



South Carolina Prepares for Pandemic Influenza

Public Health Preparedness Report, 2011

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Table of Contents

Public Health Preparedness Program Overview.....	3
Introduction.....	4
Current Situation.....	5
Influenza Vaccination in South Carolina.....	5
The Importance of Pandemic Preparedness.....	7
Key Issues.....	9
Online Resources.....	10

This is the sixth annual Pandemic Influenza Preparedness report written for the South Carolina Legislature by the Office of Public Health Preparedness of the South Carolina Department of Health and Environment Control.

Public Health Preparedness Program Overview

Mission. The mission of the South Carolina Department of Health and Environmental Control (DHEC) is to promote and protect the health of the public and the environment. As the state's public health and environmental protection agency, DHEC provides a wide range of services for the public and the regulated community. All areas of the Department play a part in emergency preparedness and response. The public health preparedness program relies on effective partnerships within DHEC, with other government agencies and with private organizations.

Strategy and Objectives. The core strategy for public health preparedness is to build and sustain public health capabilities that are used every day, so these capabilities will be ready when disaster strikes. The state must be prepared to respond to all types of hazard, including epidemic diseases such as influenza. The major objectives of the public health preparedness program are to maintain up-to-date emergency plans; to sustain state and regional disease control and laboratory capabilities; and to coordinate emergency preparedness efforts with hospitals, health care providers, state agencies and other organizations. The preparedness program's priority objective for the next five years is to sustain epidemiology, laboratory and public health emergency management capabilities at the state and regional levels. Other capabilities will be addressed as resources permit.

Roles. No one can predict when disaster will strike or the form that disaster will take. The public health employees who work to promote and protect health every day are the same ones who will be called upon to respond to a disaster in South Carolina. DHEC is involved in many disaster response tasks. Under the State Emergency Operations Plan, DHEC has leadership responsibility for health and medical services and hazardous material response. DHEC also supports other emergency functions. DHEC staff at emergency operations centers track the changing situation during a disaster and coordinate response activities. Emergency managers monitor evacuation of medical facilities, coordinate emergency medical services and other resources, and send public health teams from one region to another. DHEC staff conduct disease investigations, check the safety of food and water supplies, provide public information, staff special medical needs shelters, respond to hazardous materials threats, and provide public health services.

Funding Sources. DHEC began its Public Health Emergency Preparedness (PHEP) program in 1999 with funds from the Centers for Disease Control and Prevention (CDC). In 2002, the CDC expanded the program and the US Department of Health and Human Services (DHHS) began the Hospital Preparedness Program (HPP), now under the Assistant Secretary for Preparedness and Response (ASPR). Both of these programs initially focused on bioterrorism. Today, they prepare for all types of hazards. For FY 2011, the state's Public Health Emergency Preparedness Program received \$9,308,851 and the Hospital Preparedness program received \$5,091,363. South Carolina experienced a PHEP budget reduction of \$1,725,802 or 15.6% from FY 2010 to FY 2011. The HPP program was reduced by \$537,895 or 9.6%. Reductions in PHEP and HPP funding mean

that public health preparedness staffing and initiatives must be scaled back. No state funding is provided for public health or hospital preparedness.

Challenges. While much progress has been made in public health preparedness for response to pandemic influenza and all hazards, it is increasingly difficult to sustain that progress. Frequent federal budget cuts and changes in program guidance and direction make it very difficult to build and sustain effective public health and medical response capabilities. Reductions in federal funding mean that public health preparedness staffing and initiatives must be scaled back. The preparedness programs receive no state funding and must meet the 10% federal match requirements with in-kind match from other state-funded programs or documented effort by private-sector partners. The severe state budget cuts that have reduced state funding for DHEC from \$147 million in 2008 to \$82 million in 2011 threaten our preparedness to respond to a disaster. We have seen the public health and environmental workforce drop to 3,498 filled full-time positions as of June 30, 2011. This is a 37% reduction in the agency workforce from 5,601 budgeted positions in July 2001. The budget reductions experienced by other public agencies also impact on the state's readiness: significant reductions have occurred in funding for emergency management, public safety, education, mental health, social services and natural resource agencies that all play essential roles in disaster response. Given the current economic situation and the threat of further federal and state budget reductions to public health programs, the state will have less ability to detect, prevent, and respond to natural disasters, terrorism or epidemic disease outbreaks.

