South Carolina Department of Health
and Environmental Control

South Carolina Responds to Pandemic Influenza

Public Health Preparedness Report, 2009

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This is the fourth 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.

Executive Summary

South Carolina is currently experiencing an influenza pandemic, the first in forty years. Since April 2009 a new strain of influenza, H1N1 (2009), has spread worldwide. This report summarizes the events and response in South Carolina from April through October, 2009. This is the opening phase of the pandemic, and there is much uncertainty about the future course of the disease and its impacts. So far:

- H1N1 (2009) influenza has a full range of expression from a few days of fever, sore throat and coughing to severe respiratory distress requiring hospitalization to death.
- H1N1 (2009) is widespread across the United States with abnormally high prevalence levels in October that are at the levels typically seen in February and March, during the peak of a normal influenza season.
- Pregnant women, children, young adults and adults with chronic disease have experienced the most serious consequences of the disease, with higher rates of hospitalization and death.
- Physicians and hospitals have been able to cope with the increased need for care without implementing emergency surge measures.
- Schools, businesses, and public services have not been severely interrupted due to high absentee levels.
- The illness can be treated with antiviral medicines.
- A safe and effective vaccine has been developed, but is currently in very limited supply.

The priority focus of public health efforts has been on preventing the spread of the disease through vaccination and public information. At present, the vaccination effort is targeted to the groups who are at greatest risk from the disease, using the very limited quantities of vaccine that are now available. The Centers for Disease Control and Prevention have assured the states that sufficient vaccine will eventually be available to vaccinate all persons who want to be vaccinated. Public and private sector vaccination efforts will continue until all who seek vaccination can receive it. The Department of Health and Environmental Control continues to monitor the pandemic closely through disease surveillance and laboratory testing; to support front-line health care providers with guidance and stockpiled supplies of medicine and infection control supplies; and to communicate information to the public. Response efforts may continue for an extended period of months and years, as the course of the pandemic unfolds.

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 the disease. In March 2009 the novel strain of H1N1 (2009) influenza began circulating in Mexico. In April the new strain was found in two children in California. Within days of the first cases in California, school children returning from a spring trip to Mexico brought the first cases to South Carolina. By June it had spread around the world and a pandemic was declared by the World Health Organization.

This report presents an overview of the pandemic in South Carolina and the response efforts that are underway at the present time. Based on the history of past pandemics, we must expect that the new influenza will occur in repeated waves over a period of months and years and that it will largely replace the Influenza type A H3N2 and H1N1 strains that were circulating as "seasonal" influenza to become the new seasonal flu. At this time, it is not useful to speculate on how bad the pandemic will be. We are still in the opening phases of the pandemic, and as of November 2009, just beginning our vaccination campaign to prevent its spread. So far, we are fortunate that the novel H1N1 (2009) strain can be treated with oseltamivir and zanamivir and that a safe and effective vaccine is being manufactured and distributed. The possibility still exists that the strain will change to become resistant to antiviral medicines or become more virulent. Our current efforts are directed at treating the sick and preventing the spread of the disease through vaccination, through infection control by health care workers, and through common sense measures that include staying at home when sick, frequent hand washing, and good cough hygiene.

Outbreak: South Carolina, April 2009

On April 21, 2009, the Centers for Disease Control and Prevention released a special dispatch article of the Morbidity and Mortality Weekly Report that described two cases of swine-type H1N1 influenza infection in children residing in southern California. On April 24, DHEC sent a Health Alert Network message to physicians, hospitals and other health care providers that provided guidance to clinicians about symptoms to look for and how to report suspect cases to DHEC. On Saturday, April 25, a clinician at Lexington Medical Center Urgent Care in Chapin saw a patient with the symptoms described in the Health Alert, and immediately called DHEC to report the situation. The DHEC Region 3 epidemiology nurse on call received the report and initiated investigation of a cluster of influenza-like-illness among a group of high school students that had recently returned from a spring break trip to Mexico. Sixteen students and three adults returned from a trip to Cancun, Mexico on April 20. Of these individuals, 14 experienced fever and respiratory symptoms. These were the first cases of novel H1N1 (2009) influenza in South Carolina.

