

Monkeypox Factsheet for the Food Industry

Take-Home Messages

- The monkeypox strain causing the current outbreak is much less deadly than COVID-19 (the US had > 10,000 monkey pox cases to date with none of them resulting in deaths) and is much less transmissible than COVID-19.
- While there is a theoretical possibility of transmission through foods and food packaging, basic practices mandatory for all food processing facilities (known as “Good Manufacturing Practices”) will effectively control the small risk of food-associated transmission.
- Food companies should provide basic training on monkeypox (for example, how to identify an infection) and re-enforce GMPs.

1. What is monkeypox?

Monkeypox is a disease caused by the monkeypox virus; it lasts for 2 to 4 weeks, usually resolving itself without treatment. Flu-like symptoms and rash can appear anywhere from 5 days to three weeks post infection^{1,2,3}. Monkeypox can be transmitted from animal-to-human or human-to-human, generally through close contact with an infected animal (rodent or primate) or person. Human-to-human transmission is through close contact with an infected person such as by direct contact with the monkeypox rash, contaminated objects or materials, and respiratory secretions^{2,3,4}. Monkeypox can also be spread through the placenta to the fetus of pregnant people⁴. There are no specific treatments for monkeypox, but antiviral drugs developed for smallpox such as tecovirimat (TAPOXX) may be used, especially for people with severe disease or who are immunocompromised⁵. Vaccines are available and the CDC recommends them for people who are at high-risk for getting monkeypox as well as for people who have been exposed to it^{6,7}. Hence, there is, at this time, no need to pursue strategies to assure vaccination of food workers. **Importantly, the monkey pox strain causing the current outbreak is much less deadly than COVID-19 (the US had > 10,000 monkey pox cases to date with none of them resulting in deaths) and is much less transmissible than COVID-19.**

Monkeypox Symptoms^{1-3,8}

As with other viral diseases, symptoms of monkeypox may vary from case to case. However, as a “pox” viral disease, one of the main symptoms is a rash with skin eruptions that will change in appearance over time. Initially, lesions have a flat base that will rise and fill with clear fluid. The clear fluid will turn a yellowish color and form a scab that will eventually fall off. Here are some characteristics of the rash to consider:

- The rash can occur anywhere on the body, the face, the palms of hands, the soles of feet; on mucous membranes such as inside the mouth and eyelids; and be located near or on genitalia or the anus.
- The rash could consist of a single skin eruption to multiple lesions.
- The rash may appear to look like blisters, pimples, or pustules and can be present in different stages on the skin or mucous membranes at the same time.

In addition to the rash, other symptoms may include fever, chills, swollen lymph nodes, exhaustion, muscle aches and backache, headache, and respiratory symptoms such as sore throat, nasal congestion, or cough.

Prevention and Vaccines^{2,3,6,7,9,10}

Prevention from human to human transmission includes avoiding skin-to-skin contact with people who have a monkeypox rash, avoiding contact with objects a person with monkeypox used, and frequent hand washing. There are two vaccines that the CDC has recommended for people who are at high-risk for getting monkeypox as well as for people who have been exposed to it. Hence there is, at this time, no need to pursue strategies to assure vaccination of food workers.

1. **JYNNEOS**, a two-dose vaccine which takes 14 days after the second dose to become most effective. This is the preferred vaccine.
2. **ACAM2000**, a single-dose vaccine that takes four weeks to become most effective and has more side effects than JYNNEOS. As a result, ACAM2000 is not recommended for immunocompromised people or people with certain medical conditions.

2. What should the food industry do?¹¹⁻¹⁶

Follow current good manufacturing practices (GMPs) to ensure that your facility meets personnel requirements for employee disease control, cleanliness, hygiene and hand washing (21 CFR § 117.10). Develop a plan that includes contact tracing and cleaning and sanitizing procedures for surfaces and cloth materials if an employee with an active monkeypox infection has been in your facility.

1. Train and inform workers on disease control procedures in your facility.

- a. Assign a point person to handle employee training and communications.
- b. Hold a staff meeting to train and reinforce the company's disease control policy and educate workers on monkeypox and its symptoms.
 - i. The CDC recommends that people who have monkeypox remain isolated at home for the duration of the illness, until the rash has healed with formation of a fresh layer of skin.
 - ii. If an employee becomes infected with monkeypox, the employee should stay home and seek a medical assessment.
 - iii. If an employee has had close contact with someone diagnosed with monkeypox, the employee should seek a medical assessment and watch for symptoms such as fever and rash for 21 days after their last exposure. If symptoms appear, they should self-isolate and seek a medical assessment.
- c. Communicate clearly about your sick leave policy and how your company keeps reporting of personal illnesses confidential.

2. Reinforce the importance of proper hand washing.

- a. Remind employees how, when and where they should wash their hands.
- b. Emphasize that frequent hand washing is one of the prevention strategies that can help to protect them from monkeypox.

3. Reinforce the use of personal protective equipment (PPE), particularly the use of gloves on employees who may touch food, food-contact surfaces, and packaging.

- a. Remind employees that hand washing is still required even if gloves are being used.
- b. Employees should wear impermeable and durable gloves and should keep them clean.