Introduction

Historically, about three times a century, an outbreak of influenza occurs with a virus that is new to the human immune system, resulting in a pandemic: the rapid worldwide spread of a disease. In about one-third of these outbreaks, a virus emerges which is particularly virulent, contagious and lethal, such as the "Spanish Flu" of 1918 that killed approximately 550,000 Americans and 100 million people worldwide in less than eight months. In March 2009, an influenza pandemic began in Mexico and the southwest United States. For the first time in forty years a new strain of influenza, H1N1 (2009), spread worldwide.

The first cases of H1N1 (2009) pandemic influenza reached South Carolina in late April 2009. Two waves of disease occurred, the first lasting from April 2009 to June 2009 and the second from August 2009 to November 2009, with the second wave reaching its peak in October 2009. The U.S. declaration of a Public Health Emergency for 2009 H1N1 Influenza expired on June 23, 2010. On August 10, 2010, the World Health organization (WHO) International Health Regulations (IHR) Emergency Committee declared an end to the 2009 H1N1 pandemic globally.

From September 1, 2009 through June 26, 2010 in South Carolina, there were 1,091 hospitalizations and 49 laboratory confirmed deaths due to the pandemic influenza reported to the South Carolina Department of Health and Environmental Control (SC DHEC). Nationwide, the Centers for Disease Control estimated a total of 61million

H1N1 cases, 274,000 hospitalizations and 12,470 deaths between April 2009 and April 2010.

In the first wave, the priority for public health efforts was the surveillance and response to cases and outbreaks of H1N1 to identify geographic spread, disease severity and populations being impacted in order to prevent the further spread of the disease. During the second wave, an effective vaccine became available. Initially, the vaccination effort was targeted to the groups who are at greatest risk from the disease, using the very limited quantities of vaccine that were available. All H1N1 vaccine supplies were purchased and distributed by the federal government. By December 2009, the State received sufficient supplies to offer vaccination to all persons who wanted to be vaccinated. Public and private sector vaccination efforts continued until March 2010, although demand for the vaccine dropped off sharply after January 2010.

Current Situation

The 2010-11 influenza season, running from October 2010 to July 2011, saw a return to normal seasonal influenza activity. Unlike the 2009-10 pandemic season in which the majority of illness was seen in September and October, influenza surveillance indicated that peak activity occurred during the month of February 2011. Three strains of influenza circulated including the type A H1N1 (2009) influenza, type A H3N2, and type B. There were 20 laboratory-confirmed deaths due to influenza and 996 hospitalizations reported to SC DHEC.

Influenza Vaccination In South Carolina

Estimates of influenza vaccination rates made by the Centers for Disease Control and Prevention for the 2009-10 and 2010-11 influenza seasons are presented in Table 1. The final estimates for H1N1 (2009) vaccinations during the pandemic indicated that 26.2% of the population over age 6 months was vaccinated between August 2009 and May 2010. The H1N1 (2009) pandemic vaccination program was successful in reaching 31.7% of high risk populations in the initial target group including 44.2% of children. Persons aged 65 and older were not included in the initial targeted high risk group, and only 23.0% eventually received the H1N1 (2009) vaccination.

Seasonal influenza vaccination during the 2009-10 pandemic season reached 39.5% of the population. Persons age 65 and older are considered at high risk for complications from seasonal flu, and a seasonal vaccination rate of 71.2% was achieved in 2009-10. It is important to note that the seasonal vaccination rates increased for all population groups in the 2010-11 season. An overall vaccination rate of 46.6% was achieved. This was the first year in which the Advisory Committee on Immunization Practices recommended influenza vaccination for all people over 6 months of age. Influenza vaccination is now widely available in many communities through pharmacies and other health care providers. Public health information campaigns and outreach efforts may have contributed to higher vaccination rates among children and low-income adults in minority population groups.

