Addressing Disaster Workforce Needs During the COVID-19 Pandemic

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<u>Abstract</u>

The COVID-19 pandemic has triggered a broad range of challenges for frontline disaster workers in the United States. The scale of response necessary to manage the crisis, sometimes in tandem with other compounding forces, has triggered burnout and high rates of turnover in some settings. Drawing from research on frontline workers and other service providers in disaster settings, we identify strategies that can be used within organizations and by state and local decision-makers to address worker burnout, promote individual-level resilience, and mitigate the impacts of worker shortages over the short and long term as the crisis continues to evolve.

INTRODUCTION

The COVID-19 pandemic has required a nationwide mobilization of public health practitioners, medical care providers, and other frontline workers[1] over an extended period, including the simultaneous activation of emergency management agencies across all levels of government for the first time in the nation's history. This unprecedented scale of response introduced a range of challenges for the disaster workforce[2]—from implementing entirely new protocols in response to an unfamiliar threat, to managing the transition from an acute threat into a protracted event across multiple waves. Additionally, since the onset of this public health emergency, disasters have continued to unfold throughout the United States, requiring many workers to plan for and respond to multiple threats at once. Concerns about worker burnout[3] emerged in the early months of the pandemic and have become amplified in its second year as workers in many areas have continued to operate through intersecting emergencies or at elevated levels for a prolonged period with minimal relief.

Burnout is associated with a variety of mental and physical health conditions such as cardiovascular disease, musculoskeletal pain, gastrointestinal issues, and depressive symptoms (Salvagioni et al., 2017). It can also lead to higher rates of job turnover and lower job performance, highlighting its negative impacts for individual workers and the organizations in which they are embedded. In light of the continuing evolution of the coronavirus crisis and layering of disaster losses in many parts of the country, there is a pressing need to ensure the stability of the disaster workforce. This paper outlines strategies that decision-makers and organizations can use to reduce the strain on frontline workers, promote their wellbeing, and reinforce the capacity of the disaster workforce to keep up with existing and emergent needs.

STRATEGIES TO ADDRESS WORKER BURNOUT

Efforts to address the development and impacts of worker burnout need to be institutionalized by organizational leadership, carried out by managers/supervisors, and supported by individual workers. Overwhelming demand on healthcare staff has dominated popular coverage of this issue in the context of the COVID-19 pandemic,[4] particularly as the

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[1] This paper addresses the needs of frontline workers who carry out public-facing emergency response, relief, and recovery duties at the state and local government levels, including emergency managers; fire, police, and emergency medical response personnel; public health workers; human services personnel; and support staff.

[2] The broader disaster workforce consists of individuals serving in formal disaster service roles, such as frontline workers (as described above); volunteers and staff in emergency response and relief organizations (e.g., Red Cross, Salvation Army); disaster medicine specialists and medical workers; crisis mental health care providers; and support staff. By some measures, this workforce also includes those who become de facto service providers during and after disasters, such as workers in community- and faith-based organizations that lack an explicit disaster mandate; and planners, researchers, and scholars specializing in disaster-related issues.

[3] Burnout is defined here as "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed." (World Health Organization, 2020).

[4] Additionally, in July 2021 the US Department of Health and Human Services announced a plan to use $103 million in funding from the American Rescue Plan over a three-year period to reduce burnout and promote resilience within the health workforce. See: https://www.hhs.gov/about/news/2021/07/16/hhs-announces-103-million-arp-funding-to-address-health-workforce-burnout.html

number of infections has again begun to surge due to the proliferation of the Delta variant. However, other sectors, such as public safety, emergency management, public health, and their support staff, have also experienced extraordinary demand due to the spread of the virus. For instance, following the most destructive wildfire season on record in 2020 (National Interagency Fire Center, n.d.), firefighter support services reported that the response to these disasters, combined with the impacts of the pandemic, had exacerbated burnout and other negative mental health outcomes (Rott, 2021).

Research on the impacts of the COVID-19 response among members of the public health workforce suggests that rates of burnout are widespread within this population and may linger over the long-term, which could in turn accelerate pre-pandemic declines in workforce participation in this sector (Stone et al., 2021). With the pandemic continuing to evolve and cause disruptions well into its second year, burnout poses a serious threat that needs to be addressed. The nature of disaster-related work requires a combination of advance planning and capacity to scale up support in times of crisis. The following sections identify steps that can be taken at the supervisory and organizational levels to minimize burnout and related conditions.

Actions by Organizational Decision-makers

Organizational leadership has the primary responsibility for establishing internal policies that address worker burnout and foster a culture that values employees' wellbeing. While the pandemic has introduced novel challenges and pressures on organizational resources, decision-makers at this level determine how well agencies prepare and support their employees. They have the authority to create reporting systems and monitor indicators of or factors known to contribute to burnout; set expectations and accountability metrics for managers and supervisors; and set the tone for working conditions.

Developing organizational monitoring systems and burnout reduction strategies is vitally important at this moment, given the prolonged strain under which frontline workers have been operating since the onset of the COVID-19 crisis. The need for such measures is further underscored by the threat of concurrent disasters that can directly affect personnel or introduce new requirements that exacerbate pandemic-related stressors. Below we outline strategies for developing internal assessment processes, channeling appropriate support to supervisors and workers, and ensuring that the benefits of these efforts are manifested equitably.

- *Acknowledge, identify, and assess (measure) the impact of psychological distress on workforce outcomes.* The first step in addressing the issue of burnout in frontline workers is acknowledging the problem (Shanafelt & Noseworthy, 2017). Candid conversations that involve open and honest dialog must be held at all levels of the organization. This information can be gathered in various formats including town halls, face-to-face meetings with small groups, surveys, and interviews to reach a broader audience. This initial step is important to demonstrate recognition of the problem and willingness to listen. It also better ensures participation and trust among employees in the resulting programs and policies. Once identified, the extent of the problem needs to be systematically assessed. Because organizational measures align with the overall organizational mission, it is critical that standard measures of employee stress/well-being are collected and results aligned with relevant organizational measures (e.g., productivity

assessments, safety, turnover) to examine their effects on key measures of organizational performance. Results can be aggregated to the division or departmental level. In this way, individual, team, and organizational well-being can be assessed, including on-going impact of the pandemic, thereby allowing executive leadership to focus attention and resources where they are needed.

