

Smallpox: Federal, State, and Regional Plan

by

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Abstract

Since September 11, 2001 there has been an increased threat of a chemical or biological attack on America. One of the most likely agents to be used in such an attack is smallpox. The federal government has developed guidelines to assist the state and local governments in rolling out a smallpox vaccination plan for their citizens. Each state invited all of their local health departments to develop a plan of vaccinating healthcare workers against smallpox. Outlined in the following sections are those federal, state, and local smallpox plans.

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Smallpox Plans

Concern regarding the use of smallpox as a tool of terrorism has forced the federal government to update its recommendations regarding vaccinations for health care providers and the general public. The CDC began developing guidelines specifically for use in the event of a bioterrorist attack. Each state was asked to examine these guidelines and develop their own plans for the distribution and voluntary administration of smallpox vaccines. Every local health department was involved in the planning.

The smallpox vaccine dilemma is not just a clinical issue; it is a health policy issue. With severely constrained resources, relative cost and potential benefits had to be considered. And Americans had to be protected. Those plans are summarized below.

History

Smallpox (variola) has been one of the most feared diseases for centuries because of its ability to spread rapidly and decimate whole populations. Smallpox probably was first used as a biological weapon during the French and Indian Wars (1754-1767) by British forces in North America (Henderson, et. al., 1999). Soldiers distributed blankets that they had used to wrap smallpox victims to the

Indians with the intent of starting outbreaks. More than 50% of many affected tribes were killed. The last documented case of smallpox in the United States occurred in 1949. Worldwide, the last naturally occurring case was in Somalia in 1977. A global campaign begun in 1967 by the World Health Organization (WHO) succeeded in eradicating smallpox at this time. A committee recommended that all laboratories destroy their stocks of variola virus or transfer them to one of two reference laboratories- the State Research Center for Virology and Biotechnology at Koltsovo, in Siberia, Russia or the Centers for Disease Control and Prevention in Atlanta, Georgia. Recent allegations are that the virus stored at the Siberian laboratory might have fallen into non-Russian hands. The deliberate reintroduction of smallpox as an epidemic disease would be an international crime of unprecedented proportions (Henderson, et. al., 1999). The aerosol infectivity, high mortality, and stability of variola make it a potential threat in Biological Warfare and terrorism scenarios (Franz, et. al., 1997). And currently, no one under the age of 30 has been vaccinated against smallpox. In 1968, the last year for which we have data on mass vaccination, 14.2 million persons in the United States were vaccinated. Nine deaths resulted. Applying the 1968 data to today's population suggest that there would be 180 deaths from vaccination nationwide, which is approximately the number of deaths from traffic accidents every 1.5 days (Bicknell, 2002). Presently, only 10% to 15% of the U.S. population is thought to be immune to smallpox.

Epidemiology

Both variola, which causes smallpox, and vaccinia, which causes cowpox, are *Orthopoxvirus* viruses. Though closely related, variola infects humans only, whereas vaccinia infects cattle primarily. The smallpox vaccine is made with vaccinia virus and does not contain smallpox (Sibley, 2002). The progression of the disease can be categorized into 4 distinct periods: incubation, prodrome, manifestation, and outcome. During the incubation period, the virus enters the respiratory tract, implants itself in the mucosa, and replicates for 3 to 4 days. There are generally no symptoms during this period. During the prodromal stage, which lasts from 7 to 14 days after the person is exposed, the virus travels to regional lymph nodes where it replicates and causes viremia (presence of viruses in the blood) followed soon after by a rash. There is sudden onset of fever, malaise, headache, vomiting, backache, and abdominal pain. Lesions appear in the mouth approximately 24 hours before the skin, and because the oral mucosa lacks stratum corneum (outermost horny layer of the epidermis), the lesions easily ulcerate and shed live virus in the saliva (Thomas, 1989). This is the time when patients become highly infectious (Veenema, 2003). Smallpox is spread from person to person, primarily by droplet nuclei or aerosols expelled from the mouth and nose of infected persons. It can later be spread by contact with the lesions. Humans are infected by direct face-to-face contact with an infected person or via fomites (contaminated linens or clothing). The manifestation period lasts from day 14 to day 22 of the infection. During this period, the fever may go down. The smallpox lesions appear in a centrifugal pattern, beginning on the face and

