

Climate justice and health: Working together to achieve change

Kresge, RWJF supporting climate work Programs foster community resilience, health equity

FOUNDATIONS do not usually collaborate, even when the institutions have common interests and goals. But that is not the case for two major U.S. foundations focused on climate, health and social equity.

The Kresge Foundation and Robert Wood Johnson Foundation are exchanging ideas, reviewing each other's plans, sharing staff and collaborating at conferences to help ensure smooth operations and success of their respective public health and climate funding projects.

"Though we have separate funding, we are very aligned to what we are doing," said Alonzo Plough, MA, MPH, PhD, chief science officer and vice president of research, evaluation and learning at RWJF.

Both foundations are funding multiple projects devoted to fostering community resilience and improving health equity, responding to mountains of scientific evidence confirming that climate change is harming human health. The projects use a community-based approach to better understand health and climate, then build on the knowledge to advance human health outcomes.

"Climate change is a major threat to any vision of an equitable health future to anyone in the country or around the globe," Plough told *The Nation's Health*. "We recognize that climate change is the No. 1 health issue threatening the world. It is also a health equity issue that impacts marginalized communities the most."

The Kresge Foundation's health and environment programs are involved in a multi-year effort dedicated to building climate resilience through policies and practices that also improve community health. For several years, Kresge has had two national health and climate programs underway: one helps health systems and local health departments promote climate resilience and advocate for climate policies, and a second educates health care and public health practitioners on climate change's human health impact.

Launched in January

2019, Kresge's third national program is the Climate Change, Health and Equity Initiative, which is funding 15 organizations as they develop work plans to expand advocacy efforts in climate, health and equity.

"They are tasked with identifying policies in the places in which they work that would accelerate climate resilience and reduce health inequity," Shamar Bibbins, Kresge senior program officer of environment, told *The Nation's Health*.

In February, APHA staff joined Kresge grantees in Atlanta for discussions on the urgency of climate and health action across communities, health care systems and practitioners.

"I walked away from the convening with a sense that Kresge Foundation's multi-strategy approach aims to build power to promote equity and spur social change to address the health impacts of climate change," said Surili Patel, MS, director of APHA's Center for Climate, Health and Equity, who serves on the Kresge Foundation's Climate Change, Health and Equity Advisory Committee.

Among the work funded by the Kresge Foundation grants is Physicians for Social Responsibility in Los Angeles. Established in 1980, PSR-LA advocates for policies and practices that improve public health and reduce health disparities. Its early years focused on educating the public about dangers of nuclear war and weapons. In the 1990s, PSR's Los Angeles office broadened its work to include environmental issues. Today, a large share of its work involves climate and health.

PSR-LA provides support to physicians and health professionals who want to connect their



Photo by Max Herman, courtesy NurPhoto/Getty Images

Youth activists call for attention to climate change in Chicago in September. Making climate change stories personal can help people understand the issue and spur them to action.

Health workers effective messengers Personal storytelling key to climate communication

WHEN IT COMES TO CLIMATE CHANGE, few voices have captured the world's attention like those of young people.

"I think it's a combination of who we are and the message we're telling," said Zanagee Artis, who in the summer of 2017 co-founded the youth-led climate justice organization Zero Hour. "For us, this is an emergency."

With a goal of amplifying the voices of young people of color and those on the front lines of the climate crisis, Zero Hour recruits youth ambassadors from around the world to help educate communities about the roots of climate change and the importance of elevating equity in climate solutions. Artis, now a 20-year-old student at Brown University and Zero Hour's deputy advocacy director, said a key part of the group's communications strategy is highlighting how climate change affects people — versus just the environment — and why it disproportionately impacts communities already

struggling with historical and systemic inequities. Those messages, he said, have resonated with audiences.

"Centering equity is the most important thing we can do right now, because if we don't include everyone explicitly, then we'll lose a lot of organizing strength," Artis told *The Nation's Health*. "Talking about the impacts people will face in their lives and communities — I think that's the way forward, for sure."

As climate change becomes more

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Photo by Mike Painter, courtesy RWJF

People mix compost at Covenant Pathways Health and Climate Solutions project in Vanderwagen, New Mexico. Covenant Pathways received a grant from RWJF for the agriculture program.