- *Provide training and education about burnout recognition and management.* Burnout is characterized by three components: (1) exhaustion; (2) cynicism; and (3) inefficacy. It is important that these symptoms are understood such that they can be recognized and managed. Exhaustion is the most often reported aspect of burnout. It involves physical, cognitive, and emotional fatigue that interferes with an individual's ability to concentrate and accomplish even routine tasks. It often results from increased demands, time pressures, and lack of control over work that lead to feelings of being overwhelmed. Cynicism is a psychological detachment to distance oneself from the stress of the work. As opposed to being engaged in tasks, individuals are psychologically detached and often callous and negative in their interactions with co-workers and those in their community needing services. It most often results from work overload but also in response to increased conflict and lack of control over work and decision-making.

  Inefficacy refers to feelings of ineffectiveness and lack of accomplishment and productivity. As an example, in response to a burnout study of frontline workers in the U.S. Virgin Islands, one hospital nurse noted, "We are accustomed to winning [saving lives], but lately there are far too many losses" (Francis et al., 2021). These types of statements need to be seriously considered as they may indicate lower levels of personal accomplishment. Francis and colleagues (2021) found that the level of burnout was reduced as personal accomplishment levels increased. Inefficacy can result from lack of needed resources and support including adequate time, information, expectations, autonomy, relationships, and feedback and recognition. Training and education need to be developed and provided within the organization such that burnout in individuals (exhaustion, cynicism, inefficacy) and organizational risk factors (workload, flexibility/control, reward, social support/community, fairness, and values) can be readily identified and appropriate management strategies can be developed and implemented in response. Individual training is needed to raise awareness, and organizational training is needed to prepare workplace leadership to develop and implement policies and programs that address worker burnout prevention and management.

- *Evaluate workload expectations and adjust workflow challenges.* The workload expectations of frontline workers need to be evaluated and necessary modifications and adjustments are necessary to mitigate burnout. Organizations can focus on the aspects of work that can be readily altered such as increasing staffing levels, redistributing tasks, appropriate use of ancillary staff, and reducing overtime to optimize workload for frontline workers. It is also important to maintain transparency around how these decisions are made (e.g., worker assignments, advancement) and that modifications include frontline workers assuming control over adjustments to their workforce schedule (Howell, 2021). Additionally, technological advances that reduce the administrative burden may also be helpful.

- *Create policy and educational initiatives that address presenteeism.* Particularly relevant

to worker burnout during the pandemic is the issue of "presenteeism." Presenteeism occurs when employees report to work when sick, negatively impacting productivity and safety (Kaplan et al., 2017). For first responders, the sense of duty and caring for others during a public health crisis may influence decisions to attend work despite personal illness. Other factors contributing to the presenteeism during the pandemic include social isolation, financial insecurity (lack of paid sick leave), job insecurity, and the desire not to burden colleagues (Kinman & Grant, 2020). Policies that provide adequate time off for recovery from illness, promote paid sick leave, and educational initiatives that provide a greater understanding of presenteeism including its downstream financial costs are encouraged.

- *Cultivate peer and community support to foster interpersonal connections and reduce social isolation.* Support systems need to be developed to combat the social isolation associated with burnout. Peer support systems offer mutual support and advocacy for solutions, thereby enhancing worker control and social connections. Creating dedicated meeting areas and times for peers to convene and discuss shared experience promotes improved meaning in work, fosters social connectedness, and reduces burnout. Formal interventions can also be considered. For example, *Battle Buddies*, based on a peer support model originally developed by the United States Army, is a psychological resilience intervention that connects individual health care workers with peers to foster socialization and support health care workers' well-being during the pandemic (Albott et al., 2020). The intervention is designed to require no additional or specialized organizational resources to implement and is used in conjunction with designated mental health consultants to identify and support workers most at-risk for burnout.

- *Exhibit compassion and empathy to demonstrate interest in workforce well-being.* It is important that workers are not blamed for their needs. Frontline workers can be supported through the elimination of barriers including the stigma associated with asking for and accessing mental health resources, which inhibits recovery from burnout. It is best to further reinforce these measures by ensuring that mental support and related resources are available and easy to access. The stressors faced by members of the disaster workforce may vary by sector, geographical area, cultural context, and other factors. Some frontline workers may be experiencing turmoil within their personal networks, which can deepen a sense of isolation. For instance, in many parts of the country public health workers and their families have encountered threats, harassment, and abuse, both in person and online (Kornfield, 2021). In a survey of public health workers at the state, tribal, local, and territorial levels that was conducted by the US Centers for Disease Control and Prevention in March and April 2021, about half of respondents reported feeling isolated and alone, and about half reported getting divorced or separated during the pandemic (Bryant-Genevier et al., 2021). Employers need to acknowledge the feelings of isolation that can result when job duties disrupt personal relationships.

- *Encourage self-care.* It is important that workers maintain their own well-being through proper nutrition, hydration, adequate rest, physical exercise, and recovery from work away from the front lines to rejuvenate (Santarone et al., 2020). In the ongoing stressors encountered during the pandemic, individuals must be encouraged to monitor and replenish their physical and emotional energy. It is helpful to emphasize the importance of maintaining personal social networks while taking time away, as close interpersonal

relationships serve as a source of strength and support outside the workplace.

- *Designate times/spaces for frontline workers to receive disaster relief and support services*. Organizational leaders are responsible for creating and promoting mechanisms for workers to identify support needs, including by making it easy for employees to access help. As frontline workers deliver services to the greater public, organizations have a responsibility to ensure that services are being provided to staff who may require them on an individual or personalized basis. Employees operate under challenging situations with extended work times throughout disasters. The availability of support options is essential for the psychosocial and wellbeing of service and recovery providers and their families. Services that may be useful for frontline personnel include sheltering, food, water, clothing, healthcare, and mental health services. Often, frontline workers are co-survivors during disasters. The creation of wish lists for resources employees need may also be helpful (Francis et al., 2021).

