

The National Environmental Health Association (NEHA) represents approximately 7,000 government, private, academic, and uniformed services sector environmental public health professionals in the U.S., its territories, and internationally. This workforce represents the second largest constituency of the existing public health workforce, second only to nursing. NEHA is the profession's strongest advocate for excellence in the practice of environmental public health. We deliver on our mission to build, sustain, and empower an effective environmental public health workforce.

Policy Statement on Rural and Frontier Environmental Public Health

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Rural areas encompass all people, housing, and territory outside urban areas (Health Resources & Services Administration, 2024). Frontier areas, while variously defined by state and federal programs, represent the most sparsely populated end of the rural spectrum (National Rural Health Association, 2016). These remote communities face numerous environmental and public health challenges. Unhealthy and unsafe housing conditions are common, as is exposure to insects and animals that transmit diseases. Many rural and frontier areas struggle with inadequate solid waste removal, rely on private water wells for safe drinking water, and dispose sewage through onsite wastewater treatment systems. Other rural communities are served by small community rural water or wastewater districts. Aging infrastructure, often suffering from insufficient maintenance, further compounds problems. Additionally, the increasing affects of climate change pose ongoing threats to the health of people in rural and frontier areas. To address these complex issues and improve health and safety outcomes in rural and frontier areas, a well-trained governmental environmental public health workforce is essential. This specialized workforce is crucial for developing and implementing strategies to overcome the unique challenges faced by these remote populations.

NEHA supports federal, state, local, tribal, and territorial jurisdictions by 1) developing policies based on scientific knowledge and research to improve the health and safety within rural and frontier communities and 2) building, sustaining, and empowering environmental public health professionals by providing up-to-date trainings, webinars, collaborations, and resources to implement the changes needed to improve environmental public health.

NEHA supports the following policies and actions:

- Develop policies that address environmental health equity and environmental justice, and reduce health disparities.
- Increase investments and resources to establish, build, and sustain the necessary infrastructure and programs that support clean drinking water, waste management, healthy housing, preparedness, and mitigation for the health impacts of climate change.

- Establish capacity building initiatives that support evidence-based best practices for environmental public health, including strategies to manage emergent issues and natural disasters.
- Develop competencies, education, and strategies needed for environmental public health professionals who work in rural and frontier communities.
- Standardize training and credentialing for governmental environmental public health professionals who work in rural and frontier communities.
- Train and educate governmental environmental public health professionals on policy development, public health communication skills, and health advocacy to improve effectiveness when addressing boards of health and various levels of government.
- Increase recruitment initiatives and promotion of environmental public health professionals across academia to support capacity building within the workforce.
- Enhance support through pay and benefits to increase job satisfaction and retention rates of highly trained environmental health professionals.
- Support governmental environmental public health professional networking to address current and emerging cross-sector and regional environmental health threats.
- Implement best practices identified in the [New Rural and Frontier Healthy Housing Guide for Environmental Health](#) to support effective partnership building and collaboration between governmental environmental public health professionals and:
 - other community health professionals including public health nurses, community health workers, and community health educators;
 - medical providers;
 - community water and wastewater service providers;
 - extension service and rural development agencies; and
 - rural and frontier communities, Native American nations, and other interested partners (National Center for Healthy Housing & National Environmental Health Association [NEHA], 2024).
- Support engagement with rural and frontier communities, Native American nations, and community-based organizations to ensure local voices are heard during environmental public health policy development and implementation.

Analysis

In 2023, 46 million people lived in rural areas of the U.S., accounting for 15% of the population (Centers for Disease Control and Prevention, 2024). Rural and frontier communities are sparsely populated areas with a greater distance compared with urban areas to various services such as healthcare, schools, grocery stores, and other necessities (Rural Health Information Hub, 2024a). In addition, the distance creates a barrier for governmental environmental public health professionals to reach rural and frontier communities where important services can help individuals and families live healthier lives. Rural and frontier local public health provides essential services to communities across the U.S., but in recent years have been strained, which is particularly impactful due to a historical and continuing lack of investment and the limited capacity of the governmental environmental public health workforce. In comparison to urban local



public health, rural and frontier local public health is the least well-resourced, experience higher staff turnover, and have greater training needs for staff (Kett et al., 2023).