Table 1. Influenza Vaccination Coverage in 2009-10 and 2010-11			
Population Group	CDC Final Estimate of H1N1 Pandemic Flu Vaccination Coverage 2009-2010	CDC Final Estimate of Seasonal Flu Vaccination Coverage 2009-2010	CDC Interim Estimate of Seasonal Flu Vaccination Coverage 2010-2011
Children age 6 months to 17 years	44.2%	35.5%	45.5%
Persons 18 years or older	19.8%	41.1%	47.0%
Persons in the initial high risk target groups	31.7%		
Persons ages 25-64 years at high risk	22.0%		
Persons ages 25-64 years not in the initial target groups	15.7%		
Persons ages 18 to 49 years at high risk		38.5%	58.2%
Persons ages 18 to 49 years not at high risk		28.6%	37.9%
Persons ages 50-64		42.9%	47.7%
Persons ages 65 years and older	23.0%	71.2%	72.6%
Persons ages 6 months and older	26.2%	39.5%	46.6%
Non-Hispanic white persons ages 6 months and older	26.7%	44.3%	46.8%
Non-Hispanic black persons ages 6 months and older	23.1%	29.6%	40.1%
Hispanic persons ages 6 months and older	30.3%	28.5%	61.6%
Non-Hispanic Asian persons ages 6 months and older	27.3%	35.2%	
Non-Hispanic American Indian persons ages 6 months and older		31.8%	
Non-Hispanic other race/ethnicity ages 6 months and older	32.4%	42.3%	63.5%

Note: The final estimates of influenza A (H1N1) 2009 monovalent vaccination coverage for the period August 2009 through May 2010 are available at <http://www.cdc.gov/flu/professionals/vaccination/reporti0910/reportII0910/>
The final estimates of seasonal influenza vaccination coverage for South Carolina for August 2009-May 2010 are reported at <http://www.cdc.gov/flu/professionals/vaccination/reporti0910/reportII0910/>
State-specific seasonal influenza vaccination coverage estimates were reported for August 2010-February 2011, the first year following the pandemic, in the June 10, 2011 issue of CDC's Morbidity and Mortality Weekly Report.

The Importance of Pandemic Preparedness

The state's pandemic response efforts since April 2009 show the value of planning and preparedness. Since the beginning of the Public Health Emergency Preparedness Program and the Hospital Preparedness Program in 2002, much energy has been devoted to preparing for an influenza pandemic. These preparations were very important during the response to the actual pandemic. Public health staff were prepared to respond quickly and effectively to the initial outbreak, to monitor the course of the pandemic, to inform the public, and to coordinate with other organizations. Previous reports in this series have documented the plans and activities that were undertaken to prepare for a pandemic and to respond to H1N1 (2009). Some of the key activities included:

- The State Pandemic Influenza plan was prepared and updated each year.
- A Mass Fatality Plan was developed in cooperation with the Coroner's Association and other partners.
- Each year, DHEC has a seasonal influenza vaccination campaign to encourage people in high risk groups to get flu shots.
- Each year, DHEC conducts disease surveillance for influenza and influenza-like illnesses. <http://www.scdhec.gov/health/disease/acute/flu.htm>
- Laboratory testing capabilities and capacity have been increased to confirm cases of the H1N1 (2009) virus.
- DHEC maintains a Health Alert Network to quickly provide alerts and detailed information to health care providers about disease outbreaks or important health problems, including influenza. <http://www.scdhec.gov/health/disease/han/notifications.htm>
- A State Public Health Emergency Pharmaceutical Stockpile was established in FY 2006-07. Under a federal match program, South Carolina ordered 435,000 treatment courses of antiviral medicines for influenza. In April 2009 the federal Strategic National Stockpile shipped 154,000 treatment courses to the state. Medicines were sent to the public health regions and many physicians and pharmacies for treatment of H1N1 (2009) patients.
- The State Pandemic Influenza Ethics Task Force published a report in September 2009 to provide guidance on public health and medical care ethical issues. Their recommendations have been endorsed by the South Carolina Hospital Association, South Carolina Medical Association, South Carolina Nurses Association, Doctor's Care, South Carolina Obstetrical and Gynecological Society, South Carolina Board of Medical Examiners, South Carolina Board of Pharmacy, South Carolina Area Health Education Consortium and South Carolina Department of Health and Environmental Control.
- State and regional exercises were held each year to test Pandemic Influenza response plans with community planning partners.
- Public health regions conducted mass seasonal influenza vaccination clinics.
- Exercises of the Strategic National Stockpile program were done at the state and regional level.

