

Smallpox Disease, Vaccine, Vaccination: FAQs

The Bush administration is asking a half million front line hospital workers to *volunteer* to be vaccinated against smallpox. SEIU has compiled these frequently asked questions to ensure you have the information you need to make an informed decision, and to help you balance the risks and benefits before participating in any smallpox vaccination program.

As a health care worker, you likely will be among those asked to volunteer. The decision you make will affect you, your patients and your family. The decision whether or not to be vaccinated is *yours alone*.

These FAQs refer to specific questions about smallpox, the vaccine and the vaccination itself. The answers, reviewed by an SEIU advisory group, were provided by union, policy and medical experts and drawn from a range of published sources including those of the Centers for Disease Control and Prevention (CDC).

Frequently Asked Questions

The Disease

Q. What is smallpox?

A. Smallpox is an acute, contagious disease caused by orthopox virus *variola*. It is marked by fever and a distinctive skin rash and may lead to a variety of other complications or even death.

Q. What are the symptoms of smallpox?

A. Smallpox begins with high fever, head and body aches and sometimes vomiting. A rash follows, spreads and progresses to raised bumps that crust, scab and fall off after about three weeks, leaving a pitted scar.

Q. Is smallpox contagious before the smallpox symptoms show?

A. Smallpox patients are infectious once a rash appears and until the last smallpox scab falls off.

Q. After exposure to smallpox, how long does it take to show symptoms?

A. Following exposure, it takes between 7 and 17 days for symptoms of smallpox to appear (average incubation time is 12 days). During this time, the infected person is not contagious but becomes so with the onset of a rash. The characteristic rash follows in 2 to 3 days, with flat, red sores that evolve at the same rate and are most prominent on the face, arms and legs. People are most infectious during the time when the rash first develops, because that is when the largest amount of virus is present in the saliva. The sores become pus-filled after a few days and begin to crust early in the second week. Scabs develop and then separate, falling off after about 3 to 4 weeks, possibly leaving pitted scars.

Smallpox Disease Timetable

Incubation Period Duration: 7 to 17 days	Initial Symptoms Duration: 2 to 4 days	Early Rash Duration: about 4 days	Pustular Rash Duration: about 5 days	Pustules & Scabs Duration: about 5 days	Resolving Scabs Duration: about 6 days	Scabs Resolved
NOT CONTAGIOUS	POSSIBLY CONTAGIOUS	HIGHLY CONTAGIOUS	CONTAGIOUS			NOT CONTAGIOUS

Q. Does smallpox look different than chickenpox?

- A.** Yes. Smallpox begins peripherally—that is on the palms of the hands, the soles of the feet and on the face. From there it works its way to the center of the body or the trunk.

Chickenpox does the opposite; it goes from the center out, with lesions first appearing on the face or trunk. The palms and soles are rarely involved. Chickenpox lesions on any one part of the body are in different stages. For instance, if looking at a child with chickenpox, some of the lesions are *healing*, while some are *just coming out*.

With smallpox, all lesions are in the same stage of development.

Q. Is smallpox fatal?

- A.** *The disease kills 1 of every 3 persons it infects.* Most who survive are scarred and disfigured. In a 100-year span between 1880 and 1980 it killed a half billion people worldwide. It was declared eradicated from the planet by the World Health Organization in 1980.

Q. Is there any treatment for smallpox?

- A.** *There is no known effective cure,* but research to evaluate new antiviral agents is ongoing. Patients with smallpox can benefit from supportive therapy (I.V. fluids, medicine to control fever and pain, etc.) and antibiotics for any secondary bacterial infections that occur.

Most patients (almost 70 percent) infected with smallpox recover within 4 weeks. However, survivors may suffer from permanent scars over large areas of their body, especially the face. Some are left blind.

Transmission

Q. How is smallpox transmitted?

A. It is most commonly transmitted person-to-person. While not as contagious as the common cold or influenza (the "flu"), it is spread through close face-to-face contact by "droplet nuclei" when smallpox patients cough.

