Health Department Planning Actions for Climate Change

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Public health departments are on the frontlines of protecting vulnerable groups and working to eliminate health disparities through prevention interventions, disease surveillance and community education. Exploration of the roles national, state and local health departments (LHDs) play in advancing climate change planning and actions to protect public health is a developing arena of research.

Keywords: health departments ; climate change policy ; adaptation planning ; public health ; equity ; barriers ; California

1. Introduction

Climate change is a clear and present danger to human health, placing public health departments at national, state and local scales across the globe on the frontlines of identifying and responding to the threats associated with extreme weather and other climate related events. Climate change is increasing the incidence of extreme storms, high heat days, droughts, wildfires, storms and flooding that can cause bodily injury and/or death [1][2]. Internationally, drought, heat, and windstorms are fueling wildfires that emit pollutants in the atmosphere, which can negatively impact those with respiratory problems such as asthma [3][4], displace communities, and disrupt food production and national commerce [5]. As wildfires become more frequent, and smoke transports across thousands of miles, related health risks are felt far from the source, impacting health and health jurisdictions across the globe. In the Western USA, wildfire smoke in recent years represents up to 50% of total PM2.5 exposure compared to less than 20% a decade ago [6].

Poor health outcomes can place a significant strain on the healthcare infrastructure and services, exacerbate health disparities and poverty levels, and push socio-ecological systems to tipping point thresholds [7][8][9]. Consequently, public health practitioners and institutions must address common climate threats such as wildfire and wildfire smoke, and they must develop standards for practice and response amongst competing and compounding pressures such as the COVID-19 pandemic often in a context of constrained or dwindling resources and capacity [10].

There have been calls for a greater presence of health perspectives in the climate change planning discourse [11]. The bulk of public health and climate change research focuses on identifying the incidence of current and future disease impacts of various climate hazards [12]. Attention is also directed to strategies to reduce greenhouse gas emissions with a public health benefit focus on the greening of urban areas and weatherization [13]. Yet, assessments of the approaches utilized by national, state and LHDs for planning for climate change is an understudied area of research [14][15][16].

The Climate-Ready States and Cities Initiative (CRSCI) and the Building Resilience Against Climate Effects (BRACE) framework were developed by the U.S. Centers for Disease Control and Prevention (CDC) to assist local and state level officials to build capacity to prepare states and communities for the adverse health effects of climate variability [17]. As one of the sixteen states and two cities funded by the CRSCI from 2012 through 2021, the California Department of Public Health's (CDPH) project, California Building Resilience Against Climate Effects (CalBRACE), created the Local Health Department Partnership on Climate Change (Partnership). The partnership provided capacity-building resources, a community of practice and technical support to LHDs for planning and implementing strategies that reduce the health burden of the changing climate in both coastal and inland counties in California [18].

Since 2013, the CDPH Office of Health Equity Climate Change and Health Equity Section (OHE) has implemented the BRACE framework in conjunction with county public health departments, tribes and public agencies throughout the state. At the state level, the program coordination is intended to be collaborative and iterative in nature, seeking input from public health practitioners, epidemiological specialists and climate scientists to develop and direct technical assistance and resources to county public health departments to identify vulnerable locations/populations and implement intervention/adaptation projects [19].

2. Health Department Planning Actions for Climate Change

The connections between public health and climate adaptation research are growing in number and scope. Studies have identified the acute effects of specific climate-related events on health, chronic exposure to pollutants as well as long-term interactions between environmental factors and various health conditions occurring globally [2][20]. Research is also growing around the process of planning for climate change in the public health realm [21].

