



## **SMALLPOX**

- Agent Information:** Smallpox is caused by a DNA, orthopoxvirus called the Variola virus. There are two principal forms of disease: variola major and a milder form, variola minor. Case fatality for variola major is  $\geq 30$  percent among unvaccinated individuals. Flat and hemorrhagic smallpox are variations of variola major. The last natural outbreak of smallpox occurred in 1949. Smallpox was declared eradicated in 1980.
- Transmission:** Person-to-person transmission, primarily via droplets from the oropharynx. Those within six feet to the infected person appear to be at greatest risk. Contaminated clothing or bed linens can also spread the virus. There are no known animal or insect reservoirs or vectors. Incubation period is usually 7-17 days.
- Signs and Symptoms:**
- Prodrôme: Duration 2-4 days; contagious. Fever (101-104°F), malaise, myalgia, headache, difficulty carrying on normal activities.
  - Early Rash: Duration 4 days; most contagious. Rash emerges in the oropharynx and spreads. Highly contagious at this time.
  - Rash then spreads to the face and then to the extremities. Usually the rash spreads to all parts of the body within 24 hours. Fever subsides. Rash is centrifugal; lesions evolve at the same rate and at the same stage of development; spread to palms and soles is common.
  - 3<sup>rd</sup> day - lesions become raised bumps.
  - 4<sup>th</sup> day - lesions become fluid-filled and umbilicated. Fever may rise.
  - 5<sup>th</sup> day – pustular rash; sharply raised, round and firm. Pustules then begin to crust over and scab.
  - 6<sup>th</sup> day – resolving scabs; begin to separate and leave scars. Most scabs separate within 3 weeks after rash appears.
  - Person is no longer contagious when all scabs have separated. Scabs contain live virus.
- Decontamination:** No, the virus is very fragile in the unprotected environment. Only clothing removal is necessary.
- Isolation:** Negative pressure.
- Protective Measures:** Persons treating patients with confirmed or suspect smallpox should be vaccinated. In the setting of an early outbreak, care can be provided immediately after vaccination. PPE alone is not sufficient protection. At a minimum, health care workers should employ contact, droplet, and airborne precautions by wearing an N-95 mask. Maintain patients in negative pressure isolation rooms. The patient is contagious until all scabs have separated.



**Lab Samples  
Requested for  
Evaluation:**

Smallpox, varicella zoster virus, and herpes simplex virus: Using a Dacron swab, collect vesicular/pustular fluid or scab. Place swab in viral transport medium and transport to lab within 12 hours of collection. For serological testing: collect blood in serum separator tube (red / black top tube). Specimens from high-risk patients will be shipped immediately to CDC.

**Prophylaxis:**

Vaccination administered within 3-4 days of first exposure offers some protection against acquiring infection, and significant protection against a fatal outcome. Priority is given to:

- Persons exposed to the initial release of the virus
- Household and face-to-face contacts
- Personnel who may provide direct health care or public health evaluation.
- Laboratory workers responsible for collection or processing specimens
- Persons who may be in contact with infectious material (housekeeping, mortuary workers, etc.)
- Response personnel (law enforcement, EMS, etc.)
- All individuals present at a hospital during the time that a smallpox patient is present and not properly isolated.

**Treatment:**

No antiviral substances have proven effectiveness for smallpox treatment.

**Reporting:**

Immediately report suspect cases to the Division of Public Health, Office of Infectious Disease Epidemiology: 1-888-295-5156 (24/7 coverage).

**For more  
information:**

Visit the CDC website: [www.cdc.gov/smallpox/clinicians](http://www.cdc.gov/smallpox/clinicians).