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Learning From COVID-19 To Overcome System Hesitancies In Public Health Preparedness And Response

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In the US, COVID-19 has killed more than 1.1 million people, infected more than 100

million <https://covid.cdc.gov/covid-data-tracker/#datatracker-home> , and disrupted lives in ways we are still trying to understand. Our continued public health response to this pandemic, and our readiness for the next pandemic, remains uncertain. Part of this uncertainty stems from varying degrees of hesitancy, defined as "slowness in acting or deciding due to doubt or uncertainty" or a "lack of willingness or eagerness to do something." <https://www.merriam-webster.com/dictionary/hesitancy> Vaccine hesitancy <https://data.cdc.gov/stories/s/Vaccine-Hesitancy-for-COVID-19/cnd2-a6zw/> is one type of hesitancy; however, the US sociopolitical system responsible for pandemic response at national, regional, and local levels exhibited other hesitancies stretching beyond an individual's reluctance, or hesitancy, to be vaccinated. What we are referring to as "system hesitancies" hindered effective public health responses and continue to impede our collective public health preparedness. Because pandemics such as COVID-19 are recurrent phenomena—it is not a question of if, but when, the next pandemic will occur—it is vital we overcome these system hesitancies with structural and policy solutions that enable us to respond more effectively to future challenges sure to come.

System Hesitancies: A Look Back

Several system hesitancies have emerged during various phases of the COVID-19 pandemic. System hesitancy can take various forms; below, we highlight examples in which inaction or delayed action limited the distribution of information, stalled cross-sector collaboration, impeded collaboration, and undermined local leadership (such as on-the-ground public health officials). Although inaction is difficult to measure, the effects are clear.

Such hesitancies continue to stand in our way, placing the public at risk for infection, hospitalization, and even death during times of uncertainty and danger. Moreover, disruptive effects of system hesitancies are not shared equally across populations, with disproportionate clinical and economic burdens for the elderly, communities of color, those living with poverty, and children who were forced to see a safe return to school politicized. These hesitancies elongate the pandemic and place us at considerable risk for present and future challenges.

Hesitancy To Comprehend And Act On Warnings

News reports of an epidemic in Wuhan, China <https://www.cnn.com/2020/01/06/health/china-pneumonia-intl-hnk/index.html> , were prominent in US headlines well

before the first COVID-19 case was reported in the US on January 21, 2020 <https://www.cbsnews.com/news/coronavirus-centers-for-disease-control-first-case-united-states/> . In February 2020, reports of COVID-19's dire impacts on health care systems around the world circulated widely. The experiences of Wuhan and Italy's Lombardy region <https://www.sciencedirect.com/science/article/pii/S0140673620306279?via%3Dihub> spread in the news and on social media. While numerous experts amplified warnings, many politicians downplayed or contradicted calls to action from public health and medical professionals. Key decision makers often focused on short-term economic goals rather than proactive prevention, pushing experts to walk back prognostications <https://www.washingtonpost.com/health/2021/05/07/cdc-official-resigns/> in ways that wasted precious time and limited our ability to minimize morbidity and mortality.

Hesitancy To Share, Integrate, And Learn From Diverse Data Streams Across Sectors

Some states' inflexible, often outdated disease reporting systems had difficulty handling the volume of information and data <https://www.cincinnati.com/story/news/2020/11/18/ohio-daily-covid-19-numbers-delayed-hours-due-technical-glitch/3770422001/> , limiting the ability of local response teams to effectively grasp the on-the-ground situation. Chasms emerged in the ability to share data between sectors (such as public health, health care, congregate care) and between jurisdictions (such as local, state, federal; across local jurisdictional or state boundaries within single metropolitan areas).

For example, in Southwest Ohio, when widespread vaccination became a central objective starting in 2021, it was difficult to compile a comprehensive inventory of vaccine availability across the region given different sectors (public health, hospitals, retail pharmacy, and so forth), and jurisdictions/supply chain (region crosses state borders). Often, privacy-related regulations and sensitivities made officials hesitant to share data <https://nam.edu/wp-content/uploads/2020/11/Health-Data-Sharing-to-Support-Better-Outcomes_prepub-final.pdf> , even when it was possible to do so. This hesitancy reduced or prevented situational awareness <https://www.springerprofessional.de/en/multi-sector-situational-awareness-in-the-covid-19-pandemic-the-/19551082> and impeded the ability to respond effectively as a collective population health system <https://pubmed.ncbi.nlm.nih.gov/33714596/> . Without a cross-sector view of critical data elements, such as supply and demand for vaccines, learning as a single system with shared objectives frequently proved to be out

of reach.