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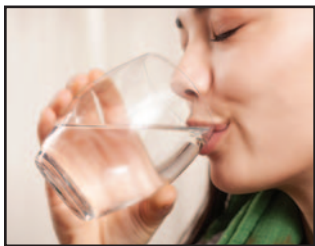


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Special section explores pressing issues Sharing knowledge at nexus of climate change, social justice

CLIMATE JUSTICE means different things to different people. To me, it means that everyone has the ability to achieve good health despite the devastation of climate change.

Climate change affects us where we live, work, worship and play. This makes it very personal and emotional.

At APHA, we believe that climate change is the biggest public health challenge of our time. I also believe that climate change offers an opportunity for hope and reinvention. It offers the chance to rethink what it means to be healthy and live in a community that supports this end.

But there are irrefutable challenges. Climate change poses catastrophic risks to human health and well-being. I often say that climate change is blind. It is blind to age, income, geography, race, gender and more because it will impact us all in one way or another over the course of our lifetimes.

What makes us different is our ability to bounce back after a climate event. Some communities have the resilience to recuperate after a major storm. Others will remain devastated for a long time and then face another weather event before fully recovering.

Some populations — such as children, the elderly and the poor — will also find it difficult to build resilience in the face of climate disaster. Children, for example, drink more water and breathe in more air per body unit than adults. Their organs and systems are still developing, and they depend on an adult for their care. All of these factors make them vulnerable to climate events, such as poor air quality following a wildfire.

On the other end of the age spectrum are older adults. They are prone to injuries and falls and may have preexisting health conditions, which could make it more difficult for them to navigate a flood. Then there are communi-

ties of color, who on a regular day could be faced with health inequities or literacy limitations, making it far more challenging to navigate threats such as mosquitoes. Low-income communities often lack infrastructure or capital investment, and have less resources to evacuate if necessary.

These are just a few examples of climate-sensitive populations in a long list that includes pregnant people, young athletes, people who are homeless and farmworkers. And no matter what population you are part of, mental health is at risk. Extreme storms or heat events can lead to depression, anger, aggression and even violent behavior.

So why can't we solve this with a pill or a visit to the doctor's office? It's because at least 80% of what it takes to achieve good health takes place outside of clinical interventions.

The ability to achieve a high school diploma, earn a living wage, live in an affordable home and enjoy green outdoor spaces influences our aptitude to achieve good health — as does access to medical care, reliable transportation and nutritious foods.

This special section of *The Nation's Health* is one avenue that offers a deeper dive in the climate and health equity discussion. The goal is to galvanize the public health field and share knowledge at the intersection of climate change and social justice.

There is strength in your voice, and power in our collective voices, to achieve climate justice. ■

— Surili Patel

Patel is director of APHA's Center for Climate, Health and Equity.



Photo by Kali9, courtesy iStockphoto

Reading together with children about environmental and climate change issues can inspire hope and action, not fear.

ECO Bookworms club helps adults talk to kids about climate change

FOR YOUNG CHILDREN, climate change can be overwhelming. Hearing about floods, droughts, fires and other increasing threats can make them feel afraid and hopeless.

But if kids learn about climate change in a non-threatening way and are shown what they can do about it, it can empower them instead.

Educating and inspiring children on climate change is one of the goals of APHA's new Early Climate Optimists Bookworms club. Launched in February by APHA's Center for Climate, Health and Equity, ECO Bookworms is geared toward readers ages 8 and younger.

On the second Tuesday of each month, a new book selection will be released, along with discussion questions that parents, teachers and other caregivers can discuss with children.

"We were very careful in selecting our books," said Surili Patel, MS, director of the Center for Climate, Health and Equity. "We looked for books that send a message of hope or action, are available in the public library system, include a diversity of characters and have a take-away that isn't scary or alarmist. We also asked other parents to share their favorite climate change, environmental or health books with us."

The first ECO Bookworms selection is "The Pout-Pout Fish Cleans Up the Ocean" by Deborah Diesen, which is published by Farrar, Straus and Giroux. In the book, a

group of fish notice pollution in the waters they live in and work to clean it up.

"This is one of my kids' favorite books and the one I talk most about with other parents," Patel said.

The inspiration for the book club came from discussions Patel had with other parents as she traveled around the U.S. for environment-related meetings. She and other parents would share ideas about books they read with their kids and realized that others would also be interested.

"Being a parent myself, I'm inspired by today's youth climate activists," she said. "We want the center to offer a way to talk about these issues with younger children as well."