- *Increase mental health support*. Disaster workers face an elevated risk of mental health problems, and there is a need for measures to mitigate the impacts of traumatic exposures independent of the pandemic (Mahaffey et al., 2021; Vujanovic et al., 2021). Research involving healthcare workers suggests that job demands created by the response to COVID-19 have had a particularly harmful effect on mental health (Sasangohar et al., 2020). Governmental agencies responsible for disaster services (e.g., emergency management and public health) may need to partner across jurisdictions to create disaster behavioral health plans and deliver support.[5] Additionally, community partners may be able to deliver counseling, chaplain, and other services. Accommodations in work schedules are needed to help employees access such services (Mahaffey et al., 2021). Providing psychological first aid training to organizational leaders; supervisors and managers; and individual workers may also help to socialize mental health awareness and equip employees at all levels of the organization with basic skills to recognize and respond to signs of distress in coworkers, particularly during times of crisis.[6]

- *Address disparities in burnout across demographic groups*. While the impacts of burnout can be observed across the disaster workforce, its contributing factors, prevalence, and manifestations may vary across professions and demographic groups. For example, a review of research on gender-based differences in burnout among clinicians found that a number of factors known to contribute to burnout disproportionately disadvantage women (Templeton et al., 2019). Specifically, it found that women faced greater burdens in work-life integration; more frequently experienced bias, discrimination, and sexual harassment; and faced unique institutional pressures to perform administrative tasks and support patients' emotional needs.

  Preliminary findings from ongoing research led by one of the coauthors of this paper on the pressures faced by first responders during the COVID-19 pandemic has similarly found differences across demographic groups regarding the kinds of factors that

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[5] Guidance on developing disaster behavioral health programs is available at: https://www.phe.gov/Preparedness/planning/abc/Pages/DBH-federal.aspx

[6] Additional information about psychological first aid is available at: https://www.ptsd.va.gov/professional/treat/type/psych_firstaid_manual.asp

contribute to burnout. For instance, during the pandemic women first responders reported higher levels of burnout and role strain, or the stress associated with conflicting work expectations. Factors that have contributed to this include the informal organizational climate (e.g., whether employees feel emotionally safe at work, whether they can trust their coworkers, whether supervisors are understanding), and the formal support (e.g., health insurance, sick pay, time off, mental health resources) that organizations provide to employees. The findings indicate that these factors are also gendered, in that women perceived their organizations to be less supportive overall (both formally and informally).

It is also important to consider how experiences may vary across race and ethnicity, disability status, and cultural identity. To develop effective practices for preventing or addressing burnout, organizational leaders must first understand the diverse causes and pathways through which burnout may be experienced. Taking a one-size-fits-all approach toward addressing this condition can obscure these nuances and reproduce the inequities that lead to differential impacts and experiences of worker burnout. Developing expectations around inclusion and respect for employees' diverse backgrounds, abilities, cultural norms, and values is an important step toward strengthening institutional cultures and improving working conditions.

- *Cultivate an organizational culture of worker well-being.* Fundamental to ensuring worker well-being in an organization is the alignment of core values and principles that cultivate a culture of worker resilience and well-being. This approach ensures a systematic linkage among the practices and policies to promote and protect worker well-being (NASEM, 2019).

Actions by Supervisors and Managers

Supervisors and managers with direct oversight responsibility are best positioned to monitor signs of burnout, implement supportive policies, and communicate directly with workers about their concerns. The strategies discussed below can help these individuals build their own capacity and create internal processes to mitigate burnout and support employees.

- *Conduct outreach to workers to build trust and encourage communication about concerns and challenges.* In order to identify what is needed to protect and promote the well-being of workers, open communication must be established with the employees. The process starts with direct communication with the employees themselves to focus on the greatest needs and challenges they face. Understanding employees' needs can be accomplished through interviews, surveys, or focus groups. Peer support teams that include support staff can be created to further establish trust and strengthen these communication efforts. As a part of this process, it is advisable to seek feedback and input from employees as to the extent that the program and policies are adequately addressing these needs (Shanafelt & Noseworthy, 2017). This strategy involves promoting open lines of communication and welcoming employee feedback as an active part of this process.

- *Demonstrate administrative leadership in addressing burnout.* Support from direct supervisors has been shown to reduce the occurrence of burnout among employees. This involves establishing frequent contact with employees and providing clear and consistent

feedback to ensure that employees receive meaningful recognition for their work. Informal feedback is also effective in helping workers feel appreciated and engaged. In particular, it is important that supervisors and managers acknowledge the extraordinary efforts made in response to COVID/concurrent crises.

- *Promote flexibility and work/life balance.* Prolonged work hours and the increased demands of the pandemic make it difficult for frontline workers to integrate their personal and professional lives. This may be more problematic for women due to cultural and societal expectations. Flexibility in work scheduling is needed such that employees have greater control to balance their work and family needs. Depending on the size and structure of the organization, it may not be possible to reduce hours; however, flexibility can be given as to when and how they work. For example, this can involve starting the work day earlier/later or working longer hours on certain days and shorter hours on others allows employees to accommodate their needs in an equitable manner (Kaplan et al., 2017). Facilitating adaptations to work patterns and creating flexibility workers need to manage personal challenges resulting from COVID-related issues empowers employees to prioritize health and family, which, in turn, reduces stress and the likelihood for worker burnout.

- *Model effective behaviors.* Those with direct supervision need to serve as role models by engaging in the appropriate behaviors (e.g., taking breaks, setting appropriate limits) that directly counter the "always on" work culture associated with burnout. Managers and supervisors set a good example by managing their own stress to demonstrate that they take well-being seriously and that their values are aligned with those of the organization (Knight, 2019).

- *Exhibit compassion, kindness, and empathy toward employees.* It is important that the employees do not perceive that they are being blamed for their stress. While autonomy can counteract symptoms of burnout, employees can often feel that burnout is a personal failing. Supervisors and managers need to actively demonstrate compassion and kindness toward employees to create a psychologically safe space.

STRATEGIES TO PROMOTE INDIVIDUAL-LEVEL RESILIENCE

As previously stated, the primary focus for increasing resilience and reducing burnout must be to optimize the core values and practices that cultivate a culture of worker well-being. Recent research has emphasized the need to provide resources and strategies to promote individual-level resilience (Merlo et al., 2021; Sumner & Kinsella, 2021). Individual resilience refers to the employee's ability to cope with the negative effects of stress and thereby avoid burnout at the workplace. In an effort to increase the employee's resilience to effectively cope with the stress and related strain associated with the pandemic, the following individual-level strategies are offered (APA, 2012; CDC, 2020). However, it is important to note that these strategies need to be developed and implemented as a complement to higher-level strategies to systematically address these broader issues (NASEM, 2019).