hands, and then moving to the forearms, lower extremities, and finally, the trunk. The rash starts off flat but quickly becomes papular or round, and advances to pustular. After 8-9 days, it begins to crust over and form scabs. As the patient recovers, the scabs fall off, and pitted scarring develops. During the final period, the outcome phase, the concern is for secondary bacterial infections which cause toxemia. Although these infections are rare, they are the usual cause of death during this phase. Patients are considered infectious until all scabs separate and should be kept isolated. Hospitalized patients should be kept in a negative pressure hospital room. When there are many patients, an isolation hospital or other facility should be designated. If a substantial number of patients are diagnosed, the surge capacity of the health care system may be surpassed (Veenema, 2003). If this happens, because of the possibility of aerosolized dissemination of the disease to other hospital patients, it is preferable to arrange for isolation in the case patient's own home (Lovinger, 2002). Patients who survive develop long-lasting immunity. If the smallpox vaccination is given within 1-4 days of exposure to the disease, it may prevent illness, or at least lessen the degree of illness associated with the disease. Treatment, once the disease symptoms have started, is limited. Sometimes antibiotics are given for secondary infections that may occur. Vaccinia immune globulin (VIG) may help shorten the disease. According to Inger Damon, MD, PhD, chief of the Poxvirus Section of the Centers for Disease Control and Prevention (CDC) in Atlanta, "the case fatality rate ranges from 10% to 30% in individual outbreaks" of smallpox. Secondary bacterial pneumonia is associated with greater than 50% mortality

(Franz, et. al., 1997). In the past, about 1,000 people for every 1 million vaccinated for the first time experienced reactions that were serious, but not life threatening. Between 14 and 52 people out of 1 million vaccinated for the first time experienced potentially life-threatening reactions. From past experience, one or two people in 1 million who receive smallpox vaccine may die as a result (U.S. Department of Health and Human Services, 2002).

Protecting Americans

The September 11 terrorist attacks on the World Trade Center and the Pentagon made starkly clear how vulnerable Americans are to terrorism at home (Kathryn and Shelby Cullom Davis Institute, 2001). Although there is no reason to believe that smallpox presents an imminent threat, the attacks of September and October 2001 have heightened concern that terrorists may have access to the virus and attempt to use it against the American public (U.S. Department of Health and Human Services, 2002). In the April 25, 2002, issue of the *New England Journal of Medicine*, William Bicknell, MD, MPH, professor of international health at Boston University's School of Public Health, wrote, "Consider the hypothetical case of an attack on numerous cities that puts 50% of the U.S. population at risk. If we applied the lowest case fatality rates (3% among persons with partial immunity and 5% among nonimmune persons) and also assumed (optimistically) that an intensive postvaccination program and good medical care would further reduce the rates of transmission and death by 90% to 95%, there could still be 100,000 to 1 million deaths" (p. 1324).

On December 13, 2002, the President announced a plan to better protect the American people against the threat of smallpox attack by hostile groups or governments. In June 2001, the Advisory Committee on Immunization Practices (ACIP) made recommendations for the use of smallpox vaccine to prepare for a possible bioterrorism attack and for response for an attack involving smallpox. After 09-11, the CDC asked the AICP to review and update their recommendations, and to clarify and expand the primary strategy for control and containment of smallpox in the event of an outbreak, although epidemiological studies have shown that smallpox has a lower rate of transmission than diseases such as measles, pertussis, and influenza (Advisory Committee on Immunization Practices, 2003). The three major proposed strategies for smallpox immunization in the face of a bioterrorism threat include (1) mass pre-event vaccination, (2) voluntary vaccination and (3) ring vaccination (Baltimore, and McMillan, 2002). Each of these approaches has advantages and disadvantages. Mass vaccination can effectively prevent the spread of disease, but the disadvantage is that it would expose millions of people to the potential risks of vaccinia. Voluntary vaccination allows people to make their own choice after being educated to the possible risks and benefits of the vaccine, but much of the population is not familiar with the complications and would have a difficult time making this decision. Ring vaccination (also referred to as search and containment) has been used in the past to eradicate smallpox. Actual smallpox cases are isolated and the vaccination is given to those who have had face-to-face contact with or those who have been in close proximity to the person with the active smallpox. The

