



Equity amidst disaster

Techniques for inclusive federal
disaster management

November 2023



Introduction

The past 50 years have demonstrated that the number and impact of disasters in the United States and across the globe are increasing in frequency and intensity, with 2022 marking the eighth consecutive year in which the United States has experienced 10 or more distinct billion-dollar disasters.¹ These events compound to place an ever-increasing strain on our communities and available preparedness, response, recovery, and resiliency resources.

Low socioeconomic status (SES) and racially and ethnically diverse communities are often disproportionately impacted by the physical, economic, and social harm caused by disasters, yet they are also more likely to face systemic barriers and challenges when accessing the resources necessary to protect themselves from disasters.² This can leave communities less prepared for, less resilient to, and requiring additional support to recover from disasters, resulting in a costlier overall disaster response and further strain on the nation's limited funding.³

To reduce disaster spending long term and help increase community resilience, the federal government can continue to implement solutions that prioritize equitable preparedness and response efforts tailored to the needs of disproportionately impacted communities. These disaster management initiatives can be applied across five key service areas: (1) strategy and execution, (2) workforce and benefits, (3) near real-time data and analytics, (4) participatory research and design, and (5) community needs assessments.

Inequities exist in disaster management

Congress has attempted to increase equity in disaster management through legislation, with one of the earliest examples being Title VI of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000d – 2000d-7 (1964). Title VI is intended to protect recipients of federal disaster assistance for disaster programs and activities from discrimination.⁴ Almost 50 years later, the Pandemic and All-Hazards Preparedness Act of 2006 (PAHPA) focused federal efforts on the medical and public health needs of at-risk individuals, including children, pregnant individuals, older adults, individuals with disabilities, and others who may have access and functional needs in the event of a public health emergency, through the National Preparedness Goal, the Strategic National Stockpile, and state and local public health grants.⁵ Subsequently, the Pandemic and All-Hazards Preparedness Reauthorization Act of 2013 (PAHPRA) amended the Public Health Service Act to grant state health departments flexibility in dedicating staff resources to help meet critical community needs, including evacuation, transportation, housing, and other response activities in a disaster.⁶ In 2019, Congress passed the Pandemic and All-Hazards Preparedness and Advancing Innovation Act (PAHPAIA), which authorized advance use of funding for buying medical countermeasures under the Project BioShield Act and support for advanced research and development of potential medical countermeasures for rapid and equitable responses to public health emergencies.⁷ Further, PAHPAIA established multiple National Advisory Committees to provide expert advice and consultation on the medical and public health needs of specific populations during a disaster, including children, older adults, and individuals with disabilities.⁸

The executive branch has also sought to bolster equity in disaster management by implementing various programs and plans. In 2013, the Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (now named the Administration for Strategic Preparedness and Response, or ASPR) launched the emPOWER Program in partnership with the Centers for Medicare and Medicaid Services (CMS).⁹ Since its inception, the emPOWER program has continued to expand its population datasets, tools, trainings, and resources to help states, territories, and localities improve continuity of care and health outcomes for at-risk Medicare beneficiaries, including individuals who live independently and rely on electricity-dependent durable medical and assistive equipment and devices, and/or essential public health care services (i.e., dialysis, oxygen tank, hospice care services, home health care services), prior to, during, and after a disaster.¹⁰ Further, the 2022–2026 Federal Emergency Management Agency (FEMA) Strategic Plan outlines a bold vision to instill equity as a foundation of disaster management “to address the increasing range and complexity of disasters, support the diversity of communities we serve, and complement the nation’s growing expectations of the [disaster] management community.”¹¹

Additionally, the examples below represent efforts to better serve and support populations that are more likely to experience and be disproportionately impacted by disasters. These frameworks provide actionable solutions for equitable disaster management, such as mapping racially and ethnically diverse and at-risk populations; identifying demographic, socioeconomic, and health characteristics of such populations; and developing and designing disaster risk communication strategies that use trusted community sources:



- The 2016 FEMA National Disaster Recovery Framework¹²
- The 2019 FEMA National Response Framework¹³
- The 2022 FEMA Equity Action Plan¹⁴
- The 2022 HHS Equity Action Plan¹⁵

The federal government has sought to incorporate equity in disaster management through various laws, policies, and programs; however, opportunities remain to address inequities in disaster management.