- *Social Engagement.* A sense of community is vital for resilience; relationships need to be

prioritized. To combat the tendency to isolate oneself, individuals can actively engage in fostering social connections with empathetic and compassionate colleagues with whom they can openly share how the pandemic is impacting them personally and professionally (Chesak et al., 2020). These connections can also include professional groups, faith-based organizations, and other local organizations that provide social support.

- *Foster Wellbeing*. It is also important that individuals practice a healthy lifestyle that includes proper nutrition, hydration, adequate sleep, and regular exercise. This includes taking mental and physical breaks from front-line activities. In addition, individuals can practice mindfulness techniques such as journaling, meditation, yoga, and other spiritual practices that focus on positive aspects of life. To ensure wellness, individuals need to avoid negative outlets such as substances (alcohol, drugs).

- *Find Purpose*. Fostering a sense of purpose and self-worth by helping others empowers individuals and fosters resilience. For first responders, this includes meaning found in their work in caring for others during COVID-19 (Sumner & Kinsella, 2021). It is also helpful to be proactive by acknowledging and accepting your emotions during difficult times and fostering self-discovery to set and accomplish small but realistic goals.

- *Seek Professional Help*. It is important to seek professional help when other individual strategies are not effective in fostering resilience. Mental health professionals, behavioral health services, and peer support programs can assist individuals in developing the appropriate strategies to build resilience (Santarone et al., 2020). This is particularly important when individuals feel they are not able to perform basic activities as resulting from pandemic-related stress and strains.

Recent research has provided guidance about the facilitators and barriers that influence the implementation and subsequent effectiveness of interventions targeting individual-level resilience for frontline workers following a pandemic or disease outbreak (Pollock et al., 2020). The following factors have been identified as critical when selecting, planning, and implementing individual-level interventions:

- Frontline workers, and the organizations in which they work, must be fully aware of what is needed to support their well-being;
- Adequate resources must be available to support the implementation of the intervention including necessary equipment, sufficient staff time, and appropriate skill;
- Flexibility to adapt the intervention such that it is tailored to meet local needs;
- Effective networks of communication exist, including both formal and informal social networks;
- A positive, safe, and supportive learning environment exists;
- Frontline staff have adequate knowledge relating to and belief in the intervention.

STRATEGIES TO MITIGATE THE IMPACTS OF WORKER SHORTAGES

Prolonged emergency responses triggered by the COVID-19 pandemic, along with pre-existing challenges that already threatened certain sectors of the workforce, have strained staff resources within many agencies, contributing to conditions that can create burnout and compassion fatigue. Interventions to mitigate worker shortages are needed at both the

organizational and community levels to develop alternative staffing models and to address broader external factors that can hinder workforce participation. Coordination among state and local officials can complement actions taken by organizational leadership to introduce policies and programs that operate across systems.

Organizational Approaches to Increase Workforce Capacity

In addition to introducing steps to address issues related to worker burnout and wellbeing, leadership within disaster response agencies[7] can introduce internal protocols that maximize existing personnel resources. Strategic measures such as these will become increasingly important as the COVID-19 crisis continues to unfold and intersect with other emergencies. Proactive planning to foster agility and position fluidity among employees can minimize conditions that trigger burnout and contribute to a supportive work environment. Laying the groundwork to leverage external partnerships for both highly skilled and less specialized labor when needed can further relieve pressure on employees and fill gaps in support for disaster-affected community members. The strategies described below can help organizational leaders increase internal personnel capacity and access supplemental support.

- *Document the duties, training, and skills needed for each position*. In addition to clarifying realms of responsibility and required competencies associated with each role for individual staff members, managers can use this documentation to identify cross-training needs and build internal capacity, ultimately enhancing the unit's flexibility to deploy staff to different positions as needed during crises.

- *Provide continuing education and workforce enhancement training*. Training and capacity development are needed so that workers can develop the skills required to work across positions. Providing opportunities for workers to expand their knowledge and skill sets can also reduce turnover by facilitating growth in areas of interest and supporting career advancement.

- *Coordinate with partner agencies in emergency planning and training activities*. The scale of response to the COVID-19 pandemic has required interagency and interjurisdictional collaboration. Such efforts provide an opportunity to break down organizational silos, better integrate operations, and improve efficiency through shared resources, including personnel. This level of integration may require liaisons within each of the agencies responsible for emergency response to sustain relationships and ensure familiarity with each other's operations.[8] Sustained interagency coordination supports readiness to respond to compound disasters that may intersect with the COVID-19

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[7] The guidance in this section is designed to be broadly generalizable across government emergency response and relief agencies (e.g., emergency management, public health, human services). The U.S. Centers for Disease Control and Prevention has issued guidance specific to staff shortages within healthcare settings, available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html

[8] Assigning interagency liaisons and developing interagency training and planning activities may require additional investments in personnel and financial resources that may not be feasible for all organizations, despite long-term cost savings and efficiencies (Wolf-Fordham, 2020).

pandemic and, combined with position documentation, can enable personnel sharing involving individuals with transferable skills to augment surge capacity during disasters. Establishing plans to access staff support and expertise from across jurisdictional boundaries can be particularly helpful in managing long-term and simultaneous incidents (National Homeland Security Consortium, 2021). Such arrangements need to be made during "blue sky" times (e.g., well in advance of an emergency) so that agencies can activate them quickly when the need arises.

- *Communicate regularly with teams of highly skilled personnel.* Volunteer programs such as Medical Reserve Corps and Community Emergency Response Teams, as well as other sources of support such as retired agency personnel who are willing to activate during emergencies, can provide specialized personnel support to segments of the disaster workforce as appropriate. This may be particularly helpful in minimizing the strain on staff resources caused by the response to COVID-19 pandemic (Marshall et al., 2021). Agencies need to regularly involve these groups in training and updates to familiarize them with evolving plans and protocols so that their skills can be leveraged effectively.

- *Cultivate relationships and regular communication with other private sector partners.* Umbrella organizations such as Voluntary Organizations Active in Disasters, as well as other private sector entities such as business associations, comprise an important segment of the disaster services ecosystem and can provide valuable assistance (e.g., mass sheltering and feeding, supplies, transportation) to both disaster-affected community members and government disaster responders. Organizations need to involve these groups in emergency plans, exercises, and training as appropriate so that their capacities are understood and can be effectively utilized when needed. Mechanisms for communication, coordination, and data sharing as appropriate must be developed before a disaster strikes to ensure that these resources can be called upon when needed, particularly if they are to supplement services that are usually provided by government personnel. Additionally, as many nonprofit service providers have been negatively affected by the pandemic, governments may need to provide additional resources to support their ongoing involvement (Hutton et al., 2021).

