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Weaponizing mutual aid: Can a pandemic or biological attack turn our strongest emergency management tool against us?

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ABSTRACT

A functional mutual aid system allows the effective cost sharing of resources and the swift mitigation of loss of life and property. COVID-19 has illuminated weaknesses in our mutual aid framework. Weaknesses could potentially allow abuse and the misuse of these unifying instruments. By designing our response system in an insightful and nuanced fashion, we are able to affectively lend aid to those in need. Our mutual aid systems allow us to be forward thinking—it challenges us to anticipate what could happen and how we should respond. This article will articulate challenges COVID-19 has posed in our mutual aid system and will propose potential improvements to better enhance our aid agreements for future pandemics.

Key words: mutual aid agreements, Emergency Management Assistance Compact (EMAC), COVID-19

INTRODUCTION

The mutual aid system is the heart and soul of our local, state, and national emergency management responses. Properly crafted mutual aid agreement allows jurisdictions to maximize their available assets while minimizing financial investment. The cost and resource sharing is conducted with the understanding that in times of need, they will likely get assistance from neighboring jurisdictions. They outline the resource and logistical framework by which each party will provide the needed assistance.[1] Many jurisdictions do not maintain sufficient resource levels to be self-reliant when major disaster events occur. This lack of self-reliance creates an interdependence where mutual aid becomes a necessity to augment resources.[2] A fundamental assumption currently incorporated into our mutual aid concept is, not all partners will be affected by an incident at the same time and to the same extent, thus providing flexibility of resource allocation and distribution of assets; however, pandemics and biological attacks have the ability to affect numerous state, federal, and international jurisdictions simultaneously. A poorly drafted or a limited scope agreement can allow nefarious political, unanticipated, or nondisaster response factors to seep into decision-making, permitting ill-intentioned application effectively *weaponizing* our national response's strongest tool.

Emergency management and disaster aid should be void of corrupt political influence and arbitrary decision-making; however, too often this is not the practice. By carefully analyzing and forecasting anticipated needs for a given event, drafters of aid agreement can attempt to better articulate the burdens and cost obligations borne by each party in the transaction. Depth and clarity included in an agreement can remove havens for political abuse and retribution of our emergency assets. This article will examine how infectious pandemics or a widespread biological attack challenges our existing mutual aid framework and will analyze whether our current mutual aid agreements are properly drafted to address reasonably foreseeable costs and resource challenges during an infectious disease or biological attack emergency response.

In order to gain better insight into the possibilities for the improvement of existing state and federal emergency mutual aid agreements, I applied contextual real-world experience with crises and emergency public behavior, social and operational emergency response structures, while overlaying a legal analysis

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of strategic contractual terms contained in the analyzed agreements. I have supplemented this research foundation with semistructured interviews with the California Governor's Office of Emergency Services regional and state emergency management subject matter experts. Through these interviews, I was able to gain detailed insight into the mutual aid agreement formation and interstate aid process. While the mutual aid agreements and emergency response structure within California may not be applicable to all US jurisdictions, the issues examined in this paper are likely to be present in most, if not all, jurisdiction's aid agreements.

DISCUSSION

A well-crafted and insightful emergency management mutual aid plan is one of our strongest tools in fighting natural, man-made disasters, or terrorist biological attacks

Effective large event emergency response demands a well-coordinated and communicated plan—a plan that has been tailored for the intricacies and unique demands of that event. After responding to a wide range of catastrophic events, local, state, and federal agencies have experienced the value of a strong aid network and the pain of an outdated or poorly constructed framework. Immediately following the 1994 Northridge earthquake, local jurisdictions in California realized a need to formalize their asset allocations and sharing protocols to be better positioned to respond to future events. The California Office of Emergency Services Coastal, Southern, and Inland Regions developed an intrastate coordinated emergency management concept called the Emergency Mangers Mutual Aid system. The demonstrated successes helped lay the political groundwork for a national model. Hurricane Katrina in 2005 triggered the Federal activation of the Emergency Management Assistance Compact (EMAC), and while EMAC helped to facilitate the movement of unprecedented amount of goods, resources, and personnel, the response highlighted inadequacies and calls for improvement.

