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Concepts and Terms for Addressing Disparities in Public Health Emergencies: Accounting for the COVID-19 Pandemic and the Social Determinants of Health in the United States

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Abstract

Public health emergencies, including the coronavirus disease 2019 (COVID-19) pandemic, highlight disproportionate impacts faced by populations with existing disparities. Concepts and terms used to describe populations disproportionately impacted in emergencies vary over time and across disciplines, but United States (US) federal guidance and law require equal access to our nation's emergency resources. At all levels of emergency planning, public health and their partners must be accountable to populations with existing inequities, which requires a conceptual shift toward using the data-driven social determinants of health (SDOH). SDOH are conditions in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality of life outcomes and risks. This article reviews the historic use of concepts and terms to describe populations disproportionately impacted by emergencies. It also recommends a shift in emergency activities toward interventions that target the SDOH to adequately address long-standing systemic health disparities and socioeconomic inequities in the United States.

The coronavirus disease 2019 (COVID-19) pandemic highlights the disproportionate impact of emergencies on populations with existing disparities. Public health emergencies, which involve the occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from a natural phenomenon or human act, disproportionately affect populations with existing disparities, including people of color and those living in poverty, in overcrowded housing conditions, with food insecurity, with disabilities, with chronic diseases, or with limited access to health-care services.[1] Populations experiencing disadvantages face cumulative, not isolated, threats in emergencies; as is tragically underscored by COVID-19. Ensuring equitable access to emergency resources in the United States (US) requires a conceptual shift toward addressing and mitigating health inequities before, during, and after emergencies. Improving health and reducing disparities can be addressed through interventions targeting social determinants of health (SDOH).[2]

The SDOH are conditions in the environment in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality of life outcomes and risks.[3] Healthy People (HP) 2030, the collection of data-driven objectives to improve health and well-being in the United States, includes the SDOH goals to create social, physical, and economic environments that promote attaining the full potential for health and well-being for all. The HP 2030 SDOH goals provide an established framework with 5 measurable domains: economic stability, education access and quality, health-care access and quality, neighborhood and built environment, and social and community context.[4] These domains also include objectives for tracking progress toward health equity at the community level. The overarching focus on SDOH within HP 2030 reflects shortfalls in addressing health disparities and socioeconomic inequities to date. Applying HP 2030 SDOH framework requires public health agencies and their partners take action to improve health and reduce disparities.[2,5,6]

Populations with existing disparities—such as being poor, experiencing racism and other discrimination, and lacking access to quality health-care services and information—are at increased risk of negative health outcomes before an emergency.[2,7,8] Hurricane Katrina (2005) is a historical example that emphasizes the important role of SDOH in emergencies. The storm's impact cut across racial and socioeconomic lines in New Orleans, Louisiana. However, more severe damage occurred in predominantly Black communities with high poverty rates where much of the housing stock was older, less well built, in poorer condition, and tended to be in low-lying locations lacking appropriate flood mitigation.[9]

Correspondingly, during the COVID-19 pandemic, low-wage workers deemed essential were required to maintain services to the American public and experienced disproportionate

adverse impacts—particularly to their health.[10,11] In the United States, a significant part of the essential workforce is made up of Black and Latinx populations, who also have higher rates of COVID-19 cases. Populations with underlying health conditions (eg, cardiovascular disease, chronic kidney disease, diabetes, chronic respiratory disease), which are more prevalent among racial and ethnic minority populations, also experience increased risk of severe illness due to COVID-19.[12,13] The same SDOH that increase a population's risk of disease exposure—including experiencing discrimination, lacking affordable housing, lacking access to quality health-care services, and un- and underemployment—also increase its chronic disease rates and limit capacity to comply with public health guidance. COVID-19 has magnified existing disparities and inequities in US society. Hispanic or Latinx persons, non-Hispanic Black persons, and non-Hispanic American Indian or Alaska Native persons have experienced 4 to 5 times higher rates of hospitalization in the United States from COVID-19 when compared to non-Hispanic White persons.[14,15]