- *Develop cross-jurisdictional collaborations to combine resources and minimize duplication of effort.* Strong relationships among regional, state, and federal agencies can serve as conduits to additional support during emergencies, and may be particularly helpful for addressing personnel and capacity constraints during the COVID-19 pandemic. These collaborations are most effective with the policies, protocols, and relationships they rely upon are established in advance of an emergency. Expectations may be formalized through communications frameworks, cooperative agreements and mutual aid plans to ensure that they can be efficiently and effectively activated during emergencies (Dzigbede et al., 2020). Such arrangements are particularly important for small and low-resource communities, which typically require additional technical assistance, coordination, and other support from state-level agencies to facilitate connections and supplement capacity.

Building Organizational Resilience

Examining the underlying causes of breakdowns in emergency response efforts can also

help to identify appropriate actions for addressing them. In some instances, problems may not be the result of short staffing, but rather of inadequate training, poor information flow, insufficient direction, or other factors. Reflecting on shortcomings and identifying steps needed to address them supports organizational resilience. Organizations that are designed with resilience in mind are able to effectively respond during and rebound after crises. In order to build resilience, organizations must have structures, policies and practices in place to anticipate, prepare for, and respond and adapt to risks (Boin & van Eeten, 2013). Strategies for organizational resilience include (Barasa et al., 2018):

- building appropriate leadership capacity and ability (e.g., through assessing skills and linking to appropriate training opportunities);

- maintaining flexible and collaborative structures (e.g., through teams/working groups and consensus-building);

- creating governance processes that allow for decentralized and inclusive decision making (e.g., distributed control that empowers employee decision-making);

- facilitating open communication channels where information management is prioritized (e.g., through transparent information dissemination about decisions and centralized communication platforms are used);

- ensuring the appropriate use of material resources during times of strain (e.g., using existing financial and technological resources strategically to reallocate and develop different response scenarios);

- investing in human capital to ensure the right amount of staffing but also that they are sufficiently skilled, motivated, and engaged (e.g., evaluating alternative options to layoffs to maintain quantity and prioritizing employee wellbeing by addressing their stressors); and

- promoting organizational cultures that empower employees, facilitate safety, and integrate new knowledge/innovation to foster learning (e.g., encouraging employees to find novel and creative ways to solve problems, seeking constructive feedback from employees).

While the agencies responsible for emergency response can take a range of actions to support employees and increase capacity, some of the challenges facing the disaster workforce fall outside their control. Broader systemic issues continue to affect workforce participation across many sectors and population groups. The following section discusses measures that need to be addressed at a broader policy level by state and local officials.

Support from State and Local Officials

The pandemic has highlighted the need for state and local government-led initiatives to more effectively support frontline workers. For instance, as noted above, the size of the public health workforce has shrunk in recent years due in part to declines in funding from federal and state sources prior to the appearance of the novel coronavirus (Alford et al., 2021; Carlin et al., 2021). In cases such as this, increased budget allocations are needed to significantly augment capacity and address shortfalls of resources.

Programs created in the early stages of the pandemic may serve as models for the kinds of efforts that can be utilized during disasters or on an ongoing basis while the pandemic continues to unfold to better support frontline workers. As an example, using funding from the 2020 CARES act and the Coronavirus Relief Fund, three states (Pennsylvania, Vermont, and Louisiana) each reserved $50 million to fund hazard pay programs for a range of essential workers. Measures such as these can have a greater impact than a patchwork of initiatives launched by individual organizations. Successful implementation requires state and local officials to identify systemic barriers to workforce participation and to account for how their impacts might vary across different socio-demographic groups. Below we discuss strategies related to two areas in which the scale of need would instead benefit from government intervention.

- *Increase Support for Families*. While workplace dynamics play an important role in shaping workers' experiences, factors that are external to the workplace also directly influence their ability to manage stress and fulfill job responsibilities. Family members and friends serve as important sources of instrumental and emotional support for many people. It thus is important to recognize how the impacts of the pandemic on frontline workers' families or households can directly influence their wellbeing and availability. For instance, issues such as closures and worker shortages among schools, childcare facilities, and elder care services; illnesses and deaths in the family; and job losses in the household can compound the pressures faced by frontline workers and produce psychological distress. People in caregiving roles are particularly likely to become overextended and experience chronic stress, especially those in the "sandwich generation" (e.g., caring for both children and aging relatives). Inadequate family support can push people out of the labor force completely, to the detriment of their families, employers, and communities.[9]

  Although challenges related to family support needs among frontline workers predate the COVID-19 pandemic, current conditions have amplified them, and they may be further exacerbated during compound events. Emergency response organizations need to offer family-supportive policies (e.g., flexible schedules, remote work options when possible) and incorporate caregiver support into their business continuity plans (Enarson, 2000, p. 2). At the same time, however, systems-level issues, such as the quality and availability

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[9]As with other dimensions of worker burnout and wellbeing, it is important to recognize that these impacts tend to vary across demographic groups. Women in caregiving roles are disproportionately affected by such issues. Broadly, economic impacts and job losses due to COVID-19 have disproportionately affected Black and Hispanic women, who are already more likely than others to face systemic race- and gender-based discrimination (Kochhar & Bennett, 2021; NASEM, 2021).

of home care and childcare infrastructures; the availability of affordable housing; and access to services and social protections, extend beyond the purview of individual organizations. Family support measures thus also need to be introduced at the state and local government levels to ensure their access to protections, flexibility, and support.[10]

As an example, Seattle's Emergency Child Care program partners with childcare agencies to provide reliable childcare services for frontline workers whose jobs are essential to the city's COVID-19 response. The Healthy Families and Workplaces Act, passed in the State of Colorado, requires employers to provide paid leave covering a variety of circumstances to full- and part-time employees (Colorado Department of Labor and Employment, 2021). The policy includes care for family members and leave related to public health emergencies. Initiatives such as these can serve as models for other state and local actors looking to increase support to frontline workers.