Terrorist attacks of September 11, 2001. The terrorist attacks of September 11, 2001 illuminated a number of weaknesses in our national preparedness. The carnage inflicted by the hijackers quickly overwhelmed the local response capacity.[3(p397)] While many of the responding agencies had mutual aid agreements in place, they were either seldom-used or in their design—specifically in their communications planning. In their after-action report, the Fire Department New York stated, "[B]efore September 11, the FDNY had rarely requested mutual aid from departments outside the city to support fire operations. The Department had no process for evaluating the need for mutual aid, nor any formal methods of requesting that aid or managing it."[4(p36)] The World Trade Center and the lower Manhattan region would eventually receive tens of thousands of emergency response personnel and volunteers wanting to assist in the rescue and recovery effort. This was the largest terrorism-related mass casualty event in the United States history; one the existing mutual aid system was not design to handle. Response organizers were overwhelmed by the enormity of the event and overrun by number of self-deploying first responders, emergency personnel, healthcare practitioners, and private citizens wanting to help. If robust aid agreements were in place, agreements with clear instructions for the timing of incoming assets, these personnel would have been able to fully integrate in a coordinated and orderly fashion quicker with ongoing operations.

Hurricane Katrina, August 2005. Another seminal emergency management event further highlights the need to for a robust and forward-thinking aid response design occurred along the United States gulf coast in 2005. Hurricane Katrina, a Category 5 tropical cyclone, killed between 1,245 and 1,836 people and was tied with Hurricane Harvey as the costliest natural disaster in US history.[5] In the weeks following Hurricane Katrina, Louisiana, New Orleans, specifically received significant law enforcement and public safety mutual aid. Resources came from across the nation, including California, Michigan, Nevada, New York, and Texas. This multistate response was crucial in maintaining a consistent and sustained recovery effort. Local authorities were fatigued, over

worked, and suffered declining moral.[6] The mutual aid response was structured, so responding jurisdictions would accept refugees into their home jurisdictions for shelter. The diaspora saw evacuees settle in all 50 states and in over 18,700 different zip codes.[7]

An essential function of emergency mangers is to properly forecast and anticipate problems, which are likely to occur during a response. Both of these disaster events failed to anticipate and adequately address foreseeable challenges; specifically, how to manage and utilize a large number of spontaneous volunteers/emergency management personnel and how to shelter a large number of displaced persons.[8] *Managing Spontaneous Volunteers in Times of Disaster* and *Mass Care/Emergency Assistance Planning and Operations* are concepts now extensively addressed as a part of FEMA's Emergency Management Professional Program.[9] Emergency management is a form of art and not a science. We utilize science as a color in our art palette; however, honestly analyzing successes and failures of past events has continually proven to be the most transformative and influential factor to the evolution of emergency management. Not properly anticipating challenges can create confusion and delay medical or disaster relief.[10]

Mutual aid response and agreements share common premise, design, and characteristics. A public health emergency's mutual aid-designed response can best be visualized as a concentric ring of responding assistance originating from a central focal point of the disaster event. Mutual aid operations are founded on the concept of the affected jurisdiction fully committing their resources before making a request of resources of another jurisdiction. This analysis does not turn on the actual exhaustion of resources before requesting, but it does anticipate full mobilization and commitment of available resources to the emergent event. Requests for specialized or scarce items may have a higher likelihood of being filled at the state or federal level; however, the requesting procedure would remain the same. The incident command would request an asset, if the request could not be filled locally it would be requested from the next concentric jurisdictional ring until the asset is located. For example, a simplistic request structure could be local, regional, state, federal, and international. Very few jurisdictions can change the requesting order. The best example of the alternate requesting order would be requests originating from tribal sovereign nations. Due to their sovereign nation status, they can request aid directly from their federal counterparts while still maintaining the ability to seek assistance from their region and state. Coordination of these requests is crucial to ensure an order is not filled twice unnecessarily encumbering superfluous resources.

