NACCHO
National Association of County & City Health Officials
The National Connection for Local Public Health

LOCAL DECISIONS, LOCAL ACTION:

LOCAL HEALTH DEPARTMENTS' H1N1 ACTIVITIES, AS REPORTED BY NEWS MEDIA, APRIL–AUGUST 2009

A Report Prepared for the
National Association of County and City Health Officials

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CONTENTS

	Page
SUMMARY	**2**
Activities	2
Variation	3
Issues and Emerging Challenges	4
The News Review Methodology	5
INTRODUCTION	**6**
METHODOLOGY	**8**
ACTIVITIES	**9**
School Closures and Coordination with School Authorities	9
Communications	11
Disease Surveillance	16
Disease Control	18
Emergency Preparedness	21
Budget and Infrastructure Development	24
Laboratories	27
Other Activities	28
VARIATION IN REPORTED ACTIVITIES	**30**
Variation by Community Type	30
Temporal Variation	31
REVIEW OF ISSUES AND EMERGING CHALLENGES	**33**
Public Reaction	33
Media Relations	33
Local Health Capacity	34
Added Dimensions of Communications	34
Initial Performance	35
CONCLUSION	**36**
Responding to Crisis	36
The Methodology of a News Review	37

SUMMARY

This report to the National Association of County and City Health Officials (NACCHO) summarizes 278 articles and other media accounts that appeared during the four-month period between April 27 and August 25, 2009. The report presents a panorama depicting how local health departments (LHDs)—along with their emergency preparedness partners—were responding to the emerging pandemic.

These accounts reveal snapshots of a wide array of LHD activities: school closures and coordination with school authorities (14% of news accounts); communications (30%); disease surveillance (11%); disease control (13%); emergency preparedness (21%); budget and infrastructure development (8%); laboratories (1%); and other (3%). The accounts also present issues that sparked local concern as communities began to assess the implications of the pandemic. The report cites examples, drawn from the media accounts, to illustrate LHD actions within each activity.

Activities

Local public health officials quickly recognized the need to work with schools in controlling H1N1. School closure decisions were difficult. By August, the presumptive policy was to avoid closures. Throughout the four-month period, LHDs and school authorities cooperated extensively.

Communication vehicles of all kinds came into play as LHDs sought to convey public health messages about H1N1 to diverse audiences. Messages encompassed avoiding panic, dispelling rumors, and instructing about proper hygiene. LHD officials also provided information about the current severity of the epidemic, how influenza is transmitted, and offered guidance on vaccine priorities and plans.

LHDs monitored suspected cases involving students and workers and the condition of contacts. They instructed physicians to obtain cultures and monitored childcare centers and summer camps. Technology played a growing role in surveillance. As fall approached, LHDs expanded school surveillance and instructed schools to monitor attendance closely.

Local public health officials drew on partners to assist with disease control efforts, assuring an adequate initial supply of antiviral medication. LHDs were planning vaccination clinics and extramural vaccination programs and acting to develop a flexible, adaptable system.

Special emergency preparedness meetings were called early on to deal with the rapidly developing potential threat. Operational plans were swiftly reviewed and activated in conjunction with state plans. Incident command structures, emergency operations centers and disaster response teams were mobilized. Later on, plans were evaluated and updated in light of developments during the spring. Planning challenges included an anticipated

enormous increase in the number of people receiving flu immunizations and the need to prepare for mass fatalities, to reprioritize, and to develop continuity-of-operations plans.

By July, because H1N1 mortality rates were not as high as had been originally feared, LHDs were shifting their focus away from planning mobilization of emergency anti-viral clinics to planning mass vaccinations. Uncertainty complicated vaccination planning, and plans had to anticipate different scenarios for vaccine availability. Also complicating vaccination planning was the difference between H1N1 risk groups and the usual risk groups for seasonal influenza, who also would need immunization—a potentially confusing public health message.

Many LHDs shouldered the costs of the response after being weakened by cutbacks—cuts that compounded structural shortfalls in funding. California reporters Rita Beamish and Frank Bass admonished:

> The swine flu outbreak fell short of a full-blown international crisis, but revealed the precarious state of local U.S. health departments, the community bulwarks against disease and health emergencies in the United States. A sustained, widespread pandemic would overwhelm many departments that are struggling with cutbacks as well as increased demand from people who have lost jobs and medical insurance.
>
> (Associated Press, May 26, 2009)

Budgetary uncertainty made matters worse. However, federal and state aid alleviated some of the burden for LHDs.

Other problems included the lack of a clearly visible LHD in some U.S. communities and the increasing workforce shortage in public health in general and specifically in school nursing. Medical Reserve Corps volunteers were seen as one strategy for filling workforce gaps during a public health emergency.

Public health laboratories continued their essential and largely hidden contribution during the four-month period of initial H1N1 activity. New York City's lab, in particular, experienced an impressive surge of activity.

Variation

The media accounts were analyzed for variation by type of community (urban, suburban, small city, and rural) and month of publication. Urban areas generated most of the accounts involving budget and infrastructure. Fluctuation from month to month suggests that editors were especially interested in going to print on H1N1 when it was an entirely new phenomenon. By activity, LHDs' *heavy* involvement, as reflected in media accounts, ran as follows:

- communications in April and May, at the beginning of the epidemic
- surveillance in April
- school closures and coordination in May and August
- disease control in April, and again in July and August, and
- budget and infrastructure in May.

Issues and Emerging Challenges

The media accounts strongly suggest that the local health system functioned well during the four-month period. Overall success is probably due largely to the extensive emergency preparedness planning undertaken since 9/11.

Local responses to H1N1 were dictated in part by what writer Marc Fisher called "the germ of fear" (Washington *Post*, May 3, 2009). A fearful public crammed hospital emergency departments and overloaded LHD phone lines. Behavioral scientific researchers attributed part of a general overreaction to the advent of social media, especially Twitter, which quickly magnify rumors. Public concerns complicated decisions about school closures and other control measures. Public reactions included some resistance to vaccination, especially among pregnant women.

Indeed, the greatest challenge revealed by the media accounts involves public overreaction to events, unrealistic public expectations for testing and treatment, and spotty public adherence to public health recommendations. Clearly, LHDs must develop and implement effective communications strategies to meet H1N1 exigencies.

News media play a key role. Public health officials and professionals rely on the media to distribute, explain, and support public health messages. To journalists, a defining test of a policymaker's credibility is his or her openness, just as a test of the wisdom of a policy is its transparency. Consequently, LHDs should recognize the consequences of systematically refusing to disclose information about the gender, age range, occupational category, or risk factors of confirmed cases and fatalities. In at least one case, such a refusal was implicated in a loss of credibility for an LHD.

As the time for mass vaccination approaches, LHDs appear dramatically under-resourced for the task. Based on media accounts, more personnel are needed for LHDs to accomplish their mission, especially laboratory technologists and technicians, nurses, and communications professionals.

The capacity issue is intertwined with the intractable issue of health disparities. H1N1 appears to have hit African-Americans and Latinos disproportionately hard. Native Americans also appear to be at elevated risk. Many members of these minority groups live in communities with LHDs that are highly stressed or skeletal. Who will protect them remains to be seen.

The News Review Methodology

On the upside, the methodology of a news review uses the lens of journalists, who are trained and experienced in identifying and accurately reporting events of interest to an alert public. On the downside, the methodology reflects a tilt toward communications activities—which are of greatest interest to reporters—and away from more scientific or technically intensive aspects of LHD work. On balance, the methodology appears to offer one reasonable way to review perceptions of the local health system's performance, especially with an eye toward midcourse corrections.

INTRODUCTION

In mid-April, 2009, U.S. Centers for Disease Control and Prevention (CDC) laboratories confirmed the first domestic cases, in California, of the novel influenza A (H1N1) virus.[1]

Local daily newspapers and other news media quickly began reporting developments. The media were alert both to the possibility of a pandemic flu—for which a national preparedness and response plan had been announced with some fanfare three and one-half years earlier, by President George W. Bush[2]—and to the outbreak of H1N1, then popularly termed "swine flu," in Mexico in March.[3]

To the media, one local "angle" of interest consisted of suspected cases of H1N1. Another angle consisted of preparations for the virus's unwelcome arrival in the region, county, or community served by the news outlet.

