



Exploring how libraries and community-based organizations can work together to mitigate environmental and health-related concerns due to climate change

## Centering Health Equity, Environmental Justice, and Climate Justice to Support Communities

Sarah Levin-Lederer, MPH  
Network of the National Library of Medicine Region 7  
University of Massachusetts Chan Medical School, Lamar Soutter Library

April Wright, MLS  
Network of the National Library of Medicine, Region 1  
University of Maryland Baltimore, Health Sciences and Human Services Library

### Abstract

Climate change affects health in a variety of ways. These effects are borne disproportionately by some people and communities more than others. Mitigation, adaptation and resilience in these communities, in the face of climate change, requires multi-sector connections and collaborations. Organizations including public health institutions, public libraries, faith-based, cultural and community-based organizations can support both mitigation and adaptation efforts, as well as working towards climate justice, health equity, and environmental justice through education, programming, partnerships, and even affecting policy. This report defines key terminology within this domain, introduces promising frameworks focused on generating action, and explores some of the ways that America's more than 17,000 public library locations could work as essential partners. The report concludes by discussing key steps to be taken to advance this agenda, including the critical importance of evaluation and planning collaboratively to meet underserved communities where they are.

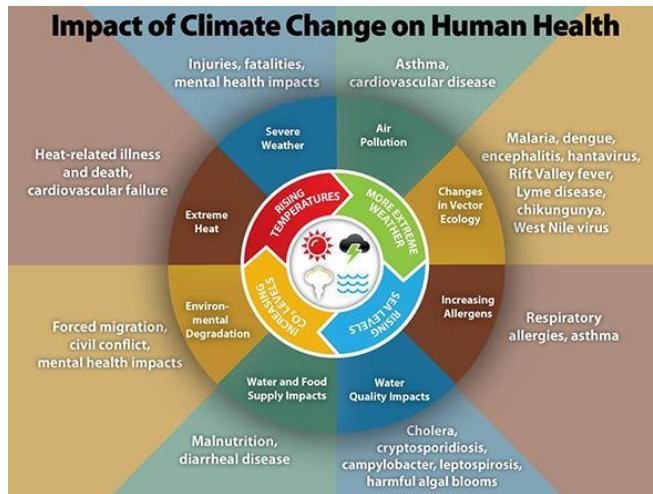
This report was commissioned as part of the Building Resilient Communities Project and its 2024 Climate Action Symposium: [Building Resilient Communities – STAR Library Network \(starnetlibraries.org\)](https://starnetlibraries.org).  
Published by [STAR Library Network](https://starnetlibraries.org), August 16, 2024.

*Climate change is among the most important and urgent global health threats and opportunities of the 21st Century.*

~ Grand Challenge on Climate Change, Human Health, and Equity (National Academy of Medicine, n.d.)

## Introduction

### 1. The Climate Crisis is a Public Health and Equity Crisis



Climate change impacts health. Credit: CDC's Climate and Health Program

The ways that climate change affects our environment are varied, complex and interconnected, and therefore have multifaceted effects on human health. Climate change leads to rising temperatures, more severe weather, rising sea levels, and increased CO<sub>2</sub> levels. These factors impact air and water quality and intensify exposure to things like extreme heat and vector-borne diseases (e.g., Lyme disease, West Nile virus) in places where they have not been as prevalent. Climate change leads to adverse health outcomes (National Academy of Medicine, n.d.; CDC; 2024). For example, more extreme weather increases weather-related fatalities.

Changes in growing seasons can impact food scarcity and lead to increased pollen that adversely affects respiratory health for people with asthma (CDC, 2024).

### 2. The Roles of Public Libraries and Community Partners in Addressing Health Disparities

Public libraries, and their local community partners, can play critical roles in helping communities understand these connections through displays, public programs, and other engaging lifelong learning opportunities developed in collaboration with partners.

With 99% of the US population living in a public library service area (CUNY, 2018) and libraries being trusted institutions in their communities (Westbrooks, 2024), they are an essential partner in climate resilience efforts (these key concepts are defined below). Libraries are also already doing some of the work to advance health equity. For instance, some have implemented programs to bring social workers and nurses into the library to provide basic services with no requirement that individuals be insured. Additionally, many libraries host Citizen Science Month activities and drive community involvement in environmental justice activities such as monitoring air and water quality trends (Association for Advancing Participatory Sciences, n.d.). This kind of programming leads to the democratization of knowledge and could provide communities with the information and tools they need to

become knowledgeable, participate in making critical decisions, and even advocate for climate-related policy changes.