Regardless of the nature of the emergency and type of aid rendered, Master Mutual Aid Agreement's (MMAA) provide a critical preincident framework, establishing the rules, processes, and procedures to be implemented in times of great need. MMAAs are intended and designed to be multifunctional agreements, meaning they can support all emergency management missions. While MMAAs would ideally be agreed upon in advanced of an incident, they can be formed during or after an incident is needed. All levels of government, nongovernmental organizations (NGOs), and private sector entities are eligible to join these instruments.[2]

Intrastate mutual aid—California. California Intrastate mutual aid is generally seen as a voluntary commitment to provide aid between and among local jurisdictions and the state under the terms and conditions set forth in the California Disaster and Civil Defense Master Mutual Aid Agreement (CDCDMMAA).[11] Intrastate mutual aid follows the same concentric ring model previously discussed, just within the state's jurisdictional authority. This MMAA formalizes the command-and-control framework of each impacted jurisdiction; each entity retains control of its facilities, personnel, and resources[12] but has the flexibility to receive or render assistance without expectation of reimbursement from the receiving jurisdiction.[13] Before the creation and adoption of the CDCDMMAA, California's mutual aid was a haphazardly fashioned patchwork of regional cooperative agreements. These agreements were often incongruent containing conflicting and/or confusing language, making a smooth and effective disaster

response very difficult. On Monday, January 17, 1994, the newly enhanced and expanded California mutual aid response was tested—it passed with distinction but raised new social science questions.

At 4:31 AM, a magnitude 6.8 earthquake centered under the community of Northridge in the San Fernando Valley shook the entire Los Angeles metropolitan area. Moderate and severe damage to infrastructure was widespread, including collapsed buildings and highway overpasses. The earthquake killed dozens, forcing thousands to seek hospitalization, and temporarily or permanently displaced 80,000 to 125,000 people.[13]

Jurisdictions affected by the Northridge earthquake benefited from the recently updated and redesigned California emergency response system. Lessons learned from the 1989 Loma Prieta earthquake and other significant earthquakes informed California's emergency managers to immediately activate the intrastate mutual aid network in efforts to maintain essential lifesaving operations. A series of key questions emerged from the Northridge earthquake; "some organizations learn and correct deficiencies and advance and go out and learn some more. Others do not."[14] Why do jurisdictions fail to correct experienced or foreseeable deficiencies?

During a post-disaster conference held by the National Earthquake Hazards Reduction Program (NEHRP), discussing the success from the Northridge event, the conference committee openly questioned jurisdiction's root motivations and reluctance to adopt proven strategies and tactics. Specifically, the committee asked:

> Public officials and emergency responders could benefit from research on how and why some organizations learn and apply the lessons they learn. More research would be useful on the extent to which research findings and lessons learned in previous earthquakes have been implemented in (1) the impacted jurisdictions and agencies; (2) other at-risk jurisdictions and agencies; and (3) jurisdictions hit by a (new) earthquake. Research could tell us what factors lead to validation and adoption by certain agencies and jurisdictions of response methods or measures determined valuable or desirable. Why are some cities, counties, states and even nations more likely than others to adopt new practices that enhance their response capabilities?[14]

The group found that the nature of emergency management response can be and has been affected by political and social factors in given locales—vulnerability resulted from political marginalization.[15]

Interstate, regional, and international mutual aid. While intrastate mutual aid can be entered into or modified at any time by willing parties, interstate mutual aid agreement necessitates special authority granted by Congress. The United States Constitution states, "No state shall, without the consent of the Congress, . . . enter any agreement or compact with another state, or with a foreign power."[16] 1992's Hurricane Andrew demonstrated need for a formalized national aid framework. Post-Andrew, Congress approved the creation of the EMAC.[16] EMAC's primary function was to address three critical aspects of aid assistance: (1) who bears the burden of liability; (2) applicable reimbursement rates; and (3) who maintains the command and control of the response.[16] EMAC's full design was implemented during 2005's Hurricane Katrina. Epidemiologists along with other national and state public health experts were deployed to assist in the storm's aftermath.[16] While this was generally accepted and positive systematic development, the challenges Katrina posed highlighted additional areas in need to analysis and improvement. While not originally intended to be a key aspect of EMAC, Article II of the legislation attempted to address and inoculate mutual aid from political whims and retribution.