In emergencies, the cumulative effect of SDOH results in disproportionate negative health outcomes among populations with existing disparities, such as increased risk of acquiring COVID-19.[2] HP 2030 SDOH objectives highlight the importance of upstream factors that are necessary to reduce health disparities and maintain healthy communities. Similarly, while the concept remains somewhat vague, researchers describe "community resilience" within the context of disasters and public health emergencies, as involving positive change toward increasing local capacity, social support, resources, and decreasing negative outcomes.[16] By using SDOH-focused interventions, public health agencies and their partners can build community resilience and reduce disproportionate health outcomes before, during, and after emergencies by improving the conditions of people's environments, including long-standing systemic inequities.

Building community resilience requires shifting the concepts and terms used to describe populations disproportionately affected by emergencies and using data-driven interventions to address equity. Previous concepts and terms used to describe populations disproportionately impacted by emergencies varied across policy and practice and led to confusion, miscommunication, and deficiencies in emergency planning. This shift requires removing inconsistencies and realigning emergency activities under the measurable HP 2030 SDOH goals to build community resilience and improve the health and well-being of populations that experience disparities before, during, and after emergencies.

Historical Context

In the past, disasters and public health emergencies were generally seen as unavoidable events that caused indiscriminate harm. By the mid-1970s, researchers began to question the "naturalness" of such events.[17] These scholars noted that, while the hazard (eg, tornado, earthquake, hurricane) may be natural, it is the pre-existing social, historical, and economic conditions that dictate who is harmed and in what magnitude.[18,19] Now it is widely accepted that a number of existing disparities (eg, health status, race, and poverty) are linked to the ability of individuals, families, and communities to prepare for and cope with emergencies.[20]

In recognizing the importance of addressing disparities, US federal agencies with responsibilities in emergencies have increasingly incorporated guidance for individuals who may need additional assistance before, during, or after an emergency. Public health practitioners and emergency managers have attempted to categorize populations and conditions in various ways, including grouping them under terms such as special needs, at-risk, vulnerable, and access and functional needs. Although concepts and terms to describe these populations are often used interchangeably, they can convey disparate meanings depending on context and are used differently in both policy and practice. Thus, efforts toward equitable emergency planning are complicated by confusion, miscommunication, misunderstanding, and deficiencies in the current definitions used for populations facing disproportionate impacts.[21] Use of varied concepts and terms muddles considerations for populations with existing disparities, which can result in omission and/or exclusion in emergencies. Additionally, use of ambiguous terms can be stigmatizing and suggest that the status or condition is inherent to the group, rather than the cause of disproportionate risk.[22]

Legislation can shape the concepts and terms used to describe populations disproportionately impacted in emergencies, including populations that have historically faced discrimination.[23] In the United States, there are at least 8 federal laws and 4 presidential executive orders relevant to protecting individuals from discrimination (shown in Table 1) that have implications for addressing disparities through whole community emergency planning.[24] Some US federal requirements are specific to the emergency context, such as Executive Order 13995, which requires ensuring an equitable pandemic response and recovery to address the disproportionate and severe impact of COVID-19 on communities of color and other underserved populations.[25] Other US federal requirements, not specific to the emergency context, likewise apply broadly to preventing discrimination in a variety of situations; for example, Executive Order 13985 that requires advancing racial equity and support for underserved communities through a comprehensive approach by the federal government to advance equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.[26]

