

Coronavirus (COVID-19) Pandemic: Mass Casualty Management Best Practices

As countries around the world battle the coronavirus disease (COVID-19) pandemic responders, medical professionals, public health professionals and others are managing thousands of fatalities per day. Due to the population of our country, the U.S. anticipates managing significant numbers of fatalities. Our country has experienced mass casualty events in Hurricanes Maria, Sandy, and Katrina, and after the September 11th attacks. Each of these were localized that resulted in up to 3,000 deaths.

The following is a list of key findings as they relate to ongoing COVID-19 operations across the country. These are potential best practices that are provided for consideration and do not constitute and should not be considered as guidance in any way.

Key Considerations

- Mass casualty management will require a coordinated effort between emergency management organizations, public health agencies, medical examiners, religious leaders and other stakeholders. This management should account for recovery of remains, storage of remains, preparation for final disposition of decedents, final disposition of decedents, and grief and bereavement counseling.
- Volunteer attorneys and pathologists have augmented staff during past events.
- Including cultural and religious leaders in decision-making is important to retain dignity and respect for both the deceased and their loved ones.

Lessons Learned from Mass Casualty Operations

Identification of Deceased in Isolated Areas

- Potential Best Practice: In rural or remote areas, teams may travel door-to-door to conduct health and wellbeing checks for isolated individuals. These teams should follow CDC guidance on having the appropriate personal protective equipment (PPE) when doing door-to-door checks in case they encounter an individual with COVID-19. Teams should have a plan for encountering deceased individuals.
 - Recommendation: The National Funeral Directors Association (NFDA) members consider gloves, shoe covers, gowns, masks, aprons, pouches, and eye protection to be the minimum PPE standard.



- Area for Improvement: In rural or remote areas, identifying the deceased found in residences without a formal address can be challenging. Unreliable communications systems further challenged victim identification.
 - Mitigating Action: It is important for jurisdictions to establish guidelines for victim identification to ensure documentation including the name of the resident that lived in the house, and other documentation travels with the victim to a medical examiner's office.

Determination of Death

- Area for Improvement: The cause of death, if it is thought to be related to contagion potentially posing a threat to public health, may require an investigation according to local laws. In past disasters, jurisdictions have struggled to keep up with the surge in fatalities, primarily due to lack of pathologists to conduct autopsies.¹
 - Mitigating Action: The National Association of Medical Examiners released interim guidance for labeling COVID-19 related deaths, including in incidents where COVID-19 is in the causal pathway.
 - Mitigating Action: The CDC is establishing guidance on reporting COVID-19 related deaths.²
- Managing a Surge in Decedents
 - Potential Best Practice: In past disasters, jurisdictions have coordinated fatality management with the [National Association of Attorneys General](#) and [National Association of Medical Examiners](#) to identify volunteer attorneys and pathologists.
- Potential Best Practice: In a past disasters, a jurisdiction considered streamlining the death certificate process. They experienced challenges identifying the cause of death, where multiple factors contributed (e.g., lack of insulin, loss of power for provision of oxygen, etc.), which was required to process death certificates. Waiving or amending the cause of death may have allowed deaths to be processed faster and may have reduced storage requirements.
- Planning Consideration: Waivers or amendments may also be needed to extend timelines for completing death certificates and/or disposition permits.³

¹ Interview, Attorney, National Association of Attorneys General.

² Coronavirus Disease (COVID-19) Alerts and Information, CDC, <https://www.cdc.gov/nchs/nvss/covid-19.htm>.