> Each party state entering into this compact recognizes that many emergencies transcend political jurisdictional boundaries and that intergovernmental coordination

> is essential in managing these and other emergencies under this compact. Each state further recognizes that there will be emergencies which require immediate access and present procedures to apply outside resources to make a prompt and effective response to such an emergency. This is because few, if any, individual states have all the resources they may need in all types of emergencies or the capability of delivering resources to areas where emergencies exist.[17]

EMAC has been ratified by United States Congress[17] and is law in all 50 states, including the District of Columbia, Puerto Rico, Guam and US Virgin Islands, and the Northern Mariana Islands.[18] A biological attack or infectious pandemic has the ability to activate any one of the mutual aid types (local automatic mutual aid; local mutual aid; regional, intrastate, or statewide mutual aid; interstate mutual aid-after declaration; interstate mutual aid-prior to or without a declaration; and international mutual aid).[2]

States also have the authority, without Congressional approval provided their own legislation permits, to enter regional "nonbinding" agreements such as the Pacific Northwest Emergency Management (Alaska, Idaho, Oregon, Washington, British Columbia, and the Yukon Territory) and International Emergency Management Assistance Memorandum of Understanding (six new England states with five eastern Canadian provinces). All forms of mutual aid must contemplate and attempt to address foreseeable challenges a biological attack or infectious pandemic would pose.

Without a properly designed MMAA, a well-designed biological agent or infectious pandemic can lead to the "weaponization" of our mutual aid system. The pandemic spread of the novel coronavirus has yet again challenged our emergency management response design and capabilities. A foundational premise currently incorporated into the mutual aid system is, all partners will *not* be affected by an incident at the same time and to the same extent, thus providing flexibility of resource allocation and distribution to combat and mitigate the disaster event. Unlike fires, earthquakes, flooding, or hurricanes, infectious pandemics and biological agents have the unique ability to affect multiple jurisdictions equally and simultaneously.

The Pandemic and All-hazards Preparedness Act (PAHPA)[19] is a relatively new and important addition to a comprehensive federal mutual aid structure. This preparedness program's primary purpose was to protect from "threats from exposure from infectious diseases, natural disasters or chemical, biological, radiological or nuclear (CBRN) agents."[20] Originally passed by Congress in 2006 and reauthorized in 2013, the Act "establish[es] overarching preparedness goals for essential federal, state, and local public health and medical capabilities to increase accountability and incentivize regional coordination."[19] Specifically, "increasing the preparedness and response capabilities and the surge capacity of hospitals and health care facilities" and "ensuring coordination of federal, state, local and tribal planning."[19]

Typically, laws directing activities of federal agencies contain sunset provisions. To ensure the continuity of programmatic effect, reauthorization is required in advance of its expiration date. Most of the provisions in PAHPA were set to expire in September 2018. The Senate Health, Education, Labor and Pensions (HELP) Committee started the reauthorization process with a set of hearings on January 17, 2018.[20] The Chair of the HELP Committee, Senator Alexander, commented, "I look forward to a timely, bipartisan reauthorization of this crucial legislation to ensure we are prepared to respond to natural disasters like hurricanes, and protect Americans against bioterror attacks and infectious disease outbreaks, like the Zika virus or a pandemic influenza."[20] PAHPA expired on October 1, 2018 without reauthorization. Many of the pandemic integration planning efforts and assistance programs were forced to pause or cease. Concurrently with the expiration of PAHPA, Congress was debating the adoption of separate legislation titled the Pandemic and All-Hazards Preparedness and Advancing Innovation Act (PAHPAIA). Adopted

on June 28, 2019,[21] this version had many detractors concerned the legislation-enumerated lofty goals but failed to address many of the fundamental challenges pandemic is likely to pose compounded by reduced funding levels, which ensured many of the recommendations could not be achieved.[22] Many saw the lack of mandatory integration of PAHPA into the mutual aid response and paltry levels of funding as signs the legislation was politically motivated and never designed to be implemented.[22] Failing to mandate or fully integrating a strong public health and pandemic mutual aid response leaves this response/mitigation mechanism open to political abuse and misuse based on politics and election cycles.