The literature identifies several barriers to climate adaptation. Studies show that a common barrier to climate adaptation in public health has been financial constraints. According to Huang et al. [22], the global management of climate change is expensive and require billions of dollars annually. Limited financial ability to support the public health sector exacerbates the impact of diseases and deaths attributed to climate change. Additionally, a lack of access to technology impedes the progress of climate adaptation actions in public health [22]. Despite the projections of global temperature increases, the uncertainty of the specific times when the impacts will occur and with what intensity, and how these will affect populations, limits the implementation of adaptation approaches. For example, floods cause deaths and health effects in different places, even in nations with adopted adaptation strategies, due to uncertainties relating to intensity projections. The uncertainties limit the preparation of public health especially in acquiring resources and funds necessary for response to emergencies [23][24][25].

In addition, climate adaptation has been influenced by the perspectives, values, processes and power structures within communities. According to research by Adger et al. [26], adaptation to climate change could be limited by social perceptions and values. For instance, societal values that have a limited concern for environmental issues could limit strategies targeting resources to ensure climate adaptation. Aylett [27] indicates that climate adaptation in public health is limited by the lack of communication and awareness on issues surrounding climate change. Populations residing in low socioeconomic areas may have limited access to information that could reduce the negative impact of extreme weather events. For example, Eisenack et al. [28] state that limited awareness about climate change impact at the local level minimizes the perception that there is a need for developing adaptation strategies among individuals.

Ekstrom and Moser [29] point to inadequacy and competition in leadership as barriers that limit climate change adaptation in public health. Eisenack et al. [28] suggest that leadership issues affect the process of decision making, which results in delays and restrictions for implementing adaptation strategies. Furthermore, Kemp et al. [30] describe that the applications of public health adaptation to climate change are limited by external politics and lobbies by various interest groups. According to the authors, managers within organizations are primarily focused on issues affecting the public directly, thus deferring efforts on policies and issues affecting them indirectly. Additionally, the political views of different leaders limit the process of developing policies that could favor climate adaptation in public health [31]. In 2013, research by Biesbroek et al. [32] stated that governments are critical players in directing climate adaptation, arguing that governments at the national, regional and local levels play a significant role in constraining, enabling and stimulating adaptation. However, limited policy guidance, lack of governmental resources, and inadequate coordination between different administrative levels are barriers to action [32].

Public health departments play key roles in predicting, responding to and protecting communities from the direct and indirect effects of increased disease and death rates because of the changing climate [33]. A survey of local health officers in California conducted prior to the development of the CDPH Climate Action Team in 2009 indicated that local health officers believed that climate change posed a serious risk to human health, but they lacked the resources and information to respond to that risk [34]. Although implementing direct and indirect climate adaptation interventions can minimize health impacts on vulnerable communities, public health departments continue to face common constraints and barriers to implementation [10]. However, the ways in which these barriers are realized and addressed differ depending on the institutional context and the internal capacity of the public health institutions [35]. Unpacking the procedural barriers encountered as well the opportunities leveraged by public health departments in planning for adapting to climate change can expand the practice of sound planning in the public health field.

3. Conclusions

While the impacts of climate change pose significant health challenges to populations, efforts to implement climate adaptation into the public health sector have been challenged by barriers that include lack of resources, financial difficulties, conflicting priorities and limited leadership/government involvements. Researchers suggest the utilization of strategies that include building the capacity of national, state and local health departments through technical and funding support, finding congruence to expand and enhance existing programs, promoting diverse and strategic forms of communication to engage different audiences, usage of commitment from inspired leadership and staff, and promoting

collaborative partnerships and interventions to ensure mainstreaming across sectors. This illustrative case study also raises the ongoing questions on the position and roles that public health professionals will play as agents of implementation to advance progressive climate action in national, state and local public health systems and other sectors. Climate change can no longer be just a peripheral issue for existing public health programs or a corollary addition to ongoing resilience initiatives, as increasing changes in temperatures, droughts and wildfires become public health threats internationally. Public health and hospital systems are central to planning for their own roles and resilience, and the preparedness of communities, healthcare infrastructure and healthcare professionals during critical events. The climate crisis already has diverse and severe effects requiring public health and health systems to prepare response plans tailored to local characteristics of geography, predicted weather and indirect impacts, population, and potential for compounding events occurring simultaneously [36].

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