New York City Department of Health and Mental Hygiene and
New York State Department of Health

Guidelines for Management of a Suspect Case of Smallpox in Acute Care Hospitals in New York City

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Last revised November 26, 2002

New York City Department of Health and Mental Hygiene (NYC DOHMH) and
New York State Department of Health

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Last revised November 29, 2002

New York City Department of Health and Mental Hygiene and
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Since the events of September 11, 2001 there has been an acceleration of public health preparedness at the local, state, and federal levels with respect to the possible introduction of smallpox as a biological weapon. Although the risk of a bioterrorist incident involving smallpox is not known, it is considered low. However, given the concerns that smallpox virus may be used intentionally in the future, the New York City Department of Health and Mental Hygiene (NYC DOHMH) and New York State Department of Health (NYSDOH) have developed these guidelines to assist acute care hospitals in New York City in planning for and responding to patient(s) who present to the emergency departments or hospital-based clinics at their facilities with "suspected smallpox".

These guidelines focus on the management of a "suspect" smallpox case occurring in the absence of an already recognized outbreak, that is, a case that may represent the index case of a bioterrorist event. Once there is one or more cases of laboratory confirmed smallpox in the city, further guidance on the management of the index suspect case-patient(s) as well as their contacts, and all subsequent patients suspected to have smallpox will be provided by the NYC DOHMH, NYSDOH and the Centers for Disease Control and Prevention (CDC).

A flow diagram summarizing the major steps in the management of a "suspect" smallpox case is included in **Figure 1.** The legal definitions and authorities related to the reporting, isolation and quarantine of a suspected case of smallpox are summarized in **Appendix 1**

I. Steps Hospitals Should Take in Advance to Ensure Preparedness for Management of a Suspect Smallpox Case: The NYC DOHMH and NYSDOH recommend that all hospitals ensure their preparedness for the evaluation and management of a suspect smallpox case through the following steps:

A) Ensure that an effective emergency response (disaster) plan and infrastructure is in place, including but not limited to:
   1) The presence of an incident management or incident command system (*e.g., hospital emergency incident command system {HEICS}*). Information on HEICS can be found at http://www.emsa.cahwnet.gov/Dms2/download.htm.

An incident management or incident command system allows coordination of the emergency response along standardized functional responsibilities.

2) An active, functional emergency response (disaster) committee with representatives, as appropriate, from hospital, medical and nursing administration; internal medicine, pediatrics, and infectious disease departments; infection control; microbiology; emergency medicine; intensive care; ambulatory care services; pharmacy; employee health; public affairs; operations; Management Information Systems; legal services; mental health; central supply; engineering; laundry; waste management and hospital security.
3) The incident management or incident command system should include pre-designated roles, lines of authority and chains of communication, with at least one appropriate alternate/back-up person for each position. Job action sheets should be prepared ahead of time outlining the roles and responsibilities for all emergency response positions. Regular educational training should be provided to all appropriate hospital staff regarding the hospital's emergency response plans, and each staff person's expected role and responsibilities.
4) Notification protocols to ensure that all relevant hospital staff and outside agencies are notified rapidly in the event of an emergency should be established ahead of time. This will require having 24-hour contact information for all key staff, including home telephone, pagers, cell phones and electronic mail *(including mobile electronic mail accounts*) as well as a telephone tree system or emergency notification software to ensure the ability to rapidly contact staff to request that they report to duty. Twenty-four hour emergency contact information for key city and state agencies (*e.g., NYC DOHMH, NYSDOH, the NYC Office of Emergency Management)* should be included in the hospital's emergency response plan.
5) Communications systems or protocols should be in place to ensure the ability to inform and update hospital staff regarding the hospital's emergency response during the acute event (*e.g., staff educational sessions, video updates, intranet website, staff hotlines).*
6) A 24/7 communications network with back-up communication systems should be in place in the event that the routine network is disabled. All hospitals should be linked to the NYC Office of Emergency Management's wireless radio network, in a location that is staffed 24 hours/7 days per week (*e.g., emergency department, communication center, security office).*

B) As part of overall emergency response (disaster) planning, each hospital should develop a specific response plan for smallpox (*hospitals should include the guidance provided in this document).* This plan should be developed in conjunction with the NYC DOHMH's, NYS DOH and NYC Office of Emergency Management's citywide smallpox response planning efforts. Consider conducting tabletop exercises and drills to evaluate the hospital response to a suspect smallpox case. The smallpox response plan should be carefully reviewed at least yearly.

C) Ensure that the emergency department and all hospital-based clinics have protocols in place to identify quickly all patients presenting with fever and rash illness upon arrival to minimize contact with those already sitting in the waiting area and to isolate them immediately pending clinical evaluation. (*See Section II. for details).*

D) Ensure that all pre-hospital transportation services (*e.g., Emergency Medical Services)* are aware of the need to notify the emergency department and/or clinic staff when transporting any patient with fever and rash illness so that the patient can be immediately placed in isolation on arrival.

E) All hospitals should identify dermatologists and/or infectious disease specialists who would be available for emergency smallpox consultation at all hours.

F) Ensure that the emergency department has airborne infection isolation rooms.

Airborne infection isolation rooms are defined as negative pressure isolation rooms with a minimum of 6-12 air exchanges per hour and direct exhaust to the outside which is located more than 25 feet from an air intake and from where people may pass (if air cannot be exhausted directly to the outside more than 25 feet from an air intake and from where people may pass, then air should be filtered through an appropriately installed and maintained HEPA filter). These rooms should be tested monthly (and daily when in use) to verify negative airflow.

In clinic areas or emergency departments that do not have airborne infection isolation rooms that meet the above criteria, an enclosed private room(s) should be pre-identified for isolating patients with fever and rash illnesses apart from other patients and staff as best as possible pending clinical evaluation (*e.g., an examination room at the end of a hallway).*

Portable high efficiency particulate air (HEPA) filtration units should be considered, especially for patient rooms that do not have appropriate directional air flow or exhaust. *(NOTE: HEPA filters are tested with 0.3 micron particles, which are similar in size to that of a smallpox virion {.25-.40 microns}*). The plant management and engineering staff need to consider the optimal placement of these HEPA units in the room based on the size of the space and the airflow patterns. For some HEPA units, it may be possible to adapt the units to vent air to the outside, thereby, creating negative airflow and direct exhaust to the outside through the HEPA filter.

Ultraviolet germicidal irradiation (UVGI) light may also be effective in reducing the number of viable organisms if there is appropriate air mixing and placement in

the room. It is critical to ensure safe placement and prevent exposure to UV irradiation (*e.g., shielded fixtures to prevent eye or skin exposure among patients, visitor or staff*). As with any environmental control measure, appropriate maintenance is critical. Additional guidance regarding HEPA filtration and UV light can be found in the Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Facilities, 1994 (October 28, 1994) MMWR RR-13:81-95).

G) Emergency department, infection control and plant management/engineering staff need to understand the air flow characteristics of the emergency department, assess potential risks and determine the most effective strategies in their facility to minimize the likelihood of smallpox transmission, should a suspect case be identified. The majority of emergency departments do not recirculate air to other parts of the facility.

If air does recirculate to other parts of the facility, infection control and plant management/engineering staff should know what areas of the hospital might potentially be affected as well as assess ahead of time the relative benefits and risks of shutting down the ventilation system, in response to a suspect smallpox case-patient. (*Hospitals may consider retrofitting the HVAC systems in these areas with HEPA filtration units and/or installing UVGI units.*)

H) Maintain an up-to-date list of all airborne infection isolation rooms (*as defined in Section I.F.)* in the in-patient facility and ensure that all rooms are evaluated monthly (and daily when in use) to verify negative airflow characteristics. **Pre-identify specific in-patient floor(s) or unit(s) with airborne infection isolation rooms (*including in the intensive care units)* that would be used to admit a suspect or confirmed smallpox case(s).** Consideration should be given ahead of time regarding the optimal route for transporting the suspect case(s) from the emergency department or clinic areas to this pre-designated floor/unit.

