

# New York State Local Health Department Preparedness for and Response to the COVID-19 Pandemic: An In-Progress Review

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## ABSTRACT

A mixed-methods approach was taken to describe lessons learned by local health department leaders during the early stages of the COVID-19 pandemic in New York State and to document leaders' assessments of their departments' emergency preparedness capabilities and capacities. Leaders participating in a survey rated the effectiveness of their department's capabilities and capacities in administrative and public health preparedness, epidemiology, and communications on a scale from 1 to 5; those partaking in focus groups answered open-ended questions about the same 4 topics. Subjects rated intragovernmental activities most effective ( $\bar{x} = 4.41$ ,  $SD = 0.83$ ) and reported receiving assistance from other county agencies. They rated level of supplies least effective ( $\bar{x} = 3.03$ ,  $SD = 1.01$ ), describing low supply levels and inequitable distribution of testing materials and personal protective equipment among regions. Local health departments in New York require more state and federal aid to maintain the public health workforce in preparation for future emergencies.

**KEY WORDS:** COVID-19, emergency preparedness, emergency response, local health department, pandemic

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Since its arrival in the United States, the 2019 novel coronavirus (COVID-19) has presented a daunting challenge for local health departments (LHDs) fighting the highly infectious and sometimes fatal disease on the front lines of public health. The stakes were especially high at the pandemic's start in New York State (NYS), which emerged as the national epicenter of the disease in March, with roughly 5% of the world's confirmed cases.<sup>1,2</sup>

Pandemic response efforts in NYS have been unique, garnering wide interest from the media and the public nationwide. State leaders have taken a proactive and engaging approach, scheduling media briefings, issuing executive orders and guidance, and developing frameworks for reducing disease spread. Public health law in NYS gives LHDs the authority to respond to disease outbreaks, enforce public health measures, and issue county public health orders that protect the health and safety of residents. During the COVID-19 pandemic, LHDs in NYS have activated and mobilized emergency preparedness plans; served as communicable disease experts by conducting case investigations, contact tracing, enforcing isolation and quarantine orders, and establishing testing clinics; connected vulnerable or underresourced individuals

to essential resources; and kept community members informed, all while working with the New York State Department of Health and the Centers for Disease Control and Prevention.

Like their counterparts across the nation, NYS LHDs fulfilled their critical duties under budget constraints and staffing shortfalls.<sup>3</sup> State-allocated funding for LHDs decreased by more than 40% from 2011 to 2015, and LHDs outside New York City (NYC) saw a 33% reduction in their workforce from 2011 to 2017.<sup>4</sup> As state appropriations for LHDs decline, county governments are forced to absorb these cuts or discontinue valuable public health services.

Facing such obstacles during the ongoing public health emergency, LHDs have relied on their long-established strengths and developed creative workarounds. The study described here investigates NYS LHDs leaders' assessment of their departments' emergency preparedness capabilities and capacities over the first 6 months of the COVID-19 pandemic and presents some of the lessons they learned during this period.\*

## Methods

### Overview

Quantitative and qualitative instruments for this mixed-methods study were developed by the New York State Association of County Health Officials (NYSACHO) and the Region 2 Public Health Training Center (R2PHTC) and were based on existing evaluation instruments for state-level public health emergency preparedness and response.<sup>5-9</sup> The study protocol (IRB-AAAT0829) was reviewed and approved by the institutional review board at the Columbia University Irving Medical Center, and informed consent was obtained from all participants.

### Survey

During the first study phase in May 2020, researchers e-mailed a 15-minute online survey to health commissioners and/or directors from 57 of the 58 LHDs in NYS. (NYC was excluded because of the jurisdiction's unique governance structure, population density, case count, and unparalleled availability of resources). The survey asked LHD leaders, or their selected delegates, to rate the perceived

effectiveness of their department's capabilities and capacities during the COVID-19 pandemic on a 5-point Likert scale in 4 categories: administrative preparedness,<sup>†</sup> public health preparedness systems, epidemiology, and communications. It also collected descriptive information about each respondent, including the region<sup>‡</sup> in which their LHD is located.

### Focus groups

During the second study phase in June and July 2020, researchers invited LHD leaders from each of the LHDs in NYS (excluding NYC) to attend one of 10 virtual, 1-hour focus groups, each for a unique region. Participants answered 5 questions related to the 4 topic areas. These covered the perceived effectiveness of LHD strategies and resources for responding to COVID-19; past and future methods of addressing any gaps and challenges identified; and potential systemic changes that could improve their LHD's outbreak management and emergency response capabilities.