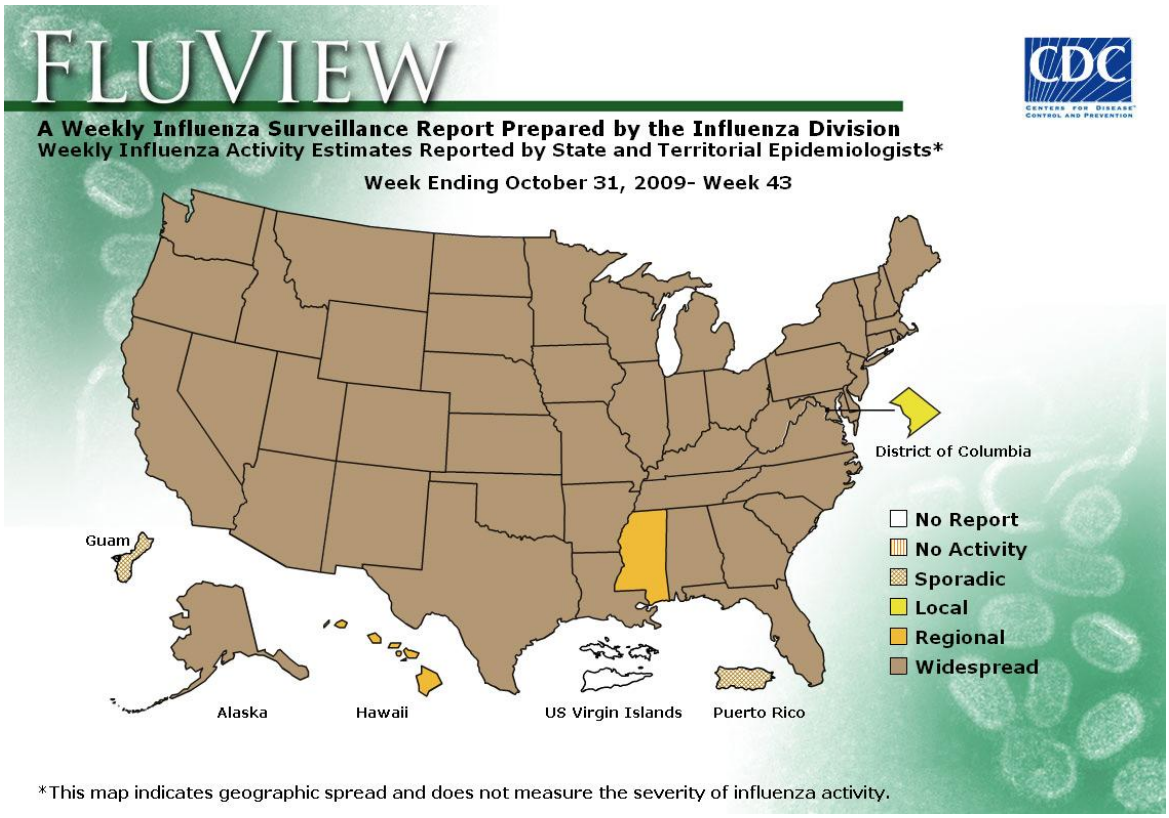
Over the days and weeks that followed, DHEC conducted full-scale disease investigation and control efforts to find cases of the new flu, treat those who were ill, and give preventive antiviral prophylaxis to people who had been exposed. Outbreak response teams were mobilized across the state. Voluntary isolation of cases and voluntary

quarantine of contacts were implemented, as at that time the virulence of the disease was not known. Supplies of antiviral medicine were sent from the state Emergency Pharmaceutical Stockpile to each of the eight public health regions for use in treating the ill and controlling the spread of the disease. A large shipment of antiviral medicines and infection control supplies was received from the Strategic National Stockpile in preparation for emergency use as needed. Frequent media briefings were held to inform the public about H1N1 (2009) influenza and what they could do to protect themselves from the flu. A state-wide call center was activated and DHEC web pages were updated to provide the latest information to the public. Disease surveillance and reporting were stepped up to identify suspect cases early. Extensive laboratory testing was done on many suspected cases. Health Alert messages were sent to doctors, hospitals and health care providers to keep them up-to-date on the latest guidance from CDC and DHEC. Conference calls were held with hospitals, state and county emergency managers and government agency leaders. DHEC worked closely with the Governor's Office, Lieutenant Governor's Office, Department of Education, Department of Corrections, Emergency Management Division, State Law Enforcement Division and city and county authorities to respond to specific situations and address issues such as school closure, visitation at correctional facilities, and quarantine measures. Frequent contact was maintained with CDC and national organizations like the Association of State and Territorial Health Officials to report on the situation in South Carolina and to keep current with guidance and the national situation.

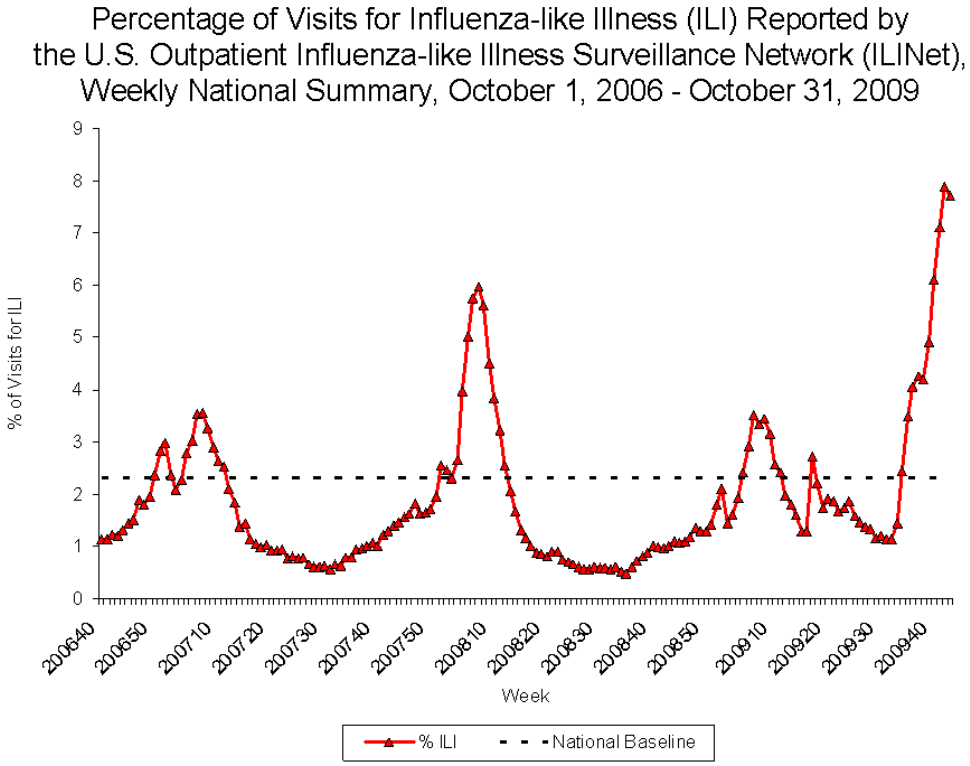
By mid-May the public health response to the initial outbreak shifted away from the disease containment strategy of attempting to stop the spread of H1N1 (2009) by identifying cases and contacts. At this time, CDC stated that the pandemic was out of containment nationwide and spreading widely throughout many communities. Enhanced disease surveillance continued with sentinel health care providers sending information about the numbers of patients they saw with influenza-like-illness. DHEC has continued epidemiological investigation and laboratory testing of clusters of H1N1 (2009) cases, hospitalized cases, and deaths. On June 11, 2009, after the disease had spread to 74 countries with over 30,000 cases reported, the World Health Organization declared a pandemic. Since then, the disease spread widely around the world.

