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Rebecca M. Entress
Jenna Tyler
Abdul-Akeem Sadiq
University of Central Florida

COVID-19 Viewpoint

Managing Mass Fatalities during COVID-19: Lessons for Promoting Community Resilience during Global Pandemics

Rebecca M. Entress is a PhD student in the Public Affairs Program at the University of Central Florida. Her research focuses on health care policy, community flood risk management, and evidence-informed decision-making.
Email: rmentress@knights.ucf.edu

Jenna Tyler is a PhD candidate in the Public Affairs Program at the University of Central Florida. Her research focuses on evidence-informed decision-making, community flood risk management, and organizational disaster preparedness and recovery.
Email: jentyler@knights.ucf.edu

Abdul-Akeem Sadiq is associate professor in the School of Public Administration at the University of Central Florida. His research focuses on community flood risk management, organizational disaster preparedness, mass fatality management, and collaborative governance.
Email: abdul-akeem.sadiq@ucf.edu

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Abstract: *In the United States and around the world, COVID-19 represents a mass fatality incident, as there are more bodies than can be handled using existing resources. Although the management and disposition of bodies is distressing and heartrending, it is a task that local, state, and federal governments must plan for and respond to collaboratively with the private sector and faith-based community. When mass fatalities are mismanaged, there are grave emotional and mental health consequences that can delay recovery and undermine community resilience. Using insights from one author's mass fatality management research during the 2010 Haiti earthquake, this Viewpoint essay explores how mass fatalities are being managed in response to COVID-19. Based on the researcher's findings a decade ago, it is apparent that many lessons have not been learned. The essay concludes by providing governments with practical lessons on how to manage mass fatalities to facilitate and promote community resilience.*

On April 1, 2020, the U.S. Department of Defense confirmed its assistance with a request from the Federal Emergency Management Agency (FEMA) for 100,000 body bags to aid state and local governments efforts in managing the growing number of fatalities from the novel coronavirus (COVID-19) (Capaccio and Natter 2020). This somber request underscores the unprecedented impact COVID-19 is having on the United States and the world. Globally, as of April 26, 2020, there were more than 2.9 million total COVID-19 cases and more than 200,000 deaths. New York City, the current epicenter of the pandemic had nearly 12,000 COVID-19 deaths. This is more than four times as many deaths as occurred on September 11, 2001.

In many parts of the United States and around the world, COVID-19 represents a mass fatality incident—a disaster "situation where there are more bodies than can be handled using existing local resources" (McEntire 2007, 159). Although the management and disposition of bodies is distressing and heartrending, it is a task that local, state, and federal governments must plan for and respond to collaboratively with the private sector and faith-based community. Yet, with decades of mass fatality management (MFM) to draw on, we have not made significant progress in managing such incidents. The purpose of this Viewpoint essay is to provide governments in the United States and abroad with practical lessons on how to better manage mass fatalities during the COVID-19 pandemic.

When mass fatalities are mismanaged, there are grave emotional and mental health consequences that can delay the recovery process and undermine community resilience (Tun et al. 2005, 456–457). Indeed, when families are unable to claim the remains of their loved ones or hold funeral services, psychological and emotional tolls can be exacerbated, as there is neither a proper burial nor a confirmation of death (Tun et al. 2005, 456–57; Williams and Crews 2003). This delays the mourning process, making it difficult for communities to return to a state of normalcy and be resilient (Tun et al. 2005, 456–57). Resilience most commonly refers to the ability to respond to and quickly bounce back from disruptions and stressors, such as the COVID-19 pandemic. Building resilient communities is a hallmark of the emergency management discipline, and it has been recognized by the National Academy of Public Administrators (NAPA) as one of public administration's "grandest challenges" (NAPA 2020). A grand challenge, according to NAPA, represents an opportunity for governments to improve operations by addressing problems in new ways and improving public trust. Whereas proper management of mass fatalities can contribute to community resilience, poor management can impede such efforts.