Hesitancy To Coordinate

Data provide important situational awareness. Such awareness, however, does not mean problems will be addressed holistically or effectively. Needed resources and expertise are often sidelined in the absence of a psychologically safe, nimble, practiced system with the ability to work quickly across long-disconnected sectors. For example, early in the pandemic, it took tremendous effort for health care facilities (hospitals, clinics), congregate settings (skilled nursing facilities, assisted living, community housing, senior living, group homes, jails, shelters), and public health agencies to consistently act as one. Frontline providers in skilled nursing facilities experiencing COVID-19 outbreaks lacked personal protective equipment (PPE) that was available within hospitals. Those outbreaks meant more patients presenting to hospitals; skilled nursing facilities at limited capacity to accept patients ready to be discharged. Problems were magnified as single organizations (and sectors) acted in isolation even when one had expertise or resources relevant to another's objectives (such as with PPE supply or knowledge of local outbreak). The lack of processes, structures, and trusted relationships among key actors, such as hospitals and nursing facilities, resulted in barriers to coordinated action. Coordination challenges were intensified by a history of barriers, competition, and fears of negative media coverage <https://pubmed.ncbi.nlm.nih.gov/33321076/> .

Hesitancy To Enable And Empower Local Leadership

For any system to work, leadership focused on shared objectives and informed by evidence must be allowed to flourish. Public health interventions, often designed and implemented locally, must be driven by local leaders with autonomy and power to make decisions and act. Early in the pandemic, the federal response emphasized political considerations <https://www.npr.org/sections/latest-updates-trump-covid-19-results/2020/10/02/919432383/how-trump-has-downplayed-the-coronavirus-pandemic> that exacerbated partisan divisions, provoked confusion, and diminished trust in critical public health institutions. Indeed, this top-down approach placed pressure on public health-relevant sectors to act according to politics rather than public health objectives. Facing public and political backlash, many competent public health officials left office <https://www.washingtonpost.com/national/a-white-coated-hero-or-a-medical-dictator-ohios-amy-acton-inspires-admiration-and-a-backlash-with-tough-coronavirus-response/2020/05/17/fa00cd1c-96d4-11ea-82b4-

c8db161ff6e5_story.html> , frequently replaced by non-specialists lacking needed expertise. Later in the pandemic, certain locales proposed or enacted legislation to limit or prevent effective public health leadership. Across the US, legislation that removes decision-making authority from trained public health experts <https://www.networkforphl.org/wp-content/uploads/2022/06/Summary-of-Enacted-Laws-and-Pending-Bills-Limiting-Public-Health-Authority-2.pdf> threatens to prevent qualified officials from leading without fear of professional and personal retribution. As a result of this hesitancy, decisions are made based on popularity rather than evidence and experience.

Overcoming System Hesitancies: A Path Forward

Collectively, system hesitancies perpetuate a disjointed preparedness and response system. We must design a resilient public health system resistant to hesitancies, capable of detecting and responding to dynamic public health emergencies.

Augment Early Warning Systems

A recent study identifies evidence of SARS-CoV-2 infection in the US earlier than previously recognized <https://pubmed.ncbi.nlm.nih.gov/34128970/> , raising the question of how to identify disease earlier than currently possible as we prepare for future outbreaks. Effective biosurveillance must be given a sustainable home and made accessible. Technological advances already enable near real-time global disease surveillance <https://pubmed.ncbi.nlm.nih.gov/23789639/> capable of detecting and summarizing leading indicators of disease. Such global-level approaches should cue intensified surveillance at national, state, and local levels to provide essential information for timely, evidence-based decisions and action <https://www.wired.com/story/its-time-for-a-national-pandemic-prediction-agency/> .

To make early warnings most actionable, they must be communicated to and contextualized for those who need the information for decision making. For example, key local-level decision makers must know the current health care system capacity and current and projected disease burden to make critical load-balancing decisions (for example, whether to open field hospitals). Surveillance must also include a focus on data sharing and transparent communication, balancing the risks and benefits of such transparency. Lessons from other sectors <https://pubmed.ncbi.nlm.nih.gov/33868065/> , such as severe weather or missing persons alert systems, have been suggested to facilitate broad communication of imminent

disease threats. Taken together, these considerations provide a foundation for preventive responses based on early warning and continuous situational awareness, context for decision making, and rapid, widespread dissemination of warnings to stakeholders.