I) Maintain enhanced awareness among all appropriate clinical care staff regarding the potential for bioterrorism and the key diagnostic clues to potential bioterrorism-related diseases, including smallpox. On at least an annual basis, all medical and nursing staff should receive educational training that reviews the clinical presentation of all potential bioterrorism-related diseases, including smallpox and the differential diagnosis of vesicular and pustular rashes. Place copies of the CDC's poster on "Evaluating Patients for Smallpox – Acute, Generalized Vesicular and Pustular Rash Illness Protocol" in the medical areas of the emergency department and in all primary care clinics (*Details on how to obtain copies of this CDC poster are included in Section II.C.).* **All healthcare providers should know to report immediately any suspect smallpox case to the NYC DOHMH (*24-hour contact numbers for the NYC DOHMH are listed in Section III.*).**

J) **All hospitals should acquire at least one <u>digital camera</u> for key personnel *(, including, emergency department staff)* and train them in its proper use (*including downloading of the images for electronic mail transmission*) to facilitate rapid consultation with the state and local health departments.** Digital photographs will allow the NYC DOHMH to evaluate patients suspected to have smallpox, as well as other cutaneous manifestations of diseases of potential bioterrorist or public health importance (*e.g., cutaneous anthrax).*

Ensure that trained staff are available on all shifts who are able to take digital photos and transmit images by electronic mail. Staff should be trained to ensure that the photograph does not contain any identifying features of a suspected case to protect patient confidentiality (*e.g., using the camera's editing software to crop the eyes from a facial photo).*

K) Pre-designate teams of healthcare providers (*including adult and pediatric medical staff, nursing, emergency medicine, infectious disease, dermatology, laboratorians, and housekeeping)* that would be mobilized to care for any suspect or confirmed smallpox case (Smallpox Healthcare Response Teams).

The federal government is preparing plans for pre-vaccination of persons who volunteer to be on their hospital's Smallpox Healthcare Response Teams . Until these plans are implemented, these pre-identified staff should preferably be persons who were vaccinated against smallpox at least once previously. (NOTE: *The smallpox vaccine was routinely given in the United States until 1972, was recommended for health care providers until 1976, and was administered in the military until 1990. While previous vaccination may not confer complete protection, staff with one or more smallpox vaccinations in the past may have some protection against severe illness.)*

These pre-designated Smallpox Healthcare Response Teams should not include any staffperson who has a contraindication to smallpox vaccine (*e.g., immunosuppressive condition {including HIV infection}, pregnancy, or history of eczema or atopic dermatitis)* or who has a household member with one of these contraindications to smallpox vaccine.

During the winter of 2002-3, the United States Department of Health and Human Services (DHHS) will be offering smallpox vaccine to persons who volunteer to be on their hospital's Smallpox Healthcare Response Teams and other first responders who would be called upon to care for the initial cases of smallpox and manage the immediate public health response to a smallpox outbreak, should it occur. Persons who volunteer to be pre-vaccinated must agree to be on the initial response teams for caring for a suspect or confirmed smallpox case(s).

These previously or recently (*after the DHHS smallpox vaccination program begins*) vaccinated staff would still need to use appropriate personal protective equipment and strictly adhere to airborne and contact precautions during all medical care activities for patients with suspected or confirmed smallpox. These staff should receive regular training on airborne and contact precautions and undergo fit-testing for respirators (N-95 or higher).

L) Ensure that laboratorians are trained in the proper handling of routine clinical specimens and understand that the risk of smallpox infection due to contact with samples from a suspect case is low when handled appropriately.

II. Initial Evaluation of Patients with Fever and an Acute, Generalized Vesicular or Pustular Rash and Criteria for Notification of the NYC DOHMH Based on the Likelihood of Smallpox: All hospitals should have policies in place to ensure that any patient presenting for evaluation in the emergency department or clinics with fever and an acute, generalized vesicular or pustular rash would be immediately identified and placed in isolation with airborne and contact precautions. Infection control staff should be notified immediately while awaiting further clinical evaluation. (*NOTE: The measures described here are similar to those that should be applied in cases of other fever and rash illnesses, such as suspected measles and chickenpox.)*

A. Recognition of a Suspected Smallpox Case:

1) Signage (*bi- or multi-lingual depending on the hospital's patient population*) should be placed at the walk-in entrance to the emergency department and clinics stating that any patient with fever and rash illness immediately inform security or triage staff.

2) **Security guards at the entrance to emergency departments or clinics, as well as triage, receptionist and all medical care staff should be trained to be alert for patients with any rash illnesses, and immediately notify the appropriate nursing or medical staff to expedite the patient's placement in an airborne infection isolation room** (*As defined in Section I.F.*)**.**

3) All ambulance or pre-hospital transport services should pre-notify the emergency department staff if transporting a patient with fever and rash illness so that the patient can be immediately placed in isolation on arrival. Hospitals should ensure that all pre-hospital transport services that use their emergency department are aware of the need to notify the hospital when transporting a patient with a fever and rash illness.

B. <u>Isolation of a Suspected Smallpox Case Pending the Initial Clinical Evaluation by Emergency Department or Clinic Staff</u>

1) **A surgical mask should be placed immediately on patients presenting to security or triage staff with fever and rash illness and the patient should be escorted directly to the airborne infection isolation room** (*As defined in Section I.F.)* **and placed on airborne and contact precautions**. Before the patient is placed in the airborne infection isolation room, ensure that the airflow is negative pressure. If suspect patients are initially seen in clinical areas (*e.g., primary care clinics)* that do not have airborne infection isolation rooms, a surgical mask should be placed on the patient, and he/she should be isolated from other patients and staff as best as possible pending clinical evaluation (*e.g., in an enclosed examination room separated from other patients at the end of a hallway, ensuring that the door to the hallway stays closed).*

2) Further details on isolation precautions that should be taken for the care of suspected smallpox cases are outlined in **Section IV**. These precautions may be discontinued once the medical evaluation has ruled out smallpox and other potentially communicable diseases (*e.g., varicella).*

C. <u>Clinical Assessment of the Risk of Smallpox</u>
The clinical assessment of smallpox should make use of the CDC criteria for determining whether the patient is at **low**, **moderate** or **high risk** for smallpox, as summarized in **Appendix II**. The full protocol with color photographs is available as a poster ("Evaluating Patients for Smallpox – Acute, Generalized Vesicular and Pustular Rash Illness Protocol") and copies of this poster can be obtained by calling the NYC DOHMH's Bureau of Communicable Disease during business hours (212-788-4225), sending an email request to: healthSP@health.nyc.gov or through the CDC website at http://www.bt.cdc.gov/agent/smallpox/diagnosis/pdf/spox-poster-full.pdf

1) For **<u>low risk patients</u>**, as defined on the CDC poster "Evaluating Patients for Smallpox" and in **Appendix II** of this Guideline (especially if chickenpox or disseminated herpes zoster is the likely diagnosis based on history and physical examination), varicella laboratory testing is optional and the patient should be kept isolated, using airborne and contact precautions, as per the hospital's varicella protocol. For patients determined to be at low risk for smallpox, but for whom the diagnosis is uncertain, laboratory testing for varicella zoster virus antigen (*using rapid DFA or PCR antigen tests)* and/or other conditions should be considered as indicated clinically. **It is NOT necessary to report the case to the NYC DOHMH, unless a consultation or rapid varicella antigen testing is needed.**

2) For **moderate risk patients**, as defined on the CDC poster "Evaluating Patients for Smallpox" and in **Appendix II** of this Guideline, the NYC DOHMH should be contacted immediately (*See Section III.A. for 24-hour contact information)*. In addition, an infectious disease or dermatology consult should be arranged as well as rapid testing for varicella (DFA or PCR testing for varicella antigen) if available, and for other diseases as clinically indicated. **If specialty consultation and/or rapid testing is not available, or the diagnosis remains uncertain, the NYC DOHMH will assist in determining the likelihood of smallpox and arrange for rapid diagnostic testing for varicella (*to help differentiate chickenpox from smallpox)* and/or variola, if indicated.** The NYC DOHMH will send a public health response team (with medical epidemiologists and laboratorians) to the hospital to assist with the clinical and laboratory diagnosis of these patients, as well as to provide public health consultation, as warranted.

3) For **high risk patients**, as defined on the CDC poster "Evaluating Patients for Smallpox" and in **Appendix II** of this Guideline, the **NYC DOHMH should be contacted immediately** (*See Section III.A. for 24-hour contact information)***.** The NYC DOHMH will send a public health response team (with medical epidemiologists and laboratorians) to the hospital to assist with the clinical and laboratory diagnosis of these patients, as well as to provide public health consultation on management of the patient and all hospital potential contacts.

III. Consultation with the NYC DOHMH

A. Contact Information for the NYC DOHMH: The NYC DOHMH should be consulted immediately for any patient deemed to be at **moderate** or **high risk** for smallpox**.** NYC DOHMH staff are available for consultation on a 24-hour, 7 day per week basis:

To report a suspect case of smallpox to the NYC DOHMH:
During normal business hours, call the Bureau of Communicable Disease and ask to speak to the Physician-on-Duty: 212-788-9830

During nights, weekends and holidays, contact the Poison Control Center to reach the On-Call Physician at: 212-764-7667 (212-POISONS) or 1-800-222-1222.

(If there are difficulties reaching the NYC DOHMH, please contact the NYSDOH. During normal business hours, call 518-473-4436; after hours, call the duty officer at 518-465-9720 and ask to speak to a medical epidemiologist.)