³ Coe, Liz, "Managing Mass Fatalities Toolkit for Planning," Santa Clara County Public Health Department, nhspi.org/wp-content/uploads/2015/05/Managing-Mass-Fatalities-Toolkit-for-Planning.pdf

- Planning Consideration: Consider waivers, if required, for pathologists or other required personnel to operate across state lines. Consider if pathology students nearing graduation could also be used if appropriate waivers were issued.
- Potential Best Practice: Surges in decedents will likely affect normal processes for managing the dead. Involve religious or cultural groups in establishing guidelines to facilitate adherence to sensitive and important religious or cultural process.
- Potential Best Practice: Officials in Madrid, Spain are coordinating throughout the region to use crematoriums in nearby jurisdictions because the crematoriums in Madrid are at capacity.⁴
 - Planning Consideration: Identify if any waivers for the deceased crossing state lines for cremation would be required.

Identify Temporary Storage Sites

- Potential Best Practice: Identifying locations to house the deceased is essential. In 2017, jurisdictions used refrigerator trailers as a mitigation measure until the deceased could be handled by mortuary personnel.⁵ As New York City faces the potential for significant casualties that could overwhelm current capacity, FEMA has facilitated the deployment of refrigerated trucks to handle the deceased, if necessary.⁶
 - Consideration: Some trailers are equipped with internal generators; however, they may require backup generators due to power outages. Trailers supporting COVID-19 operations may be in place for long periods of time.
 - Consideration: Equip refrigeration trailers with storage racks to maximize storage space.
 - Consideration: Purchasing trucks may be more cost effective than renting them.
 - Consideration: Consider providing refrigerated trailer disposal guidance in compliance with local environmental regulations.
 - Consideration: Establish tracking mechanisms for locating the deceased while stored in temporary facilities.

⁴ “Ice Rink In Spain Becomes Makeshift Morgue As Coronavirus Cases Surge,” Forbes, www.forbes.com/sites/pascaledavies/2020/03/24/ice-rink-in-spain-becomes-makeshift-morgue-as-coronavirus-cases-surge/#65bf4c034d8b

⁵ Government Accountability Office, “Federal Assistance and Selected States and Territory Efforts to Identify Deaths from 2017 Hurricanes,” September 2019, GAO: 13-20. www.gao.gov/assets/710/701332.pdf

⁶ Durkin, Erin, “FEMA sends refrigerated trucks to New York City to hold bodies,” Politico, March 30, 2020, www.politico.com/states/new-york/albany/story/2020/03/30/fema-sends-refrigerated-trucks-to-new-york-city-to-hold-bodies-1269600.

- Potential Best Practice: In Italy, local cemeteries closed but their mortuaries remained open to accept coffins. Churches within the cemeteries also held coffins waiting to be cremated.⁷
 - Potential Best Practice: The United Kingdom is building a network of temporary morgues in anticipation of a reasonable worst-case scenario. The structures are being supplied by [a company that provides](#)⁸ a portable, modular building with quick construction timeframes.⁹

Manage Contagious Contaminated Remains

- Area for Improvement: In Italy, mortuary personnel did not have adequate masks or gloves to move the deceased. While COVID-19 is unknown to be transmitted posthumously, a body's lungs may release air upon movement which could lead to exposure of those around.
- Mitigating Action: Follow Standard Precautions, including the use of additional personal protective equipment (PPE), as suggested by the CDC.¹⁰

⁷ Horowitz, Jason, "Italy's Coronavirus Victims Face Death Alone, With Funerals Postponed," The New York Times, March 19, 2020, <https://www.nytimes.com/2020/03/16/world/europe/italy-coronavirus-funerals.html?auth=login-email&login=email>.

⁸ This document contains references and links to non-federal resources and organizations. This information is meant solely for informational purposes and is not intended to be an endorsement of any non-federal entity by FEMA, U.S. Department of Homeland Security or the U.S. government.

⁹ "Temporary morgues being set up across UK amid rising COVID-19 deaths," The Guardian, www.theguardian.com/world/2020/mar/19/temporary-morgues-being-set-up-across-uk-amid-rising-covid-19-deaths

¹⁰ Frequently Asked Questions, CDC, www.cdc.gov/coronavirus/2019-ncov/faq.html#anchor_1584390222777.