ORIGINAL ARTICLE

A disaster by any other name?: COVID-19 and support for an All-Hazards approach

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Abstract

Disasters are among the crises that can test the decision making skill of elected and appointed public officials from planning through response and recovery. The COVID-19 crisis, a public health emergency rather than one with immediate damage to the built environment, has affected many aspects of community life. Experiences in responding to the pandemic will likely stimulate fresh planning initiatives for public health emergencies. How then should emergency planners approach planning and response tasks? The All-Hazards approach has been a mainstay of both research and policymaking for over 40 years, but it has come under recent criticism. In this paper, we consider if the All-Hazards approach to disaster management is still viable. Comparing the management needs that emerged in the pandemic with those of disasters from more familiar hazard agents, we conclude that the All-Hazards approach is valid and can continue to guide policymakers in their hazard and disaster management activities.

KEYWORDS

All Hazards, Disaster Planning and Preparedness, Public Health Preparedness

INTRODUCTION

Disasters are among the crises that can test the decision making skills of elected and appointed public officials from planning through response and recovery. Planning for disasters is an expected task, and agencies and organizations whose plans are

deemed inadequate face public criticism, and even costly and embarrassing lawsuits. Lazo (2013), for example, documented the litigation against Los Angeles for under-emphasizing compliance with the Americans With Disabilities Act. A similar lawsuit was filed in New York (Santora & Weiser, 2013). Public officials are expected to be able to predict the future and to plan for it. Meanwhile, inadequate responses can cost lives and property and bring disrepute to organizations and individuals. Although plans rarely work as designed to and typically require improvisation (Kendra & Wachtendorf, 2003a; Wachtendorf & Kendra, 2012) and spontaneity in their implementation (McEntire et al., 2013), planning also facilitates these necessary adaptations to contingency (Kreps, 1991). Moreover, the best improvisers train and practice relentlessly.

Although the number of positions titled "emergency management" may be comparatively small, disasters by definition will touch every aspect of community life and involve many governmental and nongovernmental functions. The COVID-19 crisis, a public health emergency rather than one with immediate damage to the built environment, has affected many aspects of community life. Some stopped completely, others continued in different forms. Education, commerce, and cultural activities are disrupted on a wide scale. Leveraging these experiences for the benefit of future planning and policymaking will likely be preeminent tasks in the future. Inevitably, we will want to learn from these events, maybe even in time to meet subsequent waves.

Experiences in responding to the pandemic will likely stimulate fresh planning initiatives for public health emergencies. How then should emergency planners approach planning and response tasks? One venerable guide to planning has been to partially outflank the diversity of challenges that can be posed by particular disaster agents by addressing tasks that are common to nearly all events.

The All-Hazards approach has been a mainstay of both research and policymaking for over 40 years. As a long-held principle, however, the All-Hazards approach periodically draws critics, who assert either its obsolescence or the advantage to be gained from separate planning for specific hazards. For example, in a recent essay, Bodas et al. (2020) questioned whether hazards with very different initiating agents bore sufficient similarity that they could be planned for according to uniform and broadly applied principles. Bodas et al. (2020, 1) cite "the artificial consolidation of dramatically different hazard scenarios." They go on to state, "Given the depth of difference across hazard types, we should contemplate the implications on the architecture of disaster planning and response" (Bodas et al., 2020, 1). The question is an important one for public administrators at every level because how it is answered could shape the very way public health and emergency management systems are structured and disaster policies are drafted and implemented after the COVID-19 event. How we understand the elements of disaster shapes the policy responses to it; shapes the plans that are expressions of that policy; and shapes the kinds of responses that are possible. The question then is, can we plan for pandemics, and administer programs and resources, as if they are broadly similar to disasters arising from other hazard agents?

In this manuscript, we ask if the All-Hazards approach to planning has relevance in informing the management of pandemics. This is a fundamentally different question from "are pandemics the same as other kinds of hazards?" or "are pandemics disasters?," as these questions are in reference to the nature of the events themselves. In considering the relevance of All-Hazards, we focus not on the hazards themselves, but on the response demands, activities, and behaviors that emerge as a result of the onset of these hazards, and whether these demands and activities are consistent.

Planning is a process fraught with difficulty, requiring imagining possible futures and anticipating the resources and systems that will be needed. The need to plan, with its often symbolic value of denoting competence to external constituents (Clarke, 1999) can lead officials to develop plans that are more fictitious than real. In other situations, the need for an organization to have a plan—often under the imperative of a boss or regulator—pushes officials into bringing in a consultant who will generate the needed document in a short timeframe. This plan, rarely aligned with the actual needs of the organizations, yields the "paper plan syndrome" (Auf der Heide, 1989). As planning is so important, and the urgency and symbolism can lead to maladaptive organizational responses, public officials need to know the durability of existing planning principles as well as the robustness of concepts of hazard. With the resources of staff time that are needed for disaster planning, and with the likely attention that we will now see paid to public health planning in particular, it is worthwhile to consider whether emergency officials can continue to have faith in planning and organizing approaches that seek common elements in disaster response.

Can the venerable theme of All-Hazards provide continuing guidance for planning practice? We assert that the answer is yes. Drawing on observational and documentary sources, we examine the response to the COVID-19 pandemic in comparison to phenomena that are typically manifest in other disasters or challenges generally identified in planning and exercising. The All-Hazards approach remains important in crisis management practice, and officials can be confident in planning based on this approach.

In this paper, we present a rationale for the continued validity of the All-Hazards approach to planning. We use as the basis for our argument an analysis of relevant features of the COVID-19 pandemic. This pandemic, which perplexed officials on a global scale, might at first glance appear as different from an event such as a hurricane as can be imagined. In contrast, we find a great many similarities. To advance this argument, we first sketch out the main features of the All-Hazards approach. We then follow Peek and Sutton (2003) and structure this paper around a series of propositions drawn from the canonical disaster science literature, then compare those findings with observations from COVID-19. Those observations include the study of government documents such as briefings and reports of the U.S. Federal Emergency Management Agency, guidance documents produced by government and non-governmental organizations, our own first-hand knowledge of response activities owing to our contacts in responding agencies, and the daily coverage of the event from the *New York Times* and CNN since March 1, 2020, to date. For the purpose of this paper—identifying the type and nature of disaster response challenges—reputable media sources provide a wide data source, with multiple reports of various phenomena, that can counteract any isolated inaccuracies in reporting. We conclude with the implications of our analysis for emergency officials.