In the following section, we describe the challenges of managing mass fatalities in response to COVID-19. Then, we outline a series of recommendations that can provide policy makers and practitioners in the United States and other countries with insights on how to enhance responses to and plan for future

pandemics. To inform these recommendations, we draw directly from the research of one of the authors on managing mass fatality incidents during the 2010 Haiti earthquake as well as scholarly findings from previous incidents.

Challenges of Managing Mass Fatalities during COVID-19

When there is a mass fatality incident, the community and survivors typically experience what is called the Zeigarnik effect (Gupta 2016). This refers to the idea that survivors are so preoccupied with identifying bodies and conducting proper burials and funerals that they are unable to fully recover (Gupta 2016). COVID-19 represents an example of the Zeigarnik effect as the pandemic has overwhelmed the infrastructure for dealing with the deceased, and as a result, the deceased have not always been handled with dignity. Indeed, the number of bodies awaiting cremation and burial from COVID-19 deaths has overwhelmed morgue capacities worldwide, resulting in a lack of dignity for the deceased. For example, when one Detroit hospital reached morgue capacity, bodies of COVID-19 victims were stacked in empty hospital rooms, without regard for how those deceased and their family members expected bodies to be treated following death (Young, Carpenter, and Murphy 2020).

This issue is not unique to the United States. In Spain, an ice rink was used to hold bodies when morgues were full (Amaro 2020). Again, storing bodies in a mass holding space, without regard to the wishes of the deceased or individuality, can take an emotional toll on families and communities. To address this issue, areas throughout the United States, including New York, Louisiana, and Florida, prepared for mass fatalities by using refrigerated trailers as temporary morgues to hold the bodies of patients deceased from COVID-19 (Hirt and Priest 2020; Shuster 2020). There, the deceased were treated more appropriately, in conditions similar to that of a hospital morgue. Cremation and burial capacity have also been overwhelmed because of COVID-19. New York City regularly uses mass graves when the deceased does not have family members or cannot afford a funeral (BBC News 2020). Preparing for the expected mass fatalities from COVID-19, New York City increased the number of mass burial plots dug daily from 1 to 25 to account for the surge in COVID-19 victims (BBC News 2020). Mass graves go against cultural burial practices, are reflective of wartime and genocide practices, and can be interpreted as a dehumanizing practice.

Delays receiving bodies put families and communities in limbo, unsure of when they would be able to grieve and move forward with life following deaths. In China, some families of COVID-19 victims were forced to wait significantly longer than usual to collect the ashes of loved ones, even though cremations were done immediately after death (Goh 2020). With the rush of cremation, family members were left not knowing which funeral parlor to contact for the remains of their loved ones (Fifield and Li 2020). A similar situation occurred in Ecuador, where government representatives quickly collected bodies after COVID-19 deaths, without proper communication with the family about where bodies were delivered and stored. Some Ecuadorians searched through body bags in morgues to find their deceased family members, while others were still unsure where to find the remains (Amaro 2020). Proper grieving cannot begin without a body, and not knowing where a loved one is located creates uncertainty, which can have mental health effects, such as psychiatric and social dysfunction (Williams and Crews 2003, 252).

With the rapid increase in COVID-19 deaths, cultural practices for the dead have also been forced to change, furthering the trauma experienced by families and communities. Around the world, funerals were limited or canceled because of COVID-19, and cultural practices to honor the dead were not followed. For example, in China, typically cremation would not be carried out until after a three-day vigil, but during the pandemic, bodies were immediately cremated after death, disregarding cultural practices (Goh 2020). This left family members choosing between forgoing the vigil, leaving the family without a proper mourning, or holding a vigil after the cremation has already occurred, inconsistent with current cultural practices. Changes in funeral operations made it difficult for those mourning to move past the grieving stage and inhibited their ability to rely on the community and loved ones for support since they were left to grieve in isolation. In Italy, for example, prior to the pandemic, funerals were well attended by community members, with approximately 600–1,000 Italians attending funerals to support survivors and pay their respects to the dead (Horowitz and Bubola 2020). The Italian government limited funeral attendees during the pandemic, and since many in Italy were still in quarantine when their family members died, some were buried without the presence of loved ones (Horowitz and Bubola 2020). This not only delayed the mourning process but also limited the ability of survivors to seek comfort from other family members. Instead, they mourned in isolation.