- *Develop Short-and Long-term Policies to Provide Adequate Funding and Benefits*. Resources allocated to some sectors of the disaster workforce are often inadequate, leaving personnel struggling to meet basic needs (Mahbubani, 2020; Wertz, 2021). Low wages and limited benefits such as health insurance can drive high rates of job turnover and instability in essential services, particularly emergency medical services (Jacobs et al., 2017). While such issues predate the pandemic, increased job pressures and risks associated with public-facing roles due to the virus have exacerbated these issues, triggering concerns about potential shortages and resulting service interruptions. Such threats are especially acute in the context of rising rates of infection being driven by the Delta variant (Hudak, 2021).

Significant policy changes and increases in funding allocations are needed to address underpay and inadequate resources within segments of the disaster workforce over the long term. However, some states have developed innovative programs to increase support to frontline workers in response to COVID-19. The Vermont Frontline Employees Hazard Pay Grant Program, for example, used funding from the CARES act to provide supplemental pay to a range of public and private sector workers, including first responder, healthcare, and support services. Michigan's First Responder Hazard Pay Premiums Program also used CARES funding to boost pay among first responders. Smaller programs were implemented at the local level in California and Washington in the early stages of the pandemic, and similar opportunities can be made available through federal funds provided in the American Rescue Plan.[11] Benefits such as health insurance and paid medical leave, including for mental health care, can also help to ensure that frontline workers are adequately supported (Hindmarch et al., 2021).

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[10]A more detailed discussion of strategies for addressing these issues in the context of the COVID-19 pandemic, particularly its disproportionate effects on women in the workforce, is available at: https://www.nap.edu/catalog/26303/short-term-strategies-for-addressing-the-impacts-of-the-covid-19-pandemic-on-womens-workforce-participation

[11] Recommendations for design principles for state and local hazard pay programs can be found at: https://www.brookings.edu/blog/the-avenue/2021/04/06/with-federal-aid-on-the-way-its-time-for-state-and-local-governments-to-boost-pay-for-frontline-essential-workers/

CONCLUSION

Frontline disaster workers have been a vital component of the response to COVID-19. In addition to assisting with logistical challenges, public health needs, and other efforts to mitigate the spread of the novel coronavirus, responders in some areas have simultaneously battled winter storms, hurricanes, floods, wildfires, and other hazards. Prolonged activations and successive emergencies are taking an increasingly significant toll on workers that needs to be addressed to support the wellbeing of people who sustain the nation's public health, safety, and emergency response and recovery systems. Research on the impacts of chronic stress in the workplace holds important lessons about how to create supportive work environments and promote resilience among individual workers and the organizations in which they are embedded. While such strategies are critical, it is also important that administrators and decision-makers take more comprehensive measures, including through creating organizational cultures that promote employee well-being. Cultures of well-being are a key component of a resilient workforce that is capable of addressing emergent and evolving challenges, and they cannot be created solely through short-term strategies to combat the negative outcomes of overwork and chronic stress.

Segments of the disaster workforce were stretched thin even before the pandemic, struggling with declining funding and a shrinking personnel base at a critical moment that called for a dramatic scaling up. These underlying issues need to be addressed to strengthen capacity within states and communities to continue providing essential services during emergencies. While investments have been made to bolster support during the pandemic, past experience has shown that when the threat of an infectious disease epidemic or pandemic subsides, funding for the systems needed to manage such emergencies tends to be channeled elsewhere (Herstein et al., 2017). Unless mechanisms are put in place to sustain funding, this pattern will once again leave the nation vulnerable to future public health threats. Investments that support the health, safety, and well-being of the workers who respond to such events are vital to the nation's ability to prepare for infectious disease outbreaks and other kinds of extreme events. As life-threatening and costly disasters accelerate in a changing climate, the need for a robust network for disaster responders capable of juggling compound emergencies will become even more pressing.

APPENDIX A
EXAMPLES AND RESOURCES

Resources for Addressing Burnout and Worker Well-Being

- *Continuous Demands, Multiple Disasters, Mounting Stress: How Emergency Responders Can Protect Against Burnout, Compassion Fatigue, and PTSD*: https://www.phe.gov/ASPRBlog/pages/BlogArticlePage.aspx?PostID=359

- *Disaster Behavioral Health Self Care for Healthcare Workers Modules:* https://files.asprtracie.hhs.gov/documents/aspr-tracie-dbh-self-care-for-healthcare-workers-modules-description-final-8-19-19.pdf

- *Fighting Compassion Fatigue During Public Health Epidemics:* https://astho.org/ASTHOBriefs/Fighting-Compassion-Fatigue-During-Public-Health-Epidemics/

- *The UC Berkeley Well-being Institute:* *https://www.berkeleywellbeing.com/*

- *University of Minnesota/Minnesota Department of Health First Responder Toolkit:* https://firstrespondertoolkit.com/

Resources to Promote Individual Resilience

- *ASPR TRACIE Self-Care Modules*: https://www.youtube.com/playlist?list=PLP9YeFRSgIT5MvVHCioNGuxm4iF9wYieG
- *Emergency Responders: Tips for Taking Care of Yourself:* *https://emergency.cdc.gov/coping/responders.asp*

- *Building Your Resilience:* *https://www.apa.org/topics/resilience*
- *How to Cope with Job Stress and Build Resilience During the COVID-19 Pandemic:* *https://www.cdc.gov/coronavirus/2019-ncov/community/mental-health-non-healthcare.html*
- *Responder and Community Resilience Training Modules:* *https://tools.niehs.nih.gov/wetp/index.cfm?id=2528*

Resources to Mitigate the Impacts of Worker Shortages

- *COVID-19 Best Practice Information: Managing and Deploying Volunteers in a Pandemic Environment*: https://www.fema.gov/sites/default/files/2020-07/fema_covid_bp_volunteer-management.pdf

- *Strategies for Managing a Surge in Healthcare Provider Demand:* *https://files.asprtracie.hhs.gov/documents/healthcare-workforce-strategies-for-managing-a-surge-in-healthcare-provider-demand.pdf*

- *Strategies to Mitigate Healthcare Personnel Staffing Shortages*: https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html

REFERENCES

Albott, C. S., Wozniak, J. R., McGlinch, B. P., Wall, M. H., Gold, B. S., & Vinogradov, S. (2020). Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers During the Coronavirus Disease 2019 Pandemic. *Anesthesia and Analgesia*. https://doi.org/10.1213/ANE.0000000000004912

Alford, A. A., Feeser, K., Kellie, H., & Biesiadecki, L. (2021). Prioritization of Public Health Emergency Preparedness Funding Among Local Health Departments Preceding the COVID-19 Pandemic: Findings From NACCHO's 2019 National Profile of Local Health Departments. *Journal of Public Health Management and Practice*, *27*(2), 215–217. https://doi.org/10.1097/PHH.0000000000001338

APA (American Psychological Association). (2012). *Building your resilience*. American Psychological Association. https://www.apa.org/topics/resilience

Barasa, E., Mbau, R., & Gilson, L. (2018). What Is Resilience and How Can It Be Nurtured? A Systematic Review of Empirical Literature on Organizational Resilience. *International Journal of Health Policy and Management*, *7*(6), 491–503.