4. Develop a protocol for what to do when an employee with an active monkeypox infection has been in your facility.

- a. Use contact tracing to identify other employees who may have also been exposed.
- b. Clean and disinfect surfaces in areas where employees with monkeypox spent time.
 - i. The EPA has classified monkeypox as a Tier 1 virus, which is the easiest to inactivate.
 - ii. Although there are no disinfectants currently registered for use against monkeypox, the EPA released [List Q: Disinfectants for Emerging Viral Pathogens \(EVPs\)](#), which can be used for monkeypox.
 - iii. Wear appropriate PPE when cleaning and disinfecting surfaces.

- c. Launder linens, uniforms, or other cloths that employees infected with monkeypox may have touched.
 - i. These items can be laundered with a standard washing machine with detergent. A disinfectant registered for use in laundry on the EPA's [List Q: Disinfectants for Emerging Viral Pathogens \(EVPs\)](#) may also be used, but is not necessary.
 - ii. Wear appropriate PPE when handling dirty items that need to be laundered.
 - iii. Keep these soiled items separate from other materials that are to be laundered and in a container that can be disinfected, a plastic bag that can be disposed of, or a cloth bag that can be washed with the items.
 - iv. If you use outside laundry facilities or services, contact your local department of health before sending soiled items out to be laundered.

3. Can monkeypox be transmitted through foods and food contact surfaces?

The risk of monkey pox transmission through foods is extremely low and, based on our current knowledge, can be managed and further reduced with a few key strategies (such as those detailed above), even though some studies do suggest that monkeypox-like viruses are stable in/on foods for extended periods of time (14 days)^{17,18}. Importantly, studies on monkeypox-like viruses suggest that the virus is readily controlled through standard sanitation practices and that the virus is readily inactivated with heat (50° C)¹⁸, and likely even more rapidly inactivated at cooking and pasteurization temperatures^{19,20}. At home, standard food safety practices, including proper hand washing and following recommended cooking (e.g., for raw meat and poultry) and washing procedures (e.g., for raw produce), should be sufficient to control the virus.

If you have questions or would like more information, contact Nancy Long (foodsafety@cornell.edu).

References

1. [Centers for Disease Control and Prevention \(CDC\) Monkeypox: Signs and Symptoms](#)
2. [World Health Organization: Monkeypox](#)
3. [NYS Department of Health: Monkeypox](#)
4. [CDC Monkeypox: How it Spreads](#)
5. [CDC Guidance for Tecovirimat Use Under Expanded Access Investigational New Drug Protocol during 2022 U.S. Monkeypox Cases](#)
6. [CDC Monkeypox: Vaccines](#)
7. [Jacobs BL, Langland JO, Kibler KV, Denzler KL, White SD, Holechek SA, Wong S, Huynh T, Baskin CR. \(2009\) Vaccinia virus vaccines: past, present and future. *Antiviral Res.* 84\(1\):1-13. doi: 10.1016/j.antiviral.2009.06.006](#)
8. [Thornhill, JP et al. \(2022\) Monkeypox Virus Infection in Humans across 16 Countries – April–June 2022. *New England Journal of Medicine*, 0028-4793 doi: 10.1056/NEJMoa2207323](#)
9. [CDC Monkeypox: How to Protect Yourself](#)
10. [NYS Department of Health Monkeypox Vaccination](#)
11. [CDC Isolation and Prevention Practices for People with Monkeypox](#)
12. [CDC Monitoring People Who Have Been Exposed](#)
13. [CDC Considerations for Reducing Monkeypox Transmission in Congregate Living Settings](#)
14. [EPA Monkeypox: Applying What We Know About Biological Agents to Prepare for Emerging Public Health Threats](#)
15. [EPA's Emerging Viral Pathogens Guidance](#)
16. [EPA's List Q: Disinfectants for Emerging Viral Pathogens \(EVPs\)](#)
17. [DHS Science and Technology: Master Question List for Monkeypox Virus \(MPXV\) July 2022](#)
18. [Essbauer, S, Meyer, H, Porsch-Özcürümez, M and Pfeffer, M \(2007\) Long-Lasting Stability of Vaccinia Virus \(Orthopoxvirus\) in Food and Environmental Samples. *Zoonoses and Public Health*, 54: 118-124. <https://onlinelibrary.wiley.com/doi/10.1111/j.1863-2378.2007.01035.x>](#)
19. [Hahon, N and Kozikowski, E \(1961\) Thermal Inactivation Studies with Variola Virus. *J Bacteriology*, 81\(4\): 609-613. doi: <https://doi.org/10.1128/jb.81.4.609-613.1961>](#)
20. [Wallis, C, Yang, C-S, and Melnick JL \(1962\) Effect of Cations on Thermal Inactivation of Vaccinia, Herpes Simplex, and Adenoviruses. *J Immunol*, 89\(1\):41-46. \(\[https://www.jimmunol.org/content/89/1/41.short?casa_token=f2E1BZdArVoAAAAA:eYPTGZPzcV1fpFB-Stcxs7sRFxEcNO8-VAd9UWxSQI20Wwl2y5LJwANhF4BkDqLPVlhve_a59ASRIQO\]\(https://www.jimmunol.org/content/89/1/41.short?casa_token=f2E1BZdArVoAAAAA:eYPTGZPzcV1fpFB-Stcxs7sRFxEcNO8-VAd9UWxSQI20Wwl2y5LJwANhF4BkDqLPVlhve_a59ASRIQO\)\).](#)