Housing quality and condition are important in the prevention of exposure to various environmental public health hazards such as lead, mold, poor indoor air quality, carbon monoxide, and structural issues including leaking roofs (NEHA, 2024). More than 1.4 million homes in rural America are severely or moderately inadequate with regard to maintenance and upkeep, plumbing, heating, and electricity, and approximately 11.5 million rural homes have deficiencies including health and safety hazards such as pests, peeling paint that poses lead exposure hazards, holes in the floor, and mold (U.S. Census Bureau, 2021). An estimated 2.2 million people in the U.S. are without adequate running water and wastewater infrastructures in their homes. This problem is especially prevalent in high-poverty rural areas where practices such as “straight piping” raw wastewater from a home to a backyard or creek are common (U.S. Environmental Protection Agency, 2024).

In the U.S., people living in poverty tend to be concentrated in certain regions, counties, and neighborhoods, instead of evenly spread throughout the country. Studies have indicated that people experiencing poverty encounter obstacles that extend beyond their personal situations. High levels of poverty in these areas lead to substandard housing and health issues, increased crime rates, higher school dropout rates, and job disruptions. Consequently, the economic environment in severely impoverished regions generates limited opportunities for residents, which can continue the cycle of poverty. Nonmetro Black people had the highest incidence of poverty in 2019 (30.7%), while nonmetro Native American and Alaska Native people had the second highest rate (29.6%). The poverty rate for nonmetro White people in 2019 was less than one half (13.3%) compared with these other racial groups. Nonmetro Hispanic people had the third highest poverty rate of any individual race or ethnicity at 21.7% (Economic Research Service, 2023).

People who experience homelessness frequently are seen as an issue confined to urban areas, yet the issue also affects individuals and families in rural regions, manifesting as both actual homelessness and highly unstable housing situations. People who experience homelessness in rural areas tend to be less apparent because the people affected often do not sleep in public spaces and emergency shelters are often unavailable. Additionally, it is common for people experiencing homelessness in rural areas to reside in their cars or campers. According to the U.S. Department of Housing and Urban Development, approximately 110,000 individuals in 2022 experienced homelessness in largely rural continuums of care (CoCs), which is approximately 19% of the estimated number of people who experience homelessness in the U.S. (de Sousa et al., 2022).

The effects of climate change particularly exacerbate housing quality and safety issues in rural areas where there might be fewer available resources to mitigate damage, perform risk assessments, and support climate resilience and adaptation efforts, as well as cause geographic isolation that can create challenges in responding to disasters (NEHA, 2024). The aging



infrastructure in the U.S. increases the risk of negative impacts on rural and frontier communities as well, with an estimated infrastructure repair backlog of \$1 trillion (Chinowsky, 2022).

As our climate changes, extreme weather events are increasing in both frequency and intensity and pose a threat to public health and infrastructure, including homes. Climate change can also have far-reaching effects on rural populations that can include issues with pest control, solid waste management, and the increase of certain diseases. During periods of drought, private well failures are expected to increase as water tables drop with a need for increased irrigation and water usage. In other areas of increased precipitation, there is an increased chance of runoff events that can cause flooding and sewage spills that can deteriorate water quality. Extreme events can include drought, wildfires, and flooding, which can have detrimental effects on all populations, particularly on rural populations that have higher incidences of older, fixed-income households (U.S. Global Change Research Program [USGCRP], 2018).

High temperatures in the summer can be linked to increased illness and death in older adults, pregnant people, and children. Rising temperatures—increasingly seen across the Midwest in winter months—can cause an increase in precipitation that can contribute to the geographic spread of disease-carrying vectors such as ticks and mosquitoes. Milder winter temperatures can also increase the risk of mosquito-borne diseases such as dengue, chikungunya, Zika, yellow fever, and West Nile virus (USGCRP, 2018).

Rural, lower-income communities are often excluded from the planning process to prepare for intense weather events and therefore are disproportionately impacted by poor environmental quality (USGCRP, 2018). Low-income communities and communities of color often lack proper flood protection, green spaces, safe housing, and other resources crucial for shielding from climate impacts. In some regions, urban development has displaced these under-resourced communities to suburban and rural areas, where climate-resilient housing and infrastructure are even more scarce (USGCRP, 2023).

Rural communities face several challenges when making emergency readiness plans as they are isolated from certain resources, have limited infrastructure, and can have communication challenges that can lead to the lack of a comprehensive plan for all residents to follow in the event of a disaster (Federal Emergency Management Agency, 2023). Within rural communities, certain populations face an increased risk of adverse disaster outcomes due to their limited capacity to cope with, resist, or recover from events (Rural Health Information Hub, 2024b). Groups disproportionately affected include members of low socioeconomic status, older adults, and certain races and ethnicities (Rural Health Information Hub, 2024b).