B. NYC DOHMH's Initial Triage of Calls Regarding Suspect Smallpox Cases: The NYC DOHMH has medical epidemiologists who are available on a 24-hour, 7 day a week basis to assist providers in evaluating suspect smallpox cases, in consultation with the NYSDOH and CDC. In addition, the NYC DOHMH Public Health Laboratory now has rapid varicella DFA antigen testing available to assist in differentiating chickenpox or disseminated herpes zoster from smallpox.

The NYC DOHMH medical epidemiologist will initially discuss the case by telephone with the reporting physician to determine the likelihood of smallpox. **Digital photographs should be taken of the suspect case-patient's lesions and the image sent via electronic mail to the NYC DOHMH. The on-call medical epidemiologist will consult with other subject matter experts (*including CDC smallpox consultants*), if needed, to assist in rapidly evaluating whether the patient is at low, moderate or high risk for smallpox.** Directions on where to email the digital photographs will be provided at the time of consultation with the NYC DOHMH physician(s) on call. (*Care should be taken to ensure that the photograph does not include any identifying features of the suspect case-patient to protect the case-patient's confidentiality [e.g., using the camera's editing software to crop the eyes from a facial photo].)*

In consultation with the hospital staff and the CDC, if needed, the NYC DOHMH will make an initial determination on whether the patient is at **low, moderate** or **high risk** for smallpox. If the patient is suspected to be at **moderate** or **high risk** for smallpox, the NYC DOHMH will send a public health response team on-site to further evaluate the patient. During the initial telephone consultation, the medical epidemiologist on-call will provide instructions to the hospital regarding (a) the management of the suspect case-patient *(See Section IV. for details),* (b) the management of all potential contacts, including contacts in the emergency department or clinic waiting area *(See Section V. for details)*, and (c) the need for cleaning the emergency department or clinic waiting room, if the suspect patient spent time in these areas prior to being placed in isolation (*See Section V. for details).*

C. On-site Evaluation by the NYC DOHMH Public Health Response Team: If the patient is deemed to be at **moderate** or **high risk** for smallpox, an on-site evaluation by the NYC DOHMH will be initiated. The NYC DOHMH public health response team will include at least one medical epidemiologist and a laboratorian to assist with collection and packaging of clinical specimens for testing at the NYC Public Health Laboratory and/or the CDC. In addition, for hospitals without dermatology consultants available, the NYC DOHMH may soon have arrangements in place with dermatology specialists for emergency consultation on-site or via telephone and electronic mail (*to view electronic digital images of the rash lesions).*

In addition, the NYC DOHMH will send staff to assist in interviewing and counseling all hospital staff, visitors and other patients who may have had potential contact ((*See*

Section V. for details) with the suspect case-patient prior to his/her being placed in isolation (*As defined in Section I.F)*, and under airborne and contact precautions.

Currently, the confirmatory tests for smallpox are only available at the CDC. Therefore, the NYC DOHMH will arrange immediate transportation to the CDC to expedite testing; preliminary results should be available within 24-48 hours to guide further clinical and public health management of the patient and all contacts.

D. Notification of other City, State and Federal Agencies: There is no need for hospital staff to notify any other government agencies, after notification of the NYC DOHMH. The NYC DOHMH will notify its epidemiologic counterparts at the NYSDOH's Center for Community Health and CDC regarding all suspect cases deemed to be at **moderate** or **high risk** for smallpox, as well as other supporting agencies when indicated (*e.g., the NYC Office of Emergency Management).*

IV. Management of the Suspect Case-Patient Pending NYC DOHMH Evaluation and/or Laboratory Test Results for Smallpox:

Pursuant to Section 11.57 in the NYC Health Code (**See Appendix I**), hospitals are advised to take the following steps for managing suspect **moderate** or **high risk** patients to protect other patients, staff and visitors from smallpox infection while awaiting the arrival of the NYC DOHMH public health response team.

A. While awaiting the NYC DOHMH's public health response team's arrival, the suspect case-patient should remain isolated on airborne and contact precautions in the emergency department or clinic. If the NYC DOHMH staff agree that the suspect case-patient is at **moderate** or **high risk** for smallpox and that variola testing is indicated, the suspect case-patient should be admitted and moved to an airborne infection isolation room (*as defined in Section I.F)* in an in-patient hospital ward or unit that has been pre-identified for management of patients with suspect smallpox, or other highly communicable diseases (*as recommended in Section I.H)*. Ensure that the airflow is negative pressure. The in-patient airborne infection isolation room should have a toilet and sink, and ideally, a bath or shower.

B. Infection control personnel and the on-call hospital administrative staff should be immediately notified regarding the suspect case. If not already involved, consultations should be requested from dermatology and/or infectious disease specialists.

C. Standardized isolation signs noting the need for airborne and contact precautions should be displayed outside the suspect case-patient's room.

D. The door to the suspect case-patient's room should be kept closed (self-closing doors are preferable).

E. All personal protective equipment *(e.g., gowns, gloves, and respirators)* should be stocked outside the door to the suspect case-patient's room. Hand hygiene products, such as disinfectant gels, should be available for use by all staff and visitors. If available, the suspect case-patient should be placed in an airborne infection isolation room with an anteroom that has a sink, so that persons leaving the room can dispose of their protective clothing and equipment, and wash their hands before exiting to the hallway. In the absence of an anteroom, gowns and gloves should be removed inside the suspect case-patient's room and discarded in a waste receptacle just inside the room by the door. A separate waste receptacle should be place immediately outside the suspect case-patient's room for disposal of used respirators.

F. Minimize the number of persons who enter the suspect case-patient's room, as well as the traffic in and out, as much as possible. Visitors should be limited to (i) public health and law enforcement investigators and (ii) immediate family members who have already had close contact (within 6 feet) with the suspect case-patient after the onset of his/her rash and prior to hospitalization.

Ensure that all staff and visitors entering the room are instructed in the meaning of contact, airborne and standard precautions. All hospital staff (*including transport personnel)* and visitors must don contact and airborne personal protection equipment prior to entering a suspected or confirmed smallpox patient's room *(i.e., disposable gloves and gowns and an N-95 or higher respirator)* regardless of their prior smallpox vaccination status. All hospital staff should have undergone fit-testing for appropriate respiratory protection. As per standard precautions, eye protection or a face shield to protect mucous membranes of the eyes should be worn for all procedures or patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions (*e.g., respiratory suctioning)*.

Preferably, as per Section I.K., only staff assigned to pre-designated smallpox health care response teams (*persons with at least one prior vaccination for smallpox*) should be allowed in the suspect case-patient's room. In addition, no person should be allowed to enter the suspect case-patient's room who has a contraindication to receiving smallpox vaccine (*e.g., HIV or other immunosuppressive condition, pregnancy, history of eczema or atopic dermatitis, or who has a household member with a contraindication to smallpox vaccine),* as all staff, public health investigators and visitors entering the room would be candidates for vaccination in the event that smallpox infection is confirmed. Smallpox vaccination is thought to be effective in preventing or minimizing clinical illness, as long as given within four days of exposure.

G. The hospital should ensure that the following additional infection control precautions are adhered to:

1) After use, all personal protective equipment should be placed into a plastic biohazard bag and left in the suspect case-patient's room (*gowns and gloves)* or outside of the room (*respirators)* --- ideally, in the anteroom, if an isolation room with anteroom is available. N-95 respirators should not be re-used; if positive air pressure respirators (PAPR) are used, the PAPR should be cleaned and disinfected prior to entering another patient's room.

2) As much as possible, dedicated patient care equipment (*e.g., blood pressure cuffs and stethoscopes)* should be used for care of the suspect case–patient and left in the patient's room. If equipment must be used on other patients (*e.g., portable X-ray machine)*, meticulously clean and disinfect the equipment with EPA-registered hospital disinfectants (*e.g., quaternary ammonium compounds)* or sodium hypochlorite (*1:10 dilution of household bleach)*.

3) Use disposable items whenever possible.

4) Dispose of all non-sharps waste in biohazard bags and place in a second biohazard bag for disposal or transport for incineration or other approved disposal method. Since the laboratory test results for a **moderate** to **high risk** patient should be available within 24-48 hours after specimens are collected, hospitals should consider, if possible, keeping all biohazard waste bags in the suspect case-patient's isolation room until smallpox has been ruled out.

5) All used laundry and linens should be handled carefully to prevent aerosolization or direct contact with potentially infectious material. Anyone directly handling the suspect case-patient's linen or laundry should wear a gown, gloves and a respirator (N-95 or higher). Laundry and linens should be double bagged using biohazard bags and remain in the room in a covered hamper until laboratory results are available (*within 24-28 hours of specimen collection*).