It can also be spread through direct contact with smallpox lesions, infected bodily fluids or contaminated objects such as clothing or bed linen.

Rarely, smallpox has been spread by virus carried in the air in enclosed settings such as buildings, buses, and trains.

Q. What is my risk of getting smallpox?

A. There has not been a case of smallpox on the planet in more than 25 years. Currently, the government will say only that the threat of U.S. citizens being exposed to smallpox is greater than "zero."

Q. If the disease has been eradicated, how would I get it?

A. Post September 11, the government grew concerned about protecting the American people from a deliberate use of smallpox as a biological weapon. Only two countries, the U.S. and Russia, maintain legal stocks of the virus, but the U.S. government suspects Iraq, Iran and North Korea have hidden stores of the virus.

Q. What is the threat of a smallpox attack?

A. The extent of a bioterrorist attack is unknown. President Bush said in officially announcing his vaccination plan on December 13, 2002 that "These vaccinations are a precaution only and not a response to any information concerning imminent danger."

The Vaccine

Q. In the event of a smallpox outbreak, what would be my best protection?

A. The best prevention is the vaccination against smallpox, but it is not without risks.

Q. What is the smallpox vaccine?

A. The smallpox vaccine is made from a live microbe called the *vaccinia* virus, a weak biological cousin of the smallpox virus. Once inoculated, you become immune to the deadly smallpox virus. The vaccine is essentially the same as when it was introduced more than 200 years ago.

Q. Does the vaccine contain smallpox virus?

A. *The vaccine does not contain the smallpox virus and cannot give you smallpox.*

Q. Is the vaccination against smallpox effective?

A. Yes. The vaccination against smallpox is extremely effective in preventing the disease. We know this because by the 1970s, thanks to the vaccine, the disease was eradicated from the U. S., and later declared eradicated worldwide in 1980.

In fact, if you are exposed to anyone with smallpox and are vaccinated within 4 days of your exposure, there is a 90 percent chance that you will be protected from developing smallpox disease.

Q. Why doesn't everyone just get vaccinated?

A. The President has stated that at this time "our public health and national security experts do not believe that vaccination is necessary for the general public." In addition, there are 30-50 million people that should not be vaccinated now because they or members of their household have certain risk factors, such as being immunosuppressed. However, in the face of a smallpox outbreak, the general public would be vaccinated to prevent large numbers of infections and deaths.

Vaccine Safety

Q. How safe is the smallpox vaccine?

A. Although extremely effective in preventing the disease, because it contains the "live" *vaccinia* virus it has been described as the "least safe human vaccine."

Q. Why is it called unsafe?

A. The vaccine can cause a variety of reactions ranging from mild flu-like illness to severe, life-threatening infection. Most people who receive the smallpox vaccine experience a slight illness, but life-threatening complications can occur in 15 out of every 1 million people vaccinated for the first time. The *vaccinia* virus contained in the vaccine can also spread to family members or patients, causing them to get sick as well.

Q. What are typical side effects of the vaccine?

A. Most people can expect to have a sore, swollen arm within a week or so. Many may also have a fever, and experience body aches and swollen lymph nodes as though they have the flu. Recent studies indicate that one third of those vaccinated feel sick enough to miss a few days of school or work.

Q. What about more serious complications?

A. Historically, 1,000 out of every 1 million people vaccinated for the first time experienced serious consequences. Between 14 and 52 out of every 1 million suffered potentially life-threatening reactions, and 1 to 2 out of every 1 million died.

Q. Is there a treatment for the vaccine's serious reactions?

A. Some of the vaccine's serious reactions can be successfully treated with vaccinia immune globulin or VIG, a mixture of antibodies derived from people who have recently been vaccinated. VIG is not used to treat smallpox disease itself.

Q. Is there a sufficient supply of VIG?

A. In November 2002, Dr. Anthony Fauci, director of the National Institute for Allergies and Infectious Diseases, assured SEIU there were about 600 doses of VIG available. That amount is enough to treat the expected serious vaccine reactions that historically have occurred after vaccinating about 6 million people.