### Quantitative and qualitative analyses

Quantitative survey results were analyzed using Excel. The R2PHTC coordinator, an R2PHTC qualitative research assistant, and a NYSACHO consultant analyzed Zoom video transcripts using codes that included the 4 main topic areas, their subcategories, and additional themes that emerged from the text. Findings subject to greatest variation in interpretation were reviewed with members of the NYSACHO Board of Directors for validation.

## Results

### Participants

A total of 38 respondents, representing 66.7% of NYS LHDs (excluding the NYC Department of Health and Mental Hygiene), participated in the online survey. Focus groups were attended by 49 LHD employees, primarily commissioners or directors (62%),

<sup>†</sup>The National Association of County and City Health Officials (NACCHO) defines "administrative preparedness" as "the process of ensuring that the fiscal, legal, and administrative practices that govern funding, procurement, contracting, and hiring are appropriately integrated into all stages of emergency preparedness and response."

<sup>‡</sup>NYS regions are defined by the Empire State Development Corporation, an umbrella organization encompassing New York's 2 principal economic development public-benefit corporations; they are as follows: Western New York, Hudson Valley, Finger Lakes, Central New York, Mohawk Valley, Southern Tier, North Country, Long Island, New York City, and the Capital District.

\*For the purposes of this study, NYS LHDs refer to all LHDs in NYS except the NYC Department of Health and Mental Hygiene. Our "Methods" section explains our reasoning for excluding this LHD.

representing a total of 43 LHDs (75.4%). Focus groups ranged in size from 3 to 7 participants.

### **Survey findings**

#### ***Capabilities and capacities perceived as most effective***

Survey respondents rated the following capabilities and capacities as the 3 most effective: intragovernmental activities (ie, coordination with other county agencies), a feature of public health preparedness systems ( $\bar{x} = 4.41$ ,  $SD = 0.83$ ), and contact tracing ( $\bar{x} = 4.35$ ,  $SD = 1.09$ ) and identifying cases through laboratory reports ( $\bar{x} = 4.24$ ,  $SD = 1.12$ ), both features of epidemiology (Figure). (See Figure, Supplemental Digital Content 1, available at <http://links.lww.com/JPHMP/A765>, for the full net-stacked distributions of ratings.) Among regions, participants from one of the more rural regions in the state ( $n = 5$ ) assigned intragovernmental activities the highest rating ( $\bar{x} = 4.80$ ,  $SD = 0.44$ ) and participants from a region among those with the lowest number of confirmed COVID-19 cases ( $n = 3$ ) assigned contact tracing the highest rating ( $\bar{x} = 5.00$ ,  $SD = 0$ ). In the domains of administrative preparedness and communications, quarantine and isolation protocols and internal communications (ie, within LHDs) were rated most effective ( $\bar{x} = 4.03$ ,  $SD = 0.83$ ;  $\bar{x} = 4.24$ ,  $SD = 0.83$ , respectively).

#### ***Capabilities and capacities perceived as least effective***

Survey respondents rated the administrative preparedness capacities of supply level and funding, and testing, an epidemiological capacity, least effective ( $\bar{x} = 3.03$ ,  $SD = 1.01$ ;  $\bar{x} = 3.08$ ,  $SD = 1.12$ ;  $\bar{x} = 3.06$ ,  $SD = 1.22$ ) (Figure). For the remaining domains of public health preparedness systems and communications, coordination with local businesses was rated least effective in the former ( $\bar{x} = 3.39$ ,  $SD = 1.08$ ), supporting, educating, and informing local businesses in the latter ( $\bar{x} = 3.35$ ,  $SD = 0.91$ ).

### **Notable focus group themes**

#### ***Intragovernmental activities***

LHD leaders across regions expressed satisfaction with the assistance they received from other county departments. Participants recounted contributions to their pandemic response efforts from a wide range of agencies: social services, aging, mental health, public works, law enforcement, probation, information technology, buildings and grounds, and emergency

services. Some agencies dispatched employees to train in and assist with contact tracing, some utilized their unique expertise, and others even provided emotional support. A social services department in one county, for example, leveraged its relationships with hotels and motels to find places for COVID-19 patients without shelter or living in congregate settings to isolate. Various agencies helped check on individuals under isolation and quarantine and offered wraparound services, such as providing medications, medical care, nutritious meals, clothing, and electricity.

