

**SMALLPOX**  
**(Variola major)**

Last revised January 19, 2012

**I. IDENTIFICATION**

**A. CLINICAL DESCRIPTION:**

The last naturally acquired case of smallpox in the world occurred in October 1977 in Somalia. The World Health Organization officially certified the world as smallpox-free in 1979. Two secure laboratories, the CDC in the US and one in Russia, are the only known holders of the virus.

Smallpox is spread by droplet and aerosol; it may also be spread by direct inoculation from a lesion to an open wound or cut in the skin. "Weaponized" smallpox has been postulated to be spread by aerosol. Transmission is usually limited to close contacts such as household members. Incubation period is from 7 to 17 days; patients are infectious once the rash and/or oral lesion has appeared.

Any occurrence of smallpox will be classified as an outbreak and a bioterrorism event. Thus careful evaluation and testing, as well as notification of authorities, is necessary.

Smallpox disease is distinct from other general body rashes.

**Major smallpox criteria:**

- Febrile prodrome
- Presence of classic smallpox lesions (deep-seated, firm/hard, round well-circumscribed vesicles or pustules)
- Lesions in the same stage of development on any one part of the body

**Minor smallpox criteria:**

- Centrifugal distribution of lesions
- First lesions on oral mucosa or face, palate, and forearms
- Patient appears toxic or moribund
- Slow evolution of lesions (from macules to papules to vesicles to pustules, each phase lasting one to two days)
- Lesions on palms of hands or soles of feet or both

As the disease does not exist in the population, laboratory testing will be confined to those cases meeting the case definition below.

**B. REPORTING CRITERIA:**

Immediate reporting by telephone to the state health department and the local health department of any suspect case is required.

**C. LABORATORY CRITERIA FOR CONFIRMATION:**

- Polymerase chain reaction (PCR) identification of variola DNA in a clinical specimen, **OR**
- Isolation of smallpox (variola) virus from a clinical specimen (WHO Smallpox Reference laboratory or laboratory with appropriate reference capabilities) **with** variola PCR confirmation.

## Wisconsin Division of Public Health Communicable Disease Surveillance Guideline

Samples can be obtained from lesions by carefully un-roofing a vesicle with a sterile needle and placing the sample in a sterile container. Swabs of the lesion may also be obtained and placed in viral transport medium for submission to the laboratory.

All laboratory testing must take place in a CDC-approved laboratory response network laboratory. All results must be confirmed by additional testing at CDC.

- D. **WISCONSIN CASE DEFINITION:** An illness with acute onset of fever  $\geq 101^{\circ}\text{F}$  ( $38.3^{\circ}\text{C}$ ) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development without other apparent cause.

## II. ACTIONS REQUIRED / PREVENTION MEASURES

- A. **WISCONSIN DISEASE SURVEILLANCE CATEGORY I:** Report **IMMEDIATELY BY TELEPHONE** to the patient's local health department upon identification of a confirmed or suspected case. The local health department shall then notify the state epidemiologist **immediately** of any confirmed or suspected cases. Within 24 hours submit a case report electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), by mail or fax using an Acute and Communicable Disease Case Report ([F-44151](#)), or by other means.
- B. **EPIDEMIOLOGY REPORTS REQUIRED:**
- *Electronically* – Report through WEDSS, including appropriate disease-specific tabs  
OR
  - *Paper Copy* – Acute and Communicable Diseases Case Report ([F-44151](#))

Additional reports will be required as testing progresses.

- C. **PUBLIC HEALTH INTERVENTIONS:**  
In accordance with Wisconsin Administrative rule DHS 145.05, local public health should follow the methods of control recommended in the current edition of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association.

Any person with a suspicious rash and prodrome typical of smallpox should be immediately placed in airborne and contact isolation. Access to the room should be limited to the minimum number of necessary caregivers; staff such as cleaning and dietary personnel should NOT be allowed in the room. A log of all individuals who have contact with the patient should be kept.

- D. **PREVENTION MEASURES:** Vaccination against smallpox can be performed before or after exposure; vaccine and needles are obtained through the state health department from CDC. The vaccine contains vaccinia virus, which when inoculated causes a lesion or lesions similar to a smallpox lesion: moving from macular to papular to vesicular to pustular. At this time, military personnel and some laboratory personnel are the only persons in the US who are regularly vaccinated with vaccinia. Transmission of vaccinia from the lesion to close contacts occurs and may cause a single or multiple lesions. Vaccinia transmission should be considered when a smallpox-like lesion is seen.

### III. CONTACTS FOR CONSULTATION

A. LOCAL HEALTH DEPARTMENT – REGIONAL OFFICES – TRIBAL AGENCIES:  
<http://www.dhs.wisconsin.gov/localhealth/index.htm>

B. BCDER / COMMUNICABLE DISEASE EPIDEMIOLOGY SECTION: (608) 267-9003

C. WISCONSIN STATE LABORATORY OF HYGIENE / Virology (608) 262-3185

D. CDC Rash Illness Evaluation Team (770) 488-7100

### IV. RELATED REFERENCES

- Heymann DL, ed. **Smallpox (variola)** In: *Control of Communicable Diseases Manual*. 19th ed. Washington, DC: American Public Health Association, 2008: 560 - 563
- Pickering LK, ed. **Smallpox (Variola)**. In: *Red Book: 2009 Report of the Committee on Infectious Diseases*. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2009:596-598
- CDC website: [www.cdc.gov/smallpox](http://www.cdc.gov/smallpox)