By assigning reporters to cover local developments, editors in effect started drawing a panorama depicting how local health departments (LHDs)—along with their emergency preparedness partners—were responding to the possibility of an emerging pandemic. This panorama describes not only *where* responses were occurring, but also *what activities* LHDs were undertaking.

The elements, or dots, displayed in the panorama form a type of database that can be used to identify many significant—that is, newsworthy—LHD activities related to H1N1. That database forms the foundation of this report.[4]

Prepared for the National Association of County and City Health Officials (NACCHO), the report summarizes 278 articles and other media accounts that appeared during the roughly four-month period between April 27 and August 25, 2009. These accounts reveal a wide array of LHD activities. *(Table 1.)* They also present issues that sparked local concern as communities began to assess the implications of the nascent pandemic.

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[1] One authoritative report dates the first case confirmation to April 15, while another dates the first two confirmations to April 17. *Cf.* Centers for Disease Control and Prevention, "Novel H1N1 Flu: Background on the Situation," www.cdc.gov/**H1N1**flu/qa.htm, "Background on Swine Flu," Accessed August 30, 2009, *and* M. Ginsberg *et al.,* "Swine Influenza A (H1N1) Infection in Two Children—Southern California, March-April 2009," *MMWR Weekly Report* 58 (15): 400-402 (April 24, 2009), http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5815a5.htm, Accessed August 30, 2009.

[2] George W. Bush White House, "Pandemic Flu: Preparing and Protecting Against Avian Influenza," **http://georgewbush-whitehouse.archives.gov/infocus/pandemicflu/** (November 1, 2005), Accessed August 30, 2009.

[3] MMWR Dispatch, "Outbreak of Swine-origin Influenza A (H1N1) Virus Infection—Mexico, March-April 2009, *MMWR* 58 (Dispatch): 1-3 (April 30, 2009), www.cdc.gov/mmwr/preview/mmwrhtml/mm5821a2.htm, Accessed August 30, 2009. Early media reports include Eduardo Soto and Tracy Wilkinson, "Mexican Boy's Case May Provide Answers in Swine Flu Outbreak," Los Angeles *Times* (April 29, 2009), http://articles.latimes.com/2009/apr/29/world/fg-mexico-fluvictim29, Accessed August 30, 2009.

[4] This investigative approach was conceived by Donna Brown, NACCHO Government Affairs Counsel and Senior Advisor for Public Affairs.

Table 1. TOTAL LHD ACTIVITIES.

Activity	Number of Accounts	*Percent*
School closures and coordination	41	*14%*
Communications	89	*30%*
Surveillance	32	*11%*
Disease Control	38	*13%*
Emergency Preparedness	62	*21%*
Budget and infrastructure	24	*8%*
Laboratory	4	*1%*
Other	8	*3%*
TOTAL	**298***	***101%***

* *Note: Several of the 278 news articles report multiple activities.*

The report cites examples, drawn from the media accounts, to illustrate LHD approaches within each type of activity. To facilitate ease of reading, sources of quotes and references to specific news accounts are displayed in the margin rather than cluttering the text.

In assessing the data to determine whether patterns appear in LHD activities, the report uses two variables:

- type of community (urban, suburban, small city, and rural), and
- temporal interval (the months of April, May, June, July, and August).

The report seeks to answer the following questions:

(1) What is the range and content of significant LHD activities, as reported by news media, in responding to the H1N1 outbreak in the first four-month period? *(See "Activities" section.)*
(2) What important issues in LHD performance—issues that may require consideration and action—were reported by news media during this period? *(See "Review of Issues and Emerging Challenges" section.)*
(3) What patterns emerged in these LHD activities? *(See "Variation in Reported Activities" section.)*
(4) Does an analysis of news media accounts offer a promising research strategy for identifying and analyzing local public health activities? *(See "Conclusion" section.)*

The answers to questions (1)-(3) are intended to inform public policy and public communication for the rest of the H1N1 episode and future disease outbreaks. These answers also are intended to assist in understanding how individual LHDs and the community as a whole responded to the initial stage of H1N1. The answer to question (4) should help guide preparation of future reports.

METHODOLOGY

The public health team of Burness Communications[5] compiled articles and other news media accounts describing local public health activity regarding H1N1.[6] The articles were all published between April 27 and August 25, 2009. Articles that reported only on the activities of state or national entities were excluded, as were thoroughly repetitious articles.

The researcher classified each article by activity reported. If more than one activity was reported, only the dominantly described one was selected, except for about 15 articles that reported two or more activities with equal dominance. The list of activities consisted of: school closures and coordination with school authorities; communications; disease surveillance; disease control; emergency preparedness; budget and infrastructure development; laboratories; and other.

The researcher further classified each article or other account by type of community and month of publication, for the LHD or LHDs whose activities were being reported.

Community types include urban, suburban, small city, and rural. These classification decisions involved the exercise of judgment. For example, many LHDs serve multiple communities, or they serve entire counties that include several types of communities. Many communities are relatively small components of metropolitan statistical areas (and so might be urban or suburban), relatively large components of areas of suburban sprawl (and so might be urban, suburban, or small city), relatively small municipalities that are closely connected to other municipalities (and so might be suburban, small city, or rural), or self-designated "cities" within a primarily rural area (and so might be small city or rural). In making these classification decisions, U.S. Census figures were frequently consulted.

[5] The firm of Burness Communications, founded in 1986, primarily serves non-profit clients, mostly in the health, human services, and education sectors. The firm is located in Bethesda, Maryland.

[6] The writer gratefully acknowledges the essential contribution of Nina Grillo-Balthrop, Communications Coordinator – Public Health, and Becky Wexler, Senior Associate, both of Burness Communications, in compiling the material for this report.

ACTIVITIES

School Closures and Coordination with School Authorities

Community Health Director Bill Mays of the Lake County (Illinois) Health Department (Chicago *Tribune*, Aug. 18)

Need to Work with Schools. Local public health directors quickly recognized the need to work with schools in controlling H1N1. "As far as being a bellwether and a potential hot spot for epidemics, schools are probably number one on the list."

Public Health Commission and Mayor Thomas M. Menino (Boston *Globe*, May 20)

School Closures. LHDs became involved with school closure decisions early in the epidemic. On May 19, the Boston officials announced the one-week closure of the city's largest school, Boston Latin, and the nearby Winsor School, an all-girls private academy.

Suffolk County, (New York). (New York *Times* (May 5).

San Francisco *Chronicle*, May 5)

Maricopa County (Arizona) Public Health Director Bob England

Closure decisions were difficult. After three student cases were confirmed, a Long Island health official's decision to close the 4,400-student Deer Park Union Free School District, "divided the community." At the same time, health officials in the San Francisco Bay Area were said to "increasingly question the prudence of school closures." A few days earlier, an Arizona public health director decided to stop closing schools, facing what one reporter called "a classic dilemma":

> *under-react*, and the disease could mushroom into a global catastrophe . . . *over-react*, and average folks might lose faith in alarms raised by public health officials, treating them like the boy who cried wolf. *[Ital. supplied*]

(Dennis Wagner, Arizona *Republic*, May 3)

Santa Clara County (California) Health Officer Julie Higashi (ABC7 California, Aug. 18)

Hunterdon County (New Jersey) Department of Health Director John Beckley (Hunterdon *Review*, Aug. 13)

By August, the presumptive policy was to avoid closures. "We really would like to manage the epidemic without closing schools as much as possible," said a California health officer. In other areas, school closure protocols were being updated, because "there are social disruptions when a school closes, economic considerations, and the question of whether closure really prevents the virus from spreading since most of those in the school have already been exposed."

Cooperation. Throughout the four-month period, LHDs and school authorities cooperated extensively:

(*Virginian-Pilot*, April 30)

- In April, every school division in South Hampton Roads (Virginia) reported collaboration with its LHD, on such issues as preventive hygiene, communication with parents, school housekeeping procedures, and monitoring of students

(Philadelphia *Daily News*, June 12)

- In June, the Philadelphia Health Department and the city's school district combined forces to reach out to parents, though with only limited success, in order to "quell a rising panic surrounding swine flu in schools"

(Monterey *Californian*, Aug. 7)

- In early August, the Monterey County (California) Health Department collaborated with the county Office of Education to develop information for distribution to parents

(Florida *Ledger*, Aug. 20)

- Later in August, the Polk County (Florida) Health Department worked to cooperate with school officials to monitor absenteeism and other signs of outbreak.