While not mandated by Congress, a strong public health/pandemic mutual aid response framework remains a viable option for states to include in their aid agreements. The foundational basis of any contractual agreement is to clearly articulate the duties, liabilities, and obligations of the contracting parties. Each contracting jurisdiction should clearly and cogently articulate their expectations. A party would be able to construct their terms and conditions based on their state and societal values. A state with ample resources could offer to lend public health personnel with the caveat the receiving jurisdiction must impose a statewide mask and social distancing policy to ensure their personnel are "properly" protected as determined by their state's health officials regardless of the desires or analysis of the receiving jurisdiction. The lending state would have the ability to protect their resources and personnel at the standards and conditions they choose based on any justification including political factors. While the requesting jurisdiction would retain the option to accept or reject the assistance, this would create an untenable aid framework, completely negating the EMAC Article II's attempt to remove this insidious potential. The objective of mutual aid agreements is to standardize and effectuate the efficient movement of resources to areas of need, based on likelihood of use and need absent political and nonemergency management influences. Allowing well-healed and fully funded jurisdictions uneven bargaining position toward smaller jurisdictions who fail to have the money or resources could weaponize mutual aid turning our greatest emergency response tool against us.

Mutual aid agreements should be analyzed and updated to address likely biological and pandemic affects and requirements. Pandemics or biological attacks will test emergency manager's ability to accurately evaluate and forecast the impact an outbreak may have in their jurisdiction. Pandemics are likely posing new and previously unanswered questions our current mutual aid system was not specifically designed to address. While unable to anticipate all challenges future events will pose, policy makers and emergency managers should attempt to anticipate and address some of the foreseeable challenges likely to transpire. The following are just a few of the novel questions biological and pandemic events may present.

Legal commitment—Can a jurisdiction decline to send mutual aid to a jurisdiction responding to a biological or pandemic disaster event?. Interstate cooperation is a national priority and assumed by the Interim National Preparedness Goals established under the Homeland Security Presidential Directive 8.[16] However, under the EMAC's article IV: Limitations: "Any party state requested to render mutual aid . . . shall take such action as is necessary to provide and make available the resources covered by this compact . . . provided that it is understood that the state . . . may withhold resources to the extent necessary to provide reasonable protection for such state."[23]

While a state is not required to send assistance, provided they have an articulable need to provide reasonable protection for their home jurisdiction, once a resource is assigned out of state that asset cannot be recalled by the lending jurisdiction until the receiving jurisdiction demobilizes that asset. This could create a moral and professional dilemma for a lending jurisdiction. If the requesting jurisdiction implements less restrictive protective measures, the lending jurisdiction would be exposing their personnel to an unnecessary level of risk or injury or illness. During a rapidly progressing and developing emergency such as a pandemic, jurisdictions may be reluctant to send

valuable assets or personnel to an EMAC partner with the looming prospect of potential need in their home jurisdiction. That jurisdiction could artificially create a justification to deny mutual aid assistance to preserve the resource for their potential use later. Failing to reasonably respond could exposed them to future retribution in a time of need—weaponizing the mutual aid relationship.

These questions are layered and multifaceted. A decision to send help or deny a request is never singular in its analysis; we may never truly know the core genesis of a decision. However, the spirit of mutual aid agreements is to make a strong united national effort—an effort that transcends geographical borders and political allegiances. An effort that declares saving lives and assisting our fellow man is one of the noblest things we can do in our lifetime. A well-designed, nuanced, and insightful aid response can restrain pettiness and moral weakness, helping people to answer the "better angels of our nature."*

An agreement should address how to properly calculate reimbursable "use" in a biological or pandemic event? A fundamental axiom of contract law holds, and ambiguous or uncertain terms in a contract will be construed against the party that caused the uncertainty to exist.[25] That is to say, the drafter of the contract should not benefit from ambiguous terms they were in control of articulating.[26] While no party will be punished if the agreement is deemed to be a *jointly drafted agreement* (where the terms and conditions of an agreement have been crafted and negotiated by both parties); very few, if any, of our aid agreements would qualify. Many of the obligations and reimbursement rates are predetermined and presented as a "take it or leave" option.