ALL-HAZARDS APPROACH

All-Hazards planning emphasizes tasks that must be accomplished in all events. A conceptual justification for All-Hazards planning can be found in the distinction between agent-generated and response-generated demands (Quarantelli, 1997). Agent-generated demands are those tasks or resources needed to meet the specific characteristics of a disaster agent—flooding, storm, earthquake. For example, Quarantelli used the example of sandbags as an agent-generated demand in a flooding situation, because they are needed for flood control. Response-generated

demands are those needed to support response operations, and are typically logistical, organizational, and communications systems. Quarantelli further argued that "failure to recognize the two processes as distinct, can be regarded as an indication of poor disaster management" (Quarantelli, 1997, 42).

APPROACH

Following the approach of Peek and Sutton (2003), we base our argument on the development and support of several propositions. The identification and development of propositions were informed by three criteria. First, our propositions were driven by issues highlighted in the media itself. As issues rose to the surface in media coverage and were conveyed to be of importance, we were able to draw from this emerging list of management activities and challenges in the pandemic response. We refined our list of propositions from this emerging list by considering them in light of the other two criteria. Second, similar to the selection approach we used in our previous work (Penta et al., 2017), we selected propositions relevant to topics that had been well explored in the disaster research literature. The purpose of this criterion was to ensure that there was a sufficient body of scientific work on which to make comparisons with the current pandemic. Due to this criterion, many of the topics featured in this manuscript echo the propositions raised in our earlier work. Finally, the propositions had to be relevant to *management and planning*. The All-Hazards approach is meant to guide planning for and the management of extreme events. It is not the purpose of this approach to define the nature of those events or decide whether an event is a "disaster." As such, the propositions were focused on management activities and behaviors, planning, and the challenges to both. As a result of the focus on management and planning, our propositions are implicitly focused primarily on the preparedness and response phases of the disaster cycle. Specifically, we make the following six propositions:

1. Public health crises, such as pandemics, are managed like other disasters.
2. Creativity and improvisation are important aspects of the response to public health emergencies, just as they are in other kinds of emergencies and disasters.
3. Human behavior during pandemics is consistent with human behavior in other kinds of disasters.
4. Pandemic response/responders face the same logistical challenges and demands associated with a convergence that responders must contend with during other types of disasters.
5. Pandemics and other kinds of disasters present similar kinds of challenges to the delivery of health and medical services.
6. Disaster management activities can be a source of harm independent of the harm caused by the hazard agent itself in both pandemics and other kinds of disasters.

Support for our propositions relies predominantly on news media for data. Media sources should often be regarded with skepticism; however, scholars such as Comfort (1999) have successfully used media analyses in theory building. Alexander (2012) analyzed the grounding of the *Costa Concordia* earlier that year, noting that a wide variety of documentary sources allowed for comparison and triangulation of observations. As both a rapidly evolving and enduring event, news media offered the timeliest and most widely available source of information on multiple dimensions of the pandemic preparedness and response efforts. After action reports provide

valuable information on the government agency or nongovernmental organization activities in response. However, at the time of writing, these organizations were still responding to the event and were not yet undergoing the after-action review process. Some information from these organizations was available through released documents, press releases and announcements, and information on websites, but the more in-depth, reflective documentation was not. As a result, these sources serve as an important complement, but not a primary source of evidence for the propositions. Future work on this topic should, of course, consider after-action reports and other related documents as primary sources of information.

We rely primarily on *The New York Times* as our source of news media. Beginning as early as 1913, librarians began to refer to *The New York Times* as the "Paper of Record," and while other newspapers have since become library and archival staples, it has remained a standard library reference (Martin, 1998). Furthermore, *The New York Times* is simultaneously a national and local news source. It has consistently reported on the COVID-19 crisis as it has unfolded in different parts of the country and the federal government's response activities. At the same time, *The New York Times* offers local reporting for New York state and New York City. Both the state and the city were among the first areas in the United States that had to contend with cases, and the sharp rise of cases in the spring of 2020 (early in the pandemic) meant that many of the crisis management issues and tactics of interest were discussed in this outlet. In cases where we saw our points of interest illustrated in locations outside of New York, we supplemented *The New York Times* articles with other news sources to provide additional information.

In addition to news media, we used the preliminary evidence gathered as part of the E.L. Quarantelli Resource Collection. The E.L. Quarantelli Resource Collection is composed of rare and historic research data, object collections, and other disaster-related documents and publications. In March 2020, as it became apparent that the COVID-19 pandemic would have long-lasting impacts in the United States and around the world, Collection staff began planning for long-term acquisition of COVID-19-related material. On April 2nd, after a press conference in which senior White House official Jared Kushner made controversial statements regarding the state and priorities of the United States Strategic National Stockpile (SNS), the U.S. Department of Health and Human Services (HHS) changed the language on its website that had previously contradicted Mr. Kushner's statements at the press conference (Blake, 2020).

It was at this point that Collection staff began to view documents generated by the United States government as potentially subject to frequent changes, and therefore perishable in nature. With this in mind, Collection staff shifted collection of U.S. government documents to a so-called "quick-response" collecting approach (Kieffer & Romanek, 2019; Schwartz et al., 2018; Tindal, 2018) as outlined by collection development policies and as part of the Collection's longer-term COVID-19 acquisition strategy. The decision was also made at that time to begin collecting state-level documents from three U.S. states: Delaware, home to the Disaster Research Center, and New York and Washington, two early COVID-19 hotspots (documents from other states and countries have also been included, but the focus was particularly on these three). More than 7000 documents have been collected at the time of publication.

We searched these documents using keywords identified as relevant to the All-Hazards approach and management of disasters. These included incident command system, incident commander, incident action plan, incident objectives, emergency operations center, supply chain, logistics, humanitarian logistics, coordination, collaboration, volunteers, donations, Small Business Administration, Stafford Act,

major disaster declaration, shelter, hotels, motels, Individual Assistance, and Public Assistance. These, in turn, yielded documents revealing parallels to the All-Hazards Approach.

PROPOSITIONS

Proposition 1: Public health crises, such as pandemics, are managed like other disasters

According to the Commission to Investigate the Introduction and Spread of SARS in Ontario (SARS Commission, 2005, 365),

> It is artificial to try to distinguish between public health emergencies and general emergencies. Indeed there is no such thing as a pure public health emergency. Every big public health emergency creates problems beyond the realm of public health. Schools, jails, homeless shelters, tourism, travel restrictions, and the economy are not typically within the expertize of medical advisors. If medical predictions are correct, the next influenza pandemic will start as a public health emergency, and rapidly snowball into a general emergency.

This observation suggests that many of the response demands to be tackled within a public health emergency are in actuality those associated with all disasters and that they could be managed the same way.