Libraries are funded by taxes, donations and some federal and state grants. Since funding and administration are primarily local, libraries reflect the values of the communities they serve. They are also positioned to work locally with community-based partners to develop new initiatives in response to community stresses such as extreme weather events brought about by climate change. Understanding how public libraries could work with others to support health equity, climate change resilience, and environmental justice requires having a basic understanding of how climate change affects public health.

### 3. Key Definitions

#### ***Climate Change Resilience***

Climate change resilience is the capacity of a community to “retain essential functions before, during and after a hazard strikes” (US Climate Resilience Toolkit, 2024). Intentional planning and collaboration increase a community’s capacity to recover completely. Solid planning and data collection, effective partnerships, clear and efficient communication and community engagement come together to create resiliency.

#### ***Health Equity, Environmental Justice, and Climate Justice***

According to the World Health Organization, “health equity is the absence of unfair, avoidable and remediable differences in health status among groups of people. Health equity is achieved when everyone can attain their full potential for health and well-being” (WHO, 2024). The conditions that cause health inequities and disparities are intersectional in nature. Exposure to environmental hazards worsens the impacts of climate change and causes higher instances of diseases such as cancer, heart disease and asthma for those exposed to those hazards. Low-income communities and Black, Latinx and Indigenous communities are those who most prevalently bear the burden. This is compounded by social stressors such as racism and economic despair. *Environmental justice* is the principle that everyone has the right to a safe and healthy environment regardless of income, race, ethnicity, or geographic location.

*Climate justice* encompasses health equity and environmental justice and recognizes that those most impacted by the devastating effects of climate change have the least responsibility for causing it (UC Center for Climate Justice, 2024). On the international level, industrialized nations have the greatest responsibility for leading the elimination of the causes of climate change. Climate justice requires the dissolution of systems that increase



High Plains Library District (Greeley, CO) partners with the Area Health Education Centers (Univ. of Colorado) and the STAR Library Network (STAR Net) to bring the Discover Health exhibition and health programming to the Greeley community. Credit: STAR Net.

the vulnerability of low-income populations and communities of color to climate hazards. Without climate justice, there is no health equity and no community resilience (Patel, 2022).

### ***Mitigation and Adaptation through a Health Lens***

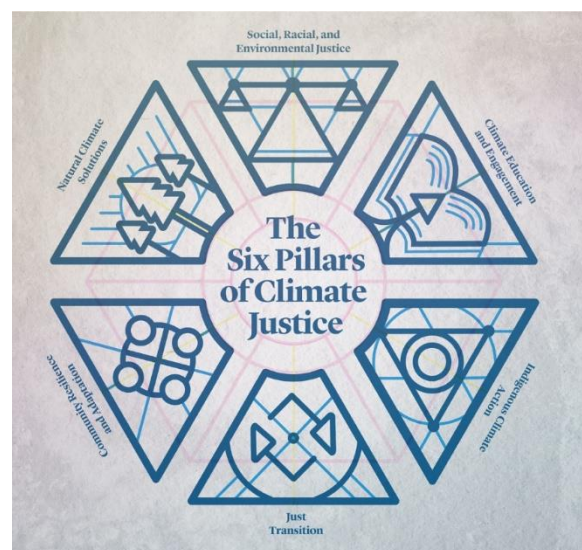
When talking about climate change policy and intervention, there are often two approaches: mitigation and adaptation. It is important to understand their interactions and differences when thinking about approaches to take. Mitigation refers to interventions designed to slow or stop climate change by reducing greenhouse gases. Mitigation strategies include renewable energy, sustainable transportation, and energy efficiency. Adaptation refers to interventions designed to adjust to the effects of climate change by implementing strategies to moderate damage and cope with consequences. Adaptation strategies include updating disaster planning and upgrading infrastructure. Some interventions are both mitigation and adaptation. For example, urban forestry serves to mitigate climate change by planting more trees to trap greenhouse gasses, while also addressing the adaptation issue of urban heat islands. Addressing urban heat islands also addresses climate justice since low-income communities and communities of color are often most impacted (EPA, 2023).

