Iowa Responds to the Largest Mumps Outbreak in 20 Years

Epidemiologists can investigate outbreaks and target interventions to protect the population.

In 2006, Iowa was the center of a national mumps epidemic, accounting for nearly 2,000 of the 2,600 cases nationwide. Iowa typically experiences only five cases of mumps per year. Based on an outbreak investigation by epidemiologists from the Iowa Department of Public Health (IDPH), Iowa quickly determined that 18 to 25 year olds were most at risk. IDPH launched a vaccination program targeting this population. Local public health departments set up vaccination clinics based on CDC Strategic National Stockpile exercises to administer the vaccines. Within a month of beginning the vaccination campaign, the number of reported mumps cases decreased by 65%. Within 2 months, the mumps epidemic was stopped.

Prior to the recent investment in public health preparedness and infrastructure, the department lacked trained epidemiologists and other staff necessary for an effective response. In addition, this response allowed IDPH to utilize plans and procedures that were in place and allowed them to improve response for future public health emergencies.

According to the Iowa Department of Public Health, the cooperative agreement is valuable because prior to the cooperative agreement, public health had a limited role in responding to emergencies at the state or local level. Without this funding, Iowa would have been unable to address or complete the tasks to develop a public health preparedness system and continue to support future system enhancements.

Snapshot of Public Health Preparedness

Below are activities conducted by Iowa 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]	Telephone
	Linked state and local health personnel to share information about disease outbreaks across state lines (through the CDC *Epi-X* 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

Iowa

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 Iowa laboratories in the Laboratory Response Network[1]	3
	Rapidly identified *E. coli* O157:H7 using advanced DNA "fingerprinting" techniques (PFGE):[2]	
	- Number of samples received (partial year, 9/06 – 2/07)	39
	- Percentage of test results submitted to CDC database (PulseNet) within 4 days	77%
	Rapidly identified *Listeria monocytogenes* using advanced DNA "fingerprinting" techniques (PFGE):[2]	
	- Number of samples received (partial year, 9/06 – 2/07)	6
	- Percentage of test results submitted to CDC database (PulseNet) within 4 days	33%
	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)	Yes
	Had a rapid method to send urgent messages to frontline laboratories that perform initial screening of clinical specimens[3] (8/05 – 8/06)	Yes
Crosscutting	Conducted bioterrorism exercise that met CDC criteria[4] (8/05 – 8/06)	Yes
	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
	Iowa SNS plan reviewed by CDC[2]	Yes
	- Score on CDC technical assistance review (1-100)	88
	Number of Iowa 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	No
	- Federal emergency management agencies	No
	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)	Yes
	Activated public health emergency operations center as part of a drill, exercise, or real event*†[6] (partial year, 9/06 – 2/07)	No
	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)	No
Improve	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