advantage to this plan is that it allows effective use of the limited number of vaccines currently available. It does, however, require preparedness on the part of those designated to administer the vaccinations. Meltzer and colleagues constructed a mathematical model to describe the spread of smallpox after a deliberate release of the virus and to predict health outcomes according to three interventions: quarantine, vaccination, and a combination of both. They recommend a combination of vaccination and quarantine as a strategy to contain an outbreak of smallpox (Veenema, 2002).

The CDC currently recommends voluntary pre-release vaccination of selected groups to improve response readiness to smallpox: "Smallpox vaccination is recommended for persons pre-designated by the appropriate bioterrorism and public health authorities to conduct investigation and follow-up of initial smallpox cases that would necessitate direct patient contact" (Charatan, 2002). Pre-exposure vaccination does not pose the logistic difficulties of vaccination during an outbreak and is less expensive. The complexity of administering millions of vaccine doses in a crisis is daunting. According to a plan announced by the President on December 13, 2002, the Department of Health and Human Services (DHHS) will work with state and local governments to form volunteer Smallpox Response Teams who can provide critical services to their fellow Americans in the event of a smallpox attack. The President also announced that the Department of Defense (DOD) would vaccinate certain military and civilian personnel who are or may be deployed in high threat areas. Some United States personnel assigned to certain overseas embassies will also be offered vaccination. Although

the vaccine is effective if administered shortly after exposure, it may not be feasible during an emergency to vaccinate overseas troops and civilian personnel. Pre-attack vaccination is therefore warranted. The federal government is not recommending that members of the general public be vaccinated at this point. DHHS is in the process of establishing an orderly process to make unlicensed vaccine available to those adult members of the general public without medical contraindications who insist on being vaccinated either in 2003, with an unlicensed vaccine, or in 2004, with a licensed vaccine (U.S. Department of Health and Human Services, 2002). A number of factors were used in developing these recommendations. Information provided by the government indicated that there is a real risk for smallpox occurring as a result of a deliberated release by terrorists, but this risk is low. There is also an assumption that appropriate screening for contraindications to vaccination will be implemented, and that there will be sufficient supply of both vaccinia and vaccinia immune globulin available for use. State Health Departments are developing plans for vaccination of smallpox to public health and health care teams and will be responsible for making vaccine requests to CDC to support the vaccination of these teams. The CDC in cooperation with the National Vaccination Advisory Committee, the Healthcare Infection Control Practices Advisory Committee, and the Advisory Committee on Immunization Practices has issued the following considerations for hospitals in order to meet the goal of providing uninterrupted medical care for smallpox patients in acute care hospitals caring for both smallpox patients and patients without smallpox:

- Vaccinated teams of healthcare workers who will be protected and feel comfortable managing smallpox patients in the Emergency Department and providing direct medical care for the first patients with suspected/confirmed smallpox admitted to an acute care hospital

The underlying principle here is that only immune healthcare workers should care for patients with vaccine-preventable diseases.

- Protection provided to susceptible healthcare workers by protective equipment (e.g. respirators, gowns, gloves) could be overwhelmed by large inoculum or misuse of equipment. 'Information provided by Department of Defense'.
- Unvaccinated non-essential personnel are restricted from entering areas with smallpox patients.

