Council of State and Territorial Epidemiologists
Position Statement

03-ID-03

Committee: Infectious Disease

Title: Smallpox Surveillance

Statement of the Problem:
The last case of smallpox disease in the United States occurred in 1949, and the disease was later declared eradicated in 1980 by the World Health Assembly. As a result, smallpox was removed from the National Notifiable Disease Surveillance System's (NNDSS) list of notifiable diseases in 1988. However, with the current threat of an intentional release of smallpox as a biological weapon, resumption of smallpox surveillance is needed. Rapid detection of smallpox is essential to ensure prompt initiation of public health activities to contain and control the spread of disease.

Desired Actions to be taken:
CSTE recommends that

1. Smallpox be placed under national surveillance as part of the NNDSS.
2. All states add smallpox to their reportable disease lists.
3. CDC work with CSTE to develop guidelines for implementation of surveillance for confirmed smallpox cases by states to the NNDSS.
4. CDC and CSTE will work together to develop a plan to report routine summary data on suspected cases of smallpox to CDC.

Goals of Surveillance:
The goals of surveillance at both the state/local and national levels are:

1. To permit the rapid detection of the first case of smallpox as the result of a bioterrorist attack or the unintentional release of smallpox virus, for example in a laboratory accident.
2. To provide a systematic and standard approach for reporting of suspected smallpox cases. Most suspected cases are likely to be varicella; therefore, varicella surveillance should be implemented in all states.
3. To monitor the epidemiology of smallpox cases to guide containment and control activities in the event of the occurrence of smallpox in the population,
4. To provide data to guide future prevention, containment and control policies.

Methods of Surveillance:
Prior to any smallpox cases occurring (pre-event), enhanced passive surveillance of suspected smallpox cases is recommended. Because varicella infection is the most likely disease to be confused with suspected smallpox disease, varicella surveillance should be implemented in all states, as previously recommended by CSTE. All health care providers in acute care settings should be educated on the signs and symptoms of smallpox and reminded periodically of the reporting requirements.

Pre-event smallpox surveillance should include the use of the CDC "Evaluating Patients for Smallpox" protocol. Routine surveillance of suspected smallpox cases (persons with any generalized, acute vesicular or pustular rash illness with fever preceding development of rash by 1-4 days) should include immediate reporting of suspected cases by telephone to the local or State Health Department. Although state health departments do not usually report suspected cases of any reportable disease to CDC, state health departments should immediately notify CDC by telephone of any reports they receive of highly suspicious cases. CDC will work with CSTE to develop methods to report routine summary data on suspected cases from states to CDC for the purpose of evaluating national smallpox surveillance efforts.

Should a case of smallpox be confirmed anywhere in the world (post event), enhanced, streamlined reporting of suspected smallpox cases to CDC may be recommended, depending on the numbers and epidemiology of the cases occurring. During post-event surveillance,

enhanced or active surveillance is recommended (see Guide A of the CDC Smallpox Response Plan). Detailed case information on confirmed smallpox cases should be sent to the NNDSS via telephone, fax, or, when available, the National Electronic Disease Surveillance System (NEDSS).

Case Definition:

Clinical Case Definition: An illness with acute onset of fever ≥101º F (≥38.3 º C) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development without other apparent cause. Clinically consistent cases are those presentations of smallpox that do not meet this classical clinical case definition: a) hemorrhagic type, b) flat type, and c) *variola sine eruptione.*

Laboratory Criteria:
Polymerase chain reaction (PCR) identification of variola DNA in a clinical specimen, OR
Isolation of smallpox (variola) virus from a clinical specimen (Level D laboratory only; confirmed by variola PCR).

Note: Indications for laboratory testing of patients with suspected smallpox should be followed as described in detail in Guide A of the CDC Smallpox Response Plan. Laboratory diagnostic testing for variola virus should be conducted in Level C or D laboratories only.

Case Classification (Post-event Surveillance):

Confirmed case: A case of smallpox that is laboratory confirmed, or a case that meets the clinical case definition that is epidemiologically linked to a laboratory confirmed case.

Probable case**:** A case that meets the clinical case definition, or a clinically consistent case that does not meet the clinical case definition, and has an epidemiological link to a confirmed case of smallpox.

Suspected case: A case with an generalized, acute vesicular or pustular rash illness with fever preceding development of rash by 1-4 days.

Period of Surveillance:
On-going, continuous surveillance.

Background and Justification:
While smallpox disease is not currently present anywhere in the world, the intentional release of the smallpox virus as a bioterrorist agent or the unintentional release of the virus as a laboratory accident are possible. Early detection of the first smallpox case can limit the spread of disease through prompt initiation of containment and control activities. Reporting of suspected smallpox cases is critical for early detection. To facilitate early detection, the CDC protocol for evaluating patients for smallpox (Protocol and Worksheet) provides a mechanism for identifying suspected cases at moderate or high risk for smallpox. Once one laboratory-confirmed case of smallpox is detected, an outbreak has occurred resulting in implementation of the CDC and State Smallpox Response Plans. Other criteria for implementation of response plans include scenarios in which suspected, probable or confirmed smallpox cases are reported. These scenarios include a large outbreak of clinically compatible illness pending etiologic confirmation; reports of suspected or probable cases once an outbreak has been identified elsewhere in the country; and confirmation of smallpox virus in an environmental sample, package, or device associated with human exposure. Routine reporting of suspected cases is critical for early recognition of these scenarios and for a rapid response.

References:

1. Centers for Disease Control and Prevention. CDC Smallpox Response Plan. Draft Guide A, May 21, 2003. http://www.bt.cdc.gov/agent/samllpox/response-plan. Accessed 29 May 2003.
2. Centers for Disease Control and Prevention. Notice to Readers: 25th Anniversary of the Last Case of Naturally Acquired Smallpox. MMWR, 2002. Oct 25; 51(42): 952. Centers for Disease Control and Prevention.
3. Poster: Evaluating Patients for Smallpox. http://www.bt.cdc.gov/agent/smallpox/diagnosis/evalposter.asp. Accessed 29 May 2003.

Agencies for Information:

(1) George Hardy, MD, MPH
Executive Director
Association of State and Territorial Health Officers
1275 K. Street NW, Suite 800
Washington, D.C. 20005-4006
Telephone: (202) 371-9090
Fax: (202) 371-9797
Email: ghardy@astho.org

(2) Scott Becker
Executive Director
Association of Public Health Laboratories
1211 Connecticut Ave, NW, Suite 608
Washington, D.C. 20036
Telephone: (202) 822-5227
Fax: (202) 822-5227
E-mail: sbecker@aphl.org

Agencies for Response:

(1) Julie L. Gerberding, MD, MPH
Director
Centers for Disease Control and Prevention
1600 Clifton Road, Mailstop D14
Atlanta, Georgia, 30333
Telephone: (404) 639-7000
Fax: (404) 639-7111
E-mail: jyg2@cdc.gov

Authors:

(1) Guthrie Birkhead, MD, MPH
New York State Health Department
Room 1483, Corning Tower ESP
Empire State Plaza
Albany, New York 12237
Telephone: (518) 402-5382
Fax: (518) 486-1455
E-mail: gsb02@health.state.ny.us