

# **Facts about Small Pox**

(for citizens - not intended for healthcare workers)

## **In General**

### **What should I know about smallpox?**

Smallpox is an acute, contagious, and sometimes fatal disease caused by the variola virus (an orthopoxvirus), and marked by fever and a distinctive progressive skin rash. In 1980, the disease was declared eradicated following worldwide vaccination programs. However, in the aftermath of the events of September and October, 2001, the U.S. government is taking precautions to be ready to deal with a bioterrorist attack using smallpox as a weapon. As a result of these efforts: 1) There is a detailed nationwide smallpox preparedness program to protect Americans against smallpox as a biological weapon. This program includes the creation of preparedness teams that are ready to respond to a smallpox attack on the United States. Members of these teams – health care and public health workers - are being vaccinated so that they might safely protect others in the event of a smallpox outbreak. 2) There is enough smallpox vaccine to vaccinate everyone who would need it in the event of an emergency.

### **How serious is the smallpox threat?**

The deliberate release of smallpox as an epidemic disease is now regarded as a possibility, and the United States is taking precautions to deal with this possibility.

### **How dangerous is the smallpox threat?**

Smallpox is classified as a Category A agent by the Centers for Disease Control and Prevention. Category A agents are believed to pose the greatest potential threat for adverse public health impact and have a moderate to high potential for large-scale dissemination. The public is generally more aware of category A agents, and broad-based public health preparedness efforts are necessary. Other Category A agents are anthrax, plague, botulism, tularemia, and viral hemorrhagic fevers.

### **If I am concerned about a smallpox attack, can I go to my doctor and get the smallpox vaccine?**

At the moment, the smallpox vaccine is not available for members of the general public. In the event of a smallpox outbreak, however, there is enough smallpox vaccine to vaccinate everyone every person in the United States.

## **The Disease**

### **What are the symptoms of smallpox?**

The symptoms of smallpox begin with high fever, head and body aches, and sometimes vomiting. A rash follows that spreads and progresses to raised bumps and pus-filled blisters that crust, scab, and fall off after about three weeks, leaving a pitted scar.

### **If someone comes in contact with smallpox, how long does it take to show symptoms?**

After exposure, it takes between 7 and 17 days for symptoms of smallpox to appear (average incubation time is 12 to 14 days). During this time, the infected person feels fine and is not contagious.)

### **Is smallpox fatal?**

The majority of patients with smallpox recover, but death may occur in up to 30% of cases. Many smallpox survivors have permanent scars over large areas of their body, especially their face. Some are left blind.

### **How is smallpox spread?**

Smallpox normally spreads from contact with infected persons. Generally, direct and fairly prolonged face-to-face contact is required to spread smallpox from one person to another. Smallpox also can be spread through direct contact with infected bodily fluids or contaminated objects such as bedding or clothing. Indirect spread is less common. Rarely, smallpox has been spread by virus carried in the air in enclosed settings such as buildings, buses, and trains. Smallpox is not known to be transmitted by insects or animals.

### **If smallpox is released in aerosol form, how long does the virus survive?**

The smallpox virus is fragile. In laboratory experiments, 90% of aerosolized smallpox virus dies within 24 hours; in the presence of ultraviolet (UV) light, this percentage would be even greater. If an aerosol release of smallpox occurs, 90% of virus matter will be inactivated or dissipated in about 24 hours.

### **How many people would have to get smallpox before it is considered an outbreak?**

One confirmed case of smallpox is considered a public health emergency.

### **Is smallpox contagious before the smallpox symptoms show?**

A person with smallpox is sometimes contagious with onset of fever (prodrome phase), but the person becomes most contagious with the onset of rash. The infected person is contagious until the last smallpox scab falls off.

## Is there any treatment for smallpox?

Smallpox can be prevented through use of the smallpox vaccine. There is no proven treatment for smallpox, but research to evaluate new antiviral agents is ongoing. Early results from laboratory studies suggest that the drug cidofovir may fight against the smallpox virus; currently, studies with animals are being done to better understand the drug's ability to treat smallpox disease (the use of cidofovir to treat smallpox or smallpox reactions should be evaluated and monitored by experts at NIH and CDC). Patients with smallpox can benefit from supportive therapy (e.g., intravenous fluids, medicine to control fever or pain) and antibiotics for any secondary bacterial infections that may occur.

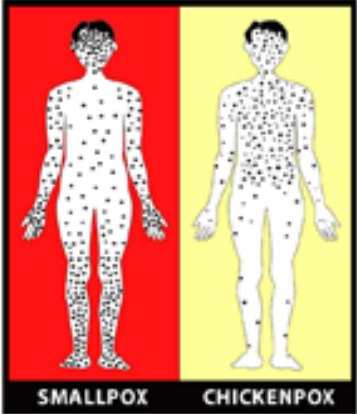
## Treatment

Described below are the likely stages of a smallpox outbreak and the critical responses required. This information is intended as a context in developing a post-event smallpox plan.