Boin, A., & van Eeten, M. J. G. (2013). The Resilient Organization. *Public Management Review*, *15*(3), 429–445. https://doi.org/10.1080/14719037.2013.769856

Bryant-Genevier, J. (2021). Symptoms of Depression, Anxiety, Post-Traumatic Stress Disorder, and Suicidal Ideation Among State, Tribal, Local, and Territorial Public Health Workers During the COVID-19 Pandemic—United States, March–April 2021. *MMWR. Morbidity and Mortality Weekly Report*, *70*. https://doi.org/10.15585/mmwr.mm7026e1

Bryant-Genevier, J., Rao, C. Y., Lopes-Cardozo, B., Kone, A., Rose, C., Thomas, I., Orquiola, D., Lynfield, R., Shah, D., Freeman, L., Becker, S., Williams, A., Gould, D. W., Tiesman, H., Lloyd, G., Hill, L., & Byrkit, R. (2021). Symptoms of Depression, Anxiety, Post-Traumatic Stress Disorder, and Suicidal Ideation Among State, Tribal, Local, and Territorial Public Health Workers During the COVID-19 Pandemic—United States, March–April 2021. *Morbidity and Mortality Weekly Report*, *70*(26), 947–952. https://doi.org/10.15585/mmwr.mm7026e1

Carlin, M., Ensign, K., Person, C. J., Kittle, A., & Meadows, K. (2021). State of the Public Health Workforce: Trends and Challenges Leading Up to the COVID-19 Pandemic. *Journal of Public Health Management and Practice*, *27*(1), 92–93. https://doi.org/10.1097/PHH.0000000000001294

CDC (Centers for Disease Control and Prevention). (2020). *How to Cope with Job Stress and Build Resilience During the COVID-19 Pandemic*. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-nCoV/index.html

Chesak, S. S., Perlman, A. I., Gill, P. R., & Bhagra, A. (2020). Strategies for Resiliency of Medical Staff During COVID-19. *Mayo Clinic Proceedings*, *95*(9), S56–S59. https://doi.org/10.1016/j.mayocp.2020.07.002

Colorado Department of Labor and Employment. (2021). *INFO #6B (4-8-21)_ 2021 Paid Leave under HFWA.pdf*. https://cdle.colorado.gov/sites/cdle/files/INFO%20%236B%20%284-8-21%29_%202021%20Paid%20Leave%20under%20HFWA.pdf

Dzigbede, K. D., Gehl, S. B., & Willoughby, K. (2020). Disaster Resiliency of U.S. Local Governments: Insights to Strengthen Local Response and Recovery from the COVID-19 Pandemic. *Public Administration Review*, *80*(4), 634–643. https://doi.org/10.1111/puar.13249

Enarson, E. (2000). Gender equality, work, and disaster reduction: Making the connections. *Prepared for the ILO InFocus Programme on Crisis Response and Reconstruction*.

Francis, K., Clavier, N., & Hendrickson, K. (2021). *Frontline Government Workers: Assessing Post-Disaster Burnout and Quality of Life* (Natural Hazards Center Public Health Report Series, 8). Natural Hazards Center, University of Colorado Boulder. https://hazards.colorado.edu/public-health-disaster-research/frontline-government-workers-assessing-post-disaster-burnout-and-quality-of-life

Herstein, J. J., Biddinger, P. D., Gibbs, S. G., Le, A. B., Jelden, K. C., Hewlett, A. L., & Lowe, J. J. (2017). Sustainability of High-Level Isolation Capabilities among US Ebola Treatment Centers. *Emerging Infectious Diseases*, *23*(6), 965–967. https://doi.org/10.3201/eid2306.170062

Hindmarch, G., Clark-Ginsberg, A., & Balagna, J. (2021). *As Fire Season Heats Up, Burnout Looms* [Rand]. https://www.rand.org/blog/2021/07/as-fire-season-heats-up-burnout-looms.html

Howell, B. A. M. (2021). Battling Burnout at the Frontlines of Health Care Amid COVID-19. *AACN Advanced Critical Care*, *32*(2), 195–203. https://doi.org/10.4037/aacnacc2021454

Hudak, S. (2021). *Affected by COVID-19 and job vacancies, Lake EMS struggles with 'unprecedented' call volume*. Orlando Sentinel. https://www.orlandosentinel.com/coronavirus/os-ne-coronavirus-lake-ems-overrun-20210817-hb2s7exsw5a55mpef2en7m3xsy-story.html

Hutton, N. S., Mumford, S. W., Saitgalina, M., Yusuf, J.-E. (Wie), Behr, J. G., Diaz, R., & Kiefer, J. J. (2021). Nonprofit Capacity to Manage Hurricane-Pandemic Threat: Local and National Perspectives on Resilience during COVID-19. *International Journal of Public Administration*, *44*(11–12), 984–993. https://doi.org/10.1080/01900692.2021.1922439

Jacobs, K., Heller, N., Waheed, S., & Appel, S. (2017). *Emergency medical services in California: Wages, working conditions and industry profile*. UC Berkeley Center for Labor Research and Education; UCLA Labor Center.

Kaplan, S., DeShon, R. P., & Tetrick, L. E. (2017). *The Bigger Picture of Employee Well-Being: Its Role for Individuals, Families and Societies* (The Society for Human Resource Management and the Society for Industrial and Organizational Psychology Science of Human Resources Series, 1-21).