Pandemic: South Carolina, October 2009

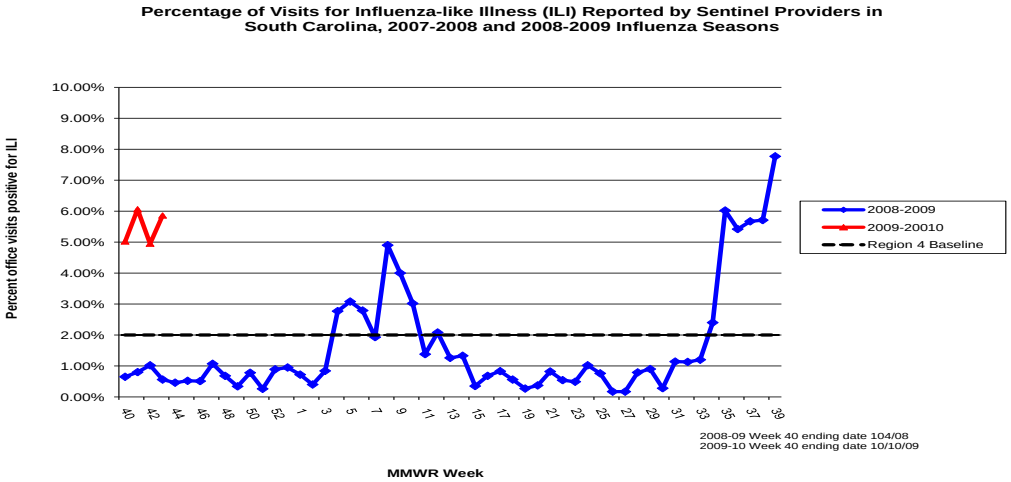
Over the summer months, the novel H1N1 (2009) influenza virus continued to circulate at low levels in South Carolina. From April to mid-August, 560 laboratory confirmed cases were reported but it is likely that there were many more cases, as few individuals were tested for the disease. The current wave of the H1N1 (2009) infection began to spread rapidly as schools and colleges resumed classes in August. Widespread H1N1 (2009) influenza in all parts of the state was reported to the CDC throughout September, followed by a few weeks with regional activity. The disease was widespread again during the last week in October.



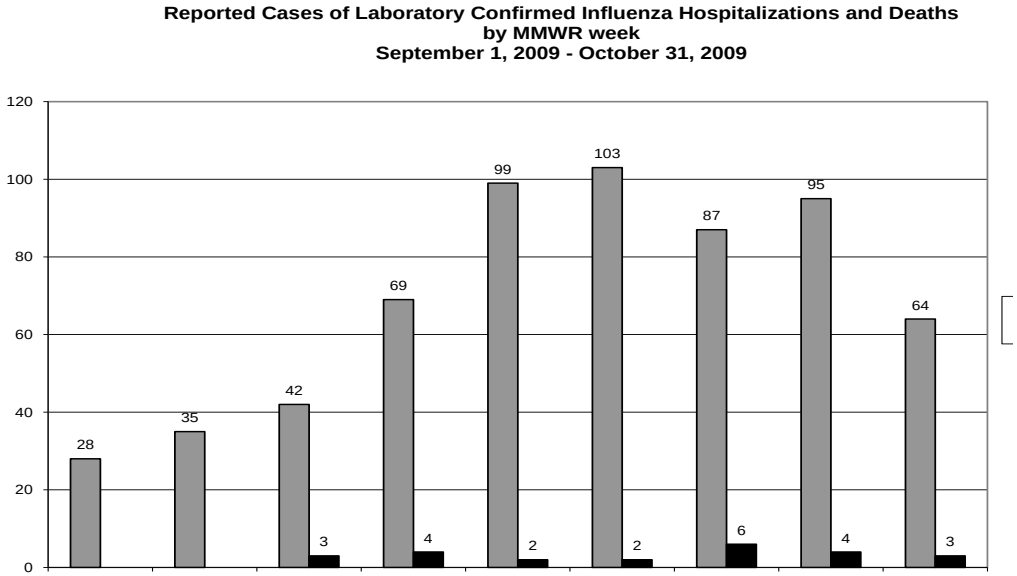
By October 2009 the current wave of the H1N1 (2009) pandemic was reaching levels of illness that are normally seen at the height of flu season, typically in February or March when the disease is widespread across the country. The Centers for Disease Control and Prevention conducted a survey in early October. Findings indicated that approximately 7% of adults and 20% of children reported having an influenza-like-illness during the month preceding the survey. Influenza-like-illness can be caused by a variety of infections, including the common cold, so it is difficult to estimate the number of actual influenza cases. Data from the national sentinel physician surveillance system indicated that 7.7% of patients seen by the physicians had influenza-like-illness during the week ending October 31, 2009.