#### ***Contact tracing***

Most LHDs felt highly prepared to conduct contact tracing and case investigations, due to their significant experience with other communicable diseases. Several had previously trained noncommunicable disease staff in contact tracing and case investigation, making the process of expanding their operations quick and seamless.

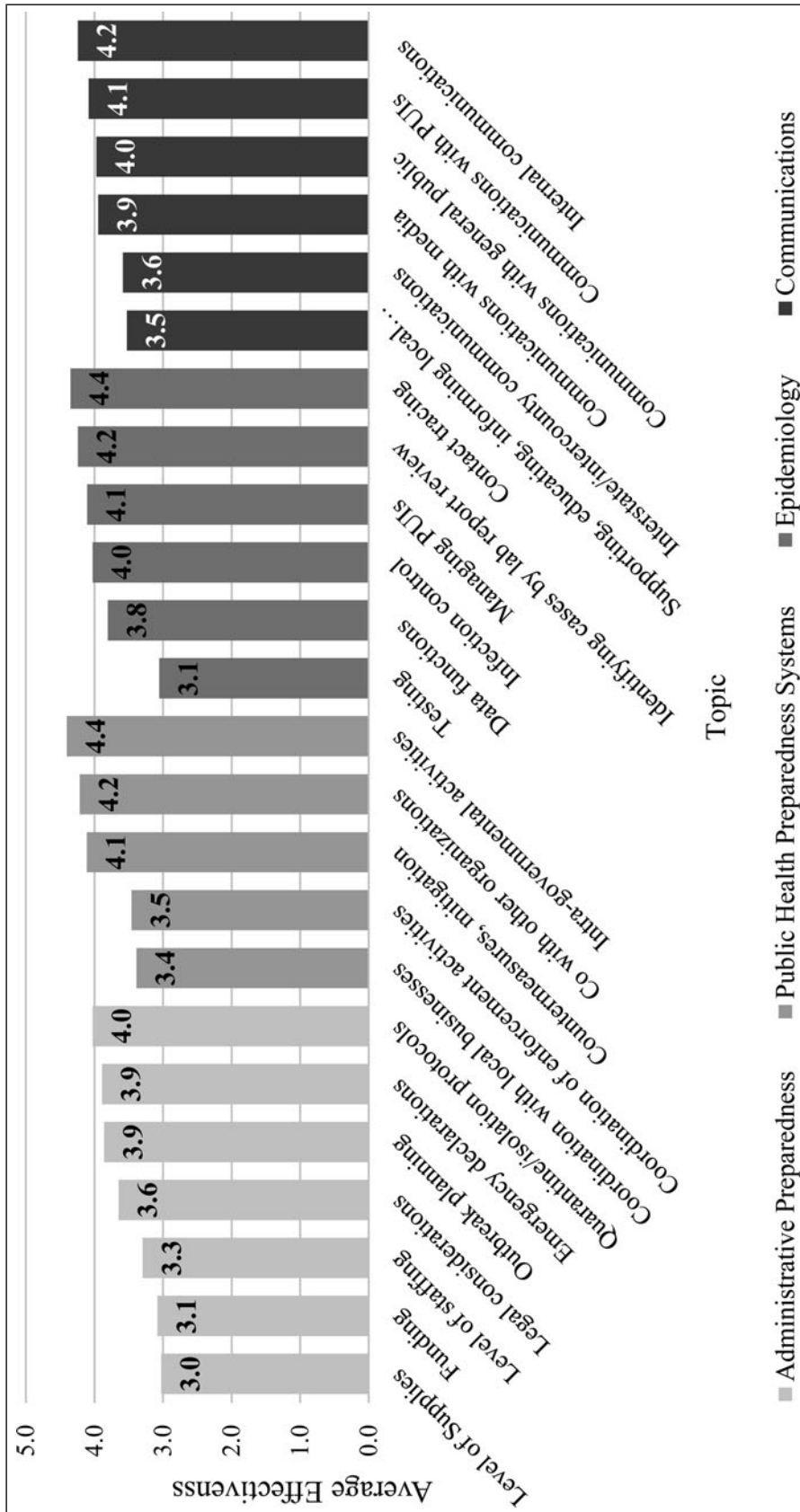
#### ***Communications with the general public***

LHDs employed a variety of strategies to communicate with the public during the pandemic, including public service announcements, press conferences, call centers, and social media. (Social media was particularly useful and, in some counties, a previously untapped resource when it came to dissemination of information.) Several participants recognized the value of assembling a public information team or employing a public information officer to handle communications with the public.