Many customs for the afterlife are based on religion, and inevitably some religious requirements for the afterlife could not be followed, leaving families with anxiety about their loved ones in the afterlife. For example, many of the changes implemented, which limited contact with deceased victims of COVID-19, are inconsistent with traditional Islamic rituals for the deceased (Gambrell et al. 2020). Islamic funerals involve bathing the body of the deceased and wrapping it in shrouds (Gambrell et al. 2020). Egyptian authorities limited this process to allow only health workers to partake in the bathing and wrapping (Gambrell et al. 2020). This left family members distressed, as participating in the process can make family members feel that they are contributing and helping care for the deceased. In Italy, priests were limited to giving only a brief prayer at funerals, which was especially difficult for religious survivors coping with deaths since laws prevented them from interacting with the religious community, which usually provides comfort in times of tragedy (Horowitz and Bubola 2020). Families can feel shame and embarrassment if they do not properly honor their loved ones with appropriate cultural practices. They can also feel a sense of disappointment and isolation from not participating in traditional cultural and religious practices.

Disregarding religious burial and afterlife rituals can cause anxiety and depression for the survivors. Survivors may worry about their loved ones in the afterlife, and they may be concerned that their inability to perform religious rituals could have negative effects for their loved one's condition in the afterlife. This can enhance survivor's guilt and exacerbate the trauma of surviving a pandemic and coping with death. Survivors of similar diseases (e.g., SARS

and MERS) were associated with higher levels of post-traumatic stress disorder and suicide (Shah et al. 2020, 3–5). This will likely be similar for COVID-19 survivors, and mental health issues will be exacerbated by the inability to follow proper protocols for the afterlife. In summary, the lack of dignity for the dead as well as the challenges to cultural practices has undermined communities' ability to properly grieve, hindering recovery processes and making resiliency more difficult.

Responses to Prior Mass Fatality Incidents and Developed Guidance

The 2014 Ebola outbreak and the 2010 Haiti earthquake are two prior mass fatality incidents that overwhelmed mortuaries and stretched the response system beyond capacity. By exploring responses to MFM during the Ebola outbreak and Haiti earthquake, we can better understand MFM in the wake of COVID-19.

Similar to COVID-19, following the Haiti earthquake, the deceased were buried in mass graves, and family members sorted through bodies to identify their loved ones (McEntire, Sadiq, and Gupta 2012). One author's firsthand accounts during the Haiti earthquake revealed that bulldozers dumped bodies in mass graves. One of the mass grave sites in Titanyen, a city in the outskirt of Port-au-Prince, contained more than 70,000 bodies. Burials during the Ebola outbreak and the Haiti earthquake were atypical, disrupting the mourning process. Following the earthquake in Haiti, efforts were made to accommodate religious and cultural practices for the afterlife, but ultimately this was not possible because of the number of deaths, and most people were buried in mass graves without the usual religious and cultural practices (McEntire, Sadiq, and Gupta 2012, 33). The researcher's findings in Haiti indicated that because of the number of decomposing bodies, bodies were doused with gasoline, and voodoo activities that typically accompany last rites in Haiti were rarely performed (McEntire, Sadiq, and Gupta 2012, 26).

Victims in Ebola stricken areas were buried the same day the body was collected, inconsistent with religious practices (Lipton 2017). After the Ebola epidemic, the World Health Organization (WHO) released guidance on conducting safe and dignified burials for Ebola victims. The recommendations focus on incorporating the family's religious and cultural preferences in the burial process (WHO 2017). In fact, the guidance suggests developing an agreement with the family regarding burial practices and contacting local faith representatives for the burial. The guidance further suggests that a limited number of family members can participate in the burial process and although the family should not touch or bathe the body, the family members should be given an alternative, such as sprinkling water over the body. The WHO released additional guidelines specific to COVID-19, reiterating that cultural and religious traditions should be honored and that immediate disposal of the dead should be avoided (WHO 2020b). Given the issues addressed in the previous section, it does not seem that the lessons learned from prior epidemics and the guidance developed were incorporated in the mass fatality response to COVID-19.