Opportunities to support equitable disaster management

There may be an opportunity to increase equity in disaster preparedness, response, and recovery. Low SES communities often do not have access to the resources necessary to prepare for disasters. For example, a Substance Abuse and Medical Health Services Administration (SAMHSA) study concluded that people of low SES may lack access to transportation and other resources needed to comply with evacuation orders.¹⁶ After a disaster strikes, those same communities are made further vulnerable: the same SAMHSA study states that people of low SES face many barriers to receiving aid following a disaster and suggests that stress linked to lack of resources may have emotional and behavioral health consequences.¹⁷

The following timeline, shown in figure 1, highlights a few representative examples of inequitable disaster management in recent history:

Racially and ethnically diverse individuals, including American Indians or Alaska Natives, Asians, Black or African Americans, and Hispanics or Latinos, are more likely to face health and health care disparities as the result of a disaster. For example, during the height

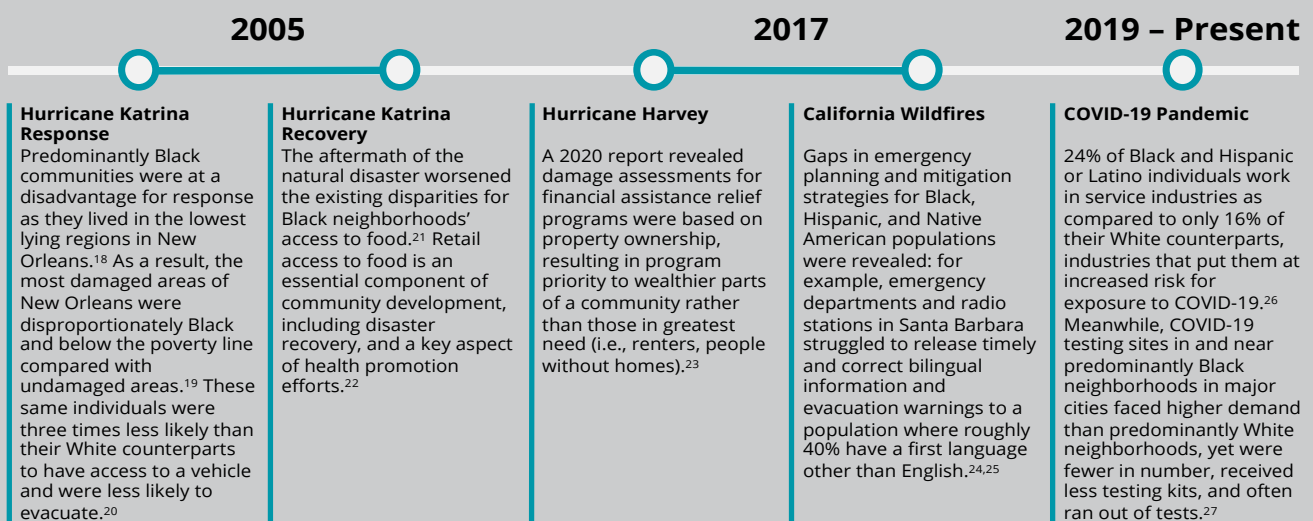
of the COVID-19 pandemic, Black Americans were found to suffer a 2.9 times higher hospitalization rate and 1.9 times higher rate of death from COVID-19 than their White counterparts.¹⁹ Additionally, Hispanic or Latino persons suffered 2.8 times the hospitalization rate and 2.3 times the death rate of their White counterparts.²⁰

Systems of inequity, including political representation, the legal and criminal justice system, housing, health care, and other historical, cultural, and demographic structures can contribute to the inequitable distribution of risk and harm across communities before, during, and after a disaster. Systemic discrimination and bias are some of the primary reasons for lack of equitable solutions:

- A Rice University study found racial bias as a strong influence on federal housing buyouts and statistically observed more opportunities for predominantly White counties and neighborhoods to participate in federal disaster assistance, while leaving racially and ethnically diverse neighborhoods more likely either to consent to federal buyouts or face future natural disaster risks.²¹
- A National Institutes of Health (NIH) study found that during the COVID-19 pandemic, Asian populations underused health services due in part to fear of anti-Asian violence and racist attacks and delayed seeking medical attention until symptoms became severe.²²

Gaps of access and affordability in federal disaster assistance remain. The future of disaster management should mean providing equitable, inclusive, and comprehensive support to all communities. The Federal government may help do so by addressing the inequities and potential shortcomings of existing programs and policies while building on their strengths; reform should be made with intentional and consistent effort.

