

Hospital Recruitment for the Smallpox Pre-Event Vaccination Program: Experiences from Florida, Nebraska, New Jersey, and Tennessee, December 2002–June 2003

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SYNOPSIS

The Smallpox Pre-Event Vaccination Program (SPVP) for public health and hospital-based health care workers began on January 24, 2003. This report summarizes efforts made by health officials in Florida, Nebraska, New Jersey, and Tennessee to facilitate the voluntary participation of acute care hospitals in the SPVP. Seven common characteristics contributed to the success of programs in these four states: (1) early planning, building on existing competencies, and state government support, (2) carrying the program forward on a planned timeline with experienced vaccination staff, (3) use of multifaceted training activities, (4) use of mock scenarios and field exercises to avoid early problems, (5) establishment and fostering of good relationships and lines of communication with stakeholders and the mass media, (6) addressing liability and workers' compensation concerns prior to initiation of the SPVP, and (7) attention to vaccination clinic logistics.

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The anthrax attacks of Fall 2001 brought an awareness of the need for health care workers to be prepared to participate in infectious disease terrorism preparedness and response efforts. In 2002, approximately \$1 billion in federal funding was given to state health departments to prepare for and respond to terrorism, infectious disease outbreaks, and other public health threats and emergencies.¹ One of the major efforts focused on providing smallpox vaccination to individuals designated by terrorism and public health authorities as responsible for conducting investigations and follow-ups of initial smallpox cases, as well as members of health care teams who would be trained to provide medical care for initial smallpox patients.² The Smallpox Pre-Event Vaccination Program (SPVP) for volunteer hospital-based and public health care workers began on January 24, 2003.

By February 21, 2003, 61% (299/488) of the acute care hospitals that had initiated vaccination programs nationally were from four states: Florida, Nebraska, New Jersey, and Tennessee (Unpublished data, National Smallpox Vaccination Program, Centers for Disease Control and Prevention [CDC], 2003). In addition, 70% (2,432/3,472) of all hospital-based health care workers and 31% (1,021/3,287) of public health response team members vaccinated nationally worked in these four states.

Given these states' early success with their SPVPs, personnel from CDC's Immunization Services Division conducted group interviews from March 7, 2003, through March 12, 2003, with SPVP staff in Florida, Nebraska, New Jersey, and Tennessee to identify efforts they used to engage hospitals and hospital staff in the vaccination efforts. While some recruitment efforts were unique to each state, the SPVPs for these states had the following seven characteristics in common that contributed to their success:

1. Early planning, building on existing competencies, and high-level state government support

Post-event smallpox vaccination planning efforts were formulated in these states as early as summer 2002, as part of bioterrorism preparedness programs. When notified of the need to submit pre-event smallpox vaccination plans to CDC by mid-December, many state health department personnel responsible for post-event planning were assigned to SPVP planning; their contributions facilitated the expeditious completion and submission of these plans to CDC in December 2002.

Once state health officials were aware of the need for an SPVP, high level government support was secured in each state: from the Secretary of Health in Florida, the health commissioners in Tennessee and New Jersey, and the governors of Nebraska and New Jersey. Support and input were also solicited from critical stakeholders, and their suggestions were used to further develop SPVP efforts over time. These stakeholders included the following:

- networks of county and local health departments;
- state hospital associations;
- key personnel from major general and academic medical centers;
- associations and licensing boards for health professionals who would serve as vaccinators and be respon-

sible for treatment of adverse events resulting from vaccination;

- health care and hospital worker unions;
- civil defense and other support personnel who would assist in the transfer of vaccine and case patients in the event of a smallpox outbreak;
- government and community-based groups responsible for bioterrorism preparedness planning and critical groups within their networks; and
- minority, underserved, and other at-risk populations.

Minority populations included many undocumented residents and individuals with language, cultural, or trust issues who did not have a health care worker to whom they could inquire about diseases and vaccines. Underserved populations included individuals who lived in crowded conditions that would facilitate contact transmission of vaccinia. Both groups were targeted because it was felt they would be less likely than members of the general population to participate in mass public vaccination clinics in the event of a smallpox outbreak. Other at-risk populations included transfer personnel (e.g., air and ground ambulance staff, Emergency Medical Technicians [EMTs], paramedics), emergency room personnel likely to come in contact with initial suspected smallpox cases, dermatologists and infectious disease specialty physicians who would investigate suspicious rashes, law enforcement personnel who would enforce quarantines, FBI personnel who would conduct criminal investigations, local health department personnel who would lead epidemiologic investigations, and interpreters who would assist non-English-speaking individuals in the population.

The identified stakeholders were contacted early and frequently by means of in-person meetings, telephone conference calls, and e-mail messaging to share details and timelines for the SPVP, to draft CDC documents, and to discuss a variety of issues including, but not limited to, liability and workers' compensation. An SPVP coordinator was identified for every region, if not every planned vaccination site. State health departments initiated training activities with local health departments, which in turn used the materials to screen and train hospital-based volunteers.