The requirements of these smallpox response teams are that participation is voluntary and that the vaccination is required for all team members (Section 304 of the Homeland Security Act protects institutions against liability in vaccination programs) (CDC Video, 2002). Preference is given to revaccinees to decrease the incidence and severity of systemic effects. The CDC, in cooperation with the ACIP, advises that there be enough healthcare workers on the team to provide for the delivery of care 24 hours a day/ 7 days a week for 7-10 days. The categories and numbers of healthcare workers per hospital would depend on:

- Patient population
- Type of medical care delivered
- Work schedules and vacations

The suggested composition of these healthcare response teams includes:

- Emergency department staff- Registered Nurses, Medical Doctors, Emergency Medical Technicians
- Intensive care staff- selected RNs and MDs
- Pediatric trained staff
- General Medical or Surgical Units- (defined as those with negative pressure rooms) selected RNs, MDs, hospitalists (general practice physicians who are employed by the hospital to care for patients who do not have a private physician), obstetricians, and pediatricians
- House staff- selected MDs
- Specialists
 - Infectious disease
 - Surgeons
 - Anesthesiologists
 - Dermatologists
 - Ophthalmologists
 - Pathologists
- Respiratory therapists
- Infection control staff
- Radiology technicians
- Security
- Housekeepers

Once the vaccination has been administered to members of the team, strict adherence to the infection control guidelines for site care must be followed.

These recommendations include:

- a semi-permeable dressing covering the vaccination site
- keep site covered until scab separates (approximately 21 days)
- long-sleeved clothing must be worn at work
- when showering, cover the site with plastic wrap
- after showering, dry the vaccination site last
- careful hand washing with antimicrobial soap
- wash linens separately with hot water
- change dressing every 3-5 days
- change gloves between removal of old dressing and application of new dressing
- discard dressing in biohazard bag at hospital or tied plastic bag at home

The CDC is recommending that each hospital develop a site maintenance monitoring program to ensure that all vaccination sites are inspected daily. The additional benefits of this type of monitoring are that it allows trained personnel to observe each person for side effects of the vaccination and encourages reinforcement of education regarding the vaccine. The CDC further recommends that hospitals stagger the vaccination by 3 weeks within a clinical area to guarantee adequate staff coverage in the event that some staff members suffer side effects from the vaccination.

Following a confirmed smallpox outbreak within the United States, rapid voluntary vaccination of a large population *may* be required to 1) supplement priority surveillance and containment control strategies in areas with smallpox cases, 2) reduce the “at-risk” population for additional intentional releases of smallpox virus if the probability of such occurrences is considered significant, or 3) address heightened public or political concerns regarding access to voluntary vaccination. Large-scale voluntary smallpox vaccination would be considered part of an overall national vaccination strategy and would be initiated following the approval of the Secretary of Health and Human Services. The following considerations apply:

1. Current smallpox vaccines are available under an Investigational New Drug (IND) protocol only. Informed consent must be obtained.
2. The shortened IND process for obtaining informed consent should be followed.
3. Separate clinics should be considered for vaccination and counseling of identified contacts of smallpox cases, but resources must also be available at voluntary clinics as some contacts may show up for vaccination at those facilities.
4. Medical screening for contraindications must be done and vaccination should generally not be recommended for persons with contraindications who are not otherwise identified as contacts.
5. Appropriate amounts of vaccinia immune globulin (VIG) should be available within the National Pharmaceutical Stockpile (NPS) to treat

anticipated adverse events prior to initiating large-scale voluntary vaccination as a component of the national response to a smallpox outbreak.

6. Treatment of adverse events will occur in facilities separate from vaccination clinics.
7. Existing immunization program resources should be utilized in the implementation of voluntary vaccination programs and coordination should occur between state and local immunization program and bioterrorism planning personnel.
8. Pre-designated sites or clinics will be established, as part of the community smallpox response plan, for the evaluation of symptomatic individuals to rule out smallpox.
9. The pre-designated sites for evaluating symptomatic individuals for smallpox will be identified in public service announcements and these individuals will be discouraged from presenting to voluntary vaccination clinics.
10. Vaccine clinic and transportation personnel should be vaccinated prior to beginning vaccination clinic activities in order to provide protection against exposure from symptomatic contacts that may inadvertently present to the vaccination clinic.
11. The recommended guidelines for the logistics, design, and implementation of a voluntary vaccination clinic are interim and are meant to support existing emergency vaccination clinic plans that state or

local public health authorities have developed (CDC Smallpox Clinical Guide, 2002).