Figure 1: History of inequitable disaster management ¹⁸



Improving equity in disaster management can help strengthen national resilience and reduce costs

Inequitable disaster management can lead to a lack of adequate resources for prevention, detection, access, and treatment quality due to socioeconomic, racial, and gender biases.²³ Such inequities can end up costing the government more in the long term due to avoidable costs of greater recovery needs.²⁴ As disasters become more frequent and severe, the cost of federal disaster assistance continues to increase and strain our nation's limited resources and federal budget. According to the National Oceanic and Atmospheric Administration, the total cost of billion-dollar weather and climate disaster events in the United States for the past five complete years (\$788.4 billion) is more than one-third of the total cost of disasters over the past 43 years (1980–2022), which was approximately \$2.6 trillion.²⁵ This reflects a five-year cost average of nearly \$157.6 billion per year.²⁶ Expenditures for FEMA's Public Assistance Program, which provides financial assistance to states, tribes, and territories to respond to and recover from a major disaster, increased by 23% when comparing spending between 2000–2009 and 2010–2019.²⁷

Disasters impact people, households, and communities differently, often exposing and worsening existing inequities.²⁸ Deloitte found that health inequities cost the United States \$320 billion a year,²⁹ and as disasters increase in number and severity, the financial

cost of inequities in disaster management will only increase. If left unaddressed, health inequities could add \$1 trillion to overall health spending by 2040.³⁰ Improving equity in disaster management will not only reduce costs, but also improve overall community well-being and our national resilience. Building resilience includes strengthening a community's ability to prepare for anticipated threats, adapt to changing conditions, and withstand and recover from disasters.³¹ When disaster management is inequitable, the effect on well-being for low SES and racially and ethnically diverse individuals can be substantial and long-lasting.

Equity-based disaster management can help build resilience because more communities that have historically received minimal investment are generally unable to prepare for and are disproportionately affected by disasters.³² More equitable investment in disaster management could mean that more communities are able to prepare for, adapt to, withstand, and recover from disasters, with the added benefit of possibly reducing the need for federal disaster assistance and reducing overall disaster management costs. For example, an NIH study compared two neighboring counties impacted by the 2017 California Wildfires and found that the county with resilience-based community



structures, such as voluntary organizations active in disaster assistance, experienced more effective post-disaster coordination compared to the county without such structures.³³ According to the same NIH study, collaboration and formed partnerships with organizations that are committed to pursuing recovery efforts and addressing underlying community vulnerabilities may help reduce local susceptibility to future disasters.³⁴ With fewer communities in need and fewer resources necessary for response and recovery, federal agencies can more efficiently and rapidly direct resources to communities with the greatest need. Providing communities adequate resources and timely support can help enable a more effective recovery and increased resilience. As a result, the cost of disaster response could be reduced nationwide, and the cycle of resilience-building reinforced.

According to the Georgetown Climate Center at Georgetown Law, equity-based disaster management should include:

1. Involving frontline community leaders in decision-making regarding how to develop and implement disaster management strategies that are aligned with the needs and values of the community.³⁵ Community leaders on the frontlines often know which problems are specific to their communities and which types of programs or initiatives work best.³⁶ Collaboration with community leaders throughout the development and execution of a disaster response plan may encourage trust and transparency in the process and more effectively help the community.³⁷

2. Minimizing the consequences of major disasters for low SES communities.³⁸ Successful disaster preparedness and response, as well as disaster recovery planning, should emphasize mitigating the consequences of major disasters for these communities, since they are often the worst affected.³⁹

