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## Monkeypox and Other Poxviruses

### Background

Monkeypox is a rare viral disease of rodents and squirrels in rainforests of western and central Africa. Monkeys living in the same areas can become infected and tend to suffer high morbidity and mortality (hence the name “monkeypox”). Humans can also be infected with the virus. In past outbreaks in Africa, the human case fatality rate was 1 to 10%. The incubation period is approximately 12 days, (range 7-17 days). Monkeypox can be transmitted via oropharyngeal, nasopharyngeal, or cutaneous routes. The U.S. has never documented an outbreak of monkeypox until now. As of June 12, 2003, U.S. Centers for Disease Control and Prevention, (CDC) and state and local health departments are investigating 62 suspected human cases of monkeypox. No deaths have been reported.

### Recent Monkeypox Outbreak

In June 2003, an outbreak of monkeypox was detected among humans and animals in Wisconsin, Illinois and Indiana. The index human case-patient was a 3-year-old child who had been bitten by the family’s recently-acquired pet prairie dog. Active surveillance revealed that several other prairie dogs from the same pet distributor were ill. Also, several humans who had contact with the ill animals were themselves ill with monkeypox-like symptoms. Transmission via person-to-person contact has not been confirmed in the current outbreak.

At the pet distributor’s facility in Illinois, an ill Gambian Giant Pouched rat was housed near the prairie dogs. The rat, along with ~800 other small mammals, had been previously imported from Ghana by a Texas company. The virus source for the outbreak may have been any one of the 800 animals. The Illinois distributor sent animals to 15 states; Alaska was NOT one of them. However, persons may have acquired animals at informal pet swaps, or visited households with ill animals. Therefore, monkeypox cases may yet be identified in additional states.

### Signs and Symptoms in Humans

Prodromal symptoms can include fever, headache, sorethroat and myalgias. One to 3 days later, a papular rash erupts that progresses to vesicles and pustules. Respiratory symptoms and lymphadenopathy are also reported. Images of lesions from the current outbreak can be viewed online: <http://research.marshfieldclinic.org/crc/monkeypox.asp>.

Monkeypox may resemble smallpox in addition to other viral infections. A detailed exposure history is needed for patients presenting with a pustular rash and febrile illness.

	Monkeypox	Smallpox (variola)	Chickenpox (varicella)	Orf (Contagious Ecthyma)
Virus	Orthopox	Orthopox	Herpes	Parapox
Contact history	Exotic mammalian pets; humans	Humans	Humans	Goats, sheep, wild ungulates
Unique features or clues	Lesions in same stages; concentrated on face and limbs	Lesions in same stages; concentrated on face and limbs	Lesions in different stages; concentrated on trunk	Commonly a single lesion on hand

### Diagnosing Monkeypox

Laboratory methods to diagnose monkeypox include polymerase chain reaction, immunohistochemistry, virus isolation, and electron microscopy. CDC will test specimens from persons meeting the monkeypox case definition ([www.cdc.gov/ncidod/monkeypox/casedefinition.htm](http://www.cdc.gov/ncidod/monkeypox/casedefinition.htm)). Contact the Section of Epidemiology for assistance in case investigation and specimen collection.

### Signs and Symptoms in Animals

Monkeypox reservoirs in Africa include squirrels, rodents, and primates. Mice, rats and rabbits are also susceptible to the virus. Although limited information exists about other animals, all mammals should be considered susceptible. Ill prairie dogs in this outbreak had conjunctivitis, lethargy, and nodular lesions; many subsequently died or were euthanized.

### Movement of Exotic Animals

On June 11, 2003, CDC and the U.S. Food and Drug Administration signed a joint order that bans the importation of rodents from Africa and prohibits sale, interstate transport or distribution, or release into the wild of prairie dogs and several exotic rodents from Africa. Before this action, possession or movement of these animals was not actively monitored or controlled. **In Alaska, prairie dogs, Gambian rats, and other “exotic” animals, are not permitted as pets.** (See Alaska Department Fish and Game Regulations [www.state.ak.us/local/akpages/FISH\\_GAME/wildlife/geninfo/regs/miscregs.htm#lives](http://www.state.ak.us/local/akpages/FISH_GAME/wildlife/geninfo/regs/miscregs.htm#lives).)

### Guidelines for Veterinarians and Pet Owners

CDC has produced companion guidelines for veterinarians (<http://www.cdc.gov/ncidod/monkeypox/animalguidance.htm>) and persons having frequent contact with animals (<http://www.cdc.gov/ncidod/monkeypox/animalhandlers.htm>).

**Persons with sick animals that were in contact with exotic mammalian pets or persons suspected of having monkeypox should contact the Section of Epidemiology for specific guidance or follow-up.** Sick (or illegal) animals should NEVER be released into the wild.

### Summary

Implicated animals were not distributed to Alaska. All cases of monkeypox to date have involved direct contact with another case. Human and animal medical communities must remain vigilant for pox-like disease among their patients.

### Recommendations

1. Healthcare providers and veterinarians should immediately report suspect monkeypox cases to the Section of Epidemiology: **907-269-8000 or 800-478-0084 after-hours**
2. Veterinarians should also immediately report cases to the State Veterinarian: **907-745-3236**.

### CDC Monkeypox Website

[www.cdc.gov/ncidod/monkeypox/index.htm](http://www.cdc.gov/ncidod/monkeypox/index.htm)