ECO Bookworms fits in with work by the APHA center to train future generations to understand and take action on climate change. The center recently funded five student groups to create college campus experiences during National Public Health Week to elevate climate justice and health conversations.

In April, the Center for Climate, Health and Equity will launch a teaching climate change toolkit.

"It's geared to high school students and will offer teachers, school administrators and parents an age-appropriate way to discuss the health impacts of climate change at this grade level," Patel said.

For more information on ECO Bookworms, visit www.apha.org/climate. ■

— Michele Late

Health inequities, social determinants exacerbated by climate change

Minority communities harmed worst and first: Q&A with climate justice expert Adrienne Hollis

Communities of color are often on the front lines of the impacts of climate change. Adrienne Hollis, PhD, JD, is the senior climate justice and health scientist at the Union of Concerned Scientists, a nonprofit science advocacy organization. Hollis, an APHA member, works to monitor how rapidly the changing climate harms historically disenfranchised people.



Photo by Joe Raedle, courtesy Getty Images

Abigail Maldonado stands in ankle-deep water in her Puerto Rico home after heavy rains following Hurricane Maria in 2017. Flooding has become a growing health problem in the U.S and its territories as global temperatures hit record levels.

Climate change has long been recognized as an environmental crisis. Why is it also important to acknowledge it as a public health crisis?

You can't talk about climate change without talking about public health. Climate change affects our health in a number of ways. Rising temperatures, sea levels, extreme weather — they affect us.

You see increased incidents of asthma in children. In adults, there are increased chronic obstructive pulmonary diseases, increased cardiac effects. It affects our food, and the ability to eat healthy foods. If you're allergic to certain things — in the presence of increased heat, those things may be exacerbated. Water quality is an issue. We could see more contaminated drinking water or the lack of drinking water.

I also want to point out that when we talk about public health, we also want to include mental health issues. People don't normally think about that, how forced migration can affect a person, increased depression and increased violence against women, increased civil conflicts, or how needed medications and medical care is unable to be accessed by the homeless population

or people who are forced to migrate.

What is climate justice, and how does it relate to public health?

I view climate justice as a smaller part of environmental justice. If you could imagine an umbrella — and that would be environmental justice — climate justice, immigration justice, criminal justice and so on fall under that because those are the areas we live, play, pray, work and just carry on our daily lives.

When we talk specifically about climate justice, we're talking about the effect of manmade changes in our environment, like increased greenhouse gases, increased heat and melting glaciers. And how those changes have greater impact on vulnerable communities, communities of color and lower socio-economic communities.

People don't realize that contamination, climate change, water infiltration, rising seas don't stay contained in the environmental justice commu-

nity. Just like contamination doesn't know to stay behind the fence line. If it's not impacting you now, it will. These communities are hit first and worst. It doesn't mean they'll be the only ones impacted. If for no other reason than to save yourself, we've got to save each other.

How are communities of color disproportionately affected by climate change?

Let's take a step back to how communities have been segregated into communities of color. It's mostly the way that we have been segregated and forced into certain areas of the country — and then to certain parts of a city or state — that has put us at risk. Through redlining and things of that nature, people have been placed in areas once considered to be less desirable.

“For public health professionals, no matter what area you are engaged in, make sure that an integral part of your work is environmental justice.”

— Adrienne Hollis

For example, I'm from Mobile, Alabama, and a number of communities are located near waterways that have since become at high risk of flooding

due to sea level rise and extreme weather. Some of my colleagues in the Carolinas along the coastline live in areas that were not originally designated as floodplains but are now because of sea level rise.

And not to mention the fact that because of those redlining issues, we have been victims of economic oppression.

We can't afford to raise our homes as required by some insurance companies. Or we live in areas that consist of high-rise buildings, so we are exposed to increased heat through the urban heat island effect. The areas we

live in don't have, for the most part, access to green space, so we're not able to experience relief from extreme temperatures because we can go to the park or sit under a tree. And that is because of where we have been concentrated, either in cities or low-lying areas or places that just aren't really recognized as economically viable.

Is there anything that can or should be done from a policy standpoint?

Yes, there are things that can be done from a policy perspective. And to do that, policymakers first have to all accept that climate change is real, right?

And once we've crossed that hurdle we're on our way to enacting the change that we need.

Policymakers are going to need to work with all of the stakeholders — the people who are going to be affected adversely by climate change. You've got to hear from people who are impacted. And then you work with the scientific community on ways we can mitigate the adverse effects of climate change.