In an earlier paper (Penta et al., 2017), we cited the use of the Incident Command System in public health crises. For example, Moynihan (2009) observed it in response to an outbreak of Exotic Newcastle Disease: a zoonotic disease affecting chickens across a wide area of California. The Incident Command System had been developed after disorganized and chaotic responses to wildfires in California. This protocol was widely-adopted over subsequent years and now its use is mandated by Homeland Security Presidential Directive 5 HSPD-5 issued February 28, 2003. Coordination among organizations was a key need in the Exotic Newcastle event, and Moynihan argued that the need for coordination was met through ICS. Although many scholars debate the usefulness of this protocol (Buck et al., 2006), its use during the COVID-19 pandemic again suggests parallels to nonpublic health emergencies.

ICS was widely used by agencies throughout the United States: more places than can be listed in this paper. For instance, many places used Incident Action Planning, an important ICS design feature (Auf der Heide, 1989). The California Hospital Association (California Hospital Association, 2020) provided sample ICS forms for use in the COVID-19 response. ICS or the variant Incident Management System was used in other places, too, besides the US, such as Australia (Australian Government, 2020).

Healthcare entities also used ICS. According to Hartford Healthcare Medical Group (2020):

> Incident Command teams throughout the system learned, adapted, and strategized to create and implement plans for patient intake, drive-through testing, distribution of personal protective equipment and so much more. The challenge was providing the best possible care to patients while keeping staff and visitors safe....A 25-member Hartford Hospital team, working together on emergency preparation for more than

a year, traveled in March 2019 to Anniston, Ala., to train at the Federal Emergency Management Agency's (FEMA) Center for Domestic Preparedness. There, they learned practices and techniques they adapted to the COVID-19 pandemic.

Other emergency management principles became important too in COVID-19. Emergency management activities seen at the local level for the COVID-19 pandemic are identical to those activities that occur during more common disasters, such as in Los Angeles, which deployed Disaster Service Workers and opened shelters (Sahakian, 2020). A briefing by the City of Evanston Illinois (2020, 7–8) listed many activities in COVID-19 that are performed regularly in other emergencies:

> "Assist Long-Term Care facilities and other organizations to serve the most vulnerable and at-risk populations....Coordinate with hospitals to expand capacity/services...Develop a volunteer management plan to better manage COVID-19 response and recovery...Understand and address food accessibility/insecurity by collaborating with community partners... Formulate a data analytics group to better identify future projections of incident needs."

Returning to the lessons of SARS in Ontario, the SARS Commission went on to state (SARS Commission, 2005, 306), "Because there is no clear line between public health emergencies and general emergencies, it would be wrong to introduce separate, freestanding, parallel emergency regimes, one for public health emergencies and the other for all other big emergencies."

The validity of their assertion was borne out in the management of COVID-19. Initially, it was managed as a public health emergency, with the Department of Health and Human Services as the lead agency. In late March 2020, FEMA was named the lead agency for the response. As they would in other events, FEMA deployed Incident Management Teams to affected places. Regional Response Coordination Centers were activated. And initially, a "major emergency" was declared under the US Stafford Act.

In fact, for many years, there was debate amongst U.S. government officials as to whether the Stafford Act authorized a Major Disaster Declaration for pandemics. Some argued that it did not, because specific hazards are mentioned in the Act and pandemics are not among them. Others argued that pandemics could fit the scope (Liu, 2008). The question gained refreshed salience during large scale exercises in 2019, dubbed Crimson Contagion. This exercise postulated an amazingly similar sequence of events to that seen in COVID-19—a novel influenza virus (in that event) brought to the US by travelers from China; rapid spread throughout the United States; and shortages of PPE, among other features. In the Crimson Contagion exercises (Assistant Secretary for Preparedness and Response, 2020, 18), the problem of a disaster declaration was confronted head-on.

> "The exercise reaffirmed previous exercise series participants' confusion regarding the applicability of the Stafford Act for an influenza pandemic. … [P]articipants discussed the possibility of providing states with assistance through an "emergency" or "major disaster" declaration under the Stafford Act, but expressed uncertainty surrounding the legal possibilities of a declaration under the Stafford Act, noting the lack of historical precedent for issuing a declaration in response to a naturally occurring biological

incident. Further, the definition of a "major disaster" under the Stafford Act does not explicitly refer to an influenza pandemic."

In the end, all doubt was resolved by action. The governor of New York, strongly supported by New York State senators, requested a Major Disaster Declaration. Other states followed and major disasters were declared nationwide under the National Emergencies Act, Stafford Act, and Public Health Service Act (Elsea et al., 2020). Once states received disaster declarations, the same kinds of assistance were available as in events stemming from other hazards. This included, for example, a variety of medical support and sheltering activities under the Public Assistance Program and crisis counseling under the Individual Assistance Program.

Beyond declarations and requests for assistance, emergency managers, health professionals, and responders at all levels of the United States government have continued to utilize ICS planning and principles to manage the COVID-19 crisis. This was especially borne out in the review of government documents as collected by the E.L. Quarantelli Resource Collection. The White House Coronavirus Task Force, the Department of Health and Human Services, the Centers for Disease Control, FEMA, and other federal agencies all explicitly mention and rely on the Incident Command System and its various structures and principles in policy guidance documents (Burris et al., 2020; Currie, 2020; U.S. Department of Health and Human Services, 2020). Further evidence of the use of these principles in practice is readily found in Situation Reports (SitReps), Press Releases, and Update documents (Assistant Secretary for Preparedness and Response, Technical Resources, Assistance Center, and Information Exchange; ASPR TRACIE, 2020; Federal Emergency Management Agency [FEMA], 2020; NRCC Healthcare Resilience Task Force, 2020; US Department of Health and Human Services, 2020). Beyond the United States, tribal governments and international organizations have included mention of ICS and related principles in their response documentation and guidance as well (Indian Health Service, 2020a, 2020b; World Health Organization WHO Regional Office of the Americas, Pan American Health Organization PAHO, 2020; World Health Organization, 2020).

Proposition 2: Creativity and improvisation are important aspects of response to public health emergencies just as they are in other kinds of emergencies and disasters

Creativity and improvisation are hallmarks of disaster responses. Regardless of the quality or magnitude of prior planning, the management of complex community-wide events always demands new procedures, new tools, and new systems for accomplishing both familiar tasks and the new tasks that are part of the changed environment.

Kendra and Wachtendorf (2003a, 2003b) observed numerous elements of creativity and improvising in the wake of the 9/11 attacks in New York. The city's Emergency Operations Center was destroyed in the Towers' collapses; a substitute facility was established in a cruise ship terminal on the Hudson River. They analogize from creativity in the organizational and business literature to the disaster setting, citing Amabile's (1997) delineation of types of "entrepreneurial creativity." These include: "(a) the products or services themselves, (b) identifying a market for the products or services, (c) ways of producing or delivering the products or services, or (d) ways of obtaining resources to produce or deliver the products or services" (Amabile, 1997, 20).

For example, a large GIS mapping service was established in the EOC, where responders could order maps that they needed (Kendra and Wachtendorf, 2003b).