Recommendations

Managing mass fatalities and improving community resilience is not an easy task. One of the authors experienced this challenge firsthand while conducting MFM research that was funded by the Natural Hazards Center's Quick Response Grant Program and the National Science Foundation. These grants enabled the author to travel twice to Haiti following the devastating 2010 earthquake that killed more than 316,000 people to understand the MFM process. In Haiti, the author interviewed MFM response officials, including morgue directors, forensic pathologists, doctors, voodoo priests, nonprofit representatives, local residents, and funeral home representatives. The author explored how bodies were recovered, identified, stored, returned to family members, and buried or cremated. These interviews revealed that fatalities from the earthquake were difficult to manage because of the high number of deaths and equipment shortages.

Based on this experience, it is apparent that many lessons have not been learned a decade later. For example, many communities still do not have MFM plans, set aside resources for MFM, or provide psychological support for survivors of mass fatality incidents. This author's work informs the recommendations presented below to aid governments in their attempts to improve MFM and enhance community resilience.

Recommendation 1: Develop an MFM Plan

Planning is just as important in mitigating the potential impacts of pandemics on public organizations as it is in making sure that managing the dead is done effectively (French 2011, 253–263). Having an MFM plan can improve response and speed the recovery from a pandemic (Morgan et al. 2006, 195). As discussed earlier, a lack of MFM planning can lead to a host of issues ranging from psychological trauma among survivors and first responders to low productivity among public officials and employees, all of which inhibit community resiliency. All jurisdictions should have a mass fatality plan, and the process for developing the plan should be transparent and include the participation of all relevant stakeholders. Jurisdictions without an MFM plan should develop one immediately using already available templates. For example, the Pan American Health Organization (PAHO), WHO, and U.S. Centers for Disease Control and Prevention have MFM planning guidelines that countries, state governments, and local governments can use to develop their own.[1] Training on developing a MFM plan can be obtained through the FEMA Emergency Management Institute online course on MFM.[2]

Having an MFM plan does not guarantee an effective response to mass fatality incidents (Sadiq and McEntire 2012, 459–470). Other important considerations include exercising the plan, updating the plan, and ensuring the plan is sensitive to the prevailing cultural practices for the deceased (Col 2007; PAHO 2004). Conducting exercises during times of normalcy gives government officials the opportunity to test the MFM plan, identify gaps, and recommend improvements to the plan. It is also important to regularly update the plan. For example, if a city partners with a private entity to provide refrigerated trucks for transporting decedents, the plan should be updated to include information about this new partnership. Finally, the plan should be sensitive to the burial culture of the area where the mass fatality incident occurred. In fact, PAHO guidelines dictates that the culture and religious beliefs of the area should be respected (PAHO 2004). The death of a loved one as a result of a pandemic can be exacerbated because family

members may not be able to carry out their traditional burial ceremonies because of the risk of contagion. For example, in Iran, those killed by COVID-19 are not buried according to the Islamic tradition of washing the corpse, shrouding corpse in white cloth, and a cleric praying over the corpse (Etehed 2020). The inability to properly say goodbye to a loved one could lead to additional stress on the family of the victims. Thus, it is crucial for the MFM plan to include alternative, safe, and acceptable ways for victims' families to bid farewell to their loved ones.

Recommendation 2: Stockpile MFM Resources

The unavailability of MFM-related resources such as equipment, manpower, and supplies can undermine the best of MFM plans. In fact, after the Haiti earthquake, the availability of MFM resources—experienced personnel (e.g., Disaster Mortuary Operational Response Team), bulldozers, front loaders, PPEs, DNA testing, body bags, etc.—was a major factor that contributed to a more effective recovery and identification of U.S. citizens who perished in comparison with Haitian citizens who were killed (McEntire, Sadiq, and Gupta 2012, 7–10; Sadiq and McEntire 2012, 459–470). During the COVID-19 response, hospitals, funeral homes, morgues, and crematories have experienced significant shortages of resources. For example, in Ecuador, the government distributed cardboard coffins to bury the dead because of the shortage of coffins (Rivers 2020). In New York City, some COVID-19 victims were temporarily buried on Hart Island because of a shortage of morgue space (Kilgannon 2020).