Kinman, G., & Grant, C. (2020). Presenteeism during the COVID-19 pandemic: Risks and solutions. *Occupational Medicine (Oxford, England)*, kqaa193. https://doi.org/10.1093/occmed/kqaa193

Knight, R. (2019). How to Help Your Team with Burnout When You're Burned Out Yourself. *Harvard Business Review*. https://hbr.org/2019/03/how-to-help-your-team-with-burnout-when-youre-burned-out-yourself

Kochhar, R., & Bennett, J. (2021). U.S. labor market inches back from the COVID-19 shock, but recovery is far from complete. *Pew Research Center*. https://www.pewresearch.org/fact-tank/2021/04/14/u-s-labor-market-inches-back-from-the-covid-19-shock-but-recovery-is-far-from-complete/

Kornfield, M. (2021). Colorado bans doxing of public health workers amid rise in online harassment. *Washington Post*. https://www.washingtonpost.com/health/2021/05/20/colorado-health-worker-doxing-bill/

Mahaffey, B. L., Mackin, D. M., Rosen, J., Schwartz, R. M., Taioli, E., & Gonzalez, A. (2021). The disaster worker resiliency training program: A randomized clinical trial. *International Archives of Occupational and Environmental Health*, *94*(1), 9–21. https://doi.org/10.1007/s00420-020-01552-3

Mahbubani, D. M., Rhea. (2020, April 23). *First responders say years of low pay and chronic turnover have put coronavirus patients' lives at additional risk during the pandemic: "We're screaming for help."* Business Insider. https://www.businessinsider.com/coronavirus-new-york-ambulance-paramedic-emergency-workers-pay-retention-risks-2020-4

Marshall, J., Yusuf, J.-E. (Wie), Dunn, E., Merlo, K., Behr, J., Shekari, M., Scott, B., Cruz, M., Whytlaw, J., & Hutton, N. (2021). Challenges for the disaster workforce during a compound hurricane-pandemic. *Journal of Emergency Management*, *19*(4).

Merlo, K., Conen, K., Yusuf, W., Marshall, J., Behr, J., & Dunn, E. (2021). Hurricane Shelters and COVID-19: Protecting Workers' Emotional Well-Being. *Research Counts*. https://hazards.colorado.edu/news/research-counts/hurricane-shelters-and-covid-19-protecting-workers-emotional-well-being-of-shelter-workers

NASEM, N. A. of S., Engineering, and Medicine. (2019). *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being*. National Academies Press.

NASEM, N. A. of S., Engineering, and Medicine. (2021). *Short-Term Strategies for Addressing the Impacts of the COVID-19 Pandemic on Women's Workforce Participation*. The National Academies Press. https://doi.org/10.17226/26303

National Homeland Security Consortium. (2021). *COVID-19 Pandemic After-Action Report* (p. 52). National Emergency Management Association. https://astho.org/COVID-19/NHSC-COVID-19-Pandemic-After-Action-Report/

National Interagency Fire Center. (n.d.). *Wildfires and Acres*. Wildfires and Acres (1983-2020). Retrieved August 3, 2021, from https://www.nifc.gov/fire-information/statistics/wildfires

Pollock, A., Campbell, P., Cheyne, J., Cowie, J., Davis, B., McCallum, J., McGill, K., Elders, A., Hagen, S., McClurg, D., Torrens, C., & Maxwell, M. (2020). Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: A mixed methods systematic review. *Cochrane Database of Systematic Reviews*, *11*. https://doi.org/10.1002/14651858.CD013779

Rott, N. (2021). Why Firefighters Are Facing A Growing Mental Health Challenge. *NPR*. https://www.npr.org/2021/02/16/968252579/why-firefighters-are-facing-a-growing-mental-health-challenge

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & de Andrade, S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS ONE*, *12*(10), e0185781. https://doi.org/10.1371/journal.pone.0185781

Santarone, K., McKenney, M., & Elkbuli, A. (2020). Preserving mental health and resilience in frontline healthcare workers during COVID-19. *The American Journal of Emergency Medicine*, *38*(7), 1530–1531. https://doi.org/10.1016/j.ajem.2020.04.030

Sasangohar, F., Jones, S. L., Masud, F. N., Vahidy, F. S., & Kash, B. A. (2020). Provider Burnout and Fatigue During the COVID-19 Pandemic: Lessons Learned From a High-Volume Intensive Care Unit. *Anesthesia and Analgesia*, 10.1213/ANE.0000000000004866. https://doi.org/10.1213/ANE.0000000000004866

Shanafelt, T. D., & Noseworthy, J. H. (2017). Executive Leadership and Physician Well-being: Nine Organizational Strategies to Promote Engagement and Reduce Burnout. *Mayo Clinic Proceedings*, *92*(1), 129–146. https://doi.org/10.1016/j.mayocp.2016.10.004

Stone, K. W., Kintziger, K. W., Jagger, M. A., & Horney, J. A. (2021). Public Health Workforce Burnout in the COVID-19 Response in the U.S. *International Journal of Environmental Research and Public Health*, *18*(8), 4369. https://doi.org/10.3390/ijerph18084369

Sumner, R. C., & Kinsella, E. L. (2021). Grace Under Pressure: Resilience, Burnout, and Wellbeing in Frontline Workers in the United Kingdom and Republic of Ireland During the SARS-CoV-2 Pandemic. *Frontiers in Psychology*, *11*, 3757. https://doi.org/10.3389/fpsyg.2020.576229

Templeton, K., Bernstein, C. A., Sukhera, J., Nora, L. M., Newman, C., Burstin, H., Guille, C., Lynn, L., Schwarze, M. L., Sen, S., & Busis, N. (2019). Gender-Based Differences in Burnout: Issues Faced by Women Physicians. *NAM Perspectives*. https://doi.org/10.31478/201905a

Vujanovic, A. A., Lebeaut, A., & Leonard, S. (2021). Exploring the impact of the COVID-19 pandemic on the mental health of first responders. *Cognitive Behaviour Therapy*, *50*(4), 320–335. https://doi.org/10.1080/16506073.2021.1874506

Wertz, J. (2021, July 1). *As Wildfires Get Worse, So Are Firefighter Shortages. Climate Change And Low Pay Aren't Helping*. Colorado Public Radio. https://www.cpr.org/2021/07/01/colorado-wildfires-climate-change-firefighter-shortage-pay/

Wolf-Fordham, S. (2020). Integrating Government Silos: Local Emergency Management and Public Health Department Collaboration for Emergency Planning and Response. *The American Review of Public Administration*, *50*(6–7), 560–567. https://doi.org/10.1177/0275074020943706

World Health Organization. (2020). *International Classification of Diseases 11th Revision*. World Health Organization.

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