Given that climate change impacts health, strategies related to addressing climate change and health can also be viewed through the public health lens of **primary and secondary prevention**. **Primary prevention** refers to programs and activities that, reduce exposure. **Secondary prevention** would be strategies to avoid adverse health outcomes if or when exposed (Wheeler and Watts, 2018). For example, urban forestry, which has both mitigation and adaptation aspects, would also be a primary and secondary prevention strategy: cooling areas of a city to reduce exposure while also providing shade to avoid adverse outcomes.

## **From Definitions to Actions: Key Frameworks for Climate Justice and Resilience**

According to the University of California Center for Climate Justice (2024), there are six pillars that address climate justice.

- 1. Just Transition:** Involves the equitable transition to renewable energy, sustainable industrial practices, the creation of employment opportunities, and policy changes leading to a sustainable and equitable future.
- 2. Social, Racial and Environmental Justice:** Recognizes and confronts the interconnectedness of the devastating



impacts of climate change with the structures and systems in place that enable its continuation.

- 3. Indigenous Climate Action:** Recognizes the leadership of indigenous communities in the fight against climate change. “...some of the most effective climate solutions are created at the convergence of Indigenous knowledge and western science” (UC Center Climate Justice).
- 4. Community Resilience and Adaptation:** Promotes the capacity of a community to reduce climate impacts, while functioning and recovering before, during, and after a climate-related disaster.
- 5. Natural Climate Solutions:** Discerns the significance of trees and other plants to lessen the impacts of climate change because of their ability to sequester carbon. Sustainable farming, forest restoration, inner-city gardens and urban forestry contribute to mitigation and adaptation efforts.
- 6. Climate Education and Engagement:** Emphasizes that climate instruction must include the fact that climate justice, social (and environmental) justice, and (health) equity are inextricably intertwined.

Rebekah Smith Aldrich provides a great introduction to climate justice and the role of libraries in climate action in the Sustainable Libraries Initiative webinar series, *Sustainable Libraries: Resources and Webinars for Climate Action* (WebJunction & SLI, 2023).

## U.S. Climate Resilience Toolkit

There are a variety of approaches to address climate justice, community resilience and health equity. This section introduces the US Climate Resilience Toolkit (2024) as one promising strategy to advance this work. It suggests six steps to resiliency:

**Step 1 (Get Started):** Find a trusted community leader to be a climate champion. Climate champions are beacons of hope. They recognize that there is something that can be done to not only mitigate and adapt to climate change, but also build resilience.

**Step 2 (Understand Exposure):** Identify assets and collective resources and name the hazards that threaten those resources.

**Step 3 (Assess Vulnerability & Risk):** Determine the likelihood of exposure and how much loss it will cause.

**Step 4 (Investigate Options):** Convene conversations identifying possible scenarios and actions.

**Step 5 (Prioritize & Plan):** Evaluate the most beneficial and cost-effective actions and create a plan.

**Step 6 (Take Action):** Implement the plan and continuously evaluate and revise it based on new information.

Within each of these steps, libraries can be key community partners. In some cases, libraries are already providing programs, participating in projects and generally advocating for resilience and sustainability.

The following section provides some examples of projects that address the steps laid out in the Climate Resilience Toolkit. These examples either include libraries or could benefit from library partnerships.

**Step 1 (trusted community leaders) and Step 4 (investigate options):** The Blue Marble Librarians are a network of library staff in Massachusetts interested in sustainability both for their libraries and their communities. Through a listserv and shared projects, they support each other in promoting mitigation strategies by making their library buildings more sustainable, composting, getting rid of grass lawns, and reducing plastic use. They also promote adaptation and mitigation library programming through seed and plant swaps, fix-it clinics, emergency preparedness hubs and offering expert speaker programming (Massachusetts Library System, 2024).

*Opportunity for expansion:* The Blue Marble Librarian's network is confined to Massachusetts. While other networks of professionals, both inside and outside libraries, exist, they are often hard to find. The Sustainable Libraries Initiative (SLI) is a great place to start to look for partner libraries across the country (SLI, 2024).

**Step 2 (understand exposure) and Step 6 (take action):** APHA's (American Public Health Association) ECO Bookworms initiative provides book recommendations and discussion questions for helping the youngest members of the community understand climate change, sustainability, and social and environmental justice (APHA, 2024).