Our state and national aid agreements contain numerous terms the complexities of a pandemic or biological attack could render ambiguous. Mutual aid agreements must specify how the receiving jurisdiction will compensate the lending jurisdiction. Under certain circumstances, mutual aid costs may be reimbursable. Individuals providing mutual aid will be responsible for maintaining logs, timesheets, and vehicle maintenance receipts required for reimbursement. Associated costs incurred may be eligible for reimbursement under the Natural Disaster Assistance Act when a state of emergency has been proclaimed under the Robert T. Stafford Disaster Relief and Emergency Assistance Act and where there is a Presidential Declaration. Generally, the cost to repair extraordinary damage to a jurisdiction's vehicle or asset, when the asset was used in the performance of a specific disaster assignment, will be borne by the requesting jurisdiction. Normal wear and tear are noncompensable. The unique circumstances a biological or infectious pandemic event would pose could legitimately alter the standard reimbursement rates for assets and personnel. What type and kind of use during a pandemic is considered "normal," noncompensable, and what type and kind of use would be considered extraordinary creating liability for the receiving jurisdiction.

In 2007, The Public Health Law Program of the Centers for Disease Control and Prevention begun analyzing the need for a robust public health best practice guidelines and mutual aid legal framework.[16] The report concluded while public health officials have initiated discussions with governor's offices and emergency management offices domestically and internationally, very few questions have been answered. Lack of judicial interpretation of key terms and the lack of national uniformity continues create ambiguity.[16]

An agreement should address demobilization and sanitation of resources in an infectious disease pandemic environment. As defined by the National Incident Management System Guidelines for Mutual Aid published by US Department of Homeland Security—FEMA, *demobilization* is defined as, "The orderly,

*Lincoln, "*First Inaugural Address of Abraham Lincoln*," [Abraham Lincoln, who used the phrase in his First Inaugural Address on March 4, 1861, on the eve of our Civil War."I am loath to close. We are not enemies, but friends. We must not be enemies. Though passion may have strained, it must not break our bonds of affection. The mystic chords of memory, stretching from every battle-field and patriot grave to every living heart and hearth-stone, all over this broad land, will yet swell the chorus of the Union, when again touched, as surely they will be, by the *better angels* of our nature." (emphasis added)].[24]

safe, and efficient return of an incident resource to its original location and status." ". . . original location and *status* [emphasis added]."[2] How the lending jurisdiction defines, "*status*" is a critical aspect of operation of this section. Equipment rates and reimbursement costs are commonly based on hourly or daily use. These along with, fuel, maintenance, a cost for loss, damage and repairs should be clearly enumerated to avoid confusion among the contracting parties. The cost of post-pandemic sanitation for some items, which would not normally need sanitation, may render them expendable and not worth rejuvenating for future use. These items should be identified and enumerated in an agreement. One asset that is often rendered expendable, based on the lender's standards of sanitization, is cots. The cost (labor and materials) of sanitizing cots often exceeds the price of replacement. The list of "expendable" items in a biological or infectious disease event is likely to be significantly larger than other disaster events due to increased and expensive sanitation, which may exceed items' replacement cost.

An agreement should address demobilization and quarantine of exposed personnel. How an agreement defines the operable term "*status*" would be dispositive of how personnel are treated or quarantined when returning home from deployment. Generally, personnel pays including salary, overtime, backfill costs, and other associated employee-related costs (including insurance, retirement contributions, and worker's compensation) are addressed in the joint agreement. Under the EMAC, requesting jurisdictions must articulate the expected time they intend to encumber the asset. Under Article II: Party State Responsibilities section B(2), "The amount and type of personnel, equipment, materials and supplies needed, and a reasonable estimate of the length of time they will be needed; . . . ."[23] Under a biological attack or pandemic response, state agencies may recommend a 14-day quarantine once personnel return from field duty or if the employee has encountered a person COVID-19-positive regardless of time spent on scene/assignment. One could argue that the 14-day quarantine period is directly related to the deployment, and therefore, associated costs should be covered by the requesting jurisdiction. For example, if emergency services coordinators (ESC), through an EMAC agreement, were sent to a nearby state for 5 days of in-field operations, when demobilized and returned to their home jurisdictions, they are likely to require to be quarantined for 14 days. Therefore, the requesting jurisdiction would be liable for 19 days the ESC's salary and associated costs.

