

South Carolina Responds to a Train Collision and Toxic Spill

All-hazard approach in planning improves preparedness for emergencies.



In January 2005, an industrial freight train collision resulted in a release of 63 tons of liquid chlorine near residential, commercial and industrial districts in the small town of Graniteville, South Carolina. Nearly 5,500 residents were forced to evacuate. More than 500 people needed medical attention for possible chlorine exposure, which can result in corrosive damage to the eyes, skin, and lungs and lead to eventual respiratory failure and even death.

Diverse response teams were critical to address the wide range of needs for a successful response. Responders conducted environmental testing in homes, schools and factories and decontaminated the area for safe return. Public health workers coordinated emergency medical services, monitored hospital care, assessed the number of casualties, and supported disaster mortuary services. Epidemiologists and environmental health scientists monitored the chemical exposures and their long-term effects on the residents.

Funding from the cooperative agreement had helped to develop South Carolina's preparedness plans. Local

emergency management and public health departments already had an all-hazard response plan in place because of the nuclear facilities, industrial facilities, and numerous rail lines in the area. Coordination among agencies was also a priority in planning. These established emergency response plans and partnerships helped South Carolina respond quickly and effectively to this incident.

According to the South Carolina Department of Health and Environmental Control, the cooperative agreement is valuable because with this funding, the department has been able to begin an ambitious program to strengthen the public health infrastructure. South Carolina has been able to make tremendous progress in improving public health and community preparedness for responding to bioterrorism, weapons of mass destruction, disease outbreaks, natural and technological hazards, and other threats to the public's health.

Snapshot of Public Health Preparedness

Below are activities conducted by South Carolina in the area of public health preparedness. They support CDC preparedness goals in the areas of detection and reporting, control, and improvement; crosscutting activities help prepare for all stages of an event. These data are not comprehensive and do not cover all preparedness activities.

Disease Detection and Investigation

The sooner public health professionals can detect diseases or other health threats and investigate their causes and effects in the community, the more quickly they can minimize population exposure.

Detect & Report	Could receive and investigate urgent disease reports 24/7/365 ¹	Yes
	- Primary method for receiving urgent disease reports* ²	Fax
	Linked state and local health personnel to share information about disease outbreaks across state lines (through the CDC <i>Epi-X</i> system) ³	Yes
	Conducted year-round surveillance for seasonal influenza ⁴	Yes

*Telephone, fax, and electronic reporting are all viable options for urgent disease reporting, as long as the public health department has someone assigned to receive the reports 24/7/365.

¹ CDC, DSLR; 2005; ² CDC, DSLR; 2006; ³ CDC, *Epi-X*; 2007; ⁴ HHS, OIG; 2007



South Carolina



Public Health Laboratories

Public health laboratories test and confirm agents that can threaten health. For example, advanced DNA “fingerprinting” techniques and subsequent reporting to the CDC database (PulseNet) are critical to recognize nationwide outbreaks from bacteria that can cause severe illness, such as *E. coli* O157:H7 and *Listeria monocytogenes*.

Detect & Report	Number of South Carolina laboratories in the Laboratory Response Network ¹	1
	Rapidly identified <i>E. coli</i> O157:H7 using advanced DNA “fingerprinting” techniques (PFGE): ²	
	- Number of samples received (partial year, 9/06 – 2/07)	5
	- Percentage of test results submitted to CDC database (PulseNet) within 4 days	80%
	Rapidly identified <i>Listeria monocytogenes</i> using advanced DNA “fingerprinting” techniques (PFGE): ²	
	- Number of samples received (partial year, 9/06 – 2/07)	4
	- Percentage of test results submitted to CDC database (PulseNet) within 4 days	0%
	Had a laboratory information management system that could create, send, and receive messages ³ (8/05 – 8/06)	Yes
	- System complied with CDC information technology standards (PHIN) ³ (8/05 – 8/06)	No
Crosscutting	Had a rapid method to send urgent messages to frontline laboratories that perform initial screening of clinical specimens ³ (8/05 – 8/06)	Yes
	Conducted bioterrorism exercise that met CDC criteria ⁴ (8/05 – 8/06)	No
	Conducted exercise to test chemical readiness that met CDC criteria ⁴ (8/05 – 8/06)	Yes

¹ CDC, DBPR; 2007; ² CDC, DSLR; 2007; ³ APHL, Public Health Laboratory Issues in Brief: Bioterrorism Capacity; May 2007; ⁴ CDC, DSLR; 2006

Response

Planning provides a framework for how a public health department will respond during an emergency. The plans can be tested through external reviews, exercises, and real events. After-action reports assess what worked well during an exercise or real event and how the department can improve.

Control	Developed a public health response plan, including pandemic influenza response, crisis and emergency risk communication, and Strategic National Stockpile (SNS) ^{1,2}	Yes
	South Carolina SNS plan reviewed by CDC ²	Yes
	- Score on CDC technical assistance review (1-100)	58
	Number of South Carolina cities in the Cities Readiness Initiative ³	1
Crosscutting	Developed roles and responsibilities for a multi-jurisdictional response (ICS) with: ¹ (8/05 – 8/06)	
	- Hospitals	Yes
	- Local/regional emergency management agencies	Yes
	- Federal emergency management agencies	Yes
	Public health department staff participated in training to support cooperative agreement activities ⁴	Yes
	Public health laboratories conducted training for first responders ⁵ (8/05 – 8/06)	No
	Activated public health emergency operations center as part of a drill, exercise, or real event* ⁶ (partial year, 9/06 – 2/07)	No
Improve	Conducted a drill or exercise for key response partners to test communications when power and land lines were unavailable ⁶ (partial year, 9/06 – 2/07)	Yes
	Finalized at least one after-action report with an improvement plan following an exercise or real event ⁶ (partial year, 9/06 – 2/07)	Yes

* Activation means rapidly staffing all eight core ICS functional roles in the public health emergency operations center with one person per position. This capability is critical to maintain in case of large-scale or complex incidents, even though not every incident requires full staffing of the ICS.

† States were expected to perform these activities from 9/1/2006 to 8/30/2007. These data represent results from the first half of this period only.

¹ CDC, DSLR; 2006; ² CDC, DSNS; 2007; ³ CDC, DSNS CRI; 2007; ⁴ CDC, DSLR; 1999-2005; ⁵ APHL, Chemical Terrorism Preparedness; May 2007; ⁶ CDC, DSLR; 2007