

FACT SHEET

Smallpox

Smallpox is a serious, contagious, and sometimes fatal infectious disease. There is no specific treatment for smallpox disease, and the only prevention is vaccination. The name **smallpox** is derived from the Latin word for "spotted" and refers to the raised bumps that appear on the face and body of an infected person. Smallpox is a bioterrorism threat due to its potential to cause severe illness in unvaccinated persons and because it can be transmitted through the air. A single case is considered a public health emergency. <http://www.bt.cdc.gov/agent/smallpox/overview/disease-facts.asp>

Cause: Smallpox is caused by the variola virus.

Symptoms: Acute clinical symptoms of smallpox resemble other acute viral illnesses, such as influenza. Skin lesions appear, quickly progressing from macules to papules to vesicles. Other clinical symptoms to aid in identification of smallpox include:
2-4 days of non-specific early onset of fever, muscle pain and aches. Rashes appear on the face and extremities, including palms and soles (unlike the chickenpox rash which appears primarily on the trunk of the body.) The entire rash scabs over in 1-2 weeks.

Spread: Respiratory droplets of any size spread the disease. Patient-to-patient transmission is likely from airborne and droplet exposure as well as contact with skin lesions or secretions. Patients are considered more infectious if they have a coughing or bleeding form of smallpox. Smallpox also can be spread through direct contact with infected bodily fluids or contaminated objects with blood or body fluids. Rarely has smallpox been spread by viruses carried in the air in enclosed settings such as buildings, buses, and trains. Humans are the only natural hosts of variola. Smallpox is not known to be transmitted by insects or animals. A person with smallpox is sometimes contagious with onset of fever (early phase), but the person becomes most contagious with the onset of rash. At this stage the infected person is usually very sick and not able to move around in the community. **The infected person is contagious until the last smallpox scab falls off.**

Incubation:

Incubation Period (Duration: 7 to 17 days) Not contagious	Exposure to the virus is followed by an incubation period during which people do not have any symptoms and may feel fine. This incubation period averages about 12 to 14 days but can range from 7 to 17 days. During this time, people are not contagious.
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<p>Early Rash (Duration: about 4 days) Most contagious Rash distribution:</p>	<p>A rash emerges first as small red spots on the tongue and in the mouth. These spots develop into sores that break open and spread large amounts of the virus into the mouth and throat. At this time, the person becomes most contagious.</p> <p>Around the time the sores in the mouth break down, a rash appears on the skin, starting on the face and spreading to the arms and legs and then to the hands and feet. Usually the rash spreads to all parts of the body within 24 hours. As the rash appears, the fever usually falls and the person may start to feel better.</p> <p>By the third day of the rash, the rash becomes raised bumps. By the fourth day, the bumps fill with a thick, opaque fluid and often have a depression in the center that looks like a bellybutton. (This is a major distinguishing characteristic of smallpox.)</p> <p>Fever often will rise again at this time and remain high until scabs form over the bumps.</p>
<p>Pustular Rash (Duration: about 5 days) Contagious</p>	<p>The bumps become pustules—sharply raised, usually round and firm to the touch as if there’s a small round object under the skin. People often say the bumps feel like BB pellets embedded in the skin.</p>
<p>Pustules and Scabs (Duration: about 5 days) Contagious</p>	<p>The pustules begin to form a crust and then scab.</p> <p>By the end of the second week after the rash appears, most of the sores have scabbed over.</p>
<p>Resolving Scabs (Duration: about 6 days) Contagious</p>	<p>The scabs begin to fall off, leaving marks on the skin, which eventually become pitted scars. Most scabs will have fallen off three weeks after the rash appears.</p> <p>The person is contagious to others until all of the scabs have fallen off.</p>
<p>Scabs resolved Not contagious</p>	<p>Once scabs have fallen off, the person is no longer contagious.</p>

Precautions: For patients with suspected or confirmed smallpox, both **Airborne and Contact Precautions (mask and protective gown)** should be used in addition to gloves and good hand washing. Patients suspected or confirmed with smallpox require placement in rooms that meet the ventilation and engineering requirements for Airborne Precautions, which include:

- Monitored negative air pressure in relation to the corridor and surrounding areas. 6 – 12 air exchanges per hour.
- Appropriate discharge of air to the outdoors, or monitored high efficiency filtration of air prior to circulation to other areas in the healthcare facility.
- A door that must remain closed.

Reportable: **Immediately** by the laboratory or health care provider to the local or state health department.

Diagnosis and Treatment: A Laboratory test will confirm the results: For decisions regarding obtaining and processing diagnostic specimens, contact state laboratory authorities or CDC.

There are no proven treatments for clinical smallpox; medical care is generally supportive.

Prevention:

A live-virus intra-dermal vaccination is available for the prevention of smallpox. Vaccination against smallpox does not reliably confer lifelong immunity. Even previously vaccinated persons should be considered susceptible to smallpox.

Post-exposure immunization with smallpox vaccine (vaccinia virus) is available and effective. Vaccination alone is recommended if given within 3 days of exposure. **Passive immunization** is also available in the form of vaccinia immune-globulin (VIG) (0.6ml/kg IM). If greater than 3 days has elapsed since exposure, both vaccination and VIG are recommended.

Vaccination is generally contraindicated: in pregnant women and persons with immunosuppression, HIV-infection, and eczema, who are at risk for disseminated vaccinia disease. However, the risk of smallpox vaccination should be weighed against the likelihood for developing smallpox following a known exposure. VIG should be given in addition to vaccination in these patients.

Concerns with vaccination:

- Vaccinated person should not be around the following persons until the scab has fallen off:
 - Persons with Eczema.
 - Persons with skin breaks or rashes caused by poison ivy, psoriasis, herpes, chickenpox, etc.
 - Persons with Darier's Disease.
 - Persons with immune suppressed systems (HIV, Cancer patients, etc).
 - Persons who are pregnant or trying to get pregnant.
- Do not take Aspirin if you run a temperature as smallpox vaccine is a "live virus". Anyone with a fever from any virus should not take Aspirin due to Reye's syndrome concerns.
- Do not touch the vaccinated site. If you come in contact with the site, wash your hands immediately with soap and water. Do not touch your eyes.
- If you share a bed with a vaccinated person, be sure that the site is covered with a gauze dressing and pajamas/long sleeve shirt.
- Don't share towels or clothing with vaccinated persons. Clothing, towels, and bedding used by the vaccinated person should be washed separately in hot water using detergent and/ or bleach.
- Put used bandages/ dressings as well as the scab (when it comes off) in a sealed plastic bag before putting them in the garbage.
- Handwashing frequently with soap and water is a must and the best line of defense to prevent the spread of infections to anyone.