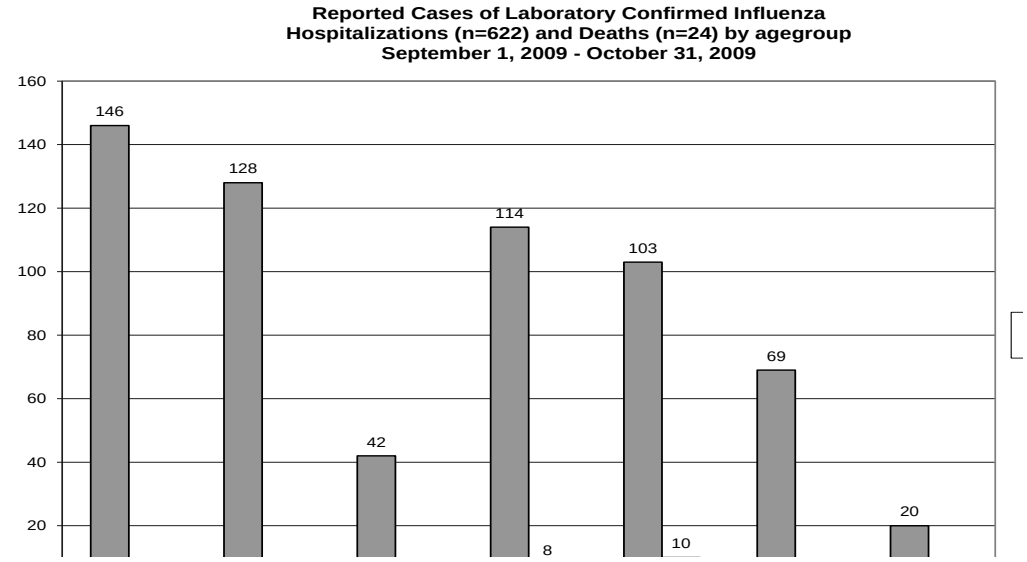
In South Carolina, the sentinel physician surveillance network reported that approximately 5.9% of patients had influenza-like-illness during the week ending October 31, 2009. The red line on the following chart shows the percentage of patients with flu-like illness since September 2009.



From September 1, 2009, through October 31, 2009, there were 24 deaths associated with H1N1 (2009) influenza and 558 hospitalizations in South Carolina. The following chart shows the week-by-week numbers of hospitalizations and deaths with laboratory-confirmed H1N1 (2009) influenza.



As in other states, the highest rates of hospitalization are occurring among children, especially those who are less than 5 years old. Young children are also experiencing higher death rates than older children and adults under age 50 or over 65.