(City News Service, April 27)

But, occasionally, LHDs and school leaders disagreed. Rejecting a recommendation of the Los Angeles County Department of Health, school administrators closed Our Lady of Assumption School in Claremont after a student and her mother came down sick after a trip to Mexico.

Health Commissioner Deborah McMahan (Fort Wayne *News-Sentinel*, Aug 3)

(Cincinnati *Enquirer*, Aug. 9)

(MyCentralJersey.com, Aug. 10)

To enhance cooperation, meetings were called. Following a strategy session with school superintendents, the LHD director in Allen County (Indiana) said, "One thing we all agreed on is we'd like one uniform policy so we don't have one school district closing a school and another one not closing." Cincinnati area public health officials met with school officials to prepare vaccination plans. The Middlesex County (New Jersey) Public Health Department convened a gathering labeled a "Pandemic Preparedness Program for Schools."

Milford Health Department Director A. Dennis McBride

Many meetings were intended to serve an educational purpose. "The objective is to keep schools as safe as

(New Haven *Register*, Aug. 17).

possible and minimize the need for closure," said a Connecticut LHD director.

(Lincoln *Journal Star*, Aug. 11).

LHDs and school authorities also jointly devised plans to debrief parents, as a surveillance mechanism. "Note to parents: If you keep your children home from school because they're sick, be prepared to answer a few more questions when you call the school office," a Nebraska journalist led one article.

Communications

(WFAA-TV and Dallas *Morning News*, April 26)

Media. Communication vehicles of all kinds came into play as LHDs sought to convey public health messages about H1N1 to diverse publics. News accounts reported the use of traditional ways of engaging the press: news conferences (California, Florida, and New York), news releases (Oklahoma), newspaper op-eds (New York), and editorial board conferences (New York). Accounts further report the use of other traditional means of communication, such as meetings with hospitals and physicians (Florida), briefings of local officials (Texas and North Carolina), and answering a cascade of phone calls from worried residents (Florida)—as well as reaching out to the business community (Michigan). The Dallas County (Texas) Health Department decided to issue a travel alert to bus companies and others.

Health Department Director Gladys Branic (Bradenton *Herald*, April 30)
District Director Steven Katkowsky (Cincinnati *Enquirer*, Aug. 22)

LHD officials also addressed public forums. Manatee County (Florida)'s, LHD director spoke at a forum convened in Sarasota by the Republican U.S. Representative, Vern Buchanan. The Northern Kentucky Independent Health Department announced five presentations at area libraries.

(New Jersey *Daily Journal*, May 29)

(Sacramento *Bee*, Aug. 13)

As several news accounts reported, LHDs posted information about H1N1 on websites (California, Tennessee, Maryland, and Massachusetts). The Cumberland and Salem County (New Jersey) Health Departments planned the release of 80,000 DVD copies of a video on flu prevention, and the Sacramento County Public Health Department posted

(Associated Press, Aug. 17).

the first of a series of related videos on the Internet. LHDs also employed electronic social media, such as Twitter and Facebook (California and Texas) and even Google ads (New York). The Seattle-King County (Washington) Health Department began to produce a comic book for parents.

Messages. Several kinds of messages aired using these diverse communication vehicles. An early message was to remain calm. Asked whether people should be worried by the outbreak in Mexico, an Illinois health administrator said:

Madison County (Illinois) Health Department Administrator Toni Corona

> I hate to use the word 'worried.' What I'd prefer to use is 'aware.' And the way we do that is to make the general public more aware of the precautions they should be taking—and, quite frankly, they're good precautions for all the time, not just in the wake of this particular incident.

(Belleville *News-Democrat*, April 28)

A widely covered news conference responded to concerns that arose about the safety of Walt Disney World: "They're better than anyone I've ever seen. Their practices are second to none." That same day, but on the opposite side of the country, Bay Area residents were reassured that "People are not very sick. That's why this is not a health crisis." Stay calm admonitions also appeared in New Jersey, Ohio, Texas, Nevada, Kentucky, and New York.

Orange County (Florida) Health Department Director Kevin Sherin (Orlando *Sentinel*, May 1)

San Francisco Public Health Director Mitch Katz (San Francisco *Chronicle*, May 1)

Another type of message involved the dispelling of rumors, such as the belief that eating pork could cause swine flu (Ohio and Illinois) or contentions that H1N1 was "running rampant through the school system" in Brevard County, Florida.

(*Florida Today*, Aug. 19)

A common thread of LHD communications was the need for proper hygiene. These messages typically emphasized the importance of frequent and sufficient hand-washing: "Washing hands regularly is the single most important thing people can do to help stop the spread of the infection." Besides hand-washing,

Niagara County (New York) Public Health Director Daniel Stapleton (Niagara *Gazette*, April 27)

communications in support of community mitigation promoted social distancing, covering up coughs, and keeping sick children and other family members home (Maryland, Kansas, Florida, New York, Indiana, Pennsylvania, Oklahoma, California, Georgia, and Illinois).

Wilson County (North Carolina) Health Department Public Information Officer Joyce Wetherington (Wilson *Daily Times*, April 28)

In North Carolina, LHD staff provided an excellent model for prevention-oriented, clear communication:

> We are telling everyone to use a tissue when you cough or sneeze, and then throw the tissue away. Take your time when washing your hands. Use warm soapy water. If you can't get to water, the alcohol-based hand sanitizers are good to use. It is important if you have flu-like symptoms not to go to work. If your child is sick, please don't send them to school. See a doctor right away.

(Santa Rosa *Press Democrat*, April 27)

And, Napa and Sonoma Counties (California) made sure to provide information in Spanish.

For example, Larimer County (Colorado) Department of Health & Environment Director Adrienne LeBailly (*Coloradoan*, May 18)

Sonoma County (California) Deputy Public Health Officer Mark Netherda (Santa Rosa *Press Democrat*, May 9)

Boston Public Health Commission Executive Director Barbara Ferrer (Boston *Herald*, Aug. 22)

LHD officials also provided information about the current severity of the epidemic, observing that, although media attention had declined, severity could worsen in the weeks to come. Similarly, a Santa Rosa (California) newspaper reported the following prediction by an LHD source: "In every pandemic that we have had in the 20th century—1918, 1958, and 1968—there was a first wave that is mild and a second wave that comes back much, much bigger." But, near the end of the four-month study period, it appeared that dire prediction might not be fulfilled, because epidemiologists "are seeing no difference in severity from what we experienced in the spring."

Central Michigan District Health Department Medical Director Robert Graham (Michigan *Morning Sun News*, Aug. 25)

More Messages. LHD communications informed newspaper readers and others about how influenza is transmitted (Wisconsin and California), and some took pains to warn of the concurrent circulation of three seasonal flu viruses and H1N1.

Other messages included:

- an early comment by a San Francisco public health official that no special precautions by residents are needed "now," but that the status could change hourly
- advice from a New York City public health official that letting down one's guard during the summer would be "probably a little premature"
- warnings by the Springfield-Greene County (Missouri) LHD that H1N1 could "sweep through Springfield and the Ozarks long before a vaccine is available" and by an LHD source in Casper-Natrona County (Wyoming) not to rely on antiviral medications as a substitute for immunization, and
- A Manatee County (Florida) Health Department spokesperson's graphic comparison between flu preparedness and hurricane preparedness: "This is hurricane preparation on steroids."

Susan Fernyak (San Francisco *Chronicle*, April 26)

Don Weiss (Staten Island *Advance*, June 22)

Kevin Gipson (Springfield *News-Leader*, Aug. 9)

Tia Hansould (Casper *Journal*, Aug. 13)

John Burns (Bradenton *Herald*, April 30)

LHDs also announced deaths related to H1N1, including that of Robert Derzon, the first head of the federal agency combining Medicare and Medicaid (then the Health Care Financing Administration, now the Centers for Medicare and Medicaid Services). Derzon, 78, lived in Mill Valley (California), died in Canada, and may have contracted the virus in New York.

(Contra Costa *Times*, June 30)

LHDs offered guidance on immunization implementation plans, such as advice to rural Oklahomans about the role of the booster injection: "Just like with children's immunizations, the booster shot ensures you will have full coverage." Another example involves the potential recruitment of nurse practitioners to help administer vaccinations in mostly rural Edgecombe County, North Carolina.