Promote Integrated Responses And Collaborative Learning

Real-time situational awareness across sectors is necessary to support sensemaking and action-oriented decisions <https://onlinelibrary.wiley.com/doi/10.1002/lrh2.10369> . Long recognized as necessary for responding to natural disasters and national security threats, public health must establish processes to enable cross-sector collaboration and rapid learning. However, COVID-19 has demonstrated that public health is viewed through a different lens than that of natural disaster response and national security. While the concept of cross-sector coordination is included in many epidemic response playbooks <https://www.cdc.gov/flu/pandemic-resources/planning-preparedness/national-strategy-planning.html?web=1&wdLOR=c8B03C44D-F5A9-4ED7-BA3B-9431AF35209F> , it is evident from our COVID-19 experience that there has been minimal preparation, training, and practice directed toward such coordination.

Networked organizational models <https://pubmed.ncbi.nlm.nih.gov/33163894/> are widespread in militaries to enable alignment, agile decision making, and local, frontline responses. These capabilities are practiced routinely so that when called upon to act, the military is ready. However, processes, infrastructure, and leadership capacity to apply these approaches in public health settings has been, historically, limited. A commitment to preparedness requires investment in training and proactive organizational linkages to support ongoing COVID-19 responses. Linkages must also extend to other public health challenges unlikely to be solved without coordinated, multistakeholder responses (for example, opioid abuse, mental illness, health inequities). Similarly, public health in the US needs deeper and more widespread organizational capabilities to produce response systems that work across sectors toward shared goals. Systems should be focused on local and regional capabilities and capacity, enabling aligned and context-specific responses. This is not top-down command and control, but rather top-down and bottom-up organizational approaches that support flexible, adaptive, and timely responses. Formal leaders must lead. They also must make space for those informal leaders, often in communities and on the front lines, to co-produce effective responses.

Normalize And Incentivize Sharing Of Data, Resources, And Expertise Across Sectors

Redesigned, coordinated public health infrastructure must enable the routine, protected, sharing of information, resources, and expertise. One important example of an overdue public health need is seamless information flow between and within federal, state, and local agencies. Past and ongoing initiatives linking relevant data sets (such as through electronic health records or immunization registries) are important top-down activities that have the potential to add much capability if they can support holistic, integrated, rapid local responses. Such capabilities are essential to inform and empower local teams so they can identify and respond to populations with high burdens of disease. During the COVID-19 pandemic, these capabilities, available in some locations, have supported epidemiologically and equitably sound decision making, including enhanced access to testing and vaccination opportunities <https://catalyst.nejm.org/doi/full/10.1056/CAT.21.0056> .

Organizational approaches that make working across sectors easier can provide access to resources that may otherwise be unavailable. Organizational cultures that value and provide the freedom to focus on local problems, instead of self-protection, will further reduce the hesitancy to work across sectors. In Southwest Ohio, routine meetings of stakeholders from critical sectors (such as public health, health care, and congregate care) were used to collectively review data, define shared objectives, and manage resources in ways that benefited key actors and the system as a whole <https://pubmed.ncbi.nlm.nih.gov/33714596/> . Cross-sector connections facilitated alignment and removal of bureaucratic barriers (such as hospitals that usually compete with one another, multiple local health departments within a single metropolitan area). In times of crisis, competition and red tape are avoidable dangers.

Enable Qualified Leaders To Lead

We need a revised view of and better preparation for apolitical crisis leadership. Shared governance and leadership across sectors must be recognized, enabled, and integrated into the approach to complex public health challenges. Transparent, respectful discussion of differing views and priorities should be our norm, so long as that discussion emerges from accurate data and the best available evidence. Informal leaders, those with lived experience, may be some of the most effective leaders during an emergency. They must be connected with more formal networks within organizations or across regions. Moreover, learning from local successes will be

important if we are to identify needed infrastructure to foster a ready and resilient public health system.

This capability, however, will only be realized when public health leaders are allowed to be public health leaders. Public health's legal protection is long established and recognized, but leaders who possess the right expertise and information can act only if allowed and supported in their "lane" of responsibility. Current and pending state legislation limiting the power of public health officials to act in emergencies must be challenged and reversed. For example, recent legislation in Florida "puts the biomedical establishment on notice," <https://www.flgov.com/2023/09/07/governor-ron-desantis-puts-the-biomedical-establishment-on-notice/> dangerously politicizing commonsense public health protections in ways that could very well impede future responses. To optimize the chance of effective, timely responses, technical leaders must be free to provide their expertise without fear of political interference or intimidation, without leaders and policy makers inserting petty politics into politically indiscriminate crises.

Conclusions

We can design a resilient public health system resistant to hesitancies, a system capable of detecting dynamic public health emergencies, and responding nimbly and efficiently. To do so, we need an integrated system that works across sectors, approaches leadership in a new way, and enables rapid learning from the top-down and bottom-up. We can, and must, overcome system hesitancies to ensure future public health preparedness and timely responses to public health threats.

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