The Civil Rights Act,[27] Rehabilitation Act,[28] Americans with Disabilities Act (ADA),[29] and other US federal anti-discrimination laws protect certain groups from discriminatory laws, practices, and policies. Under these, "protected classes" include age, race, national origin, religion, gender, disability, pregnancy, and veteran status.[30,31] Although these nondiscrimination requirements apply to a broader legal context, they are not exempt during emergencies and provide critical guidance for addressing disparities and equity through whole community emergency planning. Federal requirements not only prohibit active discrimination in emergency planning, but also mandate the inclusion of considerations for protected classes. An example illustrating this mandate is the 2009 case *CALIF v. City of Los Angeles*. Los Angeles (LA) was ruled to be in violation of the ADA because the city's emergency preparedness plans did not address the needs of individuals with disabilities during an emergency.[32] Lapses included a lack of provisions for notifying individuals with auditory or cognitive impairments and for evacuating, transporting, or temporarily housing individuals with disabilities. The plaintiff argued that, because of issues like these, LA's emergency plans placed individuals with disabilities at a disproportionate risk for negative outcomes. This ruling served to illuminate the responsibilities of those agencies to address protected classes in emergency planning and the potential consequences for agencies that fail to fulfill these responsibilities.[33]

Policies and guidance issued by US federal departments also shape concepts and terms used in protecting populations

Table 1. Examples of United States federal legislation that protect individuals from discrimination and the populations or characteristics they target

	Federal laws and executive orders	Persons with disabilities	Older adults	English language proficiency	National origin	Sex	Socioeconomic status
1944	Public Health Service (PHS) Act	X	X	X	X	X	X
1964	Title VI of the Civil Rights Act			X	X		
1972	Title IX of the Education Amendment Act					X	
1973	Rehabilitation Act	X					
1975	Age Discrimination Act		X				
1988	Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)	X	X	X	X	X	X
1990	Title II of the Americans with Disabilities Act (ADA)	X					
2000	Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency			X			
2004	Executive Order 13347 – Individuals with Disabilities in Emergency Preparedness	X					
2006	Post-Katrina Emergency Management Reform Act (PKEMRA)	X	X	X	X	X	X
2021	Executive Order 13985 – Advancing Racial Equity and Support for Underserved Communities Through the Federal Government	X			X	X	X
2021	Executive Order 13995 – Ensuring an Equitable Pandemic Response and Recovery	X			X	X	X

disproportionately impacted by emergencies. The US Department of Homeland Security (DHS) and the US Department of Health and Human Services (HHS) are 2 key departments that provide guidance on populations disproportionately impacted in emergencies. The influence of these federal departments, including use of concepts and terms, extends to other federal agencies as well as their state, local, tribal, and territorial (SLTT) partners. More comprehensive reviews of relevant US policy and legislation can be found elsewhere.[34–36]

The mission of DHS is to protect the United States from the many threats it faces.[37] DHS and other signatory departments and agencies drafted the National Response Plan (NRP) in 2004 as part of the National Strategy for Homeland Security.[38] It was a national framework to align US federal coordination structures, capabilities, and resources into a unified approach to domestic incident management. The NRP outlined priorities of a United States response as follows: to save lives, protect property and the environment, stabilize the incident, and provide for basic human needs. In later revisions, it also called for local emergency plans to account for individuals with special needs, including provisions for evacuation, sheltering, and mobilizing resources.[38]

Although the term special needs was used in the NRP, it was often criticized for the following reasons: too generally grouping impairments, medical labels, and diagnoses; not providing a structure to address individual strengths and limitations; and too broadly combining diverse individuals.[39] Additionally, scholars and style guides recommend using terms such as disability instead of euphemisms (eg, special needs), which are criticized by disability advocates as stigmatizing and offensive.[40] Advocates argue that disability language clearly identifies the problem as an inaccessible environment rather than an individual's disability, thereby emphasizing the importance of creating accessible and equitable policies and environments.[40] The limitation of the term special needs is that it reflects a certain group of individuals with medical or health vulnerabilities, but is not comprehensive of all populations that equitable emergency planning efforts seek to accommodate.