Cherokee, Mayes, and Adair County Health Departments Administrator Linda Axley (Tahlequah *Daily Press*, Aug. 21)
Health Department Director Karen Lachapelle (*Daily Southerner*, Aug. 19)

Controversy over Disclosure Policies. As might be expected, news media scrutinized LHDs' policies on disclosing information about flu-stricken people in the community. A lag in CDC and state reporting, compared with reporting from Tarrant County (Texas),

(Fort Worth *Star-Telegram*, May 9)

Annette Rodriguez (Corpus Christi *Caller-Times*, May 1)

Kevin Burke (Louisville *Courier-Journal*, May 4)

(Wyoming *Tribune-Eagle*, June 7)

(Jersey *Journal*, June 3)

was noted. Also in Texas, an acting public health director was chided for confiscating a reporter's copy of a spreadsheet of possible cases. By contrast, a Clark County, Kentucky director was praised for his communication style. Editorials perceived and criticized policies "to say as little as possible" or to "clamp their mouths shut"—an approach that a paper said merely "exacerbates jealous efforts to defend jurisdictional boundaries by controlling the flow of public information."

Southeastern Wisconsin was ground zero in the disclosure controversy, as the Milwaukee *Journal Sentinel* repeatedly, if unfairly, excoriated Health Commissioner Bevan K. Baker. On June 13, reporter Mark Johnson noted, "Once again, the city Health Department provided scant information about the most recent death." Later, Johnson unfavorably compared Baker's refusal to release information about a decedent's age range, gender, or underlying condition to the Chicago Health Department's greater openness (June 28). Having lost at least some credibility with the paper, Baker then saw his explanation for why Wisconsin is "by far the leader in cases among the states" discredited in an opinion piece by a different *Journal Sentinel* writer, David Haynes. That piece asserted that Harvard School of Public Health investigators did not accept Baker's claim that aggressive testing would explain Wisconsin's extremely high incidence of the disease (July 28).

USA Today and Reuters were among several outlets reporting this study (July 7)

Website Controversy. Another minor storm erupted over a RAND Corporation study report on the relative speed with which health departments posted information about H1N1 on their websites after the federal declaration of a public health emergency. The fact that only 8 percent of selected Kansas LHDs posted information within 24 hours, whereas 73 percent of selected California LHDs managed the feat, was regarded as a cause for concern.[7]

[7] This finding may have been complicated by the fact that that Kansas's more than 100 health departments, some of which serve only a few thousand people, collectively have a lower level of funding than those of any other state.

Large Number of Accounts. Thirty percent of all news accounts reviewed for this report describe communications activities. This preponderance of interest in communications may reflect the bias of reporters, who might reasonably be assumed to be more interested in, and more knowledgeable about, communications than in other local public health activities.

Disease Surveillance

Early Surveillance Activity. "We're in a state of awareness," said a Framingham (Massachusetts) public health nurse at the start of the epidemic. "We're keeping an eye on what's happening, and we're getting prepared if anything should happen." "We are staying current with information and setting up surveillance," reported an Allegheny County (Pennsylvania) Health Department official.

Laurie Courtney (MetroWest *Daily News*, April 27)

Chief of Epidemiology and Biostatistics Ron Voorhees (Pittsburgh *Post-Gazette*, April 28)

The Merced County (California) Public Health Department distributed 350 H1N1 detection kits, nearly one-third of which were quickly returned for testing. Believing it had Missouri's first case, the Platte County Health Department sent a sample to the state lab in Jefferson for initial testing; the sample then went to Atlanta for CDC confirmation. Unfortunately, staff waited 17 days before telling the LHD director about Grand Traverse County (Michigan)'s first several cases.

(Merced *Sun-Star*, May 7)

(Kansas City *Star*, April 30)

(Traverse City *Record-Eagle*, July 25)

LHDs monitored suspected cases involving students (New York) and workers (Ohio) and the condition of contacts of a rural Kansas couple with confirmed diagnoses following the husband's travel to Mexico. In New York State, "heightened surveillance" was initiated in Nassau and Suffolk Counties.

(Associated Press, April 27)

(*Newsday*, April 25)

City of Laredo Health Department (Texas) personnel spent a weekend at clinics and hospitals looking for possible cases. Other LHDs appeared to rely more on clinicians to uncover early cases. To illustrate, a California health officer said, "I really have a lot of faith in our front-line physicians and clinicians. . . .If it's

(Associated Press, April 26)

Santa Clara County (California) Public Health Officer Marty Fenstersheib (San Jose *Mercury News*, April 26)

there, they'll find it."

(Atlanta *Journal-Constitution*, May 3)

LHDs instructed physicians to obtain cultures, although physicians wanted more guidance on how to obtain, store, and ship the samples. Alerts reportedly went out to physicians and hospitals in Nevada, Pennsylvania, and Texas, instructing them to watch for flu-like symptoms.

Director of Health Services Becky Brooks (Arizona *Sun*, June 12)

(Boston *Globe*, July 2)

Deputy Public Health Officer Anju Goel,(Marin *Independent Journal*, June 13)

Continued Monitoring. Over the summer, LHDs monitored childcare centers and summer camps (Pennsylvania, New York, and Connecticut). In Yuma County (Arizona), officials were watching for clusters. Data showed a decline in cases, even in hard-hit cities where people live in close proximity with each other. In Marin County (California), a high number of samples and high percentage of positive tests gave way to a lower number of samples and a reduced percentage of positives.

(Lebanon *Daily News*, June 7)

Katie Fairbank (Dallas *Morning News*, May 25)

Local surveillance depended in part on activity at the state level, which apparently created problems in western Pennsylvania: "Local officials are frustrated because they can't get a clear picture of what the disease is doing, because the state is not being forthcoming with information." Another possible surveillance-related deficit was perceived in an opinion piece that said LHDs were failing to monitor restaurant workers and food handlers.

Commissioner of Health Services Humayun Chaudhry (*Newsday*, May 20)

(Bradenton *Herald*, August 21)

Technology played a growing role in surveillance. Suffolk County (New York)'s LHD described in an opinion piece how post-9/11 public health emergency preparedness funds had been used to improve access to timely data and the ability to transmit information rapidly. The Sarasota County (Florida) Health Department made use of a computerized surveillance system to monitor student visits to school nurse stations and health rooms.

(*Virginian-Pilot*, June 7)

But, surveillance is as much a human enterprise as a technologic one. The City of Chesapeake (Virginia)'s epidemiologist spent four days on the state's first fatal

case; her labors included fielding middle-of-the-night phone calls, conferring with officials at the training center for the developmentally disabled where an apparent outbreak occurred, meeting with patients' family members, and responding to reporters' questions at a news conference. City of Milwaukee Health Department officials collaborated with Harvard University School of Public Health scientists to examine the area's high reported H1N1 incidence.

(Milwaukee *Journal Sentinel*, June 13)

As fall approached, LHDs expanded school surveillance and instructed schools to monitor attendance closely (California). Outagamie County (Wisconsin) planned the expansion of a surveillance system piloted in public and private schools during the previous academic year. The Tippecanoe County (Indiana) Health Department was the pilot site for a software system monitoring inoculations; the test showed how fast data could be entered and how quickly personnel could be trained to operate the system.

County Health Officer Michael Bohlin (Indiana *Journal & Courier*, July 14)

Disease Control

General Disease Control Activity. From the onset of the epidemic, local public health officials drew on partners to assist with disease control efforts. An assisted living facility cooperated with the Madison County (Kentucky) Health Department to contain an apparent outbreak involving more than 20 residents. "I need you to close the clinic today, now," Boston's LHD director told an administrator of the Harvard School of Dental Medicine after a student initially tested positive for the virus, and school officials complied; additionally, classes were canceled for Harvard dental, medical, and public health students, who were further told to stay away from patients.

(Lexington *Herald Leader*, May 21)

Executive Director Barbara Ferrer of the Boston Public Health Commission

(Boston *Globe*, May 10)

Antiviral medication was an early concern. The Cameron County (Texas) Health Department conducted daily inventories of pharmacies, and was confident that sufficient quantities of *oseltamivir phosphate* (Tamiflu) would be available. But other communities reported gaps in the supply chain for

Assistant Administrator Esmer Guajardo (Valley *Morning Star*, May 2)

(Boston *Globe*, June 15)

Weber-Morgan County Health Department (Salt Lake *Tribune*, June 24)

medication, masks, and even testing swabs. These shortages were blamed on the just-in-time economy. When Utah efforts to deliver medication to uninsured patients stalled, one LHD planned to provide the needed drugs to two hospitals.