Without a preagreed standard the contract parties are to apply—ie, Center for Disease Control prevailing guidelines or the best practices in the field—the lending jurisdiction could reasonably articulate any condition or demand, as long as it is agreed upon between the parties. Which agency should pay the salary, overtime, and backfill costs of that resource while they are quarantined? Should they be permitted or required to work in a limited capacity while in quarantine? Are they required to quarantine at home, potentially exposing their family, or are they permitted to quarantine in a hotel? Who pays for the quarantine location/hotel? Answers to these questions are best answered and articulated in advance, absent political pressure, and general chaos of a disaster-event.

An agreement should address infected or death of personnel. The dangers and environmental hazards responders are likely to encounter during an incident, requiring a through and complete contemplation of how to prevent, mitigate, and ameliorate foreseeable hazards. While obvious items such as personal protective equipment and respiratory equipment along with associated training on proper equipment use are common, less common and tangential harms should be addressed such as cancer, adverse reaction to vaccinations, transmission of infectious diseases to family or loved ones, and the ability of high-risk individuals to decline an assignment. Many of our law enforcement and first responders have codified legal presumptions addressing enumerated diseases—declaring that if contracted, the illness is presumed to have been contracted while on duty. This legal presumption places the employee in a more favorable position when seeking workers compensation and other healthcare and retirement bene-

fits. Responding to a biological or infectious pandemic is likely to infect a disproportionate number of emergency responders compared to civilians. Mutual aid agreements should clearly articulate—even to the extent if personnel test positive for the associate illness—a legal presumption the illness contracted while on duty, easing evidentiary burden when seeking worker's compensation. This issue has been of significant debate for the September 11 responders who have contracted life-long and fatal illness after responding to the World Trade Center terrorist attacks.[27]

As articulated in the National Incident Management System Guidelines for Mutual Aid, "[B]y identifying potential shortfalls and capability gaps through planning and exercises, jurisdictions can work with partners to establish mutual aid agreements as part of their preparedness actions."[2] Post-disaster, MMAs are reviewed for effectiveness, and the post-COVID-19 analysis may provide both valuable insight into incongruences in our existing response framework and an opportunity to better perfect our mutual aid system.[16] As emergency management agencies, state and federal, begin to analyze their response to the COVID-19 pandemic, managers should analyze the affect, if any, these ambiguous sections had on their effectiveness and timely response and invest time and resources in addressing and forecasting additional unarticulated friction points. State and federal emergency mangers should hold joint meetings to update EMAC and other mutual aid agreements to reflect what has been learned. As the world grows in population and complexity, with increased global travel and communal integration, urbanization, changes in land use, and greater exploitation of the natural environment, the likelihood of pandemics has increased.[28] Ensuring that our emergency management's most powerful tool is designed to effectively respond to this ever increasing threat is paramount.

CONCLUSION

A functional mutual aid system allows the effective cost sharing of resources and the swift mitigation of loss of life and property. State and national mutual aid systems were never intended to be a static operational framework. They were, and are, organic evolving organisms that require attention, analysis, and modification when insight and facts demand an evolution. COVID-19 has illuminated weaknesses in our mutual aid framework—weaknesses that could potentially allow and abuse and misuse of these unifying instruments. The better we as homeland security agencies can anticipate the burdens and obligations associated with an event, the better we can tailor our agreements to address the actual foreseeable needs, hopefully eliminating the breeding ground for ignorance-induced harm and politically influenced decisions. By designing our response system in an insightful and nuanced fashion, we can effectively lend aid to those in need. Our mutual aid systems allow us to be forward thinking—it challenges us to anticipate what could happen and how we should respond. COVID-19 has provided us another opportunity to analyze and improve our emergency response.

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