6) Infection control staff and/or the NYC DOHMH should be consulted regarding any additional issues related to isolation precautions or potentially contaminated items in the suspect case-patient's isolation room.

H. **The suspected case-patient should be kept in his/her room except for medically essential procedures that necessitate transport to other hospital locations.** To minimize the potential for contamination when transported outside of their isolation rooms, a surgical mask should be placed on the suspected or confirmed smallpox

patient(s), a sheet should be used to cover their skin as much as possible, and the linens should be tucked under the stretcher to minimize patient movement and manipulation of the linens to protect against aerosolization of any potentially infectious material. All staff should continue to wear a gown, gloves, and a mask or respirator (N-95 or higher) even when the suspect case-patient is covered and wearing the surgical mask.

If staff involved in transporting the suspect case-patient have direct contact with him/her (*e.g., contact with skin or oral secretions*) when moving the suspect case-patient from his/her bed to the stretcher or wheel chair, their gowns and gloves may be contaminated. Therefore, prior to leaving the suspect case-patient's room, transport staff should remove their potentially contaminated gowns and gloves and don clean protective gear. If during or after transport, there is potential for further direct patient contact (*e.g., moving the suspect case-patient off the stretcher or wheel chair at their destination*), transportation staff should again don clean protective attire (*e.g., gown, gloves*) after direct contact with the patient.

The department receiving the patient for the medical procedure (*e.g., radiology or surgery*) must be notified prior to transport so that appropriate arrangements can be made for direct and immediate access to the procedure room. The infection control precautions outlined above should be followed by all hospital staff involved in the care of the suspect case-patient while he/she is undergoing medical procedures outside of the airborne infection isolation room.

If there is concern that the transport equipment *(e.g., stretcher or wheelchair)* or equipment in the procedure room (*e.g., x-ray table)* has been contaminated (*e.g., secretions from patient's cough or direct contact with patient's skin lesions),* it should be cleaned with EPA-registered hospital disinfectants (*e.g., quaternary ammonium compounds)* or sodium hypochlorite (*1:10 dilution of household bleach).*

I. Information on all persons who enter the room should be kept in a logbook at the nurses' station. Specifically, the names and job duty (*for hospital staff)* should be recorded. Non-hospital staff and visitors should provide names, work location, work phone number, home phone number, cellular phone number, and beeper numbers. The NYC DOHMH will provide a form (*See Appendix III)* for hospitals to use for tracking all contacts. This information will be used by the NYC DOHMH to ensure that all persons who have had contact with the suspect case-patient are prioritized for immediate vaccination in the event that smallpox is confirmed. (*See Section V.A. for more details on managing potential contacts in the emergency department or clinic waiting areas).*

J. Care should be taken when handling routine clinical laboratory specimens, and laboratory requests should be limited to those tests that are essential to patient management. All clinical specimens should be placed in double, zip-locked bags that are tightly sealed and properly labeled prior to transport to the laboratory. Specimens should

be hand-carried to the laboratory and pneumatic tube systems should not be used. Ensure that laboratorians are trained in handling clinical specimens and understand that the risk of smallpox infection due to contact with samples for a suspect case is low when handled appropriately. (NOTE: An exception would be laboratory tests involving the skin lesions themselves {*e.g., DFA testing for varicella}* where ideally only pre-vaccinated laboratory staff would be handling the specimens).

V. Management of the Emergency Department or Clinic Area where the Suspect Patient at MODERATE or HIGH Risk for Smallpox was Initially Evaluated Prior to Isolation, Pending NYC DOHMH Evaluation and Variola Laboratory Test Results: Hospitals are reminded of their obligations under section 11.57 of the Health Code for managing patients with highly communicable diseases or patients suspected of having a highly communicable disease (**See Appendix I**). All hospital emergency departments and clinics are expected to have effective triage protocols in place to rapidly identify and effectively isolate any patient with a fever and rash illness in order to minimize the number of persons potentially exposed in the waiting area. **[NOTE: The usual mechanism of spread of smallpox is droplet transmission (with larger particles falling out of the air quickly and spread beyond 6 feet from the patient much less likely). Unless the suspect case-patient is coughing, aerosolization is unlikely.].**

The following guidelines apply to the emergency department or clinic area where the **moderate** or **high risk** patient was initially evaluated and may have spent time prior to being placed in an airborne infection isolation room (*as defined in Section I.F).* No additional steps are needed for management of the emergency department or clinic area if the patient is deemed to be at **low risk** for smallpox, unless indicated based on the patient's diagnosis (*e.g., measles*)

When the hospital first notifies the NYC DOHMH regarding a **moderate** or **high risk** patient and the NYC DOHMH concurs that the individual does appear to be at **moderate** or **high risk** for smallpox based on the initial telephone consultation, the following actions should be taken while awaiting the on-site DOHMH public health response team evaluation and/or laboratory determination of whether or not the suspect case-patient has smallpox:

A. Management of Potential Contacts:

1) **"Potential close contacts" are defined as persons who were in close proximity *{i.e., within 6 feet}* to the suspect case-patient*)*. If the suspect case-patient has a cough or it is not feasible to determine which persons were in close proximity contact, all persons in the same room (*i.e., waiting room)* as the suspect case-patient should be considered potential contacts.** (NOTE: Even if the suspect case-patient is confirmed as smallpox, these

"potential contacts" if exposed and infected would not be expected to develop illness for 7 –17 days. Vaccination is thought to be effective as long as administered within 4 days of exposure.)

2) All contacts, including visitors and other patients (*as long as medically stable)*, in the emergency department, clinic or other areas of the hospital who had "potential contact" (*as defined above)* with the suspect **moderate** or **high risk** patient before he/she was placed in isolation should be moved to a separate room apart from the emergency department or clinic. These potential contacts should be held in this separate room until NYC DOHMH staff arrive to interview and counsel them.

3) Infection control or other appropriate hospital staff should start a logsheet tracking all "potential contacts" of the suspect **moderate** or **high risk** case-patient prior to his/her being placed in an airborne infection isolation room to share with the NYC DOHMH staff when they arrive (A sample tracking log is included in **Appendix III**). The names, home address, and 24-hour contact information (*including home and work telephone, cellular phone, and beepers)*, should be noted for all "potential contacts".

   If the suspect case-patient visited another part of the hospital (*e.g., cafeteria*) or was transported to another location during their evaluation (*e.g., radiology*) prior to being placed in an airborne infection isolation room (*as defined in Section I.F.)* and under airborne and contact precautions, the contact tracking should be extended to these additional areas.

4) As it may take time for the NYC DOHMH to arrive on-site, the hospital staff should pre-designate infection control or other appropriate staffperson(s) to begin to counsel these patients and visitors on the key points outlined in Section V.A.5 below. Pre-prepared fact sheets for use in educating persons who were potentially exposed to smallpox about their risk and what steps the NYC DOHMH will take in the event that smallpox is confirmed are included in **Appendix IV**; hospitals should have copies ready to distribute to potential contacts to read while awaiting the arrival of NYC DOHMH staff.

5) The NYC DOHMH will send staff to interview and counsel all "potential contacts" (*including emergency department and clinic staff, other patients, and visitors*), as well as review the educational materials (*e.g., fact sheets in **Appendix IV***) and provide a 24-hour NYC DOHMH telephone hotline number for all contacts to use if they have additional questions or concerns after leaving the hospital.

NYC DOHMH staff will interview all "potential contacts" of **moderate** or **high risk** case-patients and ensure that emergency contact information has been obtained in the event that the "suspect" case is confirmed as smallpox, so that these persons can be immediately called with instructions on where and when to receive smallpox vaccination. These persons will also be counseled on:

- their potential exposure and the likelihood of the suspect case being confirmed as smallpox;
- the risk of their being infected with smallpox given the type and length of exposure that they had to the suspect case-patient (*with consideration of whether the suspect case-patient has cough symptoms)*;
- the expected time when laboratory test results will be available from the CDC (*i.e., how long it will take to determine whether the suspect case-patient does indeed have smallpox)* and how they will be notified of the results;
- the consequences of a positive diagnosis (*i.e., if smallpox is confirmed, the NYC DOHMH and/or the hospital would be contacting them within 24 hours after the diagnosis is confirmed to ensure that they are immediately offered smallpox vaccine)* and the fact that they would not be infectious to their household and close contacts immediately after exposure.

6) Ensuring that all "potential contacts" of suspected **moderate** or **high** risk case-patients remain in the hospital until the NYC DOHMH staff arrive:

For "potential contacts" of **moderate risk** patients**:** If potential contacts of **moderate risk** patients refuse to wait until the NYC DOHMH staff arrive, the hospital should reiterate the importance of staying and if they are unable to convince the person(s) to stay, ensure that they have reliable contact information (*including person's address, home and work telephone, cellular phone, as well as an alternate contact person's address, home and work telephone and cellular phone)* prior to the "potential contact" leaving the hospital.

