SMALLPOX  
HEALTH

# Notes

### **Smallpox Pathogen** (http://www.emedicinehealth.com/smallpox/page2\_em.htm)

Variola (the virus that causes smallpox) is a member of the orthopoxvirus genus, which also includes [viruses](http://www.emedicinehealth.com/slideshow_pictures_viral_infections/article_em.htm) that cause cowpox, monkeypox, orf, and [molluscum contagiosum](http://www.emedicinehealth.com/molluscum_contagiosum/article_em.htm). Poxviruses are the largest animal viruses, visible with a light microscope. They are larger than some bacteria and contain double-stranded DNA.

Poxviruses are the only viruses that do not need a cell's nucleus to replicate inside the cell. The variola virus is the only known cause of smallpox. The disease affects only humans. No animal reservoirs or insect vectors (insects that spread a disease) exist, and no carrier state (period when the virus is in the body, but the person is not actively sick) occurs. Before smallpox was wiped out, the disease survived through continual person-to-person transmission. [Pregnant](http://www.emedicinehealth.com/pregnancy_week_by_week/article_em.htm) women and children had a heightened risk for the illness. Smallpox also affected them more severely than normal. The virus is only transmitted from human to human; there are no known animal infections.

The virus is acquired from inhalation (breathing into the [lungs](http://www.emedicinehealth.com/image-gallery/lungs_picture/images.htm)). Virus particles can remain on such items as clothing, bedding, and surfaces for up to one week.

The virus starts in the lungs. From there, the virus invades the bloodstream and spreads to the skin, [intestines](http://www.emedicinehealth.com/image-gallery/intestines_picture/images.htm), lungs, kidneys, and brain. The virus activity in the skin cells creates a rash that starts as macules (flat, red lesions). After this, vesicles (raised [blisters](http://www.emedicinehealth.com/image-gallery/blisters_picture/images.htm)) form. Then, pustules (pus-filled [pimples](http://www.emedicinehealth.com/acne/article_em.htm)) appear about 12-17 days after a person becomes infected. Survivors of smallpox often have severely deformed skin from the pustules.

* Types: Variola major, or smallpox, has a death rate of 30%. Variola minor, or alastrim, is a milder form of the virus with a death rate of 1%. Four types of variola exist: classic, [hemorrhagic](http://www.emedicinehealth.com/blood_and_bleeding_disorders_quiz_iq/quiz.htm), [malignant](http://www.emedicinehealth.com/slideshow_pictures_cancer_101/article_em.htm), and modified.
  + Classic smallpox is believed to be the most communicable disease; about a third of unvaccinated people who come in contact with it become infected.
  + The hemorrhagic variety of variola has a much higher death rate than classic smallpox and leads to death more quickly. Infected people often die before the pustules form. This variety is recognizable by certain types of [bleeding](http://www.emedicinehealth.com/wilderness_bleeding/article_em.htm) sores in mucous tissues. Pregnant women are more likely to contract this version.
  + Prior to eradication, the malignant or flat form of smallpox affected 6% of the population and evolved more slowly than the classic type. Lesions were flat, often described as feeling velvety. The death rate for this form approaches 100%.
  + The modified variety of smallpox essentially affects people who have been vaccinated and still have some immune response to the vaccine. In a vaccinated population, this version could affect about 15%.

## Smallpox Deaths Per Year (http://www.bt.cdc.gov/agent/smallpox/overview/disease-facts.asp)

Smallpox outbreaks have occurred from time to time for thousands of years, but the disease is now eradicated after a successful worldwide vaccination program. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977.

**Smallpox Symptoms** (<http://www.mayoclinic.org/diseases-conditions/smallpox/basics/symptoms/con-20022769>)

The first symptoms of smallpox usually appear 12 to 14 days after you're infected. During the incubation period of seven to 17 days, you look and feel healthy and can't infect others.

Following the incubation period, a sudden onset of flu-like signs and symptoms occurs. These include:

* Fever
* Overall discomfort
* Headache
* Severe fatigue
* Severe back pain
* Vomiting, possibly

A few days later, flat, red spots appear first on your face, hands and forearms, and later on your trunk. Within a day or two, many of these lesions turn into small blisters filled with clear fluid, which then turns into pus. Scabs begin to form eight to nine days later and eventually fall off, leaving deep, pitted scars.

Lesions also develop in the mucous membranes of your nose and mouth and quickly turn into sores that break open.