We can see similar kinds of creativity in business responses to the pandemic. Fashion designers and manufacturers pivoted their production processes to be able to make masks (Friedman & Testa, 2020). Restaurants shifted to new kinds of services: take-out meals; "meal kits" where customers could pick up ingredients and prepare the food at home; or selling groceries along with the food. Selling commercial-grade paper towels, toilet paper, bricks of butter, and so on enabled restaurants to connect customers directly to their supply chains. In one interesting case in one author's town, a restaurant turned its workforce toward light home maintenance, such as painting outdoor decks, to keep them employed. Examples like this were ubiquitous throughout the United States.

Chen (2020) reported on the many adaptations that teachers implemented in the shift to remote instruction. One teacher decorated the wall behind her with classroom materials, so that students would see a familiar and comforting background. Others shifted curriculum. Many needed to rearrange their household environments, experiences familiar to millions of people thrust into working from home.

Breaking or bending rules is commonplace in disaster because such transgressions—if performed carefully and with due regard for safe conditions—can free up or create unexpected resources (Kendra & Wachtendorf, 2016). For example, states allowed out-of-state physicians to provide medical care, while others explored training of medical specialists, such as dermatologists, to provide care (Simmons-Duffin, 2020). Medical schools graduated students early (Abrams & Ducharme, 2020). Abrams and Ducharme (2020, 1) report that "American Association of Medical Colleges (AAMC) records show at least 13 U.S. medical schools have allowed students to graduate early and join the COVID-19 response." At the same time, administrative challenges have slowed the ability of the new graduates to actually go to work, including regulatory and licensing approval and identifying locations for them to work at.

Others reported relaxing of regulations for COVID-19 for hospitals. This includes opening up new areas for patient treatment, making it easier to use Medicare, easing reporting deadlines, and more support for healthcare personnel that they would not normally be able to receive, like free meals and child care (Sanger-Katz, 2020). In sum, improvisation and creativity have been necessary and widespread features of the response to COVID-19, both within the healthcare sector and across the numerous other domains of societal functioning disrupted by the pandemic.

Proposition 3: Human behavior during pandemics is consistent with human behavior in other kinds of disasters

One noteworthy behavioral outcome in a disaster is convergence behavior, which is defined as "movement or inclination and approach toward a particular point" (Fritz & Mathewson, 1957, 3). Fritz and Mathewson identified five kinds of convergers: returnees, the anxious, the helpers, the curious, and the exploiters. After the 9/11 attacks, researchers identified another kind of convergence: the fans or supports, such as people gathered along the West Side Highway to cheer and applaud the first responders who were driving to Ground Zero (Kendra & Wachtendorf, 2003c). Similar shows of support were visible in COVID-19, as people participated in 7 pm applause for healthcare workers (Newman, 2020). More direct volunteerism is noted after disasters, as people arrive from affected areas to offer assistance. A longstanding

concern has been the possibility that, out of concern for infectious disease, healthcare workers would not "report for duty" (Alwidyan et al., 2020; Trainor & Barsky, 2011). The idea of role abandonment has persisted as at least a theoretical possibility, but in most disasters has actually been but a minor problem. Hurricane Katrina was perhaps the main recent exception, wherein many responders were themselves directly impacted. In COVID-19, while healthcare workers may not have been able to report due to their own or a family member's illness, by most accounts, workers have reported to work, even if they do so with considerable anxiety for their and their families' well-being. Moreover, there has not been a lack of volunteers. In contrast, people have volunteered in several capacities, in many cases traveling to important response locations to do so. Medical professionals, for example, volunteered and traveled (Hong, 2020a). In one noteworthy case, a nurse and her boyfriend sailed their boat from Baltimore to New York City (Siegal, 2020). They could live aboard while she worked.

Most disaster researchers have long identified a tendency toward prosocial behavior in the disaster setting, and this seems largely to have been borne out at least so far in the COVID-19 crisis. Nevertheless, conflicts do often emerge over time. One of the particular flashpoints has been the wearing of masks. Protests have been seen in other public health events (Leavitt, 2003), typically against government intervention perceived to be arbitrary, inconsistent, and inequitable: perceptions that motivate protest in any public policy debate, including in disaster. In the immediate timeframe of the impact of the hazard agent, there is typically a time of solidarity, self-help, citizen rescues and assistance, and so on. But this often gives way to discord and disagreement over recovery goals and strategies. Robust public participation is almost universally advised by scholars in this field as a way of identifying options and points of disagreement, and building trust in the process (Kweit & Kweit, 2004). In fact, guidance from public health scholars and others, focusing on public behaviors in a health crisis (e.g., Schoch-Spana et al., 2018), draws heavily on communications theories developed with regard to other emergencies, such as the warning process model of Mileti and Sorensen which was based heavily on natural hazards observations (Mileti and Sorensen, 1990).

The advent of end-the-isolation protests does not signal a deviation of behavior in pandemics from prosocial responses in the earlier time of disaster. Rather, these protests, which have occurred as COVID-19 management activities became prolonged experiences, represent another area of consistency with disasters. There are often disagreements over what disaster management should look like, in many kinds of events. After the 1991 Andover tornado, residents of a destroyed trailer park were supported by the Mennonite Disaster Services in their resistance to the swift bulldozing of the debris; they needed more time to try to salvage their belongings (Fischer, 1998). After 9/11, police and firefighters came to blows over the pace of the effort to clear debris, and relatives of victims hectored the official overseeing operations (calling him "Mr. Scoop-and-Dump"; Langewiesche, 2002). Public officials themselves clashed over strategies and methods (Kendra & Wachtendorf, 2016). Discord about what recovery should look like and how it should proceed is routine after disasters of all sorts.

There are additional familiar behaviors. The famous run on toilet paper, sometimes called "panic buying" was widely reported. However, it was reframed by other scholars as "precautionary buying" (Holguín-Veras, J. quoted in Stracqualursi, 2020). And as would be predicted in the standard disaster literature (e.g., Tierney et al., 2001), the idea that people would panic in search of safety or treatment—a staple of disaster films—was never borne out in this event. Instead it was actually difficult to get some people to take the threat seriously. Many dismissed the risk or were willing to bear the risk for political reasons or for household economic considerations.