When state and federal guidance was unavailable, LHD leaders reported feeling responsible for providing interim information to the public, with the knowledge that guidance could shift in the future. They described the challenge of finding a balance between providing detailed information and maintaining credibility while awaiting official directives.

#### ***Level of supplies and testing***

Participants reported issues with low supply of testing materials and personal protective equipment (PPE), an inequitable distribution among counties, and confusion over LHDs' responsibilities for supply distribution to community partners. Some from northern regions expressed frustration with what they saw as a disproportionate allotment of resources to the more populous southern regions. Participants from 2 regions reported that their LHDs and local Offices of Emergency Management received some supplies from the state without instructions for their dispensation.



**FIGURE** Average Perceived Effectiveness<sup>a</sup> of New York State Local Health Department Capacities and Capabilities During the COVID-19 Pandemic  
<sup>a</sup>Average perceived effectiveness was calculated from responses to the initial survey distributed to local health department commissioners and directors.

Ratings of testing effectiveness varied on the basis of a county's health care infrastructure and local hospitals' willingness to establish COVID-19 testing sites, with rural counties faring worse than more densely populated areas. At least 5 counties set up their own pop-up clinics to increase testing accessibility, some with the assistance of their local Federally Qualified Health Centers.

Other testing issues that surfaced were a lack of public knowledge about the difference between diagnostic and antibody testing, long turnaround times at laboratories, and the failure of some laboratories to enter complete patient information in the state's Electronic Clinical Laboratory Reporting System (ECLRS).

### *Staffing and funding limitations*

Staffing and funding limitations were the 2 themes that appeared with the greatest frequency under the domain of administrative preparedness. LHD leaders expressed immense appreciation for their staff members' readiness and dedication but cited restrictions tied to funding allocation and depletion of staffing levels as barriers to responding to new mandates and emergencies.

Several participants noted a shortfall in epidemiological and nursing staff. Focus group participants from counties with 75 000 residents or more expressed the desire to hire more epidemiologists, while participants from small counties reported a shortage of nurses.

## **Discussion and Conclusion**

### *Strengths and limitations*

By asking LHD leaders to assess their own departments' capabilities and capacities in the context of the COVID-19 pandemic, researchers collected data from subjects who offered a vital perspective that NYSA-CHO was uniquely positioned to capture and amplify. Their perceptions do not, however, represent an objective account of LHD preparation and performance, and lessons learned are not generalizable to LHDs across the United States.

Limitations of the survey include topic area subcategories that may have been subject to some variability in interpretation and the nonparticipation of one region in the survey.

In addition, the interrater reliability of the final coding analysis, according to a test performed in Dedoose, met the standards for only moderate agreement (Cohen  $\kappa = 0.41-0.60$ ).<sup>10</sup> This can be attributed in part to the limitations of the test itself.

## **Implications for Policy & Practice**

- LHDs in NYS benefited from coordinating the delivery of wraparound services with local social service providers during the COVID-19 pandemic.
- LHDs in NYS were able to expand their contact tracing capabilities by cross-training staff who do not typically work on disease control activities.
- LHDs in NYS struggled to acquire a sufficient supply of testing materials and PPE during the pandemic, assigning some blame to the inequitable distribution of resources among regions and requesting more state support in this area.
- Despite staffing shortages and in the absence of health system support, some LHDs in NYS were able to establish their own pop-up clinics to increase COVID-19 testing accessibility.
- An increased investment in public health and flexible spending parameters are critical in NYS as restrictions in spending make it very challenging for LHDs to hire the professionals needed to deliver core public health services.
- LHDs in NYS provided timely and evidence-based information for communities during this pandemic, challenging but ultimately solidifying their reputation as trusted experts on communicable disease control strategies.

## **Conclusion**

LHDs play a key role in any public health emergency response, including the COVID-19 pandemic, by implementing state and federal policies and by functioning as the "eyes and ears" of the public health system.<sup>11</sup> In NYS, LHDs reported contact tracing and coordination with other county agencies as strengths of their COVID-19 response efforts and testing and supply levels as weaknesses. The process of reviewing lessons learned during one response effort can help NYS LHDs identify areas where additional support is needed, in preparation for future emergencies.

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