If MFM resources are in short supply, mutual aid agreements with other local, state, national, and international entities could augment existing supplies. COVID-19 has underscored the important role of private entities in providing additional resources during a pandemic. For example, in the United States, private organizations have increased their production of equipment and supplies such as respirators, PPE, and masks. Hence, in addition to having mutual aid agreements with other public entities, there is a need to complement agreements with public private partnerships to be able to access additional MFM resources through increased production by the private sector (Barth 2020).

Recommendation 3: Collaborate with Other Entities

Collaboration is a key principle in emergency management and a necessity in dealing with the pandemic (Waugh and Streib 2006, 131–39). During a pandemic, no single entity has all the resources to fight it. Hence, collaboration among public, private, and nonprofit organizations, as well as faith-based groups, volunteer groups, and citizens, can lead to an effective response and speedy recovery from the pandemic. For example, the successful MFM response of the U.S. National Transportation Safety Board (NTSB) to the crash of Flight 3407 in Buffalo, New York, on February 12, 2009, which killed a total of 50 people, was credited to the collaboration mind-set of the NTSB (Vidal and Feinman 2017). In fact, the NTSB was able to collaborate with more than 70 federal, state, and local agencies, as well as with nongovernmental entities, to ensure an effective MFM response to the accident (Vidal and Feinman 2017). When all stakeholders work collaboratively, they are able to build trust, work as a team, communicate better, and reach consensus (Blanchard et al. 2007; Sadiq and Tyler 2017). The COVID-19 response has, hitherto, indicated a lack of collaboration in certain areas. For example, there is competition among governments for limited resources (e.g., respirators), citizens not adhering to government directives (social distancing, stay-at-home orders, wearing masks in public), misinformation or muzzling of information by governments, and slow production of equipment and supplies from the private sector (Teklemariam 2020). To foster collaboration during mass fatality incidents, we recommend establishing a pandemic task force consisting of all relevant stakeholders mentioned here, not just federal government officials, as is the case with the White House Coronavirus Task Force.

Recommendation 4: Provide Psychological Support

There is evidence that first responders and others participating in an MFM operation and the families of the deceased experience psychological stress (McEntire, Sadiq, and Gupta 2012, 5–10; Sadiq and McEntire 2012; Vidal and Feinman 2017). COVID-19 has made it a double tragedy for victims' families, as they are neither able to be by the side of their dying family member nor say final goodbyes. This is the case in Italy, where family members are not even allowed to see the bodies of their loved ones for the last time to reduce the risk of contagion (Bettiza 2020). In Spain, drive-through funerals are being conducted for COVID-19 victims (McLean and Maestro 2020). Therefore, it is critical to provide psychological support to both first responders and medicolegal teams as well as to the decedents' families. For example, debriefing sessions or the use of psychological first aid strategies should be adopted. It is important that those directly involved in the mass fatality operations have a chance to decompress through social interaction with one another and get enough sleep to avoid burnout (Vidal and Feinman 2017). Governments can also contact individuals affected by the pandemic to provide psychological support. The WHO has developed a message library of sample text messages that governments can send to people with cell phones on a wide variety of topics, including tips to maintain mental health during the pandemic (WHO 2020a).

Recommendation 5: Designate a Person/Organization to Lead the MFM Process

In the United States, the medical examiner or the coroner typically leads the mass fatality incident response (Merrill et al. 2016, 1–10). In other countries, this may not be the case. Nevertheless, it is necessary to assign a good leader or a credible organization to lead and coordinate the MFM process (Morgan et al. 2006, 809–15). There is ample evidence suggesting that having a good leader improves organizational performance (Waugh and Streib 2006, 131–139). Good leadership has been attributed to the effective response of South Korea to COVID-19 (Plotch 2020). Furthermore, research has shown that when there is no lead organization to recover, identify, and dispose of the bodies, this can lead to tension, confusion, and stress for decedents' family members (Morgan et al. 2006, 809–15).