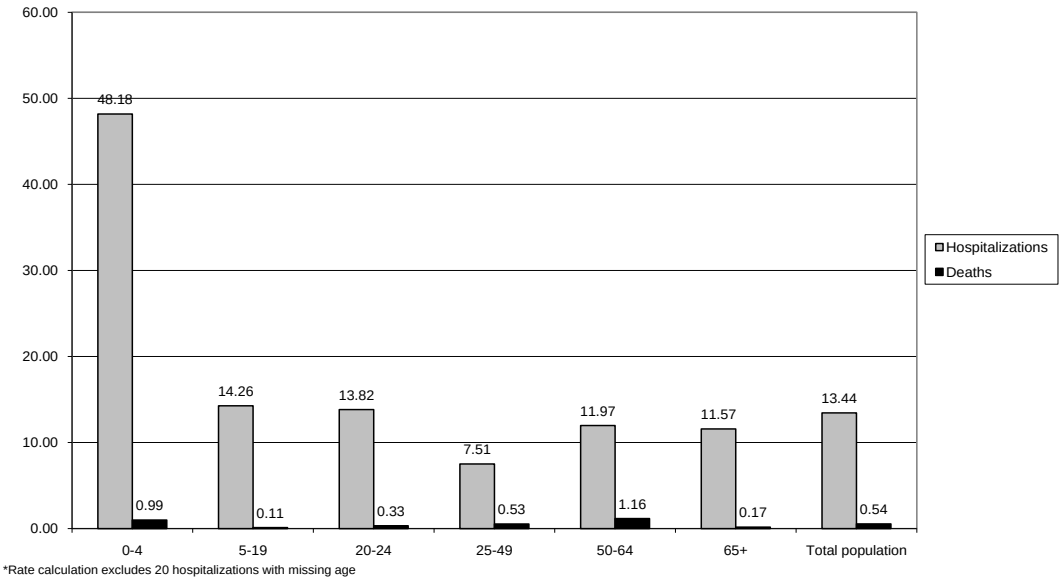


It must be noted that seasonal flu and its complications typically kill from 700 to 900 South Carolinians each year, with deaths mainly among very young children, the elderly and those with underlying chronic illness. There are an estimated 16,000 hospitalizations annually due to influenza and pneumonia (which is frequently associated with influenza). At this time, it is not possible to project whether the H1N1 (2009) influenza will be more or less severe than recent seasonal influenza. It is clear, however, that the new flu presents a significant risk to people with specific characteristics including pregnant women, children and youth ages 0 to 24 (especially those under age 5 or with a chronic illness or disability), and adults ages 25 to 64 who have a chronic

illness. There is some evidence that people over age 65 may have some level of residual immunity due to exposure to a similar strain of influenza that circulated before 1957.

Since September 2009 the estimated number of hospitalizations per 100,000 people in each age group in South Carolina is similar to trends found across the United States. As the following chart shows, the highest hospitalization rate has been for children ages birth to 4 years, at an estimated 48.18 cases per 100,000 persons. The second highest hospitalization rate is among children and youth ages 5 to 24 years, at 14.26 hospitalizations per 100,000 persons. These are very preliminary findings and the rates will change as the pandemic continues, but the rates do provide clear evidence that young children are hardest hit by the pandemic at this time. That is why the focus of initial vaccination efforts is on protecting the young.

Age-specifc Case Rates (per 100,000) for Reported Cases of Laboratory Confirmed Influenza Hospitalizations (n=622) and Deaths (n=24) September 1, 2009 - October 31, 2009



*Rate calculation excludes 20 hospitalizations with missing age

Response in South Carolina

The primary goal of DHEC's H1N1 (2009) pandemic response is to vaccinate all South Carolinians who desire vaccination. The H1N1 (2009) vaccine is safe and effective. It is fully licensed by the Food and Drug Administration. It is tested, manufactured and inspected using the same processes used to make seasonal influenza vaccine and represents only a change in the strain of influenza virus used to make vaccine. Vaccination represents the best approach to protecting individuals from the disease, and preventing its spread.

South Carolina is relying on a joint public-private sector approach to making vaccination available to all. As of the end of October, over 650 private providers have registered with DHEC and agreed to participate in the vaccination program under the Centers for Disease Control and Prevention provider agreement. All supplies of H1N1 (2009) vaccine were purchased by the federal government and are distributed to the states based on population. A central distributor, the McKesson Company, handles shipping of the vaccine to approximately 150,000 ship-to-sites across the nation. Shipments of vaccine are made directly to the participating providers, public and private, with allocation amounts coordinated by the state health departments. South Carolina is ordering its full share of vaccine as the federal government allocates it on a daily basis. By the end of October, 2009 South Carolina had received approximately 186,000 doses of vaccine and was beginning public and private sector vaccination. According to CDC estimates as of October 27, 2009, South Carolina should receive approximately 2,330,075 doses of vaccine by January 8, 2010.

The CDC's Advisory Committee on Immunization Practices reviewed epidemiologic and clinical data to determine which population groups should be targeted initially for vaccination. ACIP also considered the projected vaccine supply likely to be available when vaccine is first available and the expected increase in vaccine availability during the following 6 months. These recommendations were intended to provide vaccination programs and providers with information to assist in planning and to alert providers and the public about target groups comprising an estimated 159 million persons who are recommended to be first to receive the H1N1 (2009) influenza vaccine. The priority target groups included: 1) pregnant women, 2) persons who live with or provide care for infants less than 6 months of age, 3) health-care and emergency medical services personnel, 4) children and young adults aged 6 months to 24 years, and 5) persons aged 25 to 64 years who have medical conditions that put them at higher risk for influenza-related complications.

In South Carolina, the priority target groups make up 68% of the state's population, approximately 3,037,440 persons of the state's population of 4,479,800. The specific estimates for the target groups include:

Pregnant women:	57,282
Parents and caregivers for infants:	43,896
Health care workers:	99,476
Children and young adults:	1,786,848

Persons 25 to 64 with health care conditions:	1,049,938
Total:	3,037,440

Not all persons seek vaccination. In a typical year, approximately 24.8% of the target groups' population seeks seasonal influenza vaccination. Based on CDC assurances that sufficient vaccine will be available, DHEC's planned vaccination campaign will continue from October 2009 through Spring 2010, with the goal of reaching all South Carolinians who want to be vaccinated.

The focus of the initial phase of the vaccination campaign is on reaching the priority target groups through their customary health care providers and on conducting school-based and large-scale community mass vaccination clinics. When sufficient vaccine supplies become available (likely in early December), vaccination efforts will expand to reach all who want to be vaccinated by making vaccine supplies widely available through pharmacies and other large-scale vaccinators.

Other key public health activities in response to the H1N1 (2009) influenza pandemic include:

- **Disease surveillance and outbreak response**: DHEC has conducted year-around influenza surveillance through a network of health care providers who report on cases of influenza –like-illness and findings from rapid flu tests. In addition, a system was implemented to monitor school absenteeism. Several hospitals have been added to the syndromic surveillance network to rapidly identify clusters of patients with flu-like symptoms. Disease investigation and follow-up is being conducted for hospitalized cases and major disease clusters at institutions.