Proposition 4: Pandemic response/responders face the same logistical challenges and demands associated with convergence that responders must contend with during other types of disasters

Information needs, sharing information, and managing misinformation

Informational convergence and its associated challenges are well-documented in previous disasters (Fritz & Mathewson, 1957). For instance, during Hurricane Sandy, volunteers worked to collect and share information (via social media) and address rumors, highlighting both the need to share information and the need to correct inaccurate reports (Department of Homeland Security Science and Technology, 2013, 21). A Department of Homeland Security report on lessons learned regarding social media during Sandy notes that there were inaccurate photos of the damage and of sharks in floodwaters, and reveals a general difficulty in finding and verifying accurate information (Department of Homeland Security Science and Technology, 2013, 22). News media during the event highlights the case of one man spreading false information via Twitter during the event (Gross, 2012). The National Weather Service monitored social media for misinformation leading up to Hurricane Maria (Bui, 2019). After Hurricane Maria, there was substantial difficulty in assessing and communicating an accurate death toll due to the event, and difficulty managing or responding to rumors around this issue (Andrade et al., 2020). These examples illustrate some of the kinds of information-seeking and sharing behaviors common in disasters as well as the challenges associated with the disaster information context. The efforts to seek and share information during COVID-19 and the challenges in doing so mirror the disaster experience.

As COVID-19 spread in the United States, people have sought out information about the disease and what is happening in their communities. This was reflected in changes in internet use behavior, including changes in online traffic to some news sources. *The New York Times* noted an increase in traffic going to local and established news sources, increased traffic to the Centers for Disease Control and Prevention (CDC) website, and the use of web-based platforms to connect with others (Koeze & Popper, 2020). This information-seeking behavior is not limited to laypeople. Amidst the lack of clear guidance on treating and handling COVID-19 patients, physicians turned to social media, such as Facebook groups, for guidance (Ouyang, 2020). At the same time, misinformation has proliferated on the internet and in social media sites, even with efforts from social media companies to push back against it (Frenkel et al., 2020). This information climate has been referred to as an "infodemic" by some working at the World Health Organization (Richtel, 2020).

Supply management

Logistics and management of material resources are an important part of crisis management, as responding organizations identify needs, identify sources where they can obtain those needed supplies, and navigate the transport/shipping processes. These aspects of normal operations can be complicated in the disaster context. Scholarship on disasters has long documented challenges associated with material convergence, particularly in the form of disaster donations. Communities affected by disasters frequently receive donations they do not need because they receive them in a volume that exceeds needs in that place and time, or because the donations are inappropriate for the context (Argothy, 2003; Fritz & Mathewson, 1957;

Holguín-Veras et al., 2014; Wachtendorf et al., 2013). The mismatch between supply and demand can create logistical issues around storing (Destro & Holguín-Veras, 2011; Fritz & Mathewson, 1957; Holguín-Veras et al., 2007, 2014; Neal, 1993; Nelan et al., 2018) and transporting items (Destro & Holguín-Veras, 2011; Neal, 1993). For example, the federal government had tremendous difficulty integrating external offers of support during the response to Hurricane Katrina (The White House, 2006).

At the same time, there can be difficulties acquiring finite amounts of resources when they are in high demand by multiple groups. This concern emerged in a study of nursing home shelter and evacuation challenges. Participants from multiple nursing homes expressed concerns about having access to sufficient ambulance resources for evacuating ambulatory patients in the event that multiple facilities had to evacuate. Although these facilities typically have emergency contracts for these services, the same few ambulance companies have contracts with multiple facilities, raising concerns that it is unlikely that those companies will be able to honor their commitments in the contracts (Kendra et al., 2012). All of this means that, during disasters, even if there is a surplus of items being given, the process of finding, transporting, and distributing needed supplies in the appropriate volume and in the appropriate timeframe can be obstacle-ridden.

Comparable supply logistics issues have emerged in the COVID-19 response. Supply management has been a major issue in the COVID-19 response. Early in the pandemic, there were tremendous difficulties in getting medical supplies, namely personal protective equipment (PPE) like masks (Nierenberg, 2020). The situation around acquiring medical-grade masks was so bad that government officials instructed individuals to not purchase masks, with the Surgeon General at one point tweeting "Seriously people—STOP BUYING MASKS!" (Cramer & Sheikh, 2020). Around the same time, production of fabric masks began to emerge, particularly from fashion companies and designers (whose regular work and production were halted with COVID-19), though not of the protective level of N95 masks (Friedman & Testa, 2020). As hospitals return to elective procedures, their ability to offer these services may be slowed by the supply chain issues associated with getting the requisite PPE and testing supplies (Abelson, 2020).

Of course, medical supplies and PPE were not the only items experiencing strained supply chains. Household items such as paper products and cleaning supplies were in scarce supply in the spring of 2020 as people anticipated being confined to homes for extended periods of time. Food items were similarly unavailable when production ceased or slowed, such as when meat processing plants closed, or when distribution networks were unable to transport food. Even when production increased in agriculture and manufacturing, it was unable to immediately meet consumer demand. It took time for production to scale up and for that increase to be felt throughout the supply chain (Corkery et al., 2020; Hu, 2020; Knoll, 2020).

Instructions posted on hospital and healthcare system websites point to the logistical challenges associated with donations management, many of which echo the issues present in other disasters. Some stipulate specific items they wish to receive (Allina Health, 2020; Medical University of South Carolina, 2020), and even items that will not be accepted, like homemade food (Allina Health, 2020; University of Chicago Medicine, 2020). Beyond what to (and not to) give, characteristics of the donations themselves are also stipulated (Dignity Health, 2020). For instance, there are stipulations that PPE be donated in its unopened/original packaging (Allina Health, 2020; Confluence Health, 2020), that it should come from a verified supplier/vendor (University of Chicago Medicine, 2020), in bulk (University of Chicago Medicine, 2020), and sterile (Medical University of South Carolina, 2020). Some websites provide

recommended designs for hand-sewn masks (Confluence Health, 2020; Vanderbilt University Medical Center, 2020).

In addition to what to give, some hospitals have instructions available on their websites about *how* to donate PPE, with specific times and locations pre-identified on the site (Confluence Health, 2020; Vanderbilt University Medical Center, 2020), and procedures for drop off (Medical University of South Carolina, 2020; University of Chicago Medicine, 2020). Steps facilities will take to process donations are also outlined, including inspection and preparation (Allina Health, 2020; University of Chicago Medicine, 2020), sterilization/sanitization/cleaning (Medical University of South Carolina, 2020; Vanderbilt University Medical Center, 2020), assessment for appropriateness in use (Medical University of South Carolina, 2020; Vanderbilt University Medical Center, 2020), and explanations that donations will be distributed (Allina Health, 2020; Vanderbilt University Medical Center, 2020). For example, one hospital webpage states,

> "If you have medical supplies or products that are from a verifiable vendor source and in bulk quantities, please submit a supply intake form. Supplies and food must meet internal safety requirements and certifications, and all will be inspected and verified upon receipt or before purchase" (University of Chicago Medicine, 2020).