- State and regional exercises were held to test procedures to close schools and daycares during a severe pandemic.
- A Speaker's Bureau was established to promote widespread public awareness among community and business leaders. There have been over 1,000 training events across the state since 2006.
- The public information campaign, "What Do You Do to Prevent the Flu?" began airing on television and radio in October 2007. The purpose is to increase public awareness and knowledge of ways they can prevent the spread of influenza. The messages promote vaccination, hand washing, cough etiquette, and staying home when sick.
- The Department published the informational materials for the public and health care providers.
- A hand-washing video for school children was released in 2008 and has been widely distributed through schools, Parent-Teacher Associations, and health care providers.
- South Carolina has coordinated pandemic planning with southeastern states and regional federal officials. South Carolina has hosted meetings of the eight southeastern states to address interstate issues related to pandemic influenza.

The 2009-2010 pandemic response efforts were entirely supported by federal funds. The CDC Public Health Emergency Response program provided nearly \$20 million in one-time funding to support all aspects of the public health response. Most of this funding was dedicated to local public health departments for the vaccination campaign. Nearly \$10 million was expended during the grant year ending July 31, 2010. The remaining balance of funds was available as one-time funding during FY 2010-11 to support pandemic planning and disease surveillance. The following activities were conducted with Public Health Emergency Response Extension funds in FY 2010-11:

- Review and updating of pandemic operating procedures, policies and plans.
- Review of the school-located vaccination clinic campaign.
- Implementation of mass vaccination exercises to re-test areas of weaknesses identified in local after action reports.
- Relabeling of state-purchased antivirals.
- Continued support for storage costs of federally-supplied H1N1 antiviral drugs and other countermeasures for an additional year.
- Maintained Bureau of Laboratory's capability to perform viral culture and sub-typing and large-volume molecular (real-time RT-PCR) testing of Influenza A and Influenza B viruses.
- Brought molecular testing online to allow for the rapid detection of multiple respiratory viruses and rapid response to respiratory disease outbreaks.
- Continued pandemic preparedness training of Bureau of Laboratory staff.
- Developed means of communication to reach populations that do not have access to the usual media.

- Creation of new influenza pandemic educational materials to explore more effective messaging and communication means.
- Continued support to schools and school nurses for pandemic planning.
- Continued community outreach for pandemic awareness and planning.
- Continued surveillance activities and recruiting and training of influenza-like illness sentinel providers.
- Continued collection of influenza surveillance data and analysis.
- Continued efforts to increase provider participation in the Health Alert Network.
- Implemented an outbreak management system.
- Purchased equipment to improve vaccine storage for transport and storage at clinics and improvement of maintaining cold-chain temperatures in off-site, community-based pandemic vaccination efforts.
- Purchased software to improve response in surveillance, situational awareness, communication and management of pandemic vaccine.
- Purchased equipment to improve efficiency of mass vaccination clinics.

Key Issues

- **Federal funding reductions jeopardize public health preparedness efforts.** Federal funding for preparedness has been significantly reduced. The federal CDC Public Health Emergency Preparedness base grant that has supported emergency preparedness capacity throughout DHEC has been severely reduced, from \$14,497,322 in FY 2002-03, to \$8,143,311 in FY 2010-11, a reduction of \$6,354,011 or 44% in the base annual funding over the eight years of the program. The ongoing reduction in base funding for public health preparedness has caused cut-backs in program personnel and jeopardizes preparedness efforts. Federal programs require a 10% state match each year: reductions in state funding for DHEC means that it is very difficult to identify sufficient state match for the grant. Federal match requirements for PHEP and HPP are projected to be approximately \$1,400,000 (10% of federal funds) for FY 2012-13.
- **Disease surveillance and response activities were provided via Federal funds.** The ability to identify, classify and determine populations at-risk to a newly emerging pathogen depends upon a robust public health infrastructure capable of providing timely disease surveillance and response information to decision-makers. A vast majority of staff engaged in all surveillance and response activities, including response to pandemic influenza, are supported via federal funds. Without this continued source of funding and/or additional state resources, the ability to respond to a large-scale infectious disease event would be severely limited.
- **The state should support seasonal influenza vaccination for school children and low income families in order to protect our citizens against influenza.**