- **Laboratory testing**: Approximately 120 laboratory tests are done each week to confirm H1N1 (2009) virus in disease clusters, hospitalized cases and deaths. Due to the expense of testing, not all cases of influenza are tested to confirm that the virus is H1N1 (2009) influenza.

- **Health Alert Network**: Frequent communications are sent to physicians, hospitals, pharmacies and other health care providers through the Health Alert Network. This is an important method for distributing the latest clinical guidance and epidemiological findings to health care providers. Recent examples include guidance on the use of N-95 respirators to protect health care workers, guidance on the use of antiviral medicines for treatment, and guidance on the treatment of children and youth.

- **Managing public and school-based vaccination clinics**: Hundreds of clinics are planned across the state to assure that the public will have access to H1N1 (2009) vaccination. A tremendous effort has been made by the public health regions in preparing for school-based and community mass vaccination clinics. The public health departments are hiring and training dozens of temporary and hourly nurses and administrative support staff to conduct vaccination clinics. For the first time

in decades, children will receive vaccinations in schools in a voluntary program that requires parental consent. In addition, arrangements are being made to offer mass vaccination clinics for the public at convenient times, including nights and week-ends, so that people can receive their vaccinations through the public health departments. As noted above, private sector providers are working closely with DHEC to see that vaccination is available through many public and private providers. All of these activities require a major investment of time and energy from regional and county health departments, at a time when many departments are suffering from the effects of state budget reductions.

- **Public information**: Information and interviews are provided daily to media in order to keep the public well informed of influenza issues. A series of public service announcements is being run to promote vaccination and preventing the spread of influenza. The "Wash Hands" video has been widely distributed through schools and community organizations to promote hand washing among children. (http://www.scetv.org/education/etvkids/grownups/index.html) Additional public service announcements are currently in production to promote H1N1 (2009) vaccination and effective use of medical services. Thousands of posters and brochures on influenza prevention and care for the sick have been distributed.

- **Antiviral medicines and infection control supplies**: South Carolina has received multiple shipments of antiviral medicine and personal protective equipment from the Strategic National Stockpile. Significant quantities of medicines have been distributed to physicians and pharmacies through the public health regions. As of October 26, 2009, approximately 28,650 treatment courses had been distributed to physicians and pharmacies. The state pharmaceutical stockpile and regional pharmacies have over 607,000 treatment courses on hand, available for shipment as needed. The state stockpile of personal protective equipment is also available to support health care providers as shortages of N-95 respirators, surgical masks, gowns, and other infection control supplies occur in the commercial supply chain.

- **Vaccines and ancillary vaccination supplies:** DHEC manages the registration of vaccination providers and the ordering system for distributing the vaccine supplies allocated to the state by the federal government. Separate shipments of vaccine and ancillary supplies (syringes, needles, wipes, sharps containers) are sent directly from the federal distributor to the vaccination providers. The DHEC Immunization Program monitors the allocation of the various types of vaccines available for ordering and coordinates the ordering process so that each provider receives a share of the limited supplies available to the state.

- **Supporting South Carolina hospitals in their response**: On August 25, 2009, a Hospital Preparedness Summit was held to provide 205 hospital leaders with an overview of pandemic response activities and to coordinate plans for the ASPR hospital preparedness program. The South Carolina Hospital Association has conducted training opportunities and hosts weekly conference calls to keep hospital executives up-to-date on developments in the pandemic. Emphasis has

been placed on vaccination of health care workers, infection control measures, and appropriate use of personal protective equipment in accordance with CDC and Occupational Safety and Health Administration guidance. The SC Hospital Association is offering training opportunities and consulting services to hospitals on medical surge and patient care issues. In addition, DHEC is working through the public health regions to assist with offering stockpile medicines and protective equipment supplies to hospitals. Hospitals are actively reporting their bed availability status and other key emergency response information through the internet-based South Carolina State Medical Asset Resource Tracking Tool (SMARTT) information system. In view of the declaration of a national emergency, hospitals and regulators are working together to meet issues that may arise from a surge in the number of patients. Fortunately, as of this writing, the level of hospitalizations in South Carolina is not taxing hospital capacity.

- **Coordinating plans and response activities with public and private sector partners**: On October 20, 2009, DHEC hosted a state H1N1 (2009) Vaccination Summit for leaders in business, community and faith-based organizations, and government agencies. There were 245 participants representing a wide variety of organizations from across the state. The program reviewed the current situation and described the public health measures and plans for the vaccination campaign. Another summit was held on October 21, 2009, for nursing home officials to present an overview of H1N1 (2009) response issues and vaccination plans, and to address specific issues that nursing homes face in responding to the pandemic. A summit for assisted living facility officials is planned for December 3, 2009. Other workshops have been conducted, including one for the hospitals and one for the SC Medical Association. In addition, weekly conference calls are held with emergency management officials and state agency leaders to present situation updates and share information about the response activities.