Recommendation 6: Provide Information on Handling the Deceased Prior to Death

The WHO provided guidance on prevention and control for the safe management of a dead body in the context of COVID-19 in March 2020 (WHO 2020b). For individuals who died of COVID-19, PPE should be used, families and friends should not touch or kiss the body, and the elderly, children, and people who are immunocompromised

should not directly interact with the body (WHO 2020b). Given how quickly burials are being conducted, it is unlikely that the WHO guidelines are followed. Providing clear guidance on how to handle the deceased in advance of death can reduce transmission and allow for an opportunity for families to make religious and cultural preferences for burials and funerals known.

Conclusion

Drawing from one author's experience during the Haiti earthquake, this Viewpoint essay provides governments with practical lessons on how to manage mass fatalities during the COVID-19 pandemic to better facilitate and promote community resilience. COVID-19 creates vast challenges for individuals and communities. If communities implement the six recommendations outlined here, they can reduce the psychological and emotional effects generated from the mass fatality incident. Increasing community resilience is an important component to meeting the grand challenges developed by NAPA. As public administrators, it is our responsibility to encourage governments to adopt practices to enhance resiliency and work toward implementing the grand challenges.

Notes

1. https://www.cdc.gov/cpr/readiness/00_docs/CDC_PreparednesResponseCapabilities_October2018_Final_508.pdf
2. https://training.fema.gov/programs/aps/

References

Amaro, Silvia. 2020. Coronavirus Death Toll Rises Again in Italy, While Spain Turns Ice Rink into Morgue. CNBC, March 25. https://www.cnbc.com/2020/03/25/coronavirus-death-toll-up-in-italy-spain-not-as-much-in-germany.html [accessed May 19, 2020].

Barth, Tom. 2020. Key Public Administration Questions from COVID-19. *PA Times*, April 7. https://patimes.org/key-public-administration-questions-from-covid-19/ [accessed May 19, 2020].

BBC News. 2020. Coronavirus: New York Ramps Up Mass Burials amid Outbreak. April 10. https://www.bbc.com/news/world-us-canada-52241221 [accessed May 19, 2020].

Bettiza, Sofia. 2020. Coronavirus: How Covid-19 Is Denying Dignity to the Dead in Italy. BBC News, March 25. https://www.bbc.com/news/health-52031539 [accessed May 19, 2020].

Blanchard, B. Wayne, Lucian G. Canton, Carol L. Cwiak, Kay C. Goss, David A. McEntire and Dewayne West. 2007. Principles of Emergency Management Supplement. https://www.fema.gov/media-library-data/20130726-1822-25045-7625/principles_of_emergency_management.pdf [accessed May 19, 2020].

Capaccio, Anthony, and Ari Natter. 2020. Pentagon Confirms It's Seeking 100,000 Body Bags in Virus Crisis. Bloomberg, April 1. https://www.bloomberg.com/news/articles/2020-04-01/pentagon-seeking-100-000-body-bags-for-civilians-in-virus-crisis [accessed May 19, 2020].

Col, Jeanne-Marie. 2007. Managing Disasters: The Role of Local Government. Special issue. *Public Administration Review* 67: 114–24.

Etehad, Melissa. 2020. Coronavirus Deaths in Iran Lead to Mass Burial Pits, Changing the Way Families Mourn. *Los Angeles Times*, March 18. https://www.latimes.com/world-nation/story/2020-03-18/coronavirus-deaths-in-iran-lead-to-mass-burial-pits-for-victims-families-it-is-changing-the-way-they-mourn [accessed May 19, 2020].

Fifield, Anna, and Lyric Li. 2020. Chinese Families Should Be Sweeping Graves Now. But Thousands Still Haven't Buried Their Dead. *Washington Post*, April 3. https://www.washingtonpost.com/world/asia_pacific/chinese-families-should-be-sweeping-graves-now-but-thousands-still-havent-buried-their-dead/2020/04/03/5a6daa50-7234-11ea-ad9b-254ec99993bc_story.html [accessed May 19, 2020].

French, P. Edward. 2011. Enhancing the Legitimacy of Local Government Pandemic Influenza Planning through Transparency and Public Engagement. *Public Administration Review* 71(2): 253–64.