3. Ensuring communities have access to resources for dignified recovery.⁴⁰ Government programs and staff should prioritize significant outreach, follow-up, and accountability to understand and provide the resources that community leaders need for recovery assistance.⁴¹ This should include proactively engaging with communities and building trust, helping to mitigate the risks for vulnerable populations in disasters, and prioritizing their needs during disaster response, all of which can help improve the community's overall resilience.⁴² Government can promote equity through its role as a regulator and policymaker by assessing the impact of existing laws on marginalized communities, designing future policies to advance equity, and determining how to allocate funds or grants equitably.⁴³

However, the question remains: How can inequities in disaster management be mitigated in an impactful and sustainable way? Deloitte has the tools and experience needed to help agencies identify how to exert their influence to drive equity and offer specific suggestions for action to effect measurable and sustainable change.

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Strategies to address inequities in disaster management

The Deloitte Center for Government Insights report, “Government’s equity imperative,” found that government can promote equity through its role as a regulator and policymaker by assessing the impact of existing laws on marginalized communities, designing future policies to advance equity, and determining how to allocate funds or grants equitably.⁴⁴ The report also recommends training staff to better understand and identify occurrences of inequity and how to mitigate them, regularly engaging with community leaders and members in the development and implementation process, as well as creating and promoting equitable policies at the procedural and administrative levels.⁴⁵

To accomplish these goals in disaster management, federal agencies can redesign their **strategy for and execution of disaster programs**, invest in their **workforce**, increase the use of **data and analytics** in response processes, conduct more inclusive **research and design**, and understand **community needs** to advance equity during and following disasters (figure 2).

Strategy and execution

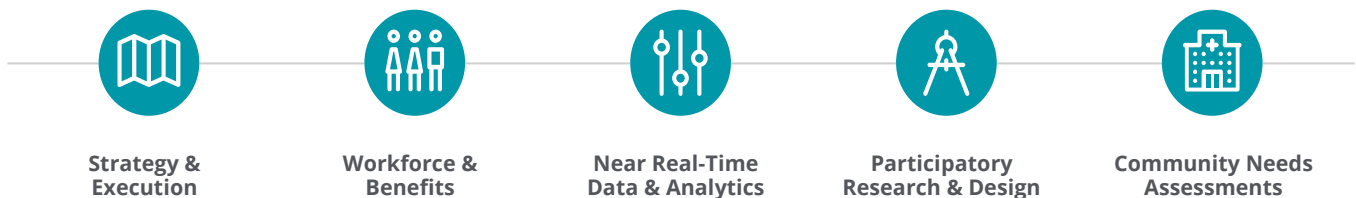
To improve equity in disaster management, leaders and staff can coalesce around a vision for embedding equity in their work and create clear accountability for how agencies aim to serve the community through disaster preparedness and response. Deloitte understands the power of collaborating across leaders, staff, and

In action: Strategy and execution

Supporting a large public health institution, Deloitte developed and executed a strategy during the COVID-19 response to help address long standing racial disparities in adult vaccination rates. This included a literature review, interviews with 30+ specialists, and a listening session with 17 public health experts of varying specialties to share input on solutions. This led to a program that has funded 500+ national and community-level organizations since 2020.

communities to define a cohesive, equity-centered strategy, one that is designed to drive change and is aligned with the agency’s reality of resources, time, and constraints. Agencies playing a role in disaster management may need a strategy for embedding equity within their organization, or they may need more targeted strategies for equitable partnerships, funding, emergency communications, and more.

Figure 2: Deloitte service categories



Our **equity domains of action framework**, shown in figure 3, is a systems-based framework that focuses on an agency's role in advancing equity within its organization, in its offerings to the public, in the communities it impacts, and in the broader ecosystem in which it plays a role. For an organization responsible for disaster management, this framework can unearth opportunities across its unique areas of influence. For example:

- **Organization:** Addressing equity can start with the practices and people inside an organization that influence its direction, execution, and success—this is even more critical for agencies that work in urgent and localized environments, such as disaster management. How can an agency improve the diversity of its workforce, both in attraction and retention of talent? How can agency staff better reflect the communities that need to be better served, and how can all staff be trained on ways to promote equity in their roles?
- **Offerings:** As agencies refine and deliver their core services, they can consider how those offerings reach and impact different communities, particularly those that experience disparities in disaster-based outcomes and access to preparedness, response, and recovery resources. How can an agency improve the reach of its programs and services to marginalized populations? What capabilities or influence does the agency have that it is not currently leveraging to address these challenges? What other factors, such as housing or food, can it address through its partners or offerings?
- **Community:** What can the agency do to enhance equitable access and support, and ultimately enable better outcomes, in the communities in which it already works? How can it collaborate with and incorporate the voice of community members in the work it does in preparation for or in response to disasters?