Personnel and volunteer management

Volunteer management has emerged as a challenge in previous disasters, particularly when volunteers were unneeded (Larson et al., 2006), or when too many volunteers arrived (Argothy, 2003; Kendra & Wachtendorf, 2003c; Scanlon & Osborne, 1992). Beyond having more volunteers than work to assign them to, converger legitimacy is an important issue in disaster response (Fritz & Mathewson, 1957; Kendra & Wachtendorf, 2003c). Volunteer vetting or credentialing to assess their legitimacy or appropriateness for particular tasks has also been demonstrated to be difficult during disaster situations (Kendra & Wachtendorf, 2003c). That individuals and emergency groups act prosocially and can be assets in emergency response is well documented (Scanlon et al., 2014), and formal practitioners acknowledge the potential resource they represent (Harris et al., 2017; Sauer et al., 2014; Skar et al., 2016), yet their successful integration into response efforts can be difficult, and their contributions unaccounted for in planning (Scanlon et al., 2014). Spontaneous volunteers in particular can pose challenges in coordination, personnel management, pressures on response resources, and risk management both in terms of the safety of volunteers and potential risks to the reputation and legal liability of organizations who integrate these volunteers. Ensuring that volunteers have the appropriate or sufficient knowledge, skills, and/or credentials to take on tasks is a concern for formal response organizations (Harris et al., 2017; Sauer et al., 2014; Skar et al., 2016). As a result, more formal response organizations have to balance between the potential costs to their organization and response effort with the potential benefits that can come from this influx of personnel resources (Harris et al., 2017).

In meeting COVID-19 healthcare demands, the need for additional personnel in South Carolina was such that the National Guard was mobilized to assist with basic healthcare tasks (intravenous lines and blood pressure checks). Some hospitals took on additional medical staff to deal with increased demand, and staffing supply can decrease as personnel burn out or get sick (de Freytas-Tamura et al., 2020). People are

volunteering to help address the myriad demands posed by COVID-19. However, processing, coordinating, and managing those volunteers has proven challenging. Healthcare volunteerism during COVID-19 has exhibited logistical challenges associated with processing a large number of volunteers, like processing volunteer requests, checking credentials, and assigning volunteers (Hong, 2020a; Whyte, 2020). Legal obstacles from regulations on health care practitioners have also presented challenges for healthcare centers trying to integrate personnel from across state lines. Supplementing the nursing workforce in Florida with nurses from other states has been difficult for this reason (de Freytas-Tamura et al., 2020).

These challenges are not restricted to the hospital setting. They extend to other aspects of emergency response. Emergency medical services, often provided by volunteers as a part of volunteer fire departments, have been strained. Personnel resources have been stretched increasingly thin as volunteers get sick or are unable to give their time to these services over concerns for their own health or employer restrictions (Levin, 2020). Similarly, much of the disaster response structure in the United States relies on volunteers, many of whom are over the age of 65, one of the groups at higher risk for COVID-19. This affects the supply of volunteers available and overall deployment decisions for many organizations active in disasters and the ways they will deliver their services (Flavelle, 2020).

Proposition 5: Pandemics and other kinds of disasters present similar kinds of challenges to the delivery of health and medical services

There are numerous instances in which disasters have limited the use of spaces dedicated to healthcare, limiting the kinds or amount of care offered at those facilities, or making them completely unusable. Hurricane Katrina required the evacuation of medical facilities in New Orleans, including Memorial Hospital (Fink, 2013). Tornadoes destroyed hospitals in Joplin, Missouri in 2011 (Briefings on Hospital Safety, 2011; Charney et al., 2014) and Moore, Oklahoma in 2013 (Burgess et al., 2014). Multiple hospitals in New York City had to evacuate due to disruptions caused by Superstorm Sandy (Farley, 2013; Ofri, 2012). Wildfires in California triggered hospital evacuations in 2017 (Nedelman, 2017) and 2019 (Kelley et al., 2019). The spaces where the medical care took place needed to change because of the disaster.

The pandemic has also changed the nature of medical spaces and how care is delivered in them. Hospitals have had to cancel elective surgeries due to the COVID-19 pandemic (Abelson, 2020; de Freytas-Tamura et al., 2020). As hospitals in some areas begin to resume these procedures "hospitals are also trying to reconfigure spaces, isolating infected patients and those suspected of being infected in distinct units, and ensuring patients have enough physical distance from others" (Abelson, 2020, n.p.). Hospitals have been converting non-intensive care unit (ICU) beds/rooms to ICU beds, in some cases expanding this capacity on the orders of entire floors (de Freytas-Tamura et al., 2020), changing the way these spaces are used. The need to socially distance at a time when increased numbers of people are in need of medical care has complicated the use of hospital space. Wait times at the emergency room of one South Carolina hospital led the facility to create additional waiting areas for patients that allow for social distancing: white tents set up outside the hospital (de Freytas-Tamura et al., 2020). Arizona became the first state in the country to transition to crisis standards of care under the pressure of COVID-19 on the healthcare system in that state, particularly as available intensive care unit beds dramatically diminished (Duda, 2020).

In their review of the literature on role strain, role conflict, and role abandonment, Trainor and Barsky note the common existence of role strain from a number of sources including "1) concerns about personal health and safety, 2) concerns about the absence of accurate and timely information, 3) a reduced belief in organizational continuity, and 4) a perception that expectations about what a person can or should accomplish during a disaster were unreasonable or unclear" (2011, 10). Responders can be exposed to dangers in the course of response efforts. This can occur when responders must report to unsafe locations, such as during wildfire response or at the World Trade Center site during 9/11, when firefighters entered the burning towers, and after their collapse when responders worked on top of the debris pile.

There are parallels between the personnel strains present during other disaster responses and those emerging during the response to COVID-19. News media outlets have repeatedly highlighted the toll on healthcare personnel, from long hours, mental health consequences, physical consequences from the wearing of PPE, and healthcare workers getting sick with COVID-19, some of whom have died. Although it has not yet created a shortage of personnel such that the healthcare system has collapsed, the strain on personnel, and by extension on the healthcare system, have repeatedly been noted. COVID-19 has also taken a toll on nonmedical personnel who play important roles in supporting hospital function. Though exposed to the virus through their nonmedical work in hospitals, these personnel have not always had access to protective equipment. People in these roles have contracted the virus and died (Hong, 2020b). COVID-19 has similarly impacted emergency services, like volunteer fire departments, which provide emergency medical services in many communities. As volunteer personnel have had to stay home because they are sick, in quarantine, have underlying health conditions, or are not permitted to volunteer during the pandemic by their regular employers, emergency medical services' personnel capacity to engage in the COVID-19 response becomes limited (Levin, 2020).