The federal government will provide many of the necessary resources to state and local public health authorities for use in voluntary vaccination programs if a smallpox outbreak has been confirmed. These resources include the smallpox vaccines and the supplies needed to administer the vaccine i.e. diluents for reconstitution of the powder form of the vaccine, bifurcated needles, and directions for vaccine administration. Also included in these resources are the consent forms for vaccination, information sheets on the smallpox vaccine, adverse events, and contraindications, vaccine site care instructions, and contact information. VIG for the treatment of serious adverse events that may be expected as well as technical assistance for setting up the clinics is also provided. Current plans for rapid, large-scale shipment of vaccine through the NPS system allows for shipment of up to 500 Vaxicool (self-contained shipping and storage units for the vaccine) systems on day 1 (75 million total vaccine doses), with up to 615 additional vaccine shipments/day in Styrofoam shipping containers from day 2-6. This plan provides for distribution of 280 million doses of smallpox vaccine from NPS storage sites to states' field sites within 5-7 days (CDC Smallpox Clinical Guide, 2002). Security needs should be assessed during planning of vaccination sites. Security should be provided to vaccine storage sites. Backup power sources should be identified for storage sites. Security should be provided for crowd control, traffic, and personnel safety. If the vaccine is to be transported, security should be provided. According to the

guidelines, each vaccination clinic site should be able to administer as many as 100,000 vaccinations per day or 1 million persons over 10 days. The CDC guide suggests the number of personnel needed to staff a clinic of this size, and breaks the personnel down into specific positions to enhance the flow of patients and expedite the vaccination process. Of course, the numbers that are suggested by the CDC would be based on the size of the communities being vaccinated and the total population of those communities. There are suggestions from the federal government on how to present consistent information to the public. And finally, the CDC provides suggestions regarding additional supplies and equipment that must be considered for each site. These need to be provided by that individual location.

In January of 2003, the CDC began shipping smallpox vaccine to state and local governments that will coordinate the smallpox response teams. "At this time, our highest priority is to vaccinate members of smallpox response teams in the states," said Dr. Julie Gerberding, director, CDC (CDC, 2003). According to the Smallpox Vaccination Report from the CDC dated February 11, 2003, a total of only 19 states had participated in the voluntary pre-event vaccination program and only 1,043 people had received the smallpox vaccination since the program began. In January 2003, Barbara Blakeney, President of the American Nurses Association issued a statement that said most nurses support the federal government's plan to vaccinate health care workers but that most nurses lack critical knowledge about the vaccine. Louis Z. Cooper, MD, interim director of the National Network for Immunization Information (NNII) agrees, "If nurses

don't understand how the smallpox vaccine works, we can be confident that the general public doesn't either"(National Network for Immunization Information, 2003). A nationwide survey of state health officials by The New York Times found about 350 hospitals that declined to participate in the vaccination of healthcare workers. The argument is that the chance of a smallpox outbreak is too small to warrant the risks associated with receiving the vaccine. Other concerns of liability and personal safety exist. As this initiative moves forward, health officials are racing to resolve legal, medical, financial and logistical questions regarding the vaccination. The administration and Congress have provided liability protections for makers of the vaccine as well as hospitals and medical personnel administering it. But federal officials have consistently rejected entreaties to compensate people harmed by the vaccine (Union Calls for Changes, 2003). Dr. Gerberding was non-committal on the issue of compensation for negative outcomes from the vaccine, but states that "a number of steps are being taken"(U.S. Spurns Smallpox Vaccine, 2003).