Gambrell, Jon, Ebrahim Noroozi, Sam Magdy, Aron Heller, and Riaz A. Mohammed 2020. Burial Traditions Clash with Fears of Contagion. *New York Times*, April 7. https://www.nytimes.com/aponline/2020/04/07/world/middleeast/ap-ml-virus-outbreak-mideast-disrupted-burials-.html [accessed May 19, 2020].

Goh, Brenda. 2020. "No Farewells, No Ceremonies": China's Hubei Cremates Coronavirus Dead. Reuters, March 29. https://www.reuters.com/article/us-health-coronavirus-china-cremation/no-farewells-no-ceremonies-chinas-hubei-cremates-coronavirus-dead-idUSKBN21G0YT [accessed May 19, 2020].

Gupta, Kailash. 2016. Humanitarian Logistics of Human Remains of Disasters. In *Managing Humanitarian Logistics*, edited by B.S. Sahay, Sumeet Gupta, and Vinod Chandra Menon, 305–11. New Delhi: Springer.

Hirt, Suzanne, and Jessica Priest. 2020. Coronavirus Hotspots Brace for Deaths with Refrigerated Trucks on an Unprecedented Scale. *USA Today*, April 10. https://www.usatoday.com/story/news/investigations/2020/04/10/coronavirus-deaths-states-prepare-bodies-refrigerated-trucks/5131066002/ [accessed May 19, 2020].

Horowitz, Jason, and Emma Bubola. 2020. Italy's Coronavirus Victims Face Death Alone, with Funerals Postponed. *New York Times*, March 16. https://www.nytimes.com/2020/03/16/world/europe/italy-coronavirus-funerals.html [accessed May 19, 2020].

Kilgannon, Corey. 2020. As Morgues Fill, N.Y.C. to Bury Some Virus Victims in Potter's Field. *New York Times*, April 10. https://www.nytimes.com/2020/04/10/nyregion/coronavirus-deaths-hart-island-burial.html [accessed May 19, 2020].

Lipton, Jonah. 2017. "Black" and "White" Death: Burials in a Time of Ebola in Freetown, Sierra Leone. *Journal of the Royal Anthropological Institute* 23(4): 801–19.

McEntire, David A. 2007. *Disaster Response and Recovery: Strategies and Tactics for Resilience*. Hoboken, NJ: John Wiley & Sons.

McEntire, David A., Abdul-Akeem Sadiq, and Kailash Gupta. 2012. Unidentified Bodies and Mass-Fatality Management in Haiti: A Case Study of the January 2010 Earthquake with a Cross-Cultural Comparison. *International Journal of Mass Emergencies and Disasters* 30(3): 301–27.

McLean, Scott, and Laura Perez Maestro. 2020. Drive-Through Funerals Are Being Held in the Epicenter of Spain's Coronavirus Pandemic. CNN, April 6. https://www.cnn.com/2020/04/06/europe/spain-coronavirus-drive-thru-funerals-madrid-intl/index.html [accessed May 19, 2020].

Merrill, Jacqueline A., Mark Orr, Daniel Y. Chen, Qi Zhi, and Robyn R. Gershon. 2016. Are We Ready for Mass Fatality Incidents? Preparedness of the US Mass Fatality Infrastructure. *Disaster Medicine and Public Health Preparedness* 10(1): 87–97.

Morgan, Oliver W., Pongruk Sribanditmongkol, Clifford Perera, Yeddi Sulasmi, Dana Van Alphen, and Egbert Sondorp. 2006. Mass Fatality Management Following the South Asian Tsunami Disaster: Case Studies in Thailand, Indonesia, and Sri Lanka. *PLOS Medicine* 3(6): e195.

National Academy of Public Administration (NAPA). 2020. Grand Challenges in Public Administration. https://www.napawash.org/grandchallenges [accessed May 19, 2020].

Pan American Health Organization (PAHO). 2004. In Natural Disasters, Cadavers Pose no Threat of Disease. News release, September 23.