*Opportunities for expansion:* Despite being focused on reading, this initiative has historically been advertised only to K-12 schools, with all examples on the APHA website focused on school-based participation; with libraries merely framed as passive vehicles for checking out books. Libraries can use these resources to enhance active learning and story-time programs.

**Step 3 (Assess Vulnerability and Risk):** *Understanding Heat in North Austin, TX* is a project that brought community groups together with public health and governmental agencies to address urban heat islands and other related heat issues in their communities by sharing experiences and taking part in data gathering and mapping. Community members were the drivers in solution planning and implementation (GAVA, 2023).



*Opportunity for expansion:* Including public library branches in this initiative would be an excellent opportunity to broaden the participation of under-represented groups. The Austin Public Library was not involved in this initiative, despite the library being involved in other city initiatives such as the Nature Smart Libraries program that fosters connections to nature through stories, experiences, and resources to promote environmental literacy. Nature smart learning and citizen science projects (City of Austin, 2022) are an opportunity to partner either with local communities or on larger state and national projects. Some libraries are already participating or encouraging citizen science projects. Projects like *Understanding Heat in North Austin, TX* are a chance to formalize these projects through programming and partnerships. Another promising example is the Los Angeles Public Library’s Neighborhood Science initiative (LAPL, n.d.). Check out citizen science programs and resources for libraries at SciStarter (<https://scistarter.org/library>).

**Step 5 (prioritize and plan) and Step 6 (take action):** Climate Resilience Hubs are community institutions, including libraries, that commit to educating their communities about extreme weather preparedness and other impacts of climate change. Many hubs also commit to offering material support, such as being a cooling center or providing charging stations during power outages (CREW, 2024).

*Opportunity for expansion:* CREW focuses on supporting “community institutions—libraries, churches, schools, nonprofits, local businesses and others—that help educate residents about extreme weather preparedness and other impacts of climate change.” An opportunity for expansion would be to create pathways for these critical hubs to work collaboratively around this pressing topic.

**Additional Frameworks and Resources.** As hubs of information, libraries are well-equipped to provide access to data tools to facilitate community participation and engage partners to move this work forward. Some additional tools to share with public libraries and to use to accelerate climate justice include:

- Agency for Toxic Substances and Disease Registry (ATSDR) Environmental Justice Index – This CDC tool “helps public health officials identify and prioritize communities most at risk for the health impacts of environmental burden.”
- County Health Rankings and Roadmaps – Provides information on county-level health factors.
- EJ (Environmental Justice) Screen – This U.S. Environmental Protection Agency tool combines and maps environmental hazards with demographic data.
- U.S. Climate Vulnerability Index – Maps actionable data about “which communities face the greatest challenges from the impacts of a changing climate.”
- CDC’s Building Resilience Against Climate Effects Framework ([BRACE](#)).

- Community Conversations – There are many resources available to help libraries with their community engagement efforts (e.g., Conversation Cafes and Community Dialogues). Visit ALA’s [Dialogue and Deliberation Resources for Libraries](#) and the STAR Library Network’s Community Dialogue framework (<https://www.starnetlibraries.org/deia/>) for how to get started.

## Recommendations for Libraries and Their Partners

Much has been done to advance the roles of public libraries in supporting health equity, climate change resilience, and environmental justice in their communities, but much additional work remains. To be successful, libraries and their community-based partners (including those in the public health sector) need to augment their capacity to evaluate impacts of initiatives and programs, work proactively with partners to meet communities where they are, and to find creative new funding sources.

### *Evaluation*

Programming and educational initiatives to address climate change are not new, including in libraries. However, there is not a lot of research about which interventions have a high success rate and/or are cost effective. Program evaluation is important to ensure that the original goals and outcomes are being met, as well as ensuring the ability to replicate and standardize approaches; it is a standard tool within the field of public health (Public Health Accreditation Board, 2024) and across many other sectors.

