treatmentguidelines.htm) Irrespective of vaccination status, health-care workers and household contacts who care for suspected or confirmed cases of monkeypox should observe recommended infection control precautions.

Monitoring of Exposed Health-Care Personnel

Health-care workers who have unprotected exposures (i.e. were not wearing PPE) to patients with monkeypox need not be excluded from duty, but should undergo active surveillance for symptoms, including measurement of body temperature at least twice daily for 21 days following the exposure. Prior to reporting for duty each day, the health-care worker should be interviewed regarding evidence of fever or rash. Health-care workers who have cared for or otherwise been in contact with exposed to monkeypox patients while adhering to recommended infection control precautions do not need to undergo active monitoring. Any health-care worker who has cared for a monkeypox patient should be alert to the

development of symptoms that could suggest monkeypox, especially within the 21-day period after the last date of care, and should notify infection control and/or occupational health, or their designees, to be guided about a medical evaluation.

Home Management

Patients who do not require hospitalization for medical indications may be isolated at home. The ability to implement isolation and infection control measures in the home is likely to vary, based on whether the patient is a child or adult with monkeypox, whether multiple persons in the home are infected, the number of persons residing in the home, and the nature and extent of lesions in each case. The following principles should be considered and adopted to the extent possible in the home setting.

1. Home isolation. Persons with monkeypox should not leave the home except as required for follow-up medical care. They also should avoid going outdoors if contact with wild or domestic mammals is possible. Unexposed persons who do not have an essential need to be in the home should not visit. Household members who are not ill should limit contact with the person with monkeypox. Persons with extensive lesions that cannot be easily covered (excluding facial lesions) or draining/weeping lesions or respiratory symptoms (e.g., cough, sore throat, or rhinorrhea) should be isolated in a room or area separate from other family members when possible.
2. Persons with monkeypox should wear a surgical mask, especially those who have respiratory symptoms (e.g., cough, shortness of breath, sore throat). If this is not feasible (e.g., a child with monkeypox), other household members should consider wearing a surgical mask when in the presence of the person with monkeypox.
3. Skin lesions should be covered to the extent possible (e.g., long sleeves, long pants) to minimize risk of contact with others.
4. Disposable gloves should be worn for direct contact with weeping lesions and disposed after use.
5. Hand hygiene (i.e., hand washing with soap and water or use of an alcohol-based hand rub) should be performed by infected persons and household contacts after touching body sites, clothing, linens, or environmental surfaces that may have had contact with infectious lesions.
6. Laundry (e.g., bedding, towels, clothing) may be washed in a standard washing machine with warm water and detergent; bleach may be added but is not necessary. Care should be used when handling soiled laundry to avoid direct contact with contaminated material. Soiled laundry should not be shaken or otherwise handled in a manner that may aerosolize infectious particles.
7. Dishes and other eating utensils should not be shared but segregation of specific utensils for use by the infected person is not necessary. Soiled dishes and eating utensils should be washed in a dishwasher or by hand with warm water and soap
8. Contaminated surfaces should be cleaned and disinfected. Standard household cleaning/disinfectants may be used in accordance with manufacturer's instructions.
9. Dressing, bandages, and other materials contaminated with lesion drainage should be bagged and placed in another container for disposal with other household waste.

Duration of Isolation Precautions

Decisions regarding discontinuation of isolation precautions should be made only after consultation with the local or state health department.

For individuals with vesiculopustular rash, isolation precautions, either in health-care facilities or home settings, should be continued until all lesions are crusted. Following the discontinuation of isolation precautions, affected individuals should avoid close contact with immunocompromised persons until all crusts have separated. Immunocompromised persons include those whose immune mechanisms are deficient because of immunologic disorders (e.g., human immunodeficiency virus [HIV] infection or congenital immune deficiency syndrome); chronic diseases (e.g., diabetes, cancer, emphysema, or cardiac

failure); or immunosuppressive therapy (e.g., radiation, cytotoxic chemotherapy, anti-rejection medication, or steroids).

For individuals who develop symptoms (i.e., fever, sore throat, cough) without rash, isolation precautions should be continued for 7 days after fever onset. If rash does not develop during this time, isolation precautions may be discontinued. Affected individuals should continue symptom surveillance for an additional 14 days. If symptoms return or if rash develops the local or state health department should be notified immediately. Affected individuals should not donate blood, cells, tissue, organs, breast milk or semen while ill or are under symptom surveillance.

Asymptomatic Contacts

Asymptomatic contacts to animals or humans suspected to have monkeypox should be placed under symptom surveillance for 21 days after their last exposure. Symptoms of concern include fever (temperature $\geq$ 99.3°F), sore throat, cough, or skin rash. Contacts should monitor their temperature twice daily. In addition, they should maintain daily telephone contact with designated health department personnel. If resources permit, closer monitoring is desirable.

Asymptomatic contacts should not donate blood, cells, tissue, organs, breast milk or semen while they are under symptom surveillance.

Asymptomatic contacts should continue routine daily activities (e.g., go to work, school) but should remain close to home for the duration of surveillance. However, it may be prudent to exclude pre-school children from daycare or other group settings.

[1] Respirators should be used in the context of a complete respiratory protection program in accordance with OSHA regulations. This includes training and fit testing to ensure a proper seal between the respirator's sealing surface and the wearer's face. Detailed information on respirator programs, including fit test procedures at (www.osha.gov/SLTC/etools/respiratory/) . Where possible, a qualitative fit test should be conducted for N95 respirators; detailed information on fit testing at (www.osha.gov/SLTC/etools/respiratory/oshafiles/fittesting1.html).

For more information, visit www.cdc.gov/ncidod/monkeypox or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)

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