2. Carrying the program forward on a planned timeline with experienced vaccination staff

Each of the four states established and adhered to deadlines for major SPVP activities; deadlines were met because, in a spirit of volunteerism, everyone worked long hours for several weeks to keep the SPVP moving forward. Even when required to work with CDC training documents that were still in draft form, state and local health department staff used these documents during pre-vaccination educational sessions rather than delay provision of training until final forms were available. Most state and local health department staff members had many years of experience with vaccination programs in general, and mass vaccination programs specifically; their longevity contributed to their credibility with community hospitals. These individuals also had experience with smallpox vaccination; in addition, many had previously been vaccinated against smallpox. While it was understood that adverse events were less likely to occur

with revaccination than with initial vaccination, and the absence of adverse events in the limited number of primary vaccinees offered no assurance that such events could not occur, many state and local health department staff members felt that sharing their own experiences helped facilitate discussion of these and other issues.

3. Use of multifaceted training activities

State health departments customized SPVP information found on CDC's Web site to accommodate the variety of media formats and resources available locally. Topics included proper vaccination site care, recognition and treatment of adverse events, and management of mild symptoms resulting from vaccination using antihistamines and nonsteroidal analgesics. Florida included this information in an operations manual (technical assistance guidelines), which also detailed policies and procedures for conducting smallpox vaccination clinics, delivering and handling vaccines, and evaluating vaccination responses. The manual was developed from lessons learned through post-event response training of Disaster Medical Assistance Teams in December 2002.

Good training efforts likely contributed to only a small number of individuals reporting any side effects or adverse events following vaccination as part of the SPVP. By the end of June, Nebraska had not received any reports of adverse events following vaccination among the more than 1,400 individuals who had received smallpox vaccine. In New Jersey, nine vaccine-related adverse events were reported among more than 650 vaccinees; however, they were non-specific rashes, neurologic symptoms, chest pain, or eye symptoms, none of which were life-threatening or resulted in hospitalizations, fatalities, or the use of vaccinia immune globulin (VIG) or cidofovir for treatment. In Tennessee, 22 minor adverse events were reported among more than 2,400 vaccinees, but these events were limited to enlarged lymph nodes, autoinoculation (i.e., transfer of vaccine virus from the vaccination site to another part of the body by a vaccinee), fever, and rashes.

4. Use of role playing and mock response scenarios

Table-top exercises, mock vaccination clinics, and follow-up debriefings helped highlight logistic issues to emphasize during hospital-based training, and provided opportunities for local media to understand and report the SPVP details to the general public. In Nebraska, scenarios assuming differing levels of vaccine availability were utilized to understand how best to prioritize vaccine distribution among major stakeholders, regions within the state, and groups critical to response efforts. Mock clinics were held in New Jersey to evaluate how work stations functioned, an effort that proved critical to conducting the first actual vaccination clinic successfully.

5. Open lines of communication with stakeholders and mass media

In all four states, the SPVP planning process was transparent; information received at the state health department was shared with stakeholders as it became available. State health department staff provided presentations and answered questions whenever requested, identified groups especially resist-

ant to the program for intensive educational efforts, and accommodated stakeholder needs. The Florida Department of Health's Operation Vaccinate Florida intranet website was used to provide information, as well as surveillance forms and other materials, to support dissemination of identical information by all public health staff and to receive feedback 24 hours a day. It allowed meeting minutes to be easily referenced, and it also updated information emphasized during conference calls with SPVP partners. In Nebraska, streaming video and government-sponsored cable television were used to air a 30-minute video featuring the lieutenant governor and state and deputy state health officers discussing smallpox and the need for the SPVP.

State and local media were kept informed about the SPVP and its progress and about mock and actual vaccination clinics through regular press conferences and press releases, and through state and local health departments' contacts in newspaper and television programming. In Tennessee, communication efforts focused on the voluntary nature of the SPVP and on hospitals that chose to participate rather than on those that did not, and emphasized the deliberate efforts taken to assure that the SPVP was carried out safely to minimize risk and maximize safety. In New Jersey, the SPVP was presented in the context of enhancing overall public health preparedness, rather than just a bioterrorism defense effort, and as an effort that gave health care workers experience with vaccination clinics.

6. Early efforts to address issues related to liability and workers' compensation

Concerns related to liability and workers' compensation for SPVP volunteers were addressed with state attorneys general offices, insurance companies, state hospital associations, and hospital CEOs and medical and nursing staff before the SPVP began, providing assurances that volunteers would be covered. In New Jersey, emergency management statutes were also examined to clarify that state workers' compensation coverage would be extended to volunteers in the SPVP.