Organizations continually reinventing the same intervention without any assessment are using resources, primarily time and money, that could be spent on running additional programs or other initiatives. Evaluation should ensure that programs are addressing issues of equity and environmental justice and that programs are reaching the most vulnerable and at-risk communities and people. Best practices include involving community representatives in program planning, as well as facilitating community participation in the evaluation process and sharing the results. Public libraries typically are neither trained, nor financially required, to engage in program evaluation. This is another fertile area for partnerships, particularly with public health agencies and professionals who may have expertise in this area (CDC Office of Policy, Performance, and Evaluation, 2024).

### *Libraries as Planning Partners and Audiences*

Organizations, even those who sometimes work with library partners, do not always remember to include them in their plans, or **remember that libraries and the communities they serve can provide a broad, diverse audience for ready-made toolkits and unique resources** (e.g., programs in a box). Libraries working with potential non-library partners should encourage them to include libraries as an important target audience for resources and a valuable partner for future initiatives that align with library work and program goals. Potential partners can also offer their expertise and resources that augment library programming.



Examples of libraries being overlooked as an audience include the APHA ECO Bookworm resource, mentioned above, and the USDA's Climate Hub Resources for K-12 educators (USDA, 2024). Resources that are designed for educators (e.g., hands-on learning resources), based on books, and ones that are similar to active learning programs libraries already offer can easily be adapted for library settings.

### ***Meet your communities where they are***

Libraries and their partners addressing climate change is a multifaceted endeavor. There is no one size fits all method. Some communities may balk at specific terms like social justice, climate justice, or even climate change and sustainability. Effective strategies need to consider factors such as funding, community interest, or hesitance with climate change concepts.

Finding common ground between programs that address climate change and the specific areas of environmental health that communities care about may get more people to participate in programs and relevant activities. For example, communities that rely on outdoor tourism may be interested in water and air quality programming, or information on vector-borne diseases. Farming communities may be interested in programming that addresses water, air and soil quality, as well as information on droughts and flooding.

### ***Finding additional funding***

There are funds available from a variety of institutions that are not library specific but could be used to support programming and partnerships involving public libraries. One example is the EPA's Environmental Justice Grants (EPA, 2024) that provide funding and technical assistance for organizations to carry out environmental and climate justice activities to benefit underserved communities.

## **Conclusion**

Developing partnerships and implementing programs that address climate change, environmental justice and community resilience, can feel overwhelming to public library workers especially given the high demands already placed on libraries' time and funding. However, this work does not have to be a big pivot. Many libraries already provide programming on health and citizen science. Climate change can be an added component of this work. There is no need to create programming and resources from scratch. Partnering with organizations already working in these areas and finding existing programs "in a box" can help libraries get started. As this work develops, it is crucial to embed evaluation that can build knowledge of what works and how.

As trusted institutions that are embedded in their communities, public libraries are well-positioned assets that can be leveraged to strengthen local awareness and knowledge about climate issues and to advance climate resilience. The six pillars of climate justice and the six steps to resiliency (EPA, 2023) offer clear frameworks that libraries and their community-based partners can use to define common goals and outcome metrics. In this report, we presented

opportunities for expansion for several existing projects and recommendations to help create effective partnerships that support climate mitigation, adaptation, justice and resilience. Addressing climate change requires multiple, and varied, interventions and libraries are well placed to implement programs, services, and resources that address the unique needs of their communities.

## Acknowledgement



This work is supported by the National Science Foundation (NSF) under grant # 2314180 to the Space Science Institute. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the NSF.

## References

- APHA: American Public Health Association. (2024). ECO Bookworms. <https://www.apha.org/Topics-and-Issues/Climate-Health-and-Equity/ECO-Bookworms>.
- APHA: American Public Health Association. (2024). Climate Health and Equity. <https://www.apha.org/Topics-and-Issues/Climate-Health-and-Equity/JEDI>. Accessed June 14, 2024.
- Association for Advancing Participatory Science. (n.d.) Citizen Science Month. <https://participatorysciences.org/citizen-science-month/>
- CDC. (2024). Climate Effects on Health <https://www.cdc.gov/climate-health/php/effects/index.html>. Accessed June 14, 2024
- CDC Office of Policy, Performance, and Evaluation. (2024). Homepage. <https://www.cdc.gov/evaluation/index.htm>.
- City of Austin. (2022). Nature Smart Libraries. <https://experience.arcgis.com/experience/139670ca51b64775b5bb13435534d37a/page/Nature-Smart-Libraries/>.
- CREW: Communities Responding to Extreme Weather. (2024). What is a climate resilience hub? [https://www.climatecrew.org/resilience\\_hubs](https://www.climatecrew.org/resilience_hubs).
- CUNY: City University of New York Center for Urban Studies (2018 October 23). Public Libraries and the 2020 Census <https://www.gc.cuny.edu/center-urban-research/research-projects/census-2020/public-libraries-and-2020-census>
- EPA. (2024). Environmental Justice Grants, Funding and Technical Assistance. <https://www.epa.gov/environmentaljustice/environmental-justice-grants-funding-and-technical-assistance>.
- EPA. (2023). Climate Adaptation and EPA's role <https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role>. Accessed June 14, 2024
- Go! Austin/Vamos! Austin (GAVA), the City of Austin, UT Health of the University of Texas at Austin. (2023). Understanding Heat in North Austin, TX. <https://www.austintexas.gov/sites/default/files/files/GAVACommunity%20Heat%20Report%202022-2023.pdf>.