- 1. Isolation, and treatment of cases** – Suspected and confirmed cases will need to be quickly moved to facilities that provide appropriate health care and isolation to prevent additional spread of smallpox.
- 2. Diagnosis** – Rapid preliminary diagnosis can be based on clinical characteristics of the illness with sequential laboratory confirmation.
- 3. Vaccination** – A large number of the public will be needed to control the outbreak, and individuals must be vaccinated as soon as possible after the first case is confirmed.,
- 4. Surveillance for new cases** – It will be important to quickly and efficiently diagnose new cases to ensure that the ring vaccination program will quickly control the outbreak.
- 5. Containment Activities that would include:**
  - a.** Contact and contact of contact tracing - Identification of contacts of smallpox cases (contact with cases beginning with the initial symptoms (fever)) and household contacts of these contacts will need to be identified, vaccinated and isolated if they develop illness. Contacts of cases should be vaccinated as soon as possible to maximize the effectiveness of post exposure vaccination and minimize the number of new cases. It will also be important to track patient movement (where they have been) after onset of symptoms and identify all possible contacts of the case.
  - b.** Vaccination and monitoring of contacts – Post exposure vaccination may prevent or ameliorate disease and vaccination may protect from additional exposures from other contacts that develop smallpox. Contacts are monitored for illness to ensure that they can be isolated to prevent transmission to others and given appropriate medical care, if they develop smallpox.
  - c.** Community vaccination – It may be necessary to vaccinate all persons in exposed communities in addition to contacts and household contacts of contacts.
- 6. Epidemiologic investigation** - Any potential linkages between the patients (review travel history for 2-3 weeks prior to symptom onset) must be identified to determine if there is a common source for exposure and to determine if any additional persons may have been exposed to initial source (so they can be traced and evaluated for illness or watched for illness onset - if ill, isolate and vaccinate their contacts (identify contacts similar to above), if not already ill, and to ensure that all who need to be included in the ring vaccination program are included.
- 7. Large Scale vaccination** - A decision may be made by public health officials and/or political leaders to offer vaccine to all persons within the city, county or state.
- 8. Information Management** - Detailed information will be needed on an ongoing, real-time basis to inform, health officials, clinic managers, and the public about the status of smallpox response activities.
- 9. Communications** - To address public questions, minimize false rumors and misinformation, and reassure the public that the public health system is responding effectively, it is imperative that public health officials acknowledge the seriousness of a smallpox outbreak and provide accurate, timely information to the public through the media.

Source: CDC - Centers for Disease Control and Prevention  
[www.bt.cdc.gov/agent/smallpox](http://www.bt.cdc.gov/agent/smallpox)

## Smallpox Disease

<p><b>Incubation Period</b> (Duration: 7 to 17 days) <b>Not contagious</b></p>	<p><b>Exposure to the virus</b> 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.</p>
<p><b>Initial Symptoms</b> (<i>Prodrome</i>) (Duration: 2 to 4 days) <b>Sometimes contagious*</b></p>	<p>The <b>first symptoms</b> of smallpox include fever, malaise, head and body aches, and sometimes vomiting. The fever is usually high, in the range of 101 to 104 degrees Fahrenheit. At this time, people are usually too sick to carry on their normal activities. This is called the <i>prodrome</i> phase and may last for 2 to 4 days.</p>
<p><b>Early Rash</b> (Duration: about 4 days) <b>Most contagious</b> Rash distribution:</p>  <p style="text-align: center;">SMALLPOX      CHICKENPOX</p>	<p>A <b>rash emerges</b> 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 <b>most contagious</b>. 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. 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.) Fever often will rise again at this time and remain high until scabs form over the bumps.</p>
<p><b>Pustular Rash</b> (Duration: about 5 days) <b>Contagious</b></p>	<p>The bumps become <b>pustules</b>—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><b>Pustules and Scabs</b> (Duration: about 5 days) <b>Contagious</b></p>	<p>The pustules begin to form a crust and then <b>scab</b>. By the end of the second week after the rash appears, most of the sores have scabbed over.</p>
<p><b>Resolving Scabs</b> (Duration: about 6 days) <b>Contagious</b></p>	<p>The scabs begin to fall off, leaving marks on the skin that eventually become pitted <b>scars</b>. Most scabs will have fallen off three weeks after the rash appears. The person is contagious to others until all of the scabs have fallen off.</p>
<p><b>Scabs resolved</b> <b>Not contagious</b></p>	<p>Scabs have fallen off. Person is no longer contagious.</p>
<p>* Smallpox may be contagious during the <i>prodrome</i> phase, but is most infectious during the first 7 to 10 days following rash onset.</p>	