The overall goal is to decrease the carbon dioxide in the environment and decrease the greenhouse gas production. These things affect everybody, really. We've got to make a concerted effort to work together to clean up the environment. That's really the bottom line.

How can people working in public health mitigate the dangers that climate change brings to these communities?

Education. Outreach and education is the first step. Part of that is health professionals recognizing what the threat looks like so that they can educate their communities. And in that way people have more information, and they can make more informed decisions.

For example, you would expect to see

increased cases of asthma, say, in California, particularly during wildfires.

For public health professionals, no matter what area you are engaged in, make sure that an integral part of your

work is environmental justice. Particularly as it relates to climate change, some of your activities need to be focused on vulnerable communities, homeless, those in prisons, gender issues and issues around the availability of shelters. I just want everybody to think outside the box and ask questions: “Who is most likely affected first? And what do we need to do to stop that? And what do we need to do to educate people and increase the whole base of people that we work with?” ■

— Interview conducted, edited and condensed by Aaron Warnick

For more information, visit www.ucsusa.org.



Adrienne Hollis



Photo by Win McNamee, courtesy Getty Images

Thomas Walker cleans up the grounds of a church destroyed by Hurricane Katrina in Biloxi, Mississippi, in 2005. Rising temperatures amplify extreme weather, which tends to damage disadvantaged communities the most and worsen health inequities.

Community-led programs focusing on climate resilience, health equity

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experience and education to environmental policy objectives. The organization uses a variety of tools to impact public policy outcomes, including policy development, legislative education, media advocacy and litigation.

Another program receiving a Kresge planning grant is the Coalition for Environment, Equity and Resilience in Houston, Texas, made up of over 20 nonprofits that came together in the aftermath of Hurricane Harvey.

The hurricane struck Louisiana and Texas in August 2017. Flooding in the Houston area contaminated water and land systems and damaged homes, particularly in low-income communities. The coalition works to influence Houston decisionmakers and promote equity and resilience. Of particular interest is improving housing policies in disadvantaged neighborhoods.

“I think they are doing some fantastic work,” Bibbins said. “The city is in the process of developing a climate action plan, so they are really in a square dead-on position to influence what the city actually puts in that climate action plan.”

In October, 12 of the 15 organizations will receive Kresge funding for three years to implement their work plan.

“Overall, we are looking to increase public support and political will that will drive the adoption and implementation of climate policy and programs and investments at the local and regional level,” Bibbins said. “The goal is that programs will improve public health for low-income urban communities.”

The Robert Wood Johnson Foundation also is funding several health and climate programs. One is the Health and Climate Solutions project, which is supporting seven organizations with two-year grants. Six are receiving \$350,000

and one is receiving \$200,000, Priya Gandhi, MS, RWJF research associate, told *The Nation's Health*.

Similar to Kresge’s program, RWJF’s grantees already have a strong track record of effective climate, health and equity advocacy, but they are in need of funding to expand their work.

Each grantee seeks to achieve three goals: create opportunities for better health, advance health equity and develop ways to lessen the impact of climate change on people, Plough said. The programs develop and amplify the evidence around a set of approaches that improve community health and well-being and advance health equity.

Understanding each program’s community-driven method for success is a big part of the Health and Climate Solutions project.

“We are studying them to understand how they were able to make a change both in broader awareness about the impact of climate on health, particularly as an equity issue, and more awareness of the critical importance of addressing climate change,” Plough said. “We make sure we can disseminate and share the knowledge from our grants to catalyze other activities.”

The community-based programs are focused on air quality, energy sources, transportation and mobility design, food and water systems, housing, health systems, and other areas related to health and the environment.

One grantee is the Alaska Native Tribal Health Consortium in Anchorage, Alaska. Climate change is causing rising seas and melting permafrost, and some Alaska coastal villages are now puddled in salt water, polluting fresh water storages. Meanwhile, village land is eroding and damaging infrastructure. The consortium is evaluating the health impact of installing portable water sanitation systems in 69 homes in two low-income coastal Alaska Native communities.

As seas continue to rise globally, the work could



Photo courtesy the Kresge Foundation

WE ACT for Environmental Justice, one of 15 organizations to receive a grant from the Kresge Foundation, marches in Washington, D.C., in 2017. WE ACT advances policy solutions to improve climate resilience and human health.

offer ways to help people at coastal sites in the continental U.S.