(Minneapolis *Star Tribune*, July 2)

(Chaska *Herald*, April 27)

(San Jose *Mercury News*, July 19)

Prevention efforts turned largely on communication activity, as described above. For example, Anoka County (Minnesota) planned 30-second public service announcements to air on Comcast TV channels. Also in Minnesota, Carver County Public Health earlier launched a "Cover Your Cough" campaign. The Santa Clara County (California) Public Health Department initiated a "Don't Let the Flu Get You" campaign on Facebook—along with postings on Twitter and MySpace. These social networking sites not only provided frequent updates, but also allowed the campaign to offer T-shirts and publicize a prevention video contest to reach high school students.

(Charlotte *Observer*, April 27)

(WBUR and NECN, Aug. 21)

Disease control efforts also were linked to emergency preparedness and surveillance activity. In April, the Mecklenburg County (North Carolina) Health Department disclosed plans to test patients with flu-like symptoms who recently returned from Mexico. On August 21, Boston held a landmark Influenza Preparedness Summit.

Health Director Frank Singleton (Lowell *Sun*, August 2)

Disease Control Challenges. Multiple local challenges arose in undertaking disease control for H1N1. For several reasons, including the need to deal with different viruses requiring different vaccines, LHDs prepared for logistical hurdles. "It's going to be a classic muddle-through situation," said one veteran Massachusetts LHD director.

(Washington *Post*, May 3)

Anemona Hartocollis (New York *Times*, May 28)

One challenge, discussed by Washington *Post* writer Marc Fisher, is "the germ of fear," which could generate excessive public demands on strained local public health resources. Perhaps illustrating Fisher's point, the fact that as many as one-third of Americans may present one or more of the " 'underlying medical conditions' . . . appeared to be propelling people

toward bursting emergency rooms," observed a New York *Times* reporter.[8]

Tribal Council Vice-President Raymond Chandler (*Missoulian*, Aug. 23)

Vulnerable populations pose substantial challenges. "We're definitely worried that it might be more prevalent on the reservations," cautioned a tribal official in Fort Belknap (Montana), citing the aggravating factors of community-wide closeness, a high prevalence of underlying health conditions, and recent outbreaks in Canada.

Monterey County (California) Health Officer Hugh Stallworth (Monterey County *Herald*, July 10).

Wauwatosa (Wisconsin) Health Department Supervisor of Nurses Lori Nielsen (Milwaukee *Journal Sentinel*, Aug. 13).

Communication snafus within the public health community may have weakened some LHD responses. "We are troubled that the state did take so long to let us know" about a resident's death from H1N1, admitted a California health officer. Tracking where people with flu have been requires cooperation among LHDs; as a Wisconsin public health nurse lamented, "People don't stay within the boundaries of Wauwatosa."

(Fort Myers *News-Press*, Aug. 6)

Finally, high mortality naturally raises the stakes; Lee County and other Florida counties anticipated twice as many deaths as usual during next year's flu season, due to the impact of H1N1.

Gaston County (North Carolina) Health Department Director Colleen Bridger (Gaston *Gazette*, July 31)

Vaccination Planning. "We have to develop a system that is flexible and adaptable," an LHD director said about vaccination plans, with prioritization of pregnant women, people caring for babies younger than 6 months, health care and emergency services personnel, children 6 months through 24 years, and non-elderly adults with a chronic disease.

(Detroit *Free Press*, Aug. 10)

In general, LHDs faced a potentially huge increase in the number of people receiving flu immunizations. In Macomb, Oakland, and Wayne Counties (Michigan), CDC recommendations would increase the annual per-county volume from between 20,000 and 44,000 to about 500,000. The Lewis County (Washington) Health

[8] Underlying conditions cited as heightening a person's risk include diabetes, asthma, heart disease, lung disease, suppressed immunity, liver and kidney disease, blood diseases, and possibly obesity, mental health problems, seizure disorders, and neuromuscular diseases.

(KELA AM, Aug. 25)

Department was considering deploying student nurses to stretch its capacity to administer vaccines, and, as mentioned above, nurse practitioners were suggested elsewhere for the same purpose.

(Indianapolis *Star*, July 6)

LHDs planned vaccination clinics. The Marion County (Indiana) Health Department considered reducing the number of clinic sites in order to concentrate its efforts; it also worked with the Indianapolis Medical Society to match needy patients with physicians willing to provide care at no charge. School-based vaccination services were considered in New York, Maryland, and Virginia.

(Fresno *Bee*, Aug. 5)

Chicago DPH Immunization Program Medical Director Julie Morita (Chicago *Tribune*, Aug. 2)

Many people, especially pregnant women, were expected to resist immunization (Arizona and Michigan). The Fresno County (California) Department of Health braced to deal with residents like Julie Guillen of Clovis, pregnant with her third child at age 43, who said, "I just don't feel comfortable taking any kind of drug when I'm pregnant." Physician advice is considered especially important in persuading people to accept immunization.

Emergency Preparedness

(Dallas *News*, May 9)

Meetings and Coordination. Early on, LHDs called special meetings to deal with the rapidly developing potential threat. One media account said: "A swift response to a public health crisis like the swine flu threat can't just happen on the spot. It starts at meetings like the one held Friday in downtown Dallas," which attracted 150 participants.

(Morganton *News Herald*, April 28)

(Casper *Journal*, Aug. 13)

(*Morning Sun*, May 5)

The Burke County (North Carolina) Health Department Epi-team—with representation from health, law enforcement, emergency management, and education—convened April 27 to ensure each agency's readiness. Others held meetings with community partners, pharmacists, and the business community to update the public on H1N1 preparedness, as in Casper-Natrona Counties (Wyoming) and Crawford County (Kansas).

(BNET Retail, May 5)

Executive Director Christine Nevi-Woods (Pueblo *Chieftain*, May 28)

The Kent County (Michigan) Health Department worked with large local retailers to help assure the availability and fair distribution of medication. But, the head of the Pueblo City-County (Colorado) Health Department said: "We still have some work to do with our doctors. They're still not prepared in their offices."

(Tri-Town *News*, Aug. 12)

H1N1 might require collaboration with more than the usual partners. To expand its surge capacity, the Ocean County (New Jersey) Health Department offered training to residents willing to enroll in the Medical Reserve Corps.

Plan Development and Implementation. When the epidemic began, operational plans for a flu emergency already were in place (Florida, Washington, Idaho, Tennessee). Local plans were swiftly reviewed (Texas and Wisconsin), and they were activated (Illinois, Nebraska, Colorado), in conjunction with state plans (Utah).

Boston *Globe*, June 21).

Later, plans were evaluated in light of developments during the spring; as one editorial stated, "Public health officials have been able to view the health system's response to the pandemic as a test case for an even more dangerous outbreak of flu."

NYC Health Department Deputy Commissioner Kelly McKinney (New York *Daily News*, Aug. 17; *also* New York *Times*, July 21).

Planners emphasized the multi-faceted role of hospitals (California and Utah). Besides the potential demand for inpatient beds, hospitals faced the prospect of enormous pressure on emergency departments. In New York, "eight or nine out of every ten people who showed up in ERs during the spring weren't really sick."

Other planning challenges included:

(Chillicothe *Gazette*, Aug. 16)

- the need to prepare for mass fatalities, including body storage and burial, a concern of the Ross County (Ohio) Health District

Administrator Barry McNulty's (TheIndyChannel.com, Aug. 12)

- the need to reprioritize, such as Hamilton County (Indiana) Health Department's contingency plans to reduce staffing for vital records and food inspections , and

(Dothan *Eagle*, Aug. 25)

- the need to develop a continuity-of-operations plan in Dothan (Alabama) by "building a strong bench."

(Howard County *Times*, May 14)

(Cullman *Times*, April 28)

Emergency planners also conducted exercises, which in some cases were under way when the epidemic began. LHDs in Maryland were participating in an 18-month exercise coordinated by the Johns Hopkins University Applied Physics Lab. The Cullman County (Alabama) Health Department held a pre-arranged pandemic flu exercise April 24.

As preparedness plans were activated, incident command centers and emergency operations centers were established (California and Washington). Disaster response teams and incident command organizational structures were assembled (Indiana, Minnesota, and Florida).