North Carolina's Smallpox Vaccination Plan

[Preface: The North Carolina Smallpox Vaccination Plan (NCSVP) is a confidential document containing specific details of a public security plan and is therefore exempt from the NC public records law according to G.S. 132-1.7. The Executive Summary and Press Release contain non-classified information regarding the NCSVP and are considered public documents]

The plan provides a blueprint for how the state will carry out three smallpox vaccination scenarios- pre-event vaccinations, ring vaccinations associated with a confirmed case of smallpox, and mass vaccinations- as defined by the CDC.

The NC Smallpox Preparedness and Response Plan is divided into 5 phases:

- Phase I- Baseline
- Phase II- Heightened Threat
- Phase III- Post-event, limited outbreak
- Phase IV- Post-event, large outbreak
- Phase V- Recovery

The components of each phase consist of: surveillance, vaccination, outbreak investigation, quarantine and isolation, mass care, mass fatality, public information, and command/control/communications. The state plan makes certain assumptions:

- Liability and indemnification of state and local vaccine providers will be resolved at the federal level
- CDC will provide vaccine, diluent, and needles for each vaccination stage
- State and local government will provide all other vaccination supplies
- NC will use CDC forms
- Counties may request assistance through multi-county assistance compacts
- In large-scale vaccination, federal government will provide additional resources: National Pharmaceutical Stockpile (NPS) (the first wave of

supplies provided by the federal government during a mass casualty event), Vendor Managed Inventory (VMI) (the second wave of supplies provided by the federal government during a mass casualty event), and National Disaster Medical Service (NDMS).

- One-fourth to one-half of those offered pre-event vaccination will decline
- Patient care personnel that decline vaccination will be required to sign an indemnification and liability release form to continue to work in patient care positions
- Costs to travel to vaccination sites, hours and/or salary lost are the responsibility of the vaccinees or their employers
- Costs of adverse vaccine reactions are covered under employment policies and workers compensation laws
- Local Public Health Directors have primary responsibility for requesting smallpox vaccine and vaccination resources and for ensuring vaccinations within their respective counties
- Vaccinations will be provided on a voluntary basis only
- Advisory Committee on Immunization Practices guidelines will be followed
- Adequate amounts of VIG will be made available
- CDC personnel/specialists will be available to NC as needed and requested
- The State Epidemiologist, Public Health Preparedness and Response Bioterrorism Coordinator, Public Health Regional Surveillance Team

physician or Local Health Department Medical Director will provide standing orders for all vaccination scenarios, as necessary

According to Dr. Jim Kirkpatrick, head of the Office of Public Health Preparedness and Response, "Pre-event vaccinations will have two or three stages, depending upon the CDC's final recommendation" (North Carolina Department of Health and Human Services (NC DHHS), 2002). The first stage will begin within 30 days of the president's announcement to proceed and will focus on the vaccination of identified key personnel in the public health, hospital, and emergency response fields. It is very important that these people be pre-vaccinated so that they will be able to respond to an outbreak without fear of contracting the disease when they encounter it (North Carolina Department of Health and Human Services (NC DHHS), 2002). The second stage of vaccinations will capture the broader health and emergency responder populations, including law enforcement, emergency medical services, firemen, and Hazardous Materials (HAZMAT) teams. If there is enough available vaccine, everyone who falls into the first two stages will be vaccinated within six months of the federal order to vaccinate. Vaccination of the general public would be considered phase three of the pre-event measures and would probably begin in 2004 (NC Dept. of HHS, 2002). The state plan for vaccinating the general public is the same regardless of whether this is a preventative measure or a response to an outbreak. The plan for all three scenarios involves identification of all vaccinees, coordination among local health departments for vaccination dates, and deciding on vaccination locations. The state plan outlines exactly who needs to

receive the vaccination first and when this process will begin. This plan follows ACIP recommendations (as outlined above) for which healthcare workers need to receive the pre-event vaccine and how to respond when cases of smallpox or contacts of cases are identified in North Carolina.