Further, certain racial and ethnic populations are more likely to experience adverse outcomes during all phases of an emergency (Rural Health Information Hub, 2024b). Tribal communities are often disproportionately affected by climate change weather events and there are unique cultural needs of Native American populations that are often neglected or there are not adequate resources to provide resiliency to these communities (Rural Health Information Hub, 2024b).



Justification

Rural areas have a similar or greater risk of environmental public health hazards than their urban counterparts but with fewer financial resources to remedy these hazards. Spending in rural communities per capita is more expensive than in urban communities, which has been a source of frustration. New arguments have been made to consider funding in terms of cost overall and cost per square mile to better describe how effective funding can be in rural communities. The burden on rural communities is unique due to limited resources and the disproportionate impact placed on rural communities through taxes to support urban living. People living in rural areas of the U.S. are generally older and have lower incomes. Further, people living in rural areas report engaging in riskier health behaviors, face more obstacles in accessing healthcare, and experience poorer health and worse health outcomes compared with those living in urban and suburban areas (Harris et al., 2016).

Rural community members can also have different concerns unique to their communities that are not discussed or allowable in large grants (Bernhard et al., 2013). On top of this factor, rural areas often lack the capacity to write for and run large grant opportunities and can be seen as less competent to do so because they have never managed a large grant before. These barriers need to be addressed by grant makers for rural communities to continue to survive (Bernhard et al., 2013).

A current example is per- and polyfluoroalkyl substances (PFAS) and how they affect urban and rural communities differently because rural communities have more diverse water sources feeding into their municipal water and private wells. Small communities in Iowa provide a helpful case study to describe this challenge. Two rural communities out of the dozen tested were found to have PFAS higher than enforceable levels by the U.S. Environmental Protection Agency (Strong, 2024). These communities will have to implement new water treatment processes to address these contaminants. Without the professionals trained to implement new water treatment processes and without the resources to pay for new treatment facilities, rural communities will be at a higher risk of exposure resulting in poor health outcomes (Gagliano et al., 2020).

Rural communities need enhanced environmental public health services provided by educated, trained, and adequately compensated governmental environmental public health professionals. Rural communities need improved funding for physical infrastructure that supports basic public health protections such as safe drinking water, environmentally sound wastewater disposal, and adequate solid waste services. Without enhanced support for environmental health professionals, rural areas will continue to experience high staff turnover and ongoing challenges in filling governmental environmental public health positions. Without increased funding for basic public health infrastructures, rural communities will continue to experience ongoing health disparities from exposure to unsafe drinking water, improperly disposed sewage, and inadequately managed waste.



Governmental environmental public health professionals and services are an essential part of every comprehensive public health system. Governmental environmental public health workers need to collaborate effectively with other public health, medical, social services, water and wastewater, and housing providers. Environmental public health ensures everyone has healthy and safe places to live, learn, work, and play. Therefore, every community must have access to knowledgeable, well-trained professionals who can help achieve safe and healthy environments.

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Drafted by the NEHA Rural and Frontier Program Committee

Gina Bare, RN

Associate Director, Program and Partnership Development, NEHA

Megan Barhafer

Community Health Planner, Panhandle Public Health District

Jesse C. Bliss, PhD

Director, Program and Partnership Development, NEHA

Heather Blum, MPH, REHS/RS

Environmental Health Professional, Oconto County Department of Health & Human Services

Daphne Clark, REHS/RS

Protection Team Leader, Upper Missouri District Health Unit

Nicole L. Dutra, MPH

Senior Program Coordinator, Program and Partnership Development, NEHA

Doug Farquhar, JD

Director, Government Affairs, NEHA

Melissa Haas, MSc

Environmental Health Coordinator, Panhandle Public Health District

Adam Hahn, MPH, REHS/RS

Environmental Health Officer, Black Hawk County Public Health

Brandon Kemperman, MPH, CIH, CSRM, CPSI

Healthy Building Science Advisor, Public Health–Seattle & King County

Keegan McChesney, MSc

Program Officer, Rural Local Initiatives Support Corporation

Tricia Metts, PhD



Associate Professor, East Tennessee State University

Christopher Walker, MSEH, REHS

Senior Program Analyst, Environmental Health, Program and Partnership Development, NEHA

Edited by:

Kristen Ruby-Cisneros, Managing Editor, *Journal of Environmental Health*, NEHA