Public Health Emergency Preparedness Planner Lisa Widdekind (Boulder *Daily Camera*, July 16)

Health Officer Diane Cappozzo (Fond du Lac *Reporter*, July 19)

(North Carolina *News-Times*, June 16)

Preparing for Mass Vaccinations. By July, the Boulder County (Colorado) LHD noted that, because H1N1 mortality rates were not as high as had been originally feared, LHDs were shifting their focus from planning mobilization of emergency anti-viral clinics to planning mass immunizations. To reach the large risk groups, the Fond du Lac County (Wisconsin) LHD called meetings with health care providers and school administrators. A full month earlier, the Alamance County (North Carolina) Health Department had begun to focus on the upcoming school year.

(Boston *Globe*, Aug. 13)

(*Metro Boston*, Aug. 18)

Health Commissioner Anthony J. Billitier IV (Buffalo *News*, Aug. 17)

Health Director Lewis Garrett (Davis County *Clipper*, Aug. 13)

In Boston, immunization planning included preparations for providing services evenings and weekends, as well as two hours of paid time off for city employees to be immunized, with separate plans for different sectors of the city. Undertaking the "monumental" task of vaccinating 300,000 people struck Erie County (New York)'s LHD director as "probably the biggest thing we've ever done here in public health." Davis County (Utah)'s director agreed: "This is potentially one of the biggest challenges this department has ever faced."

Deputy Director Stephen Mansfield (Connecticut *Day*, Aug. 19)

Health Department Epidemiologist Randall Todd (Reno *Gazette-Journal*, Aug. 19)

Uncertainty complicated immunization planning. The Ledge Light (Connecticut) Health District was overseeing efforts to provide vaccination services to nine towns, by recruiting personnel, estimating the population in each risk group, and determining how much vaccine should go to each outlet, under different scenarios for vaccine availability. Washoe District (Nevada) experienced manufacturing-related delays in vaccine distribution, but an LHD source there said, "Since we've never had a date that we felt was firm enough to take to the bank, this doesn't change things a lot."

Health Officer Martin Fenstersheib (San Francisco *Chronicle*, July 21.)

Also complicating vaccination planning was the difference between H1N1 risk groups and the usual risk groups for seasonal influenza. Instead of the elderly, H1N1 has tended to attack younger people. Santa Clara County (California)'s LHD director observed: "There's a potential for a lot of confusion. That's why this early preparation is so important."

(Washington *Times*, July 25)

LHD directors also faced a serious staff training challenge, as one in six public health workers, responding to a Johns Hopkins University Bloomberg School of Public Health three-state survey, indicated they would not report to work during a flu emergency.

Budget and Infrastructure Development

(Columbus *Dispatch*, May 10)
(Fayette *Observer*, June 19)

(El Paso *Times*, July 16)

Costs and Cuts. Columbus Ohio's potential costs for responding to the H1N1 outbreak were estimated at $748,000, or $1 per resident. Costs for LHDs in North Carolina were estimated at a total of $530,000, and at $110,000 for the City of El Paso.

(Seattle *Post-Intelligencer*, May 18)

(Associated Press, May 3)

Many LHDs had to shoulder their costs despite being weakened by cutbacks. For example, the Seattle-King County (Washington) Health Department experienced a 7-percent real budget reduction in 2009. Dallas County (Texas) Health and Human Services Director Zachary Thompson noted that his department had just weathered a significant funding cut, specifically affecting pandemic influenza preparedness.

(Connecticut *Post* Online, April 28)

Health Department Director Thomas R. Coleman (Orlando *Sentinel*, May 4)

Cuts had their effect. The Greenwich (Connecticut) Health Department could respond only slowly to residents' concerns, due to the loss of an emergency preparedness coordinator position. "We have dedicated public health workers who are already working with limited resources to get the job done," said the Volusia County (Florida) LHD Director. "More cuts would make their jobs even more challenging." By reducing LHD capacity, cuts would also strain the health care system in the Sunshine State, where the cost of an LHD visit averages only $75, while emergency department visits average $1,075.

(Washington *Post*, July 14)

The private sector also struggled with the costs of H1N1. Costs per test were estimated at $40 to $200, compared with $15 for the rapid flu test, and physician practices that bore the cost themselves also encountered substantial shipping costs.

(Arizona *Republic*, May 2)

Funding Needs. The cuts compounded structural shortfalls in funding. The Maricopa County (Arizona) Department of Public Health was spending $13.64 per resident on public health in fiscal year 2009, a mere 7 percent of the amount recommended by the Trust for America's Health in a 2009 report.

Several media accounts pointed out the need for additional funding. The San Jose *Mercury News* quoted University of California-Davis School of Medicine Professor of Public Health Marc Schenker: "We chronically under-fund our public health institutions. Then suddenly something like this happens and everyone wants instant, effective lab testing" (May 9). A few days earlier, the paper printed an opinion piece by Stanford University Professor of Medicine Douglas K. Owens, who warned: "Unfortunately, the economic downturn and previous inadequate funding have eroded the already poor public health infrastructure" (May 5, 2009).

Mentioning that 29 local public health workers in Sacramento were notified of their impending layoffs

just before being assigned to work on H1N1, California reporters Rita Beamish and Frank Bass admonished:

(Associated Press, May 26)

> The swine flu outbreak fell short of a full-blown international crisis, but revealed the precarious state of local U.S. health departments, the community bulwarks against disease and health emergencies in the United States. A sustained, widespread pandemic would overwhelm many departments that are struggling with cutbacks as well as increased demand from people who have lost jobs and medical insurance.

Budgetary uncertainty made matters worse. The Edgecombe County (North Carolina) LHD could allocate resources only for a three-month period and noted that even then its financial position "seems like it changes every week."

Health Department Finance Director Karen Fellows(*Daily Southerner*, Aug. 19)

Federal and state aid alleviated some of the burden for LHDs. For Fort Wayne-Allen County (Indiana), the federal government provided free vaccine, some syringes, and alcohol swabs. Federal grant funds would provide reimbursement for gloves, bandages, and other supplies, as well as refrigeration space, staffing, and clinic location costs. Ector County applied to the Texas Department of State Health Services for a grant of $115,800 to support vaccine administration, including contracting for four agency nurses.

Department of Health Administrator Mindy Waldron (Indiana *Journal Gazette*, Aug. 21)

(Odessa *American*, Aug. 24)

Other Infrastructure Concerns. Some U.S. communities still lack a clearly visible LHD. The Healthy York County (Pennsylvania) Coalition saw the H1N1 outbreak as creating a "teachable moment" in a campaign to establish a county health department. Similarly, some in Jefferson County (New York) also saw the epidemic as an opportunity to discuss creation of a county health department, a step recommended by an interim public health director in Watertown one year earlier.

Executive Director Robin Rohrbaugh (York *Daily Record*, May 2)

Administrator Karen M. St. Hilaire (Watertown *Daily Times*, May 19).

But, efforts to beef up or even maintain LHD robustness

(*American Medical News*, June 8)

run up against the increasing workforce shortage in public health. UCLA School of Public Health Dean Linda Rosenstock told a Capitol Hill briefing on May 21 that the public health workforce was stretched to its limit during the earlier H1N1 outbreak.

Public Health Coordinator April Thomas (Lexington *Herald-Leader*, Aug. 24)

Medical Reserve Corps volunteers embody one strategy for filling workforce gaps during a public health emergency. "These volunteers are going to be very, very important," a Lexington-Fayette County (Kentucky) Health Department source predicted.

(*USA Today*, Aug. 11)

Paula Thaqi (South Florida *Sun-Sentinel*, Aug. 14).

One worrisome shortage involves school nurses, who have an average caseload of 1,151 students, according to the National Association of School Nurses. In Broward County (Florida), school nurses were being replaced with health technicians; the LHD director said the change was made in order to cover more schools, as technicians were more affordable than nurses.

Laboratories

Public health laboratories continued their essential and largely hidden contribution during the four-month period of initial H1N1 activity. As Table 1 (displayed in the Introduction) shows, only four of the 278 media accounts primarily addressed laboratory services.

(New York *Daily News*, May 20)

(New York *Times*, May 4)

(*Newsday*, July 7)

Three of these accounts focused on the surge in activity in New York City's lab. The lab's testing staff soared from three to 15 by the time the first 273 cases were confirmed, and technicians were working around the clock. At the height of the surge, 200 lab workers were toiling for 12 to 18 hours a day.