Figure 3: Equity domains of action framework



- **Ecosystem:** Agencies often play a specific role in a larger ecosystem of players and partners, particularly for something as complex as disaster management. How can an agency leverage its full power, capacity, and role to change how communities respond to and recover from disasters? What policies, programs, and relationships can be redesigned or built to make disaster preparedness, response, recovery, and resilience-building more equitable? What other factors, such as housing, food, or transportation, can an agency play a role in? What communities or groups should an agency consider building relationships with, that it may not have in the past to improve post-disaster outcomes?

Workforce and benefits

To support diverse communities in disaster recovery meaningfully, agencies and organizations should consider having a strong internal commitment to diversity, equity, and inclusion (DEI), as well as a diverse workforce that reflects the communities they serve.

Deloitte's Adaptable Organization Network Analysis (AONA) can help address the needs and capture the potential of the agency's workforce to drive a positive culture. AONA provides analysis and insights on informal networks of employees and compares them to their formal organizational charts, providing informal relationship data that can shed light on how people can and do work together.⁴⁶ Paired with other workforce and employee experience data, this can create clearer opportunities to build stronger teams. As agencies work in fast-paced response environments, high-performing, diverse, and inclusive teams across the organization can be key to well-being, productivity, and collaboration.

In action: Workforce and benefits

Supporting an international assistance organization, Deloitte identified various populations in Ukraine that may have challenges in accessing health care services and benefits, developed a prioritization matrix of activities where incorporating gender equity and social inclusion (GESI) could be impactful, and provided recommendations for GESI-related activities moving forward. This led and continues to lead toward strengthening the health workforce and building a more transparent, accountable, and effective health care system.

In action: Near real time data and analytics

Deloitte leveraged HealthPrism™ analytics to identify vulnerable populations in disasters based on underlying conditions, demographics, and drivers of health (DOH). These insights were used to recommend grant funding allocation; testing sites placement; personal protective equipment (PPE) distribution; vaccine clinics; and targeted, community-based initiatives for a state. Additionally, the team developed 1) health equity toolkits focused on testing and vaccine sites for vulnerable communities, and 2) public dashboards highlighting progress on the state's efforts to advance equity and how it compares to other states across DOH indicators.

Near real-time data and analytics

Data is critical to disaster management, including in emergency preparedness and disaster recovery planning, real-time response and decision-making, and recovery and resiliency building. This is even more salient when equity is a priority. Without data, it becomes almost impossible to understand where resources are going, which communities are benefiting, which communities and populations are experiencing disparities, which factors may be driving disparities, and which approaches may be working to address them. The ability to pinpoint disparities, challenges, and possible interventions, often across a regional or national scale, can be one of the most important factors in making equity a priority. Near real-time data and analytics can allow agency leaders to make more informed decisions as they navigate how to prioritize and allocate resources in a disaster response environment. Other capabilities powered by data and analytics can include mitigating bias, measuring progress, predicting and modelling scenarios, expanding services and solutions in a targeted way, reaching communities, and understanding effectiveness.

Deloitte deployed these services in real time with the Commonwealth of Virginia during the COVID-19 pandemic to provide a data-driven lens to pandemic response to help support disproportionately affected communities. Deloitte augmented this work with proprietary assets, including:

- **Deloitte Health Equity Dashboard:** The Deloitte Health Equity Dashboard provides county- and ZIP code-level data on populations at elevated risk for certain health conditions and the location of sites (e.g., hospitals, pharmacies, urgent care clinics, and grocery stores) key to maintaining health and wellness.⁴⁷ The dashboard gathers data from consumer marketing datasets, the CDC, the US Census Bureau, and HealthPrism™ predictive models.⁴⁸
- **HealthPrism™:** HealthPrism™ identifies and locates populations that are at high-risk for communicable diseases and other pervasive public health problems, using social DOH data to enhance deployment of public health interventions.⁴⁹
- **Network Insight™:** Network Insight™ evaluates physician network and ambulatory services footprints and operations against geographic, demographic, financial, and clinical services strategies to consider access to care.