The NRP was superseded by the National Response Framework (NRF) in 2008.[41] It was not until the second edition in 2013, however, that the NRF incorporated principles of nondiscrimination requirements in addition to considerations for populations experiencing disproportionate impacts.[42] In 2013, DHS established the Presidential Policy Directive (PPD-8) Access and Functional Needs Working Group, a US federal interagency workgroup tasked with developing the official definition of the term access and functional needs. This guidance emphasized the importance of providing equal access to emergency-related services for the whole community and described requirements to address access and functional needs:

> "By providing equal access to acquire and use the necessary knowledge and skills, the whole community contributes to and benefits from national preparedness. This includes children; individuals with disabilities and others with access and functional needs; those from religious, racial and ethnically diverse backgrounds; and people with limited English proficiency."[42]

The introduction of the access and functional needs concept broadened the range of identified populations who may have unique needs before, during, or after an emergency.[43] Access-based needs refer to the ability to access resources (eg, information, services, and support) and could include the need for social services, accommodations, tailored information, and medications to maintain health.[43] For example, the need to have information in large print or multiple languages. Function-based needs refer to functional limitations or restrictions that require assistance before, during, or after an emergency and could include providing support for maintaining health or independence (eg, caregiver support) and addressing needs for communication or transportation services (eg, maintenance of hearing aids).[43] In 2015, the definition of access and functional needs accommodations was published in the DHS Lexicon, as developed by the interagency Access and Functional Needs Working Group: "Circumstances that are met for providing physical, programmatic, and effective communication access to the whole community by accommodating individual

requirements through universal accessibility and/or specific actions or modifications."[44]

DHS has since promulgated the use of the access and functional needs concept through inclusion in national guidance for emergency activities, including the 2016 and 2019 versions of the NRF.[45,46] The 2016 National Disaster Recovery Framework also expanded the list of populations who may have access and functional needs to include: "those who have disabilities; live in institutionalized settings; are older adults; are children; are from diverse cultures; have limited English proficiency (LEP) or are non-English speaking; or are transportation disadvantaged."[47] Over time, terms used in DHS emergency management guidance shifted from using the term special needs to a hybrid of people with disabilities and others with access and functional needs.

HHS also plays a role in protecting the nation against threats by preventing, preparing for, and responding to the adverse health effects of public health emergencies.[48] In 2006, under the Public Health Service Act, the US Congress passed the Pandemic and All Hazards Preparedness Act (PAHPA), which had broad implications for HHS's preparedness and response activities.[49] PAHPA was created to "improve the Nation's public health and medical preparedness and response capabilities for emergencies, whether deliberate, accidental, or natural."[49] Sections of PAHPA described requirements for populations disproportionately impacted in public health emergencies, focusing primarily on planning, coordination, and information dissemination. It defined the term at-risk individuals as "children, pregnant women, senior citizens, and other individuals who have special needs in the event of a public health emergency, as determined by the Secretary."[50]

Additionally, PAHPA specifically stated that HHS may give priority "to the advanced research and development of qualified countermeasures and qualified pandemic or epidemic products that are likely to be safe and effective with respect to children, pregnant women, elderly, and other at-risk individuals."[50] This definition was function-based and designed to be harmonious with the DHS definition of special needs, as outlined in the earlier NRF. Although DHS guidance and the NRF do not include pregnant women, individuals with chronic medical disorders, or individuals with pharmacological dependency, HHS language asserted that these populations, as well as those from diverse cultures, were included as members of at-risk populations.[51] In the 2008 *Progress Report on the Implementation of Provisions Addressing At-Risk Individuals*, HHS further clarified the definition of at-risk individuals to include these populations, as well as "those who have, in addition to their medical needs, other needs that may interfere with their ability to access or receive medical care."[51]