For "potential contacts" of **high risk** patients: If the preliminary assessment by the NYC DOHMH at the time of the initial telephone consultation is that the suspect case-patient may be at **high risk** for smallpox, the NYC DOHMH may order the hospital to hold all "potential contacts" in a separate waiting area until NYC DOHM staff arrive. The decision to order emergency department or clinic contacts to be held will be based on the circumstances of the event. (*For example, if there is only one or a few high risk cases of smallpox in the city, the public health response to control the potential*

outbreak may require ensuring that all persons with any "potential contact" with the suspect case-patient be available for immediate vaccination once the diagnosis is confirmed by CDC.)

At the time that the decision is made to hold the "potential contacts" in the emergency department or clinic during the initial telephone consultation, the NYC DOHMH will fax to the hospital a Commissioner's Order requiring the holding of the potential contacts until such time as NYC DOHMH staff arrive to interview and counsel these individuals. If the hospital requires assistance to ensure the hold to detain these persons, the NYC DOHMH will contact the NYC Office of Emergency Management and the New York Police Department to advise them of the situation and to request that officers be sent to the hospital to assist in holding the potential contacts. Any patient who is medically unstable or not able to be moved, should continue to be cared for in the emergency department or clinic, as clinically indicated; the names of these patients should be provided to the NYC DOHMH staff when they arrive. It is not necessary for the emergency department or clinic staff contacts to be held in this same room; as long as these staff are available for interviews when the NYC DOHMH staff arrive.

B. <u>Cleaning the Emergency Department or Clinic Waiting Area</u>: After moving the patients and visitors to another area, the waiting area in the emergency department or clinic area where the suspect **moderate or high risk** case-patient was initially seen prior to being placed in an airborne infection isolation room (*as defined in Section I.F.)* should be cleaned.

The decision regarding the extent of cleaning in the emergency department, clinic or other areas in the hospital where the suspect case patient spent time prior to being placed in an airborne infection isolation room (*as defined in Section I.F.)* and under contact and airborne precautions, should be based on whether or not the suspect case-patient has a cough.

1) <u>Suspect case-patient without cough:</u> All equipment and surfaces *(e.g., chairs, stretcher)* in the emergency department or clinic that may potentially have been in direct contact with the suspect case-patient (*including in the waiting room and any other rooms in which the suspect case-patient spent time prior to his/her placement in the airborne infection isolation room)* should be cleaned with standard EPA-registered hospital disinfectants (*e.g., quaternary ammonium compounds)* or sodium hypochlorite (*1:10 dilution of household bleach)*. The manufacturer's instructions for proper use of the disinfectant (*with respect to dilution and contact time)* should be strictly adhered to.

2) Suspect case-patient with cough: If the suspect case-patient was coughing, in addition to the recommendations above, all surface areas (*especially upward facing horizontal surfaces where respiratory droplets may have settled)* should be cleaned with standard EPA-registered hospital disinfectants (*e.g., quaternary ammonium compounds)* or sodium hypochlorite (*1:10 dilution of household bleach).*

After discussion with the NYC DOHMH, in consultation with the NYSDOH, the emergency department or clinic waiting area can be re-occupied after (1) it has been cleaned with EPA-registered hospital disinfectants (*e.g., quaternary ammonium compounds)* or sodium hypochlorite (*1:10 dilution of household bleach)* and (2) if the suspect case-patient was coughing, an appropriate period of time has elapsed to ensure clearance of droplet nuclei based on the affected hospital areas' HVAC system and the number of air exchanges per hour (*See Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care facilities. MMWR 1994; 43 (R-13):page 72)*.

The housekeeping staff involved in cleaning these areas should ideally be limited to persons who were vaccinated against smallpox at least once previously. After the DHHS's smallpox healthcare response team vaccination program has been completed in the winter of 2002-2003, housekeeping staff that clean the affected area should be limited to those who have recently received smallpox vaccine as part of the DHHS program. While cleaning the area, these previously or recently (*after the DHHS pre-event vaccination program begins*) vaccinated staff will still need to use appropriate personal protective equipment (*i.e., disposable gloves and gowns and a fit-tested N-95 or higher level of respiratory protection).*

C. Management of the Ventilation System in the Emergency Department or Clinic if Air is Recirculated to Other Parts of the Hospital: As per Section I.G., the emergency department, infection control and plant management/engineering should pre-assess if air recirculates to other parts of the facility. If air does recirculate to other parts of the facility, the team should have pre-determined the relative benefits and risks of shutting down the ventilation system if an infectious patient (**moderate** or **high risk** patient with a **cough**) were to spend a prolonged period of time in the emergency department or clinic prior to being placed in isolation. Individuals in areas receiving potentially contaminated recirculated emergency department air should be tracked as potential contacts (*See Section V.A.*). Once the suspect case-patient is appropriately isolated, an appropriate period of time should elapse to ensure clearance of droplet nuclei based on the number of air exchanges per hour in the affected area (See Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Facilities. MMWR 1994; 43 (R-13): page 72).

D. Decision Regarding Whether the Emergency Department or Clinic Area Should be "Quarantined" or Whether the Hospital Should Consider Temporary "Termination of Services": If the suspect case is rapidly and effectively triaged and isolated on arrival to the emergency department or clinic (*as described in Section II)*, there likely would be no need to quarantine the hospital, emergency department, or clinic area or to consider termination of medical services. There are only limited situations under which an emergency department or clinic area should be quarantined or patient services be terminated due to the presence of a case-patient with suspected smallpox and because of concerns about the potential for airborne transmission. The only circumstances under which these actions might be considered would be (a) if the suspect case-patient could not be effectively isolated for some reason; (b) the suspect case-patient has a significant cough, was not recognized immediately, and spent time in the waiting room where aerosolization may have occurred; or (c) if the emergency department or clinic has been disrupted (*e.g., by multiple patients, or by panic among patients, families and staff*) to such an extent that the emergency department or clinic can no longer function to provide patient care.

The decision to quarantine the area is to be made by the NYC DOHMH, preferably in consultation with the NYSDOH. The decision to terminate services for reasons related to smallpox should be done by senior hospital administrative staff, in consultation with NYC DOHMH staff, who will ensure that NYSDOH's Center for Community Health in Albany is involved in this decision. *(See Appendix I for more detailed information on Section 405.8 of the NYS Rules and Regulations (10NYCRR) regarding termination of services).* **The NYSDOH's Office of Health Systems Management must be notified by the hospital as soon as possible regarding any termination of services in the emergency department or hospital** (NOTE**:** *Notification needs to occur within 24 hours of termination of services)*:

During normal business hours (8:30 am - 5:30 pm), call the Regional Director's Office at 212-268-7185.
During non-business hours, call the Regional Disaster Coordinator at 845-331-7183 or the Regional Director at 917-584-9023.

(If there are difficulties reaching the Office of Health Services Management, please contact the NYSDOH Bureau of Hospital and Primary Care Services. During normal business hours, call 518-402-1004; after hours, call the duty officer at 518-465-9720 and ask to speak to the Director of the Bureau of Hospital and Primary Care Services.)

[NOTE: Nosocomial outbreaks of smallpox were occasionally reported in the past, with transmission to patients housed on floors far removed from the index case(s). However, since then, there have been marked improvements in the environmental safeguards in hospitals given the infection control measures taken for tuberculosis and other

communicable diseases. Accordingly, it would be unlikely for there to be a risk of smallpox transmission to staff, patients or visitors who did not have contact with the suspect case-patient (*e.g., in areas of the hospital where the suspect case-patient did not spend any time*), especially if the suspect case-patient is rapidly placed in an appropriate airborne infection isolation room (*As defined in Section I.F.).* **Therefore, as long as the suspected case-patient has been triaged appropriately, it should not be necessary to consider quarantine of the entire hospital building, or termination of all acute care services in the hospital.]**

VI. General Recommendations for the Hospital Administration and Emergency Response (Disaster) Committee to Ensure Ongoing Operation of the Hospital While Awaiting Laboratory Confirmation

A. Activation of the hospital's emergency response (disaster) plan: The decision whether to activate the hospital's emergency response (disaster) plan should be made based on the individual circumstances of the event. However, for a suspect case-patient thought to be at **moderate** to **high risk** for smallpox or if media attention or staff/patient/visitor's concerns are high enough that the hospital is potentially at risk of being unable to function normally, the emergency response (disaster) plan should be activated, including the hospital's emergency operations center and incident management or incident command system. The Emergency Response (Disaster) Committee should ensure that the internal notification procedures and contact lists include all essential staff that might be needed in the event of a smallpox emergency (*e.g., infection control, infectious diseases, dermatology),* as well as emergency contact information for all key city and state agencies (*e.g., NYC DOHMH and NYSDOH and the NYC Office of Emergency Management).*

B. Notifications: The NYC DOHMH should be notified immediately when a patient is determined to be at **moderate** to **high risk** for smallpox (*Emergency contact information for the NYC DOHMH is included in Section III.).* The NYC DOHMH will notify the NYC Office of Emergency Management, the NYSDOH and CDC and will maintain communications with them throughout the event. The NYC Office of Emergency Management will notify all other appropriate agencies, as indicated, including but not limited to the New York City Fire Department/Emergency Medical Services, the New York City Police Department, and the Greater New York Hospital Association.