Health Commissioner Susan Tilgner (Columbus *Dispatch*, June 5)

Due to the tremendous demand, many samples were rejected for testing. The Franklin County (Ohio) Health Department rejected about two-thirds of samples submitted, including one from an 11-year-old whose parents then paid $300 for testing by an out-of-state private lab, which confirmed the case. The LHD director explained that identifying every single case was unnecessary: "The whole point is trying to look for

cases that tell us where H1N1 might be going next."

Other Activities

Eight of the 278 media accounts did not fit easily into any of the seven previous categories of activity and were classified as "other" in Table 1.

(California *Press Enterprise*, May 9)

Health Department Director Adewale Troutman (Louisville *Courier-Journal*, April 28)

Pressures on LHDs and the Public. Several of these accounts describe pressures on LHDs. Public health professionals in Riverside and San Bernardino Counties (California) came out of recent retirement to work long days at no pay. Some worked 14-hour days staffing an influenza telephone hotline, laboring through lunch breaks and vacations days as they investigated cases. The professionals were not panicking; "I'm going to Derby, and I will not be wearing a mask," said Louisville (Kentucky)'s director.

(Akron *Beacon Journal*, April 30)

(Pittsburgh *Post-Gazette*, April 30)

Health fairs were cancelled, partly to avoid large gatherings. Student-teachers returning from a trip to Mexico City were banned from participation in graduation exercises.

University of Chicago Professor of Behavioral Science and Economics Richard Thaler and two Stanford University researchers (Los Angeles *Times*, May 24)

The widespread use of Twitter caused an exponential increase in the "velocity of rumor and gossip" about H1N1, and initial public reaction to the disease was way out of proportion to its seriousness, concluded researchers who tracked Twitter posts.

Evaluative Findings. Trust for America's Health found several causes for concern in the public health system's response to H1N1 during the initial stage, including confusion and frustration related to school closures, continued work attendance by people with the disease who should have stayed home, hospitals overwhelmed by the "worried well," and delays in obtaining test results from under-financed laboratories.

(New York *Times*, June 5)

Evaluative comments by the media included praise by writer Michael Daly for then-Health Commissioner of New York City Thomas Frieden. In the wake of Frieden's decision to keep Brooklyn Intermediate School 238 open despite a spike in cases and public

demands for school closure, Daly wrote:

> . . . Frieden remains that rare public official who actually puts the public first. . . . By all the laws of politics practiced in New York and Washington and everywhere else, Frieden should have insured himself against further criticism by rushing to close [schools]. . . . Frieden's resolve not to panic and cover his behind must have been all the more difficult because similar urgent phone calls had been made by [Assistant Principal, fatally stricken by H1N1, Michael] Wiener and Principal Joseph Gates at IS 238.

(New York *Daily News*, May 16)

One vulnerability was observed in Boston, where three-fourths of the 71 city residents hospitalized for H1N1 were African-American or Hispanic. These two groups also accounted for a disproportionate share of city cases confirmed by laboratory testing.

Public Health Commission Executive Director Barbara Ferrer
(Boston *Globe*, Aug. 18)

VARIATION IN REPORTED ACTIVITIES

Variation by Community Type

Were some types of communities more likely to become involved in certain types of activities? We looked at variation among urban, suburban, small city, and rural communities.

The most striking finding in distribution by community type is that urban areas generated most of the accounts involving budget and infrastructure. *(Tables 2 and 3.)* One might have hypothesized that smaller communities would be most likely to seek or have to juggle resources to respond to the new public health threat, but the media accounts do not bear out this assumption. By contrast, reports from suburban communities were much less likely to address budget and infrastructure issues.

Table 2. ACCOUNTS, BY TYPE OF COMMUNITY.

Type of Community	Number of Accounts	*Percent*
Urban	110	*40%*
Suburban	39	*14%*
Small City	85	*31%*
Rural	37	*13%*
Other (survey)	8	*3%*
Total	**279***	***101%***

* *Note: One article covered two types of communities.*

Urban communities are underrepresented in surveillance and emergency preparedness reports. Although few reports discussed the problems of laboratories, these stories were most likely to emerge from urban areas, probably because only larger communities have the resources to maintain substantial laboratory facilities.

Table 3. LHD ACTIVITIES, BY TYPE OF COMMUNITY.

Activity	Urban	Suburban	Small City	Rural	Cross*	Total
School closures and coordination	16	6	14	5	0	41
Communications	39	10	28	8	4	89
Surveillance	10	6	12	4	0	32
Disease Control	13	7	14	4	0	38
Emergency Preparedness	19	12	15	15	1	62
Budget and infrastructure	13	1	6	2	2	24
Laboratory	3	1	0	0	0	4

Other	5	0	2	1	0	8
TOTAL	**118**	**43**	**91**	**39**	**6**	**298**

* *Note: "Cross" refers to national media or specialty periodicals that cut across types of communities.*

Suburban communities and small cities are both proportionately represented in all activities other than budget and infrastructure. Coverage of rural communities tends to emphasize emergency preparedness.

Temporal Variation

The number of published articles and other news accounts varied sharply from month to month. *(Table 4.)* Given that the period of examination includes only the last four days in April, that month is highly overrepresented. August, another short month in this analysis (25 days), is similarly overrepresented, but to a lesser extent. By contrast, June and July are highly underrepresented.

Table 4. ACCOUNTS, BY MONTH.

Month	Number of Accounts	*Percent*
April	68	*24%*
May	72	*26%*
June	25	*9%*
July	32	*12%*
August	81	*29%*
TOTAL	**278**	***100%***

The overall fluctuation from month to month suggests that editors were especially interested in going to print on H1N1—or, as it was then termed, "swine flu"—when it was an entirely new phenomenon. Two possible reasons for the editors' reawakened interest in the topic in August are students' return to school and fresh disclosures about vaccine development, distribution plans, and recommendations for vaccination. In other words, the April and August overrepresentation probably reflects more the news media's interest than the intensity of LHD activity.

April news accounts were relatively unlikely to report activities such as school closures and coordination, disease control, and budget and infrastructure. *(Table 5.)* However, April accounts were highly likely to report activities in communications and surveillance. This pattern is probably what one would expect for the start of an epidemic.

Table 5. LHD ACTIVITIES ACCOUNTED BY MEDIA, BY MONTH.

Activity	April	May	June	July	August	Total
School closures and coordination	4	11	1	2	23	41
Communications	29	23	11	8	18	89
Surveillance	14	4	6	6	1	31
Disease Control	2	7	3	8	18	38
Emergency Preparedness	21	13	2	6	20	62
Budget and infrastructure	1	11	2	2	7	23
Laboratory	0	2	1	1	0	4
Other	3	5	1	0	1	10
TOTAL	**74**	**76**	**27**	**33**	**88**	**298**

REVIEW OF ISSUES AND EMERGING CHALLENGES

Many of the preceding examples present issues that may be useful for policy development purposes. This section of the report draws these examples together around specific policy issues and emerging challenges. As a consequence, some examples that appear in the "Activities" section reappear here.

Public Reaction

Americans' responses to the H1N1 outbreak show how public health action can be bogged down in the squishy terrain of public perceptions. In at least some communities, what writer Marc Fisher called "the germ of fear" was reproducing rapidly (Washington *Post*, May 3, 2009). A fearful public crammed hospital emergency departments in New York (New York *Times*, May 28, 2009) and overloaded LHD phone lines in Florida (*Florida Today*, Aug. 19, 2009). Behavioral scientific researchers attributed part of a general overreaction to events to the advent of social media, especially Twitter, which quickly magnify rumors (Los Angeles *Times*, May 24, 2009).

Public concerns complicated decisions about school closures and other control measures. As writer Stephen Smith commented, "The arrival of swine flu has severely tested school and health authorities' ability to respond in a way that balances the need to act prudently but without stoking panic or causing unwarranted disruptions" (Boston *Globe*, May 20).

The reactions include resistance to immunization. Resistance appears to be especially strong on the part of pregnant women, who are, in a sense, the point of the spear (or needle). An Associated Press-GfK poll showed that only two-thirds of parents were likely to give permission for school vaccinations and only one-third of Americans were themselves likely to get vaccinated (Grand Rapids *Press*, Aug. 2, 2009).

Media Relations

Given the need to prevent and quell overreactions and the importance of obtaining adherence to public health recommendations, news media play a key role. Policies for H1N1 and other outbreaks rely on the media to distribute, explain, and support public health messages.