For HHS, both concepts and terms have continued to evolve as documented through reauthorization of US legislative authorities. The 2013 Pandemic and All-Hazards Preparedness Reauthorization Act introduced disability as another at-risk population for inclusion, thereby expanding the definition under the Public Health Service Act as follows: "Taking into account the public health and medical needs of at-risk individuals, including the unique needs and considerations of individuals with disabilities, in the event of a public health emergency."[52] The 2019 Pandemic and All-Hazards Preparedness & Advancing Innovation Act introduced further changes to facilitate consistency across HHS and DHS, updating and aligning terms by replacing special needs with access or functional needs in the definition of at-risk individuals.[53] As such, current HHS legislative authorities require that emergency activities account for the public health and medical needs of at-risk individuals, including the following examples of populations: infants, children, pregnant and postpartum women, senior citizens, individuals with disabilities, and other individuals who have access or functional needs in the event of a public health emergency, as determined by the Secretary.[50,52,53]

Additionally, to implement guidance to address access and functional needs in emergencies, both DHS and HHS have promulgated a framework originally designed to promote disability integration in emergencies. The CMIST Framework offers a function-based approach that avoids generalizations and assumptions, yet focuses on individual capabilities.[54] It has been modified over time,[55] but generally, this mnemonic device (CMIST) includes 5 cross-cutting categories for emergency planning to address access and functional needs: C = Communication, M = Maintaining Health, I = Independence, S = Support and Safety, T = Transportation.

The intention of the CMIST Framework is to foster understanding of the large numbers and diversity of individuals with disabilities and others with access and functional needs in the general population. Access and functional needs can overlap; for example, independence is a level of function and can overlap with other categories.[39] Additionally, access and functional needs can be temporary (eg, recovering from knee surgery) or permanent (eg, cognitive disability). It provides an integrated approach that helps emergency practitioners remember and plan for 5 categories of access and functional needs in order to integrate support services and resources. In practice, it is a flexible, cross-cutting tool for addressing a broad set of common access and functional needs without having to define specific diagnoses, status, or labels. The CMIST Framework's 5 categories are embedded within definitions of access and functional needs in national guidance and training.[43,46,47,56] Like the term special needs, however, this framework still has the problem of too broadly combining diverse individuals. Furthermore, it does not ensure accountability toward addressing the needs of populations facing disparities.

In recent years, an approach frequently used by emergency practitioners that acknowledges the importance of existing disparities is the concept of community resilience. More specifically, community health resilience is the ability of a community to use its assets to strengthen public health and healthcare systems and to improve the community's physical, behavioral, and social health to withstand, adapt to, and recover from adversity.[57,58] This concept expands the traditional emergency approach by encouraging actions that build preparedness while also promoting strong community systems and addressing the many upstream factors that contribute to health, like social connectedness. To date, scholars and practitioners have struggled to quantify community resilience, but many agree on an approach called the Community Resilience Assessment Measure (CRAM).[59–64] CRAM assesses attributes that can identify opportunities to enhance resilience including leadership, collective efficacy, preparedness, place attachment, social trust, and social relationships, thereby providing a community-level assessment, yet remaining difficult to measure.

As highlighted above, the concepts and terms used to describe diverse populations disproportionately affected by emergencies continue to evolve over time. To adequately address long-standing systemic disparities and inequities, including some that have been introduced by federal and SLTT policies and programs, public health and their emergency management partners need

to move away from generalized terms assigning labels or status. To address disparities, as well as build community resilience, emergency practitioners should apply a data-driven approach that shifts the focus to addressing the underlying conditions that contribute to some populations being disproportionately affected by emergencies.

Future Steps

Many concepts and terms are used interchangeably to call attention to populations disproportionately affected by emergencies. Populations with disparities and inequities face disproportionately negative emergency outcomes linked to a variety of SDOH or the conditions of their environment.[65–68] In place of vague terms or concepts used to describe and categorize people, using the SDOH provides language rooted in demographic and socioeconomic characteristics.

Revising current concepts and terms used to describe populations disproportionately impacted by emergencies with HP 2030 SDOH objectives has the advantage of aligning the work of public health, health care, and emergency management practitioners and leverages interdisciplinary and interagency capacity toward interventions for improving long-standing systemic disparities and inequities. At this inflection point, when these diverse fields have endeavored to align for combating the COVID-19 pandemic, there is an opportunity to synchronize efforts toward mitigating disparities and emergencies going forward.

