Smallpox Fact Sheet

What is smallpox?
Smallpox is a contagious and sometimes fatal infectious disease caused by the variola virus. There is no specific treatment and the only prevention is vaccination. In 1980, the disease was declared eradicated following worldwide vaccination programs. There is concern that the variola virus might be used as an agent of bioterrorism and therefore the government is taking precautions.

What are the symptoms?
Initial symptoms include 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. The first symptoms of smallpox begin about 12-14 days after exposure. Persons can spread the disease to others from the onset of symptoms until all the scabs fall off.

How is it spread?
Generally, direct and fairly prolonged face-to-face contact is required to spread smallpox from one person to another. Droplets are put into the air when an infected person breathes or coughs and a non-infected person gets the infection by breathing the virus into their lungs. Usually the virus does not remain airborne for more than 6-7 feet, however there have been a few reports of hospital spread through the ventilation system. Smallpox can also be spread from contact with infected bodily fluids or contaminated objects such as bedding or clothing.

What is the role of the environment in the spread of Smallpox?
The smallpox virus is fragile and in the event of an aerosol release of smallpox, > 90% of the virus will be inactivated within 24 hours. Therefore buildings exposed to the initial aerosol release of the virus do not need to be decontaminated. By the time the first cases are identified, typically 2 weeks after the release, the virus in the building will be gone. Smallpox virus can also be present in the scabs which slough off, potentially contaminating clothing, linens and surfaces. The virus is tightly bound to the scab however, and this limits the efficiency of virus transfer from the environment to people via reaerosolization. Spread through hospital ventilation systems has been documented.

Is there a vaccine to prevent Smallpox?
Yes, however the vaccine can have serious side effects so it is not available for the general public. Routine vaccination in the U.S. against smallpox stopped in 1972 after the disease was eradicated. At this time the vaccine is only recommended for people who have a high risk of exposure to the virus which includes first responders, public health and law enforcement personnel; persons in hospitals who would care for patients with smallpox and persons exposed to smallpox. If a smallpox attack does occur, people will still have time to get vaccinated. Vaccination within three days after being exposed to smallpox offers the same protection as getting vaccinated before exposure.

If I had a Smallpox vaccination as a child, am I still protected?
Past experience indicates that the vaccine offers protection for 3-5 years, with decreasing immunity thereafter. If a person is vaccinated again later, immunity lasts longer. The vaccine prevents smallpox in 95% of those vaccinated. In addition, the vaccine prevents or substantially decreases the seriousness of infection when given within a few days of exposure. Note: At the time the smallpox vaccine was used to eradicate the disease, testing was not as good as it is today, so there may still be things to learn about the vaccine and its effectiveness and length of protection.

How is Smallpox treated?
There is no treatment other than the management of symptoms.

What are the control measures?
Facilities should follow the control measures put forth by their Infection Control and/or Safety officers and public health authorities. Recommendations may vary depending on the extent of the outbreak, type of facility and be updated as additional information becomes available.
**Vaccination**
The vaccine can prevent illness or lessens the severity of illness when given before exposure or within 3 days of exposure.

**Isolation**
Persons with known or suspected smallpox should be isolated and placed under surveillance (observed for symptoms). Because of the risk or airborne spread, patients should be isolated at home or in a designated smallpox facility whenever possible. If hospitalization is necessary, patients are put in a negative pressure room equipped with high efficiency particulate air filtration (HEPA) for Airborne Precautions. Persons entering the room should wear a respirator (N95 or greater), gown and gloves for Contact Precautions.

**Environmental control measures**
Environmental control of smallpox should include the following elements:
1. Control measures to reduce viral contamination on fabrics, clothing and bedding
2. Cleaning and decontamination of environmental surfaces
3. Regulated medical waste containment, treatment and disposal
4. Cleaning & disinfection of reusable equipment

Only vaccinated personnel should perform decontamination procedures and facilities should follow the control measures put forth by their Infection Control and/or Safety officers and public health authorities.

**Laundry: Textiles and Beddings**
Handle protective clothing and bed linens from patients with smallpox with minimum agitation to avoid contamination of air, surfaces, and persons. This prevents the dispersion of potentially contaminated sloughed-off scabs and skin particles into the air. Place linen and clothing in a leak proof bag, seal at point of use and transport per OSHA regulations. Do not sort these items prior to laundering. Use reusable fabric laundry bags and launder along with the clothing and other fabrics, OR use water-soluble bags to minimize direct contact with the items. Do not use linen chutes. If laundry is transported to an off-site facility, follow standard procedures for transporting and safe handling of contaminated textiles off-site and as required by OSHA. Wear appropriate protective barriers. Some facilities may choose to use disposable linens until vaccination of personnel has been completed.

Launder textiles and bedding from smallpox patients using routine procedures for healthcare facilities (i.e., hot water (71°F or 160°F) washing with detergent and bleach and hot air drying). No special laundering procedures are needed and it is not necessary to launder materials separately from other laundry. The use of cold water washing has not been evaluated with respect to inactivation of smallpox.

**Environmental Surfaces**
Clean and disinfect frequent hand-contact surfaces with an EPA registered low-to intermediate-level disinfectant according to label instructions.

Clean large housekeeping surfaces such as floors and tabletops using an EPA-registered detergent disinfectant according to manufacturer’s instructions. There is no evidence smallpox is spread from nonporous surfaces. Follow current procedures and schedules. Use a HEPA filter for cleaning carpeted floors or upholstered furniture. The vacuum cleaner does not need to be disinfected when a HEPA filter is properly installed and remains intact during use. Place vacuum cleaner bags in a closable container and discard as routine solid waste. If carpets and upholstered furniture require cleaning to remove visible soil, commercially available products can be used per standard procedures.

**Regulated Medical Waste**
All currently approved methods of medical waste decontamination will inactivate smallpox. Place regulated medical waste in appropriate biohazard containers, subject to decontamination treatment and discard in accordance with medical waste regulations of the state or other appropriate jurisdiction. This includes use of offsite medical waste treatment services. Decontaminating medical waste on site is preferred if the health care facility has the capability of treating/decontaminating the waste. Treated medical waste may be sent to the landfill.
Resources for Smallpox

Center for Disease Control Smallpox Response Plan & Guidelines

- Quarantine Guidelines Draft Guide C Part Two; Updated March 21, 2003
- Environmental Control of Smallpox Guide F; Updated March 21, 2003

Center for Disease Control Smallpox Overview; December 9, 2002

Centers for Disease Control Smallpox Questions and Answers about the Disease and Vaccine; March 31, 2003
http://www.bt.cdc.gov/agent/smallpox/overview/faq.asp

Centers for Disease Control Smallpox Basics Information for the General Public; March 31, 2003

Centers for Disease Control and Prevention. Vaccine Overview; March 31, 2003

Henderson DA et al. Consensus Statement: Smallpox as a Biological Weapon

Centers for Disease Control and Prevention. CDC Guideline for Environmental Infection Control in Health-Care Facilities. MMWR 2003; 52; in press.

Important:
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