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 have been 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. Some of the key preparations 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, at a total cost of $8.9 million (of which $6.7 million were non-recurring state funds for match.) In addition to the state stockpile, the federal Strategic National Stockpile has allocated 618,000 treatment courses for South Carolina. In April 2009 a shipment of antiviral medicines was received from the Strategic National Stockpile, amounting to roughly 154,000 courses. Medicines have been sent to the public health regions and many physicians and pharmacies for treatment of H1N1 (2009) patients.
- A State Pandemic Influenza Ethics Task Force was convened in November 2008 to prepare guidance on public health and medical care ethical issues. Their recommendations are included as an attachment to this report.
- 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.

Non-recurring federal funding has been used to support state preparedness efforts. Federal funding for pandemic preparedness was provided from 2006 through 2008. Over this period, South Carolina received approximately $7.5 million for public health preparations. The federal funding supported surveillance, stockpiling, planning, exercising and education efforts. An additional one-time grant of $1,098,346 supported hospital stockpiles of ventilators, medical supplies and medical surge exercises.

The current pandemic response efforts are entirely supported by federal funds. The CDC Public Health Emergency Response program has provided nearly $20 million in one-time funding to support all aspects of the public health response. Most of this funding is dedicated to local public health departments for the vaccination campaign. An additional $1.2 million in one-time funding was provided for hospital response through the ASPR Hospital Preparedness Program Pandemic Influenza Healthcare Preparedness Improvement for States cooperative agreement.

Pandemic Influenza Ethics Task Force

In October 2008, well before the current pandemic began, DHEC staff, hospital and university representatives and other ethics experts met and formed the South Carolina Pandemic Influenza Ethics Task Force. This Task Force identified and addressed many of the difficult decision-making issues that may arise in a severe pandemic. The Task Force was a subcommittee of the State Pandemic Influenza Coordinating Council and was an advisory body to DHEC. It was charged with the development of recommendations and the presentation and explanation of the ethical issues to the citizens of South Carolina. The Task Force solicited public opinion and input for further development of decision-making policies related to the shortage of resources and personnel that may arise in a pandemic.

The Task Force Report may be found on the DHEC website at http://www.scdhec.gov/administration/ophp/pandemic-ethics.htm . The report addresses the following issues:

- What is the current situation regarding pandemic influenza preparedness and what are the present plans and future directions?
- What will the health care system look like during a severe pandemic, based on planning assumptions and models?
- What will be the health care system response, including home care recommendations, public information on when to seek physician's care, antiviral medicines, and hospital care?
- What are the decision points for deciding who needs and who receives specific treatments? Questions posed in the discussion include:
    - Who decides? How do they decide?
    - Who gets home care? Physician care? Hospital care?
    - Will the health care system look radically different?

The intent of the Task Force was to ensure that the South Carolina public had an opportunity to hear and understand the difficult decisions that may need to be made by both public health practitioners and health care providers in the private sector. The Task Force sought to provide this information and solicit comments and recommendations from the general public in a series of public hearings held throughout the state. There was a very high interest in these public hearings due to the H1N1 (2009) outbreak during the Spring. The Task Force compiled the comments received from the public and addressed these comments in a revised version of the paper to effect recommended changes in state and local pandemic influenza plans. Final public comments based on the first draft of the paper were sought and included at the State Summit at which the first draft of the paper was presented on July 15, 2009. The final report was completed in October 2009.

What More Should Be Done?

As noted above, pandemic response efforts are entirely supported by approximately $20 million in non-recurring federal funds. The federal funding for the pandemic influenza preparedness program ended in 2008 and no state funds have been appropriated to continue public health preparedness efforts for pandemic influenza. This means that any future pandemic preparedness or response activities must be funded by the state or by redirecting federal funds for public health preparedness.

Federal programs for public health preparedness and hospital preparedness have requirements for state matching funds. Federal authorizing legislation requires a 10% state match in 2010. The state will be required to provide $1 in match to receive $10 in federal funds. The imposition of match requirements mean that state funding for public health preparedness is essential. Federal match requirements begin in FY 2009-10, and are projected to be approximately $1,000,000 (10% of federal funds) for FY 2010-11. In addition, 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 $9,233,414 in FY 2009-10, a reduction of $5,263,908 or 36% in the base annual funding over the seven years of the program. This reduction in funding has caused cut-backs in program personnel and jeopardized preparedness efforts.

- **The state must be prepared to support influenza vaccination in 2010 and 2011 in order to protect our citizens against the novel H1N1 (2009) influenza virus.** Federal funding under the Public Health Emergency Response Program was one-time funding intended to address the emergency situation of vaccination against the new H1N1 (2009) influenza during the pandemic. At this time, there is no assurance that federal funding for influenza vaccination will continue for next year or subsequent years. It is likely that H1N1 (2009) influenza will become the new seasonal flu and return each year until another pandemic occurs. The public health seasonal influenza program has no state funding or federal funding: the very limited public purchase and administration of the vaccine is done entirely through earnings. As a consequence, DHEC provides only a small percentage of seasonal flu vaccinations and many low-income citizens do not get vaccinated.

Most seasonal flu vaccinations are accomplished through the private sector with funding from Medicaid, Medicare, private insurance or out-of-pocket payments by consumers. Typically, fewer than 36% of South Carolinians receive a seasonal flu vaccination. It is important that a stable publicly-funded influenza vaccination program be established to promote vaccination and see that vaccinations are made available at low cost or no charge to people who cannot otherwise afford vaccination.