C. Communication Issues:

- Internal: The hospital administration and/or emergency response (disaster) committee should ensure that a mechanism and plan is in place for frequent communication with all hospital staff to address the likely concerns that they may have about the risk of smallpox in the institution and to provide timely updates on the situation, as new information becomes available. Mechanisms may include

broadcast email, frequent meetings for each hospital shift, and/or internal websites. The NYC DOHMH will work closely with the hospital staff to develop educational materials and fact sheets (*See template fact sheet in* ***Appendix IV)***, as well as provide speakers for internal briefings, if needed. These educational briefings will likely need to include other hospital patients, their families and all visitors.

- NOTE: **In the event of a suspect case that is being preliminarily worked up, it is strongly recommended that all clinical care staff be advised to minimize discussion of the suspected smallpox diagnosis in open areas where others may overhear and misinterpret the situation.** This will avoid unnecessary panic or a leak to the media for a case that may quickly be determined NOT to be smallpox.

➢ External: It is essential that a coordinated communication strategy be developed between the hospital public affairs staff and the city, state and federal response agencies. The NYC DOHMH, in coordination with City Hall, will provide the news media with the medical, epidemiologic, and infection control details relevant to the event. The Communications office at the NYC DOHMH will work closely with the hospital staff if a public statement or press conference is needed while awaiting laboratory test results, to ensure accurate and clear messages about the likelihood of smallpox and the steps being taken by the hospital and government agencies to determine the diagnosis, as well as any contingency plans being put into place, if indicated. The NYC DOHMH will provide educational material for both healthcare professionals and the public.

Telephone contact information for the NYC DOHMH's Office of Communication is as follows:

During business hours: Call 212-788-5290;

After hours, call the Poison Control Center at 212-764-7667 (212-POISONS) or 1-800-222-1222 and ask for the NYC DOHMH Press Officer on-call.

D. Security Issues: Ensure sufficient security is present to implement isolation and to respond to any potential disruptions that may occur due to the concerns about smallpox (*e.g., significant media attention).* If assistance is needed from the New York Police Department's local precinct, the request should be directed through the NYC Office of Emergency Management.

Security plans should include:

1) Ability to minimize points of access to and egress from the physical plant.

2) A rapid identification process for hospital staff and local, state and federal emergency workers.

3) An external vehicular "flow of traffic" prioritizing emergency vehicle access, supply delivery needs and law enforcement access.

4) A method for routing persons other than patients to and from the facility.

5) A triage protocol to route additional patients who may have smallpox based on fever and rash symptoms for immediate clinical evaluation to an appropriate, pre-designated site with sufficient airborne infection isolation rooms.

6) Ensuring that appropriate protective equipment is provided to security staff having direct contact with suspect case-patients, when indicated.

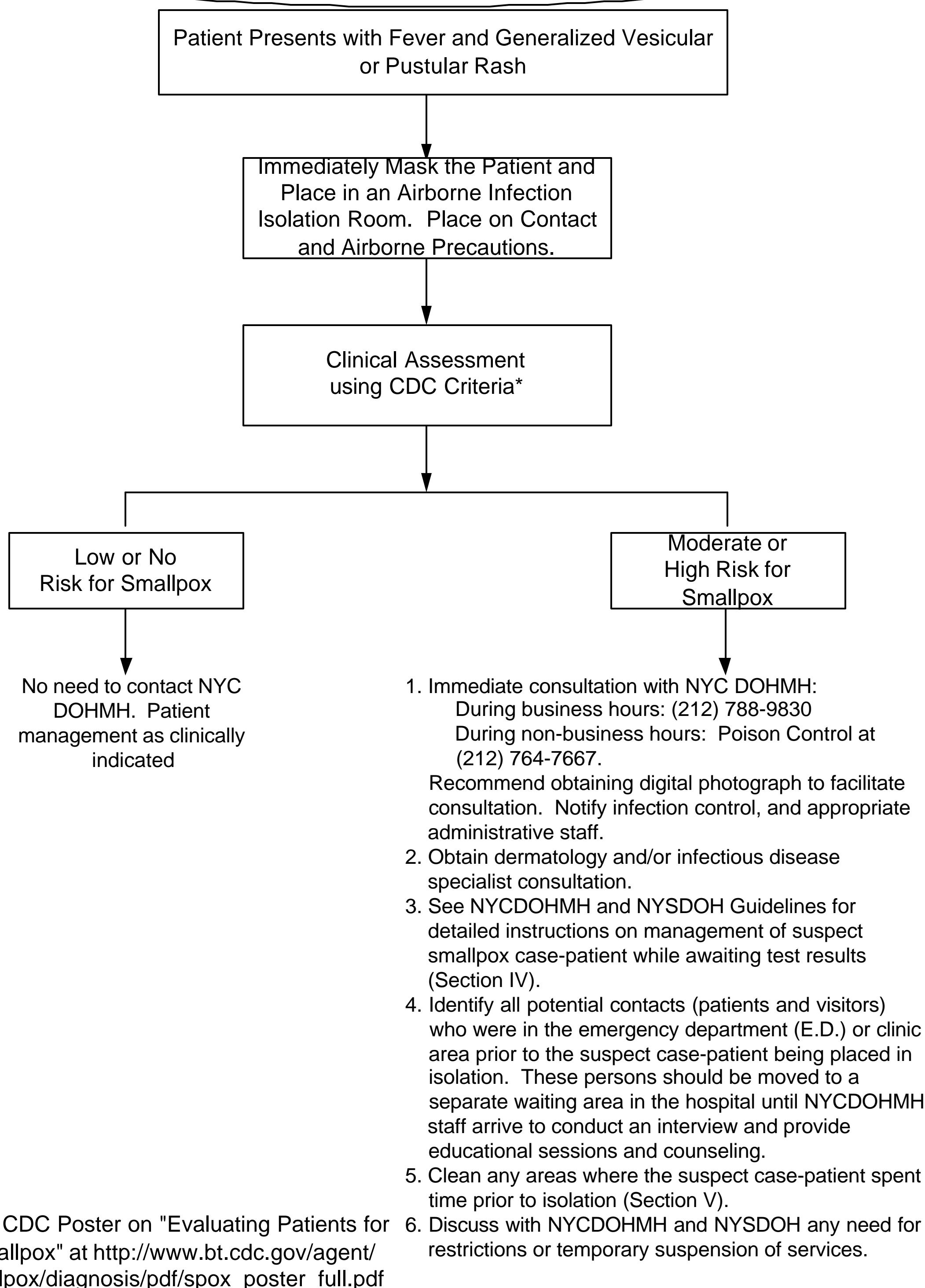
Figure I: New York City Department of Health and Mental Hygiene (NYCDOHMH)
Triage Protocol for Suspected Case of Smallpox
Patient Presents with Fever and Generalized Vesicular or Pustular Rash
Immediately Mask the Patient and Place in an Airborne Infection Isolation Room. Place on Contact and Airborne Precautions.
Clinical Assessment using CDC Criteria*
Low or No Risk for Smallpox
Moderate or High Risk for Smallpox
No need to contact NYC DOHMH. Patient management as clinically indicated
1. Immediate consultation with NYC DOHMH:
During business hours: (212) 788-9830
During non-business hours: Poison Control at (212) 764-7667.
Recommend obtaining digital photograph to facilitate consultation. Notify infection control, and appropriate administrative staff.
2. Obtain dermatology and/or infectious disease specialist consultation.
3. See NYCDOHMH and NYSDOH Guidelines for detailed instructions on management of suspect smallpox case-patient while awaiting test results (Section IV).
4. Identify all potential contacts (patients and visitors) who were in the emergency department (E.D.) or clinic area prior to the suspect case-patient being placed in isolation. These persons should be moved to a separate waiting area in the hospital until NYCDOHMH staff arrive to conduct an interview and provide educational sessions and counseling.
5. Clean any areas where the suspect case-patient spent time prior to isolation (Section V).
6. Discuss with NYCDOHMH and NYSDOH any need for restrictions or temporary suspension of services.
*See CDC Poster on "Evaluating Patients for Smallpox" at http://www.bt.cdc.gov/agent/smallpox/diagnosis/pdf/spox_poster_full.pdf

Appendix I:
Various Definitions and Legal Authorities related to Communicable Disease Control:

A. "Health Officer" - is defined in the New York State Sanitary Code ("Sanitary Code") as follows:

> "The term health officer or local health officer means and includes the health officer, or other officer of a municipality, by whatever title he may be known, having the usual powers and duties of the health officer of a municipality." [10 NYCRR Section 1.1(d)]

B. (i) "Case" is defined in the New York City Health Code ("Code") as follows:

> 1. "An instance of a reportable disease or condition occurring in a person; or,
> 2. A person who shows evidence of a reportable disease or condition"
>
> [Health Code Section 11.01(b)

(ii) "Case" is defined in the Sanitary Code as follows:

> "…a person who has been diagnosed to have a particular disease or condition. The diagnosis may be based solely on clinical judgment or solely on laboratory evidence, or on both criteria." [10 NYCRR Section 2.2 (b)].