Another grantee is the City of Austin for its Green School Parks program, a collaboration between Austin schools, the Parks and Recreation Department and two Texas universities.

Climate change is creating higher temperatures in many parts of the U.S., including Texas, causing heat stress and other heat-related human health problems. Higher temperatures can also mean children and adults stay in their homes more, getting less exercise.

Three elementary schools have been chosen for the Green School Parks program. All are in low-income Hispanic neighborhoods with little green space and few sidewalks. Workers are planting trees and gardens in school playgrounds to create a shady canopy to lower daytime temperatures.

In addition, several grantees in the Health and Climate Solutions project are developing better agriculture practices to improve the quality of crops, enrich soil, reduce the climate footprint of agriculture, and fortify crops to withstand flooding, drought and heat caused by climate change.

One of the agriculture programs is the Covenant Pathways Health and Climate Solutions project in Vanderwagen, New Mexico. Based on a Navajo reservation, it is centered at Spirit Farm, a working demonstration agriculture site involved in soil con-

servation and restoration. The work is important because much of U.S. soil has been degraded by agriculture, and better soil means healthier crop production.

Covenant Pathways is led by Navajo people who teach regenerative agricultural practices to traditional Navajo farmers at a time when climate change is making agriculture difficult in the region. As Navajo farmers learn modern farming and conservation, scientists are also learning as well.

At Spirit Farm, organizers “value guardianship of the land, including the soil, as something sacred,” Ed Maibach, PhD, MPH, director of the George Mason University Center for Climate Change Communication, said in a blog post after a recent visit to Spirit Farm. The center has an RWJF grant to provide strategic communication and administrative support to the seven grantees.

“It’s a powerful reminder of the humbling and perhaps most fundamental insight Native American culture shares with the social determinants model in the era of climate change, that our health and well-being are inextricably dependent on the health of the world we inhabit,” Maibach wrote.

For more information on the Kresge program, visit www.kresge.org/CCHE. For more on the RWJF climate program, visit www.rwjf.org. Learn about APHA’s work on climate change and health at www.apha.org/climate. ■

— Mark Barna

COMING SOON!

Climate Change and Health Playbook:

Adaptation Planning for Justice, Equity, Diversity and Inclusion

CDC framework supports resilience BRACE helping health agencies prepare for climate change effects

AS SCIENTIFIC EVIDENCE mounts showing the impact of climate change on human health, U.S. public health agencies are stepping up to develop programs to reduce and prevent risks.

To aid them, the Centers for Disease Control and Prevention created the Building Resilience Against Climate Effects framework. BRACE helps health leaders pinpoint and even predict how climate change will affect their respective regions, then formulate a plan to protect residents, especially people who are most vulnerable.

CDC's Climate-Ready States and Cities Initiative is funding 18 U.S. BRACE programs in 16 states over five years. Among them is BRACE-Illinois, based at the University of Illinois at Chicago's School of Public Health. The five-step program is helping local health departments prevent and contain tick- and mosquito-borne diseases, which warming temperatures from climate change have made a growing concern.

Meanwhile, the Oregon Climate and Health Program, overseen by the Oregon Health Authority, is tackling the health effects of the state's wildfires, which create thick smoke that can cause respiratory and cardiovascular illnesses. The program is also creating resources on how to protect people from smoke inhalation and working with community-

based organizations that serve populations most vulnerable to climate risks, such as seniors and people with asthma.

"Climate change will undoubtedly increase health disparities," Surili Patel, MS, director of APHA's Center for Climate, Health and Equity, told *The Nation's Health*. "And a lot of what goes into achieving good health occurs outside of the clinical setting. These social determinants of health are addressed by many of the climate adaptation plans developed across the country."

The BRACE framework enables grantees to identify and flesh out projects involving climate and public health. Among the goals are to anticipate climate impacts, assess vulnerabilities and create plans to address them.

For example, participants use data sources to gain insight into how climate change is harming human health in their states, such as through flooding and air pollution.

In Florida, health officials are concerned with issues that include extreme weather, wildfires and water-borne diseases, which are linked to aller-

gies, asthma, stroke and more. The Florida Building Resilience Against Climate Effects Program began its funding period in 2017.

Based at Florida State University, the program covers the entire state, an ambitious task as Florida has three climate regions with distinct challenges.

FL BRACE offers assistance and funding for county health departments, especially those serving vulnerable populations, such as seniors, coastal-community residents or both. For example