Participatory research and design

Many programs, policies, services, and resources are designed with little input from the people who will use or be affected by them.⁵⁰ Agency leaders can get ahead of addressing inequities in disaster management by using proven approaches to hear and embed impacted voices and behaviors into the design, content, and delivery of their work. This is not only important to the effectiveness and impact of different efforts, but also to help repair low trust in government that may exist in some communities.⁵¹ Agencies need community members' trust and insights to help understand more deeply what their communities want, need, and could benefit from during disaster management and recovery. Agencies should consider:

1. **Establishing a trust baseline with the community** with the intent of understanding how the community prefers to engage, what their biggest challenges and needs are, and how they currently perceive programs and services.⁵²
2. **Collaborating, evaluating, and iterating on solutions to strengthen key trust signals.**⁵³ In this process, agencies bring community members into the rapid prototyping, testing, and iteration process to give them regular opportunities to weigh in on solutions that will impact them.⁵⁴
3. **Monitoring trust and prioritizing impact within, and for, the community.**⁵⁵ This includes regular and continuous feedback mechanisms directly from trusted community leaders and members to help understand impact of initiatives or resources. These insights into behavior, trust, on-the-ground impact, and sentiment are key to making and sustaining meaningful progress toward advancing equity.⁵⁶

In action: Participatory research and design

Supporting a large public health foundation, Deloitte developed and utilized a human-centered design approach to create the Food Worker COVID-19 Health and Safety Toolkit, which provided critical support and information to food industry workers. Six individual products comprise the toolkit, which included information around key themes such as mental health, vaccines, and workplace safety. Translated into Spanish, simplified Chinese, and Vietnamese, the toolkit has reached more than 305,000 workers including roughly 240,000 food workers and 65,000 food business managers.

Deloitte's human-centered design approach focuses on equitable design and multicultural research to support agencies with prioritizing individuals' lived experience and community.⁵⁷ Additionally, the Deloitte Health Equity Institute and the Deloitte Center for Health Solutions both create opportunities for community engagement, participatory research, and rich insight from cross-sector collaborations to help advance equity, understand disparities and structural flaws in the system, and address them.⁵⁸

Community needs assessments

Employing a combination of data and community insight, a community needs assessment can be a key resource to support strategy design and decision-making in disaster management and recovery. By using qualitative and quantitative data to understand community needs and challenges, particularly in a disaster context, agencies can develop more effective location-based and population-specific approaches that help address specific needs in the community. A community needs assessment can enable agencies to develop effective or reliable forms of outreach during a disaster, inform messaging and framing around certain issues, identify trusted voices to disseminate urgent information, address challenges around access and use of services, determine communities with increased need or access to resources (water, food, stable housing, heat, etc.), and more. This insight can be valuable in a disaster preparedness context, as agencies ready the system to respond, as well as in disaster management and recovery, as communities may need timely and urgent support.

In Action: Community Needs Assessment

Deloitte worked with a Federal Health agency to conduct socioeconomic, health, demographic, and geospatial data analysis with an equity lens to assess trends, identify community needs, and inform programmatic strategic planning efforts.



Conclusion

With annual increases in the occurrences and associated costs of disasters, equity in disaster preparedness and response is an economic imperative.⁵⁹ Moreover, equitable disaster management is a mission imperative for federal agencies as they work to improve the livelihoods and health outcomes of the nation's most vulnerable populations in disasters. Deloitte, with its proprietary tools and professional experience in the health equity and disaster management arenas, can advise and support federal agencies in achieving their missions by aligning organizational perspectives, strategies, programs, and products towards more equitable and effective solutions.

Ready to discuss the future of equity in emergency preparedness and response?

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