C. A "suspected case" is defined in the Sanitary Code as follows:

> "…a person who has been diagnosed as likely to have a particular disease or condition. The suspected diagnosis may be based solely on signs and symptoms, or solely on laboratory evidence, or both criteria." [10 NYCRR Section 2.2(c)]

D. (i) "Isolate" is defined in the Health Code as follows:

> "…to confine to premises or, in an institution, to a room or ward pursuant to Section 11.57, under such conditions as will prevent the conveyance of the pathogenic organism from a case or carrier to a person who is susceptible or who may spread the disease." [Health Code Section 11.01(h)]

(ii) "Isolation" is defined in the Sanitary Code as follows:

> "(d) Isolation shall consist of the separation from other persons, in such places, under such conditions, and for such time, as will prevent transmission of the infectious agent, of persons known to be ill or suspected of being infected."
> [10 NYCRR Section 2.25(d)]

E. “Quarantine of premises” is defined in the Sanitary Code as follows:

> “(1) prohibition of entrance into or exit from the premises, as designated by the health officer, where a case of communicable disease exists of any person other than medical attendants and such others as may be authorized by the health officer;
>
> (2) prohibition, without permission and instruction from the health officer, of the removal from such premises of any article liable to contamination with infective material through contact with the patient or with his secretions or excretions, unless such article has been disinfected. [10 NYCRR Section 2.25 (e)]

F. “Personal quarantine” is defined in the Sanitary Code as follows:

> “restricting household contacts and/or incidental contacts to premises designated by the health officer.” [10 NYCRR Section 2.25(f)]

G. “Premises” is defined in the Health Code as follows:

> “…a one-family home, apartment in a two-family home or multiple dwelling, or room or suite of rooms in a hotel or rooming house.” [Health Code Section 11.01(j)]

H. “Contact” is defined in the Health Code as follows:

> “…a household contact or a non-household contact.” [Health Code Section 11.01(d)]

I. “Non-household contact” is defined in the Health Code as follows:

> “…a person who has been in such close, prolonged or repeated association with a case or a carrier as, in the opinion of the Department, to involve a risk that may become a case or carrier.” [Health Code Section 11.01(i)]

J. The legal requirement for physicians and hospitals to report to the NYC DOHMH cases or suspected cases of smallpox is set forth in Section 11.03 of the Health Code as well as Sections 2.1 and 2.10 of the Sanitary Code.

K. The legal requirement for physicians to isolate persons with highly communicable diseases is mandated pursuant to the Sanitary Code which sets forth the following:

“It shall be the duty of the attending physician immediately upon discovering a case of highly communicable disease (as defined in section 2.1 of this Part) to cause the patient to be isolated, pending official action by the health officer. Such physician shall also advise other members of the household regarding precautions to be taken to prevent further spread of the disease and shall inform them as to appropriate specific preventive measures. He shall in addition furnish the patient's attendant with such detailed instructions regarding the disinfection and disposal of infective secretions and excretions as may be prescribed by the State Commissioner of Health.” [10 NYCRR Section 2.27]

L. The legal requirement for hospitals and primary care clinics to isolate persons having or suspected of having a communicable disease is set forth in the Health Code as follows:

"The person in charge of a hospital, dispensary, clinic, sanitarium, convalescent home, prison, reformatory, school, boarding school, children's institution, day care service, or other institution providing care or treatment shall isolate cases and carriers and suspected cases and carriers of communicable diseases pursuant to this article and shall have facilities which can be used for their isolation pursuant to this section." [Health Code Section 11.57(a); See also 10 NYCRR Section 405.9 (b)(6) set forth in Q below].

M. The legal authority for health officers to investigate cases of communicable disease and to take recognized measures to reduce morbidity and mortality is set forth in sections 2.6 of the Sanitary Code and 11.03(b) of the Health Code.

(i) Sanitary Code § 2.6 states, in relevant part:
"…[I]t shall be the duty of the health officer . . . immediately upon receiving a report of a case of communicable disease:
(a) to make such an investigation as the circumstances may require for the purpose of verifying the diagnosis, ascertaining the source of infection and discovering contacts and unreported cases …
(c)…to put into effect those other recognized measures which tend to reduce morbidity and mortality."

(ii) Health Code § 11.03(b) states, in relevant part:
"The Department shall conduct such investigation as may be necessary to ascertain sources or causes of infection, to discover contacts and unreported cases, and shall take such steps as may be necessary to prevent morbidity and mortality."

N. The legal authority for the health officer to require a hospital or clinic to hold potential contacts is set forth in Section 11.57(i) of the Health Code which states as follows:

> "The Department may issue orders for the examination, exclusion or isolation of contacts, including staff, employees or volunteer workers, in an institution referred to in subsection (a) of this section." [See L for the applicable institutions; See also 10 NYCRR Section 2.29 set forth in O (ii) below for further authority]

O. Additional provisions of law vesting NYC DOHMH with authority to take certain action:

(i) Health Code Section 11.55(a) provides as follows: "Upon determining that the health of others is endangered by a case, contact or carrier, or suspected case, contact or carrier of communicable disease, the Commissioner may order his removal to and detention in a hospital designated by the Board."

(ii) Health Code Section 11.55 (c) provides as follows: "A person who is detained in a hospital shall not conduct himself in a disorderly manner, and shall not leave or attempt to leave the hospital until he is discharged pursuant to this section."

(iii) The Sanitary Code provides in relevant part as follows: "Whenever a case of a highly communicable disease…comes to the attention of the city…health officer he shall isolate such patients as in his judgment he deems necessary." [10 NYCRR Section 2.29].

P. Pursuant to 10 NYCRR Section 405.8, hospitals are required to report to the NYSDOH's Office of Health Systems Management if the decision is made to terminate services (e.g., closure of the emergency department to new admissions or patient visits). The relevant sections of the incident reporting requirements include:

> "(a) Any incident required to be reported pursuant to subdivision (b) of this section shall be reported to the department's Office of Health Systems Management on a telephone number maintained for such purpose. Hospitals shall report such incidents within 24 hours of when the incident occurred or when the hospital has reasonable cause to believe that such an incident has occurred …."
>
> (b) Incidents to be reported are:…
>
> > (8) unscheduled termination of any services vital to the continued safe operation of the facility or to the health and safety of its patients and personnel…. "

Q. Pursuant to 10 NYCRR Section 405.9(b)(6), hospitals are required to screen each patient for communicable disease upon admission:

> "Insofar as it is practicable, the admitting practitioner shall request of each person being admitted, information concerning signs or symptoms of recent exposure to communicable diseases as defined in Part 2 of this Title. Whenever there are positive findings of exposure to such communicable disease, the patient shall be isolated and managed in accordance with the hospital's infection control policies and the provisions of Part 2 of this Title."

R. The legal requirement for hospitals to have an effective infection control program is contained in 10 NYCRR Section 405.11.