Those who would be advised not to be vaccinated include people with the following conditions and those who live with someone who have such a condition:

- Expectant mothers
- People with eczema or atopic dermatitis
- People being treated for cancer
- People who are HIV-positive
- People who have had an organ transplant
- People who are allergic to the vaccine or any of its ingredients
- People who have a moderate or severe short-term illness
- Anyone who is less than 18 years of age

The CDC and the State Health Director emphasize that, given the high mortality rate associated with smallpox, people who have actually been exposed to the virus should receive the vaccine regardless of their health condition (North Carolina Department of Health and Human Services (NC DHHS), 2002).

New Hanover County's Smallpox Plan

North Carolina submitted its smallpox plan to the CDC on November 27, 2002, as requested by the federal government. That plan was approved on January 15, 2003. Since that time, New Hanover Health Network (NHHN) has been working closely with the N.C. Hospital Association and the New Hanover County Health Department to fully anticipate what may be expected of them. "If the smallpox threat becomes reality, NHHN will take a leadership role in advancing a regional response plan as well, to ensure hospitals in the Coastal Carolinas Health Alliance and around this region are able to effectively care for their communities"(Atkinson, 2003). New Hanover Health Network had developed a Bioterrorism Response Plan that includes the response to a smallpox outbreak. It designates who will care for the patient(s), where they will be cared for (and this will depend on how many confirmed cases the hospital is treating), what protective equipment will be used, and how to handle issues such as transporting patients within the hospital and how to handle the lab specimens from and equipment used to treat these patients. Home care instructions are part of the strategic plan, in the event that there are too many people requiring hospitalization within a short period of time. If the hospitals become overcrowded, it may become necessary for sick people to be cared for in their home by relatives or friends. The local plan includes a fact sheet with information that may be helpful to the caregivers. The plan also includes how to handle deceased patients. The hospital plan includes all of the forms recommended by the CDC for use during an outbreak. These include vaccination consent forms, screening forms, fact

sheets providing information on smallpox, as well as educational information on how to care for the vaccination site once the vaccine has been administered. This smallpox response plan closely follows the recommendations of the federal government for reducing the risk of transmission of a highly contagious virus. Isolation of these patients will be maintained until the local health department declares that smallpox is no longer a threat to health care workers or the public (NHRMC Bioterrorism Plan, 2001).

In addition to this smallpox plan, New Hanover Regional Medical Center has stored enough medical supplies to treat up to 500 victims should a mass casualty event occur in our county or any of the surrounding counties. These supplies can be easily mobilized to any area in need. The supplies are color-coded for easy distribution and utilization during such an event.

Summary

The specter of resurgent smallpox is ominous, especially given the enormous efforts that have been made to eradicate what has been characterized as the most devastating of all the pestilential diseases. Unfortunately, the threat of an aerosol release of smallpox is real and the potential for a catastrophic scenario is great unless effective control measures can quickly be implemented (Henderson, et. al., 1999). Much work has been done at the federal level to develop guidelines for state and local governments to follow. Collaboration between agencies such as the Centers for Disease Control, the Advisory Committee on Immunization Practices, the Center for Civilian Biodefense

Studies, the Department of Defense, the Department of Health and Human Services, and various Schools of Public Health has been successful in researching an all-but-forgotten disease, updating existing smallpox information, and revising old smallpox plans. Their efforts have set the groundwork for every state in our nation to move forward with their individual responsibilities- to prepare for a potential outbreak, to educate the public about smallpox, to allay fears and concerns, to reassure healthcare workers who will serve on the front lines if this threat becomes a reality. State Health Departments have stepped up to the plate and submitted their action plans to the federal government for approval. Local health facilities, such as New Hanover Regional Medical Center, have also developed plans, keeping the safety of their employees and the community foremost in those plans. Every possible scenario is being considered. Every possible precaution is being taken to keep Americans safe. Even though bioterrorists will face difficulties in carrying out a biological attack against America, it is well within their grasp to do so. And as the terrible events of September 11 demonstrate, the United States is far from invulnerable to those who wish it harm. The Administration and Congress are wise to conduct a war on terrorism while pursuing a homeland defense strategy that will reduce the risk of bioterrorism and limit the devastation should an attack occur (Kathryn and Shelby Cullom Davis Institute, 2001).

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