- Los Angeles Public Library (LAPL). (n.d.) Neighborhood Science. <https://lapl.org/neisci>.
- Massachusetts Library System. (2024). Blue Marble Librarians. <https://guides.masslibsystem.org/ClimatePrepWeek/BlueMarbleLibrarians>.
- National Academy of Medicine (n.d.) Grand Challenge on Climate Change, Human Health, and Equity. <https://nam.edu/programs/climate-change-and-human-health/>
- Pastor, M., Speer, P., Gupta, J., Han, H., & Ito, J. (2022). Community Power and Health Equity: Closing the Gap between Scholarship and Practice. *NAM perspectives*, 2022, 10.31478/202206c. <https://doi.org/10.31478/202206c>
- Patel, S.S. (2022). Incorporating Principles of Justice, Equity, Diversity and Inclusion in Climate Adaptation Planning. American Public Association (APHA), February 22, 2022, <https://www.apha.org/events-and-meetings/apha-calendar/webinar-events/2022/jedi-in-climate-adaptation-planning>.
- Public Health Accreditation Board. (2024). Homepage. <https://phaboard.org/>.
- Simon, M. A., O'Brian, C. A., Nava, M., Dahdouh, R., Wafford, Q. E., Mack, S., & Holmes, K. L. (2021). Public Libraries as Key Partners for Advancing Health Equity. *American journal of public health*, 111(1), 40–42. <https://doi.org/10.2105/AJPH.2020.306004>
- SLI: Sustainable Libraries Initiative. (2024). Homepage. <https://www.sustainablelibrariesinitiative.org/>.
- UC Center for Climate Justice. (2024). What is Climate Justice? <https://centerclimatejustice.universityofcalifornia.edu/what-is-climate-justice/#social-racial-environmental-justice>. accessed June 14, 2024.
- Urban Libraries Council (ULC). January 2023. *Food is a Right: Libraries and Food Justice*. [https://www.urbanlibraries.org/files/ULC-White-Paper\\_Food-is-a-Right\\_2023.pdf](https://www.urbanlibraries.org/files/ULC-White-Paper_Food-is-a-Right_2023.pdf)
- US Climate Resilience Toolkit (2024). Steps to Resilience Overview. <https://toolkit.climate.gov/steps-to-resilience/steps-resilience-overview>.
- USDA: United States Department of Agriculture. (2024). Climate Hubs Education (K-12). <https://www.climatehubs.usda.gov/commodity/education>.
- WebJunction & SLI: Sustainable Libraries Initiative (2023). Sustainable Libraries: Resources and webinars for climate action. <https://www.webjunction.org/news/webjunction/sustainable-libraries-resources-webinars.html>
- Westbrooks, E. (2024, May 3). *Why Democracy Needs Libraries*. Cornell University Library. <https://www.library.cornell.edu/about/news/why-democracy-needs-libraries/#:~:text=Trust%20in%20government%20is%20declining,two%2C%20along%20with%20the%20military>.
- Wheeler, N., & Watts, N. (2018). Climate Change: From Science to Practice. *Current environmental health reports*, 5(1), 170–178. <https://doi.org/10.1007/s40572-018-0187-y>
- World Health Organization (WHO). (2024) *Health Equity*. Retrieved June 14, 2024 from <https://www.who.int/health-topics/health-equity>