Appendix II: Guidelines for Assessing Vesicular and Pustular Rashes

(Adapted from the CDC's Poster or "Evaluating Patients for Smallpox")

The following risk assessment should be considered when evaluating a patient with a vesicular or pustular rash to determine the likelihood of smallpox:

High Risk of Smallpox - All 3 of the following criteria must be present:

a) Febrile prodrome – Occurring 1-4 days before rash onset with fever $\geq$ 101 ^{o}F and at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain, **and**

b) Classic smallpox lesions – Deep-seated, firm/hard, round well-circumscribed vesicles or pustules; as they evolve, lesions may become umbilicated or confluent, **and**

c) Lesions in same stage of development – On any one part of the body (*e.g., the face or arm)* all the lesions are in the same stage of development (*i.e., all lesions are vesicles or all are pustules)*

Moderate Risk of Smallpox:

a) Febrile prodrome – Occurring 1-4 days before rash onset with fever $\geq$ 101 ^{o}F and at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain, **and either**

 1-Classic smallpox lesions – Deep-seated, firm/hard, round well-circumscribed vesicles or pustules; as they evolve, lesions may become umbilicated or confluent, **or**

 2- Lesions in same stage of development – On any one part of the body (*e.g., the face or arm)* all the lesions are in the same stage of development (*i.e., all lesions are vesicles or all are pustules)*

 OR

b) Febrile prodrome – Occurring 1-4 days before rash onset with fever $\geq$ 101 ^{o}F and at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain, **and FOUR or more of the following MINOR criteria:**

1) Centrifugal distribution: greatest distribution of lesions on the face and distal extremities
2) Initial lesions occur on the oral mucosa/palate, face or forearm
3) Patient appears toxic or moribund
4) Lesions exhibit a slow evolution – evolving from macules to papules and then to pustules over days (each stage lasts 1-2 days)
5) Lesions on the palms and soles

Low Risk of Smallpox:

a) No febrile prodrome, OR

b) Febrile prodrome – Occurring 1-4 days before rash onset with fever ≥ 101 °F and at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain, but **LESS THAN FOUR of the following MINOR criteria:**

1) Centrifugal distribution: greatest distribution of lesions on the face and distal extremities
2) Initial lesions occur on the oral mucosa/palate, face or forearm
3) Patient appears toxic or moribund
4) Lesions exhibit a slow evolution – evolving from macules to papules and then to pustules over days (each stage lasts 1-2 days)
5) Lesions on the palms and soles

Differentiation of Chickenpox from Smallpox

Chickenpox (varicella) is the most likely condition to be confused with smallpox. In chickenpox, the following findings on history and physical examination are usually found:

a) No or mild prodrome
b) Lesions are superficial vesicles ("dewdrops on a rose petal")
c) Lesions appear in crops; On any one part of the body, there are lesions in different stages (*papules, vesicles, pustules, crusted lesions)*
d) Centripetal distribution: greatest concentration of the lesions on the trunk, fewest lesions on the distal extremities. May involve the face and scalp. Occasionally, the entire body is equally affected
e) First lesions appear on the face or trunk
f) Patients are rarely toxic or moribund
g) Lesions progress through a rapid evolution from macules to papules to vesicles to crusted lesions (< 24 hours)
h) Palms and soles rarely involved
i) Patient lacks reliable history of either varicella infection or vaccination
j) 50-80% of patients recall a recent exposure to chickenpox or shingles within the 10-21 days before the onset of their rash

The full protocol with color photographs of smallpox and varicella skin lesions is available as a poster ("Evaluating Patients for Smallpox -Acute, Generalized Vesicular and Pustular Rash Illness Protocol"). Copies of this poster can be obtained by calling the NYC DOHMH's Bureau of Communicable Disease during business hours (212-788-4225), sending an email request to healthSP@health.nyc.gov or through the CDC website at http://www.bt.cdc.gov/agent/smallpox/diagnosis/pdf/spox-poster-full.pdf

Appendix III:

Sample Tracking Log for Potential Contacts

NEW YORK CITY DEPARTMENT OF HEALTH & MENTAL HEALTH

Sample Tracking Form for Hospital Contacts of Patient with Suspected Variola

Last Name	First Name	Staff (S), Patient (P), or Visitor (V)	Type of Contact:* 1. Prior to Isolation 2. After Isolation	Home Phone	Work Phone	Cell Phone	Beeper	Home Address Street Address Boro & Zipcode

* Note if contact occurred prior to or after suspect patient was placed in an airborne infection isolation room.

Appendix IV:

Template Fact Sheet for Potential Contacts In the Emergency Department or Clinic Area

The City of New York
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Michael R. Bloomberg
Mayor

Thomas R. Frieden, M.D., M.P.H.
Commissioner

nyc.gov/health

Information for People Who May Have Been Exposed To A Patient Who is Suspected of Having Smallpox Infection

The New York City Department of Health and Mental Hygiene (NYC DOHMH) is working with the hospital to find out if another patient in this hospital has a smallpox infection. Since you may have been in the same area as this patient, we wanted to let you know (a) what we are doing to find out if this patient has smallpox and (b) how we will try to prevent you from getting smallpox, if we find out that you may have been exposed to someone who does have smallpox. We understand how worried you may be. Although unlikely, if this turns out to be smallpox, a smallpox vaccine (or "shot") given within 4 days can prevent disease or lessen the seriousness of the illness. NYC DOHMH staff will be available to answer your questions in person.

What is smallpox?
Smallpox is a very serious viral infection that was eliminated from the world in 1977 after a successful vaccine campaign by the World Health Organization.

What are the chances that a patient in this hospital has smallpox?
Today, there is no naturally occurring smallpox in the world. However, there are concerns that some countries that sponsor terrorism or terrorist groups may have the- smallpox virus and would use it during war or a terrorist attack. At this time, we have no information indicating that a bioterrorist attack has taken place in New York City. However, we want to make absolutely sure that the patient in this hospital does not have smallpox. Therefore, the NYC DOHMH is arranging special laboratory testing to be sure that this is not smallpox.

How long will it take before the laboratory tests are ready?
The NYC DOHMH, is working very closely with the hospital staff, to arrange laboratory testing for this patient. Smallpox testing is only available at the federal agency called the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. The NYC DOHMH is arranging an emergency flight to take the patient's laboratory samples to the CDC for testing. Test results should be available within 24-48 hours after the laboratory samples arrive at the CDC.

How is smallpox diagnosed?
Smallpox is diagnosed by looking for evidence of the virus in tissue samples as well as by growing the virus in the laboratory. These tests can- only be done at the CDC in Atlanta.

How is smallpox spread?
Smallpox is spread person-to-person. Persons who have spent time near (less than 6 feet) someone who has smallpox are called "contacts" and may be at risk for developing smallpox. Smallpox is more likely to be spread if the patient is coughing as the virus is spread through the air on tiny drops of saliva. The risk is greatest for persons who spent more time with the patient (*for example, persons who live in the same house)* compared to persons who were only in the same room for shorter periods of time (*for example, persons who shared the same waiting room)*.

If you were exposed to smallpox, how long before you get sick and what are the symptoms?
Symptoms usually start 12 to 14 days after infection with smallpox. Symptoms include high fever, severe body aches, vomiting, and a distinctive rash. This rash may appear 2 to 3 days after the start of the fever and will usually start on the face, hands, forearms, and palms and soles. It then quickly spreads to the legs and then the trunk after about two weeks

Are you contagious now? If you go home, will your family be at risk?
In the unlikely event that this is smallpox, and you were exposed and get sick, you would not be contagious for at least one week or longer. You would not be contagious until you develop the rash. However, it is important that you understand that vaccination after being exposed to smallpox can prevent infection from occurring.

What is the treatment for smallpox?
Although there is no known effective treatment for the disease once symptoms occur, a vaccine given within four days of exposure can prevent infection. In addition to providing protection, the vaccine against smallpox can also stop the spread of this disease.

If there is a smallpox case or outbreak, the CDC has developed guidelines to quickly provide vaccine to people exposed to the disease. The vaccine is stored by CDC and is for emergency use only.

How will you be protected against smallpox?
In most cases, smallpox vaccine, if given within 4 days of exposure, can prevent you from becoming infected or seriously ill. We should have the laboratory test results well before that, within about the next 24-48 hours. If smallpox is confirmed, the CDC can bring the smallpox vaccine supplies to New York City within a few hours and the NYC DOHMH will be sure that you are offered this vaccine to prevent you from getting sick with smallpox.

Why can't you get the smallpox vaccine now?
The smallpox vaccine is a live virus and can cause severe side effects, such as encephalitis (*inflammation of the brain tissues)* and even death, in a small number of persons who receive the vaccine. Therefore, we do not want to vaccinate you until we are sure that the patient you may have been exposed to has smallpox. The vaccine can prevent you from getting sick if you are vaccinated up to 4 days after being exposed and we should have the laboratory results within 24-48 hours. .

Why do you have to wait to be interviewed by the NYC DOHMH?
The NYC DOHMH staff are interviewing all persons who were in possible contact with this patient, to make sure we know how to reach you in case smallpox is confirmed and we need to arrange for you to receive the smallpox vaccine. It is very important that we have detailed information on how we can reach you 24 hours a day (*your home and work phone, your cell phone and your pager)*, so that we can call you immediately with the test results and tell you where to go, in case you need to get the smallpox vaccine.

If you have any additional questions or concerns, the New York City Department of Health and Mental Hygiene has set up a **24-hour hotline at: 1-877-NYC-DOH7 (1-877-692-3647).** If that number does not work, call the NYC Poison Control Center at 212-764-7667or 212-447-2598, and ask the operator to page the on-call emergency physician.