Proposition 6: Disaster management activities can be a source of harm independent of the harm caused by the hazard agent itself in both pandemics and other kinds of disasters

Older (2019, 277–278) argued for a concept of disaster response as a "secondary hazard." She argues that "Disaster responses are not always positive experiences for those affected. They can be seen as a separate, if related, event; a secondary hazard following the earthquake, flood, or drought." She further stated, "In the aftermath of a catastrophe, it's common for communities or local authorities to refer to the response as an extension, amplification, or echo of the disaster." For people who do not suffer illness themselves, or in their families, the pandemic management measures of social distancing may be the source of harm, in terms of economic losses brought about by closed businesses and the cessation of economic activity. As another example, the elimination of elective surgeries—a high revenue generator for hospitals—combined with the high costs associated with delivering COVID-19 care has caused economic turmoil for hospitals, leading to furloughs in some instances and growing concerns that some hospitals may have to close (Kliff, 2020). However, and sadly, people's wellbeing is sometimes affected as part of a disaster response. In the 1997 Red River Flood in Canada, one rural community argued that it was allowed to flood to lessen flooding in Winnipeg and later received added compensation (Enarson & Scanlon, 1999, 106). The response to Hurricane Katrina,

especially in terms of evacuations and displaced populations, harmed social systems and severed networks of family and friends.

Another maladaptive phenomenon leading to harm, in both COVID-19 and other disasters, is the diversion of economic assistance. As large scale clothing companies declare bankruptcy (Maheshwari & Friedman, 2020), such as J. Crew and Neiman Marcus, small businesses are competing for access to federal relief funds (Cowley et al., 2020; Silver Greenberg et al., 2020). Some large corporations drew condemnation for taking assistance from the Paycheck Protection Program, relying on a provision in the legislation (lobbied for by the hotel and restaurant industry) that allowed chains to qualify if they had fewer than 500 employees "per physical location" (Yaffe-Bellany, 2020). The Shake Shack hamburger chain was one such company that received funds but returned them after the outcry. Meanwhile, most of the money was rapidly consumed by large businesses, leaving no funds for small businesses (Yaffe-Bellany, 2020). Researchers have routinely documented how powerful economic interests interdict disaster assistance. Gotham (2008, 2014) for example found that most business-oriented assistance after 9/11 went to influential New York City developers, and after Hurricane Katrina, assistance went toward seaport development. Had officials known, or cared, about these tendencies from previous disasters they might have been better positioned to preempt such possibilities in the COVID-19 assistance packages. There may not have been direct damage to facilities owing to COVID-19, but the loss of revenue these businesses experience is akin to the loss of revenue experienced by businesses damaged by an event that generates physical damage, and especially businesses who have suffered indirect losses to a natural hazard event (like tourism-based businesses no longer having people use their services).

However, to say that pandemics are inherently different from disruptions due to other natural hazards because recovery from pandemics is actually recovery from the *response* to pandemics is to ignore legacies from previous natural disasters in which communities and households were very much recovering from response decisions as they were to the hazard itself.

Hurricane Katrina is a prime example of this dual recovery. There was clearly widespread damage to the built environment from Hurricane Katrina and subsequent flooding from multiple levee breaches (The White House, 2006). At the same time the built infrastructure needed to be reconstructed, the social structure of New Orleans as a city had also been disrupted due to the response itself and in turn, had recovery needs. Some people who evacuated were able to go to locations of their choosing. However, many New Orleans residents who evacuated either before Katrina hit, or after living through the hurricane in shelters like the Super Dome, did not have such control. It is true that, unlike in most disasters, the pandemic reaches across the country, and nearly everyone is directly impacted to some extent. But some events act over a wide scale. The Indian Ocean Tsunami stretched over one-sixth of the planet. The Tohoku earthquake/tsunami/nuclear-plant meltdown affected all of Japan directly or indirectly. People displaced from Louisiana because of Hurricane Katrina were sent to multiple states across the country. According to Barnshaw and Trainor, "…tens of thousands [of evacuees] were more than 1000 miles away from New Orleans. By the end of 2006…forty-six of the fifty United States were declared federal emergency areas" (Barnshaw & Trainor, 2007, 113). Displacement post-Katrina had negative impacts on people who were displaced (Hori & Schafer, 2010). There were many instances in which people were evacuated away from family members and to far, unfamiliar places (Hori & Schafer, 2010). Although the need to evacuate may have been due to the damage from the hurricane, the *way in which that evacuation was executed* created additional hardships to recover from.
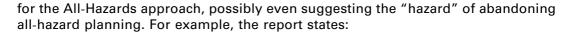
DISCUSSION

Although hazard *types* are clearly different, a key question must be, how should those differences affect *planning* for those events? Can knowledge about behaviors and institutions cross over those differences? Apart from learning from contemporary experiences, and from historical examples, what guidance is there in the 60-year corpus of disaster research? In this paper, we have identified a number of points of correspondence between pandemics and more familiar disasters and even catastrophes. Given these similarities, we conclude that All-Hazards disaster management, predicated on the assumption of many shared features between management needs of different kinds of hazard and disaster types, remains valid. In this section, we draw out the implications of our observations.

An important consideration in this inquiry is the issue of scope, for which there are two dimensions: 1) For what kinds of activity is the All-Hazards approach intended? 2) By whom is the All-Hazards approach meant to be used? Quarantelli (1990) makes the distinction between *tactical* and *strategic* activities related to disaster management. The former may be hazard-specific, but the latter includes activities like warnings and search and rescue work "which cut across disasters" (Quarantelli, 1990, 6). The parallels between COVID-19 and other disasters we highlight here fall into this strategic category. This distinction may further explain the variation in perspectives in the utility of this approach. For instance, one of the criticisms posed by Bodas et al. (2020) is that the injuries sustained during an earthquake differ substantially from the kinds of injuries people sustain in terrorist attacks. However, knowing what kinds of activities the All-Hazards approach is meant for (and our analysis focused on), points to the population that this approach is meant to be used by: emergency managers and those filling emergency management functions in organizations.

The All-Hazards approach was conceived as an approach to *emergency management*. An emergency manager's job is to facilitate the restoration of societal function. In a situation in which there is an earthquake, it is not emergency managers who will treat crush injuries or dig people out of collapsed buildings. In a hazardous materials incident, emergency managers will not be the individuals directly executing the cleanup effort. Emergency managers are doing the strategic level activity to identify who should be involved in those tasks, who has the relevant knowledge to address those issues, to identify needs, and to identify where to acquire the resources appropriate to meet those needs. Likewise, in the COVID-19 pandemic, no emergency manager will be putting a patient on a ventilator or injecting someone with a vaccine once one is developed. They will, however, be heavily involved in helping hospitals and healthcare workers get the resources they need to do those tasks. The skills, strategies, and mechanisms needed to facilitate the restoration of societal function are not unique to a particular kind of hazard.

