This information is current as of the date faxed and for the patient specified ONLY. Do not use this information for other patients without contacting the Poison Center at 1-800-222-1222.

SMALLPOX: Health Care Information

Smallpox is an acute illness caused by the variola virus, an enveloped double-stranded DNA virus belonging to genus *Orthopoxviridae*. Although there has not been a reported naturally-acquired case of smallpox in the world since 1977, smallpox was weaponized by the former Soviet Union and is considered a potential bioterrorism threat. It is a Category A agent since the infectious dose is small (10 to 100 virions) and it can be transmitted readily from person to person by the airborne route leading to severe morbidity and mortality in non-immune populations. **A single case is considered a public health emergency.**

Signs and Symptoms: Immediately after an airborne release, patients will have no symptoms, but may require decontamination (see below).

After an incubation period of 7 to 17 days (average 12 days, patient is neither symptomatic nor contagious), a prostrating biphasic illness begins. The pre-eruptive stage (2 to 3 days) is non-specific and characterized by the sudden onset of **fever, malaise, body aches, headache, anorexia, nausea and vomiting**. The eruptive phase (2 to 4 days later) is heralded by the presence of an enanthem described as **red spots in the mouth and on the tongue. Patients are most infectious during this period.** Twenty-four hours later, the **skin rash (exanthem)** appears beginning with **flat red spots on the face and neck which spread rapidly in a centrifugal fashion (face/extremities → trunk)** to other parts of the body. **Macules → papules (D2) → vesicles (D4) →pustules (D7) →scab (D10 to 14)**. The skin rash evolves uniformly in all areas. Patients are contagious until the scabs fall off. The differential diagnosis includes monkeypox, measles (early stages), secondary syphilis and chickenpox. One key aspect of the diagnosis is differentiating smallpox from chickenpox. This can be done by noting that chickenpox progresses in a centripetal fashion (trunk → extremities), whereas smallpox progresses centrifugally (face → trunk) and that chickenpox skin lesions appear asynchronously (vesicles, scabs, and healing lesions can be seen at the same time on one patient), whereas smallpox lesions on a single patient all appear to be in a similar stage (e.g., all vesicles). In addition, smallpox lesions may become umbilicated.

Diagnosis: Notify local and state health departments immediately. The primary diagnostic tool is electron microscopy. PCR-based tests are also available. All diagnostic testing should be coordinated with the Reference Laboratory Network. Collect swabs or scrapings from pustules, vesicles and throat in addition to blood. Laboratory examination requires Biosafety Level 4 precautions.

Decontamination: Patient decontamination after the onset of smallpox is **not** indicated. Items such as clothing and bedding that may be potentially contaminated by infectious virions particles should be handled using **Contact Precautions** and should be autoclaved or laundered in hot water with bleach. Contaminated environmental surfaces should be cleaned with standard hospital disinfectants such as sodium hypochlorite or quaternary ammonium compounds.

Treatment: Isolate immediately in a negative pressure room. Treatment is primarily supportive. Treat secondary bacterial skin infections with appropriate antibiotics. Cidofovir has shown efficacy in animal poxvirus infections.

Prophylaxis: Post-exposure vaccination can prevent or mitigate smallpox. It is most effective within 3 days of exposure in previously unvaccinated individuals and within 7 days in previously vaccinated. Contact tracing and quarantine along with post-exposure vaccination is the primary public health strategy for control.

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Isolation and Personal Protection: Any hospitalized patient with suspected or confirmed smallpox should be isolated in a negative pressure room and **Airborne** and **Contact Precautions** should be instituted immediately in addition to **Standard Precautions**. **Airborne Precautions** require health care providers and others to wear respiratory protection when entering the patient room. (Appropriate respiratory protection is based on facility selection policy but must meet the minimal NIOSH standard for particulate respirators, N95). **Contact Precautions** require health care providers and others to:

- Wear clean gloves upon entry into patient room.
- Wear a gown for all patient contact and for all contact with the patient's environments. Gown must be removed before leaving the patient's room.
- Wash hands using an antimicrobial agent.

Resource Links: http://www.bt.cdc.gov/agent/smallpox
http://www.upmc-biosecurity.org/pages/agents/smallpox.html