Most seasonal flu vaccinations are accomplished through the private sector with funding from Medicaid, Medicare, private insurance or out-of-pocket payments by consumers. Although vaccination rates have improved, fewer than half of all South Carolinians receive a seasonal flu vaccination last year. It is important that a stable publicly-funded program be established to promote influenza vaccination and see that vaccinations are made available at low cost or no charge to people who cannot otherwise afford vaccination. The public health seasonal influenza program has no state funding and limited federal funding. The very limited public health program to offer seasonal influenza vaccination is done primarily through earnings. As a consequence, DHEC provides only a small percentage of seasonal flu vaccinations and many low-income citizens do not get vaccinated. The response to H1N1 demonstrated the value and effectiveness of school-located vaccination clinics: an investment in protecting children against flu pays off for the entire population by reducing absenteeism from school and work.

- **State funding is needed to support the Public Health Emergency Pharmaceutical Stockpile.** Recurring funds are needed to replenish stockpiles of medicines, vaccines and infection control supplies, to rotate stock when medicines and vaccines expire, and to operate the stockpile facility. The stockpile represents an ongoing program to assure that South Carolina has resources on hand to treat its citizens in the event of a pandemic influenza or other major disease outbreak and to support medical surge and emergency response.

A secure receipt, storage and shipping facility is needed, with the capacity to serve as a receiving and distribution site for the federal Strategic National Stockpile. The first phase of construction, the State Public Health Emergency Pharmacy stockpile facility was completed in April 2008. Funding is needed for the second phase of construction: the 15,320 square foot Strategic National Stockpile Receipt, Storage and Staging Site. This facility will be designed to provide a secure site for the storage of emergency equipment and supplies, and emergency trailers and response vehicles currently stored in an open air site. The building will serve as the distribution center for large quantities of emergency medical supplies and medicines and will function as an extension of the Public Health Emergency Pharmacy.

Online Resources

South Carolina Department of Health and Environmental Control Office of Public Health Preparedness Report 2011: <http://www.scdhec.gov/administration/library/CR-008030.pdf>

South Carolina Department of Health and Environmental Control Flu in South Carolina Website: <http://www.scdhec.net/flu/novel-h1n1-flu.htm>

South Carolina Department of Health and Environmental Control Flu Vaccination Clinic Finder: <http://www.scdhec.net/flu/clinics.asp>

Pandemic Influenza Ethics Task Force: <http://www.scdhec.gov/administration/ophp/pandemic-ethics.htm>

South Carolina Legislature Online Reports:

South Carolina Prepares for Pandemic Influenza: Public Health Preparedness Report, 2010
<http://www.scstatehouse.gov/reports/dhec/PandemicInfluenzaProgressReportFinal11032010.pdf>

South Carolina Responds to Pandemic Influenza: Public Health Preparedness Report, 2009
<http://www.scstatehouse.gov/reports/dhec/PandemicInfluenzaProgressReport110609Final.pdf>

South Carolina Prepares: Pandemic Influenza Preparedness Progress Report, 2008
<http://www.scstatehouse.gov/reports/dhec/PandemicInfluenzaProgressReportDecember2008.pdf>

South Carolina Prepares: Pandemic Influenza Progress Report, 2007
http://www.scstatehouse.gov/reports/dhec/pandemicinfluenzaprogressreport2007_1.pdf

South Carolina Prepares: Pandemic Influenza Report, 2006
<http://www.scstatehouse.gov/archives/dhec/pandemicinfluenza.pdf>

U.S. Department of Health and Human Services Pandemic Influenza website:
<http://www.pandemicflu.gov/>