To journalists, a defining test of a policy maker's credibility is openness, just as a test of the wisdom of a policy is its transparency. "The more the public knows, the better," said writer David Haynes (Milwaukee *Journal Sentinel*, July 28). As the attitude taken by Haynes's paper demonstrates, when an LHD systematically limits disclosure of information about such topics as the gender, age range, occupational category, and risk factors of fatal or confirmed cases—for reasons that reporters find unconvincing—the media may question the validity of the LHD's entire approach. This may be a risk worth taking, but not lightly.

Local Health Capacity

As the time for mass immunization approaches, LHDs appear dramatically under-resourced for the task. The lead to one local story read: "Cash-strapped local health departments . . . can't afford to immunize more than one million metro Detroiters who may be vulnerable to the H1N1 virus" (Detroit *Free Press*, Aug. 10, 2009). With total *per-capita* spending below $14 per year (Arizona *Republic*, May 2, 2009), the Maricopa County (Arizona) Health Department could hardly be expected to mount an effective mass vaccination campaign and still meet extensive other public health obligations.

The capacity question is especially serious in light of the concurrent need to immunize roughly equal numbers of residents for seasonal flu, which has different risk groups. And, the H1N1 pandemic has struck just when LHDs and nearly all other state and local agencies are struggling with massive budget shortfalls and, as Edgecombe County (North Carolina) Health Department Finance Director Karen Fellows described, with budgetary uncertainty that cripples planning efforts (*Daily Southerner*, Aug. 19, 2009).

Money woes are only part of the problem. Workforce shortages increasingly hinder LHDs and their vital partners, such as school nurses (*USA Today*, Aug. 11, 2009). Those shortages could be exacerbated if LHD staff members stay away from work in large numbers during a worsening H1N1 pandemic, as a Bloomberg School of Public Health survey indicated they might (Washington *Times*, July 25, 2009).[9]

Combined, under-financing and workforce shortages could compromise LHD performance, both in general and in response to H1N1. For example, it is conceivable that a lack of resources, rather than policy oversight, led to such lapses as a reported failure to monitor restaurant workers and food handlers (Dallas *Morning News*, May 25, 2009).

The capacity issue is intertwined with the intractable issue of health disparities. H1N1 appears to have hit African-Americans and Latinos disproportionately hard (Boston *Globe*, Aug. 18, 2009). Native Americans also may be at elevated risk (*Missoulian*, Aug. 23, 2009). Many members of these underrepresented groups live in communities like Detroit and Phoenix, which, as is noted above, are served by inadequately funded LHDs—or they live in rural areas with uneven health services at best and sometimes with no functioning LHD at all. Who will protect them?

Added Dimensions of Communications

Effective *intra*-LHD communication is essential to maintaining staff productivity and morale. It is also essential to producing results, which were jeopardized in at least one

[9] Medical Reserve Corps volunteers could help fill some gaps in LHD capacity, if recruited aggressively, trained sensibly, and deployed imaginatively.

situation where staff failed to inform the LHD director of confirmed cases for more than two weeks (Traverse City *Record-Eagle*, July 25, 2009).

Inter-LHD communication is no less vital during a communicable disease pandemic. As Wauwatosa (Wisconsin) Health Department Supervisor of Nurses Lori Nielsen noted, "People don't stay within the boundaries of Wauwatosa" (Milwaukee *Journal Sentinel*, Aug. 13, 2009). Besides communicating with each other, LHDs must communicate sufficiently with other partners, such as clinicians, who sought greater guidance than they sometimes received in obtaining, storing, and shipping samples for testing (Atlanta *Journal-Constitution*, May 3, 2009).

A widely publicized RAND Corporation study revealed sharp differences in the speed with which LHDs were able to post information on H1N1 developments on their websites (Reuters, July 7, 2009). As more and more people rely on the Internet for up-to-date information, outdated websites suggest an ineffective organization and tarnish credibility. Adequate and timely communications are, therefore, increasingly important.

Initial Performance

Trust for America's Health found several problems in the public health system's response to the initial phase of H1N1:

- confusion and frustration related to school closures
- continued work by people with the disease who should have stayed home
- hospitals overwhelmed by the "worried well," and
- slow testing by under-financed laboratories.

(*New York Times*, June 5, 2009)

Other problems also surfaced, such as local shortages of supplies (Boston *Globe*, June 15). On balance, however, the media accounts' greatest significance may lie in what they did *not* say: None castigated the public health system or any LHD for failing to meet the test of a crisis.

CONCLUSION

Responding to Crisis

The panorama of local health activities is an illuminating canvas. Media accounts published during the first four months of the H1N1 epidemic depict a broad range of LHD activities that came into play. And, from the standpoint of LHDs, the events of April-August 2009 truly constituted a crisis:

- the strong scientific possibility of a population health disaster loomed menacingly
- LHDs were compelled to respond quickly and effectively, bearing both short and long-term threats in mind
- to counter these threats, LHDs had to mobilize diverse resources, and
- at times, public panic rose close to the surface.

In the coming months and beyond, even greater depth of action, across the same wide range of activities, may prove necessary as the H1N1 pandemic persists and possibly worsens. Mass vaccination, in particular, portends what Erie County (New York) Health Commissioner Anthony J. Billitier IV calls "probably the biggest thing we've ever done here in public health" (Buffalo *News*, Aug. 17, 2009). Based on media accounts, more personnel are needed for LHDs to accomplish their mission, especially laboratory technologists and technicians, nurses, and communications professionals.

The media accounts strongly suggest that the local health system functioned well during the four-month period. Overall success is probably due largely to the extensive emergency preparedness planning undertaken since 9/11, and to the spirit of calm determination that such planning fosters. In some cases, LHDs responded with innovations, such as the Boston Influenza Preparedness Summit and novel communications efforts like the comic books developed by the Seattle-King County (Washington) Health Department's Advanced Practice Center.

Any success occurred against the backdrop of the persistent under-funding of public health—which account for less than three percent of U.S. health expenditures,[10]–a backdrop darkened by deep and often sudden cuts in state and local budgets forced by the current severe recession.[11] Judging by the distribution of news accounts across types of communities, the pressure may have been greatest on urban LHDs.

To an anxious public, these limitations offer no excuse for lower or slower performance. University of California-Davis School of Medicine Professor of Public Health Marc

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[10] Micah Hartman *et al.*, "National Health Spending in 2007: Slower Drug Spending Contributes to Lowest Rate of Overall Growth Since 1998," Health Affairs 28(1): 246-261 (Jan.-Feb. 2009).

[11] LHDs lost an estimated 7,000 staff positions in 2008 alone. National Association of County and City Health Officials, *NACCHO Survey of Local Health Departments' Budget Cuts and Workforce Reductions* (Washington, D.C.: January 2009), Available at www.naccho.org/advocacy/upload/report_lhdbudgets.pdf.

Schenker observed: "We chronically under-fund our public health institutions. Then suddenly something like this happens and everyone wants instant, effective lab testing" (San Jose *Mercury News,* May 9, 2009).

Indeed, the greatest challenge revealed by the media accounts involves public overreaction to events, unrealistic public expectations for testing and treatment, and spotty public adherence to public health recommendations. Clearly, LHDs must develop and implement effective communications strategies to meet H1N1 exigencies.

The Methodology of a News Review

Does the methodology of a news review, as employed here, offer a useful way of examining local health activities during a discrete period? On the upside, the methodology uses the lens of journalists, who are trained and experienced in identifying and accurately reporting events of interest to an alert public. In this instance at least, the methodology revealed a wide range and substantial depth of LHD activity as well as issues of concern. It produced findings early enough that the public health system could act on them in a timely way. And, use of the methodology could encourage transparency. If an LHD doesn't like its coverage, perhaps it should invite reporters to observe its workings, in order to foster greater understanding of the work and the constraints.

On the downside, the methodology reflects a tilt toward communications activities and away from more scientific or technically intensive aspects of LHD work, such as laboratory analysis, epidemiologic evidence-gathering, and use of virology. Used wisely, findings—the contents of the report—could help improve LHDs' responses to the current pandemic and future events. In any event, findings in a report based on a news-review methodology are soft and require judicious interpretation.

On balance, the methodology appears to offer one reasonable way to review perceptions of the local health system's performance, especially with an eye toward midcourse corrections. Conquering H1N1 is proving a journey with sharp turns and steep ups and downs.