Disasters and public health emergencies continue to stress our health infrastructure and reveal the cumulative effects of disparities in our societal arrangements and exacerbate inequities in health outcomes. Although many of the effects of SDOH are visible at the individual level, they are influenced by the structure of the social, physical, and economic environment in which people live.[69] To overcome these disparities, SDOH objectives provide benchmarks to help identify conditions that influence access to emergency resources in the United States.

Correlated efforts to address SDOH in emergencies include measuring characteristics of community resilience to understand how individuals and communities mitigate and recover.[70] To advance the work of addressing SDOH and improving community resilience requires leveraging a measurable framework consisting of data-driven benchmarks for people's health, well-being, and quality of life. While considerable work has been conducted to understand how SDOH influence disease outcomes, this research remains largely unintegrated into emergency planning.[71] This integration can be achieved with a framework that incorporates the measurable SDOH objectives toward building community resilience to eliminate disparities and inequities.[72] As the United States shifts toward recovering from the COVID-19 pandemic, and to inform future public health and emergency activities, establishing a blended approach that accounts for SDOH and community resilience offers an important opportunity to develop and implement a comprehensive interdisciplinary framework.

To more effectively address the intersection of disparities and emergencies, both the SDOH objectives and measures of community resilience provide established frameworks for guiding and tracking progress toward achieving equity. A recommended approach is a new framework that cross-walks measures of community resilience (such as CRAM) with measurable SDOH objectives (such as those outlined in HP 2030).[4] Therefore, to improve community resilience requires selecting relevant strategies that account for and address SDOH at the local level. Additionally, to target SDOH objectives that address equity and reach underserved populations to promote and build community resilience, requires establishing a baseline community assessment of demographic and socioeconomic characteristics.

Through a blended framework of HP 2030 SDOH and CRAM community resilience objectives, addressing risk factors among populations with disparities and inequity in emergencies, can be achieved. To avoid generic or asymmetrical interventions, establishing a baseline community assessment accounts for the demographic and socioeconomic characteristics necessary to identify relevant and achievable objectives for a specific location. To select appropriate objectives, however, requires that stakeholders have access to and know how to use the best publicly available data to establish a baseline community assessment accounting for the most granular demographic and socioeconomic data (eg, poverty, caregiver status, disability, race and ethnicity, education level, crowded housing, access to transportation, and Internet) at the local level. Efforts undertaken by the US Census Bureau during the COVID-19 pandemic, for example, leverage the best publicly available "small area estimates" microdata to provide the most timely, accurate, and granular estimates of demographic and socioeconomic characteristics (including tables, maps, and a dashboard on impacts of COVID-19) to assess community resilience.[73] An approach for addressing the intersection of disparities and emergencies can be implemented by expanding access to and use of the best publicly available data to establish a baseline community assessment, and to assess risk factors using SDOH and community resilience objectives. Furthermore, consistent use of this approach by US federal agencies, SLTT partners, and researchers to address public health and emergency activities for targeting appropriate interventions at the local community level, ensures a more complete and consistent common operating picture of data and objectives whereby demographic and socioeconomic characteristics can be accurately measured and disparities can be eliminated.

Conclusions

Historic and current public health emergencies and disasters demonstrate that existing health disparities and socioeconomic inequities place certain populations at disproportionate risk for negative outcomes. Shifting concepts and terms to address SDOH and community resilience aligns public health, health care, and emergency management to mitigate these disproportionate risks more effectively. The importance of this shift is magnified against the backdrop of the COVID-19 pandemic. Building a framework for establishing standard concepts, terms, and measurable benchmarks to address health disparities associated with emergencies will reduce inequities and bolster resilience among all populations in preparing the nation for future emergencies.

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