Risk Factors**Q. If some people are at risk for serious complications, who should NOT volunteer for the vaccine?**

A. Because this vaccine contains live virus, you should not be vaccinated if you have certain risk factors or live in a household with someone who has any of these risk factors.

Don't volunteer to get vaccinated if you or members of your household:

- have any illness, or are taking any medications (such as steroids) that are compromising your immune system;
- have HIV or do not know if you/they have HIV;
- are under treatment for cancer;
- have skin conditions such as eczema or atopic dermatitis (current or past);
- are allergic to certain antibiotics (including polymyxin B, streptomycin, tetracycline or neomycin) used to prepare the vaccine;
- are allergic to latex products; or
- are pregnant or considering it soon.

Q. Smallpox vaccinations have been around for years, why is there so much concern about the vaccine now?

A. In fact, the vaccine has been around for over 200 years. Since introduced in 1796 by Dr. Edward Jenner, the vaccine's side-effect profile has not changed. In the past, the real threat of getting the devastating and possibly fatal disease outweighed the potential harms of the vaccine.

Also, today there is a unique at-risk population that did not exist the last time the vaccine was used. Millions of Americans can now live with weakened immune systems as a result of advances in modern medicine. There has also been an increase in the percent of the population with eczema from 4-6 percent up to as high as 22 percent. These individuals are at high risk for suffering serious complications from the vaccine.

Q. What if I was previously vaccinated?

A. *It is not clear whether those who were previously vaccinated still have immunity*, as it is believed that booster shots are needed every 5 to 10 years. Medical experts believe that reactions to the vaccine would be less common for those being revaccinated.

Inoculation

Q. Is the vaccine given like other vaccinations?

A. No. The vaccine is not administered with a hypodermic needle. It is not an injection or "shot" like many other vaccines.

Q. How is the vaccine given, then?

A. A bifurcated needle (one with two prongs, like a tiny shrimp fork) is dipped into the smallpox vaccine solution. The needle retains a droplet of the vaccine and then is administered by 15 quick pricks to an area on the upper arm.

Successful vaccination produces a sore that recipients must cover with a gauze bandage and tape for 2 to 3 weeks.

Q. What happens to the vaccination site?

A. Successful vaccination produces a red and itchy bump at the inoculation site within 3 or 4 days. In the first week, the bump becomes a large blister, fills with pus and begins to drain. In the second week, the blister begins to dry up and a scab forms. The scab falls off in the third week leaving a small scar. People who are being vaccinated for the first time may have a stronger "take" (a successful reaction) than those who are being revaccinated.

To Learn More

- Go to SEIU's Web site at www.SeiuSmallpox.org.
- A downloadable CDC brochure with pictures of normal and severe reactions to the smallpox vaccine is available at www.bt.cdc.gov/training/smallpoxvaccine/reactions.
- Additional information about smallpox and the vaccine is provided on the Department of Health and Human Services Web site at www.smallpox.gov and on the CDC's Web site at www.bt.cdc.gov/agent/smallpox/vaccination/facts.asp.

Sources:

NIOSH Alert: Preventing Allergic Reactions to Natural Rubber Latex in the Workplace (June 1997), Centers for Disease Control and Prevention National Institute for Occupational Safety and Health, www.cdc.gov/niosh/latexalt.html.
Issues Concerning Smallpox Vaccination (Draft), Bill Borwegen, SEIU, October 17, 2002.
Fact sheet on Smallpox Vaccination, John Mehring, 1199P/SEIU, Fall 2002.
Centers for Disease Control and Prevention, www.bt.cdc.gov/agent/smallpox/vaccination/facts.asp.
"Bush to Order Smallpox Vaccine for Some," *The New York Times*, November 27, 2002.
"Officials Work to Meet Deadline for Smallpox Vaccinations", Diane Cardwell, *The New York Times*, December 1, 2002.
"Cautious Steps Inject Good Sense Into Smallpox Debate", editorial, *USA Today*, December 3, 2002.
"President Delivers Remarks on Smallpox," December 13, 2002, www.whitehouse.gov/news/releases/2002.