7. Attention to logistical details

In all four states, state and local health departments held multiple educational sessions to dispel myths and rumors and to explain the SPVP in order to gain trust in its effectiveness and necessity. In addition, vaccination clinic coordinators were identified who were committed to making the vaccination program a priority. These individuals recruited hospital-based volunteers and facilitated clinic operations. A physician trained to identify adverse events resulting from vaccination was made available for each clinic. In Nebraska, vaccinees were allowed time off from work to attend educational sessions and vaccination and follow-up clinics. Vaccinees were provided with packages of gloves, tape, and semipermeable membrane dressings for their vaccination sites, and hospital infection control staff were made available to do vaccination reaction evaluations and dressing changes as needed. In Nebraska and Tennessee, vaccination clinics were located within 50 miles of 80% of the acute care hospitals in the state in an effort to make it convenient for hospital workers to attend.

CONCLUSIONS

The SPVP shares several similarities with another large-scale vaccination program carried out in the United States, the National Influenza Immunization Program, informally known as the Swine Flu Program (SWP), launched in March 1976.³⁻⁵ As shown in the Figure, the SPVP and SWP were similar in their initial intents and methods of implementation. Both programs dealt with issues related to liability, compensation, and unexpected adverse events. In contrast, more uncertainties related to vaccine usage and more problems with rapid dissemination of critical information occurred in the SWP than in the SPVP. Nonetheless, both programs helped bring about improvements in surveillance and public health preparedness.

This report summarizes efforts made by Florida, Nebraska, New Jersey, and Tennessee to facilitate the voluntary participation of acute care hospitals within their states in the SPVP. Despite issues related to liability, compensation, and logistics, and the controversy associated with the SPVP, these states proceeded with their programs and now have a cadre of vaccinated public and hospital-based health care responders. In addition, while their efforts were focused specifically on preparedness for a smallpox outbreak, all four states experienced improvements in overall public health preparedness. The coming together, education, and drilling of state and local public health staff, emergency coordinators, hospitals, health care providers, the media, and law enforcement; the process of planning, implementing, and evaluating the SPVP; and the public awareness campaigns that took place were invaluable to these states in identifying components of—and preparing them to successfully launch—future mass vaccination prophylaxis campaigns of any type.

This will prove especially critical should a pandemic of influenza or an outbreak caused by some other type of biological agent occur, whether related to terrorism or not. In New Jersey, public health clinics and health care partners realized the importance of their roles in the state's overall preparedness efforts. In Nebraska, the mobile rural clinics that were held were felt to be the best effort the state health department had undertaken to increase its credibility and visibility to the public. In all four states, strong relationships with infectious disease specialists in private and academic practices were established as a result of their recruitment to be "on call" to address questions concerning vaccine take and possible adverse effects. The capacity to send digital photos from rural hospitals for rash evaluation was realized, a need that had been unrecognized until the SPVP was initiated. Conversations with hospital CEOs and state hospital associations improved the state health department's credibility and strengthened working relationships and levels of trust, which will prove critical for all future public health emergencies.

In spite of the uncertain benefits (and risks) of the SPVP, even states that were not able to achieve smallpox vaccination levels as high as those in Florida, Nebraska, New Jersey, and Tennessee will be considered successful if their SPVP efforts have resulted in better preparedness to respond not only to a smallpox outbreak but to any infectious disease or terrorism emergency.

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Figure. Similarities and differences between the 1976 National Influenza Immunization Program (also known as the Swine Flu Program [SWP]) and the 2003 Smallpox Pre-Event Vaccination Program (SPVP)

Similarities:

1. Program intent: initially vaccinate high-risk populations; eventually vaccinate most of the general population before the outbreak of illness.
2. Program conducted through state health departments with technical assistance from federal health agencies and associated support services; vaccine delivered using private and public health care delivery systems.
3. Initially, not all states were ready to launch mass vaccination campaigns; problems existed with planning and implementation.
4. Programs had to deal with issues related to liability and compensation, which was done later, rather than earlier, in the programs.
5. Vaccination halted/suspended to allow assessment of statistical evidence when serious unforeseen adverse events occurred:
 - SWP: Guillain-Barré syndrome
 - SPVP: cardiac-related adverse events following smallpox vaccination.
 Subsequent vaccination efforts impaired as a result.
6. Improved surveillance systems developed for adverse events following vaccination.
7. Initiatives/improvements resulted that were beyond the initial focus of the program:
 - SWP: higher vaccination coverage; a permanent program targeted for high-risk individuals; a new immunization initiative
 - SPVP: improved preparedness to respond to bioterrorism events and public health emergencies in general.

Differences:

1. Vaccine availability problematic in SWP, but not SPVP. Source of smallpox vaccine secured before SPVP started.
 2. Vaccine efficacy less certain in SWP than SPVP.
 3. Concerns related to vaccination of children in SWP but not SPVP.
 4. Difficulties in rapid dissemination of information in SWP, but not SPVP. In SPVP, improvements in technology allowed rapid communication and sharing of information between the Centers for Disease Control and Prevention and state and local decision makers as well as with the news media.
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