Plotch, Phillip Mark. 2020. Forget the Kardashians. To Survive the Next Pandemic We Need to Create Great Leaders. *Star-Ledger* (Newark, NJ), April 11. https://www.nj.com/opinion/2020/04/forget-the-kardashians-to-survive-the-next-pandemic-we-need-to-create-great-leaders.html [accessed May 19, 2020].

Rivers, Matt. 2020. Ecuador Distributes Cardboard Coffins to Cope with Covid-19. CNN. https://www.cnn.com/videos/world/2020/04/07/ecuador-coronavirus-covid-19-cardboard-coffins-rivers-lkl-intl-hnk-vpx.cnn [accessed May 19, 2020].

Sadiq, Abdul-Akeem, and David McEntire. 2012. Mass Fatality Management Challenges: A Case Study of the 2010 Haiti Earthquake. *Journal of Emergency Management* 10(6): 459–71.

Sadiq, Abdul-Akeem, and Jenna Tyler. 2017. Agency Coordination and Cross Sector Collaboration in Fragile or Failed States. *Oxford Research Encyclopedia of Natural Hazard Science*. https://doi.org/10.1093/acrefore/9780199389407.013.177.

Shah, Kaushal, Dhwani Kamrai, Hema Mekala, Birinder Mann, Krishna Desai, and Rikinkumar S. Patel. 2020. Focus on Mental Health during the Coronavirus (COVID-19) Pandemic: Applying Learnings from the Past Outbreaks. *Cureus* 12(3): e7405.

Shuster, Simon. 2020. "I Still Can't Believe What I'm Seeing." What It's like to Live across the Street from a Temporary Morgue during the Coronavirus Outbreak. *Time*, March 31. https://time.com/5812569/covid-19-new-york-morgues/ [accessed May 19, 2020].

Teklemariam, Nathan. 2020. The Role of the Administrative State in Times of a Possible Pandemic. *PA Times*, March 8. https://patimes.org/the-role-of-the-administrative-state-in-times-of-a-possible-pandemic/ [accessed May 19, 2020].

Tun, Kan, Barbara Butcher, Pongruk Sribanditmongkol, Tom Brondolo, Theresa Caragine, Clifford Perera, and Karl Kent. 2005. Panel 2.16: Forensic Aspects of Disaster Fatality Management. *Prehospital and Disaster Medicine* 20(6): 455–8.

Vidal, Ron, and Catherine Feinman. 2017. Mass Fatalities—More than Just a Number. *Domestic Preparedness*, August 30. https://www.domesticpreparedness.com/commentary/mass-fatalities-more-than-just-a-number/ [accessed May 19, 2020].

Waugh, William L., Jr., and Gregory Streib. 2006. Collaboration and Leadership for Effective Emergency Management. Special issue. *Public Administration Review* 66: 131–40.

Williams, Erin D., and John D. Crews. 2003. From Dust to Dust: Ethical and Practical Issues Involved in the Location, Exhumation, and Identification of Bodies from Mass Graves. *Croatian Medical Journal* 44(3): 251–8.

World Health Organization. 2017. How to Conduct Safe and Dignified Burial of a Patient Who Has Died from Suspected or Confirmed Ebola or Marburg Virus Disease. October. https://apps.who.int/iris/bitstream/handle/10665/137379/WHO_EVD_GUIDANCE_Burials_14.2_eng.pdf?sequence=1 [accessed May 19, 2020].

World Health Organization. 2020a. COVID-19 Information—SMS Message Library. https://www.who.int/publications-detail/covid-19-message-library [accessed May 19, 2020].

World Health Organization. 2020b. Infection Prevention and Control for the Safe Management of a Dead Body in the Context of COVID-19. Interim Guidance, March 24. https://apps.who.int/iris/bitstream/handle/10665/331538/WHO-COVID-19-lPC_DBMgmt-2020.1-eng.pdf [accessed May 19, 2020].

Young, Ryan, Jake Carpenter, and Paul P. Murphy. 2020. Photos Show Bodies Piled Up and Stored in Vacant Rooms at Detroit Hospital. CNN, April 14. https://www.cnn.com/2020/04/13/health/detroit-hospital-bodies-coronavirus-trnd/index.html [accessed May 19, 2020].