We argue that for emergency managers and other personnel tackling the strategic collaboration and coordination activity needed for a rapid transition to recovery and stopping the social disruption caused by these events, All-Hazards remains a useful tool in guiding their planning and practice to disasters resulting from a wide range of hazards, including pandemics. The SARS Commission report (2005) did not equivocate, stating that it would be wrong to establish distinct systems for public health and nonpublic-health emergencies because a public health event rapidly takes on the characteristics of other kinds of events. Earlier, we mentioned the Crimson Contagion (Assistant Secretary for Preparedness and Response, 2020) exercise, which highlighted many disconnects in institutions and systems to be used in handling a pandemic. These failures provide further evidence of the need

for the All-Hazards approach, possibly even suggesting the "hazard" of abandoning all-hazard planning. For example, the report states:

> "Presidential Policy Directive-44 allows for a nontraditional federal department or agency to serve as the lead federal agency in response to a unique threat, such as an influenza pandemic, but it does not provide the requisite mechanisms or processes to effectively lead the coordination of the federal government's response" (p. iv).

And it goes on:

> "To further compound matters, existing policies of the executive branch are often [sic] contradict one another, providing differing guidance as to which federal department or agency assumes lead or supporting roles during a domestic incident. Specifically, Homeland Security Presidential Directive-5 (February 2003)—which assigns the Secretary of Homeland Security as the lead federal agency and authority to coordinate federal operations—does not align with the operational constructs outlined in Presidential Policy Directive-44. As a result, exercise participants…remained uncertain as to which federal department or agency was the lead federal agency—DHS/FEMA or HHS" (p. 19).

The wisdom of the SARS Commission and the relevance of the conclusions of the Crimson Contagion exercise were demonstrated in the COVID-19 crisis. Separate plans, separate policies, and separate enabling legislation meant that these were seldom practiced because they were for a specific hazard that did not happen as often as other hazards (see Clarke & Perrow, 1996, 1054. "To create highly successful plans, organizations require that the problems for which they are planning recur on a more or less regular basis."). In seeing public health emergencies as fundamentally different, policymakers set themselves the task of creating an entirely different system, decoupled from more familiar and more practiced procedures. As emergency management is conducted through decentralized, networked, and temporary systems, the challenge for organizational learning might be steep.

The existing pandemic plans called for a different kind of networked response than that for more familiar hazards. A benefit of an All-Hazards approach is that it broadens the range of cases and experiences that are important for organizational and institutional learning. Research shows that constant nurturing is needed to maintain a well-functioning networked organization (Goldsmith & Eggers, 2005). By developing plans and processes for particular hazards that did not happen very often, public officials ensured that experience with these plans would be generally limited to exercises, which would be infrequent at best. The result was a lack of familiarity with the plans in a fairly shallow base of experience of implementation.

What we know about disasters is that they always reveal unknown features of how systems actually work. The less those systems are practiced, the more features will remain hidden: perhaps only to be discovered in urgent conditions. Emergency managers have an aphorism: that the midst of a disaster is no time to be exchanging business cards. Separate plans for every hazard would seem to make that unfortunate outcome more likely.

An additional danger of abandoning the All-Hazards approach can be seen in the COVID-19 crisis. For example, Bodas et al. (2020) argue for a "top hazard" approach, in which planners prioritize planning for hazards according to science-based criteria.

But a community that plans for certain prominent hazards, but guesses wrong, will find itself responding according to an All-Hazards approach. Some might argue, of course, that it is better to plan for a specific hazard, because if it does happen, at least there is a plan, and if another type of disaster occurs, there is still the experience of planning for multiple other hazards to rely on, again, basically falling back on All-Hazards thinking. The flaw in this reasoning, though, is shown by experience. Although there was national-level planning for the pandemic, multiple disconnects in those plans necessitated falling back on more familiar all-hazard systems: the ones that are activated most often. For this reason, it would seem that the All-Hazards approach remains relevant. Moreover, time may be lost in trying to implement a hazard-specific plan before its flaws are discovered in a real situation.

We are not arguing that disaster *agents* are the same, or that *disasters* are the same, but rather that the evidence is that even dissimilar hazard agents generate similar needs and can be handled with similar systems. Even very different hazards generate similar needs: warnings, risk communication, coordination, supply chain management, having planning meetings to establish objectives. A reviewer correctly asked if a place like California should focus on earthquakes and droughts rather than hurricanes. Naturally, places should consider their prominent hazard agents and the particular *agent-generated* demands that might arise. That does not negate all-hazards planning as the core of handling response-generated demands. But with climate change and shifts in weather patterns, it is at least conceivable that places will experience unexpected hazards presently off their radar. Responses to those events will be mobilized through an all-hazards approach.

CONCLUSION

A main innovation of disaster research has been to recognize the socially constituted character of risk, hazard, and disaster (e.g., Kendra & Wachtendorf, 2016; Mitchell, 2006; Stallings, 1995). This argument does not mean that disasters are not real; it means what is the disaster is a matter of interpretation. Mitchell (2006: 247) argued:

> "Multiple interpretations of hazard events may be held by a single individual or by different groups or institutions. For example, among others, a hurricane like Katrina may be simultaneously regarded as a disaster, a natural experiment, an aesthetic spectacle, a manifestation of divine power, an indicator of anthropogenic climate change, a mechanism of societal differentiation, a test of societal resilience, a device for redistributing economic and political resources, a fortuitous opportunity for mischief-making, and an entertaining or cathartic diversion."

The temptation now might well be to devote further attention to pandemics. In itself, this is not bad, but it is important to bear in mind how quickly this crisis became a production and logistics crisis. Logistics is a problem in every disaster. Mobilizing resources through supply chains that run from the private sector through multiple government organizations is a recognized challenge, not unique to COVID-19.

In other words, while COVID-19 may be a disease that creates a pandemic, the *disaster*, the thing to be managed, is open to different interpretations. By converting a disease into an organizational and supply chain problem, federal officials could capitalize on more familiar, though of course imperfect, systems.

We see in the behavioral and institutional features of the COVID-19 pandemic many similarities to other kinds of disasters. An All-Hazards approach is valid specifically because it argues against distraction by the nature of the agent, but rather permits focus on organizing and implementing. Disaster management is fundamentally an organizational task. Consider: nothing that had to happen in Hurricane Katrina was technically unknown: evacuations, sheltering a lot of people. But it faltered owing to organizational failures. Furthermore, an agent-specific approach will not be used enough for individuals and systems to be familiar enough with it for an agile response.

From these observations, we might take away a larger point: that public health crises do not differ greatly in certain essential features from emergencies and disasters arising from other hazard agents, because there is no theoretical reason for preferring one or the other of their characteristics. The COVID-19 pandemic is not functionally different from other disasters. Public administrators need to know that the knowledge base is robust and that a mainstay of disaster planning, organizing, and governance—the all-hazards approach—remains valid.

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