- **State funding is needed to replenish, expand and support the Public Health Emergency Pharmaceutical Stockpile.** Secure receipt, storage and shipping facilities must be built, 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 is 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 at State Park with limited security. In the event of a major disaster, the building will serve as the Receipt, Storage and Staging (RSS) Site and distribution center for supplies and equipment sent by the Strategic National Stockpile. The entire building must meet federal specifications in order to qualify as a Strategic National Stockpile Receipt, Storage and Staging Site. During emergency operations, this site will be a distribution center for large quantities of emergency medical supplies and medicines and will function as an extension of the Public Health Emergency Pharmacy. 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.

- **Beginning in FY 2009-10 federal funding for public health preparedness will be sustained only with additional matching state funds and maintenance of state effort.** DHEC is designated as the primary agency for Emergency Support Functions (ESF) 8 - Health and Medical Services and 10 - Hazardous Materials in the state Emergency Operations Plan. The agency is responsible for planning and response to all state emergencies. This includes providing response in the state emergency operations center, coordinating the provision of medical care, public health and sanitation, behavioral health, deceased identification and mortuary services in its role as lead agency for ESF-8. Additionally, DHEC is the lead agency in the ESF-10 response to the release of hazardous materials into the environment, including response to disasters involving nuclear facilities, laboratories, hazardous waste sites, and spills in railway, air or roadway mishaps. State funding to provide the staff to plan and coordinate DHEC's response is currently limited to one employee and half-time funding for another. Federal

funding has supported additional personnel at both the state and regional level to coordinate emergency response and planning functions for health and environmental protection of South Carolinians. In FY 2010-11, federal programs will require a 10% state match each year.

Online Resources

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: 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/

Chronology of Key Events in the H1N1 (2009) Influenza Pandemic Outbreak in South Carolina	
April 17, 2009	CDC confirms two cases of infection due to a swine-type H1N1 influenza virus in southern California.
April 20, 2009	16 high school students and 3 adults return to South Carolina from a spring break trip to Cancun, Mexico. 14 experience fever and respiratory symptoms after their return. First cases of H1N1 (2009) come to South Carolina.
April 21, 2009	CDC publishes a report on the two cases in a special edition of Morbidity and Mortality Weekly.
April 24, 2009	DHEC distributes a Health Alert message to healthcare providers that gives guidance on what to look for and how to report suspect cases.
April 25, 2009	First cases of H1N1 (2009) in South Carolina are reported to DHEC by an alert clinician. Disease outbreak investigation initiated immediately. Laboratory testing initiated for suspect cases. Voluntary isolation of cases and quarantine of contacts initiated to control spread.
April 26, 2009	US Department of Health and Human Services declares a national public health emergency. DHEC emergency operations initiated. School closure at the affected private school announced.
April 27, 2009	Supplies of antiviral medicines and personal protective equipment distributed to all public health regions for outbreak response.
April 30, 2009	South Carolina begins receiving shipments of antiviral medicines and personal protective equipment supplies from the Strategic National Stockpile.
May 1 through 11, 2009	Full disease outbreak control measures undertaken to limit the spread of H1N1 (2009) statewide. Measures include case investigation, voluntary isolation and quarantine, school closure at superintendent's discretion, laboratory testing of suspected cases, extensive public information and daily media briefings, conference calls with hospitals and emergency management officials.
May 12, 2009	End of the initial emergency phase of operations. DHEC ends use of voluntary isolation and quarantine measures. DHEC Emergency Operations Center closed. Individual case containment efforts wind down and return to normal disease surveillance and outbreak investigations. Emphasis shifts from testing individual suspected cases to laboratory testing of clusters and hospitalized patients.
June 11, 2009	World Health Organization announces that H1N1 (2009) influenza has become a pandemic
May – July 2009	H1N1 (2009) influenza cases continue at a local or regional level in South Carolina.
July 24, 2009	South Carolina submits application for Phase 1 Public Health Emergency Response program funds totaling $3,696,593 for planning and implementing an H1N1 (2009) vaccination campaign, distributing antivirals, providing public information, and conducting disease surveillance and laboratory testing.

August – September 2009	Number of H1N1 (2009) cases in South Carolina increases as children and youth return to school and college. H1N1 (2009) becomes widespread in the month of September.
August 3, 2009	Phase 1 Public Health Emergency Response funds are approved for use.
August 13, 2009	South Carolina submits application for Phase 2 Public Health Emergency Response program funds totaling $3,831,697 for implementing the H1N1 (2009) vaccination campaign.
August 24, 2009	Hospital Preparedness Summit held with a focus on the H1N1 (2009) pandemic and response activities.
September 15, 2009	South Carolina submits application for Phase 3 Public Health Emergency Response program funds totaling $12,471,312 for implementing the H1N1 (2009) vaccination campaign.
September 22, 2009	Phase 2 Public Health Emergency Response funds are approved for use.
September 28, 2009	Phase 3 Public Health Emergency Response funds are approved for use.
October 5, 2009	First shipments of vaccine arrive in South Carolina. Initial shipments were primarily the Live Attenuated Influenza Virus, suitable for healthy individuals ages 2 to 49. For the month of October 2009 a total of 186,000 doses of all types of vaccine were received by public and private sector providers.
November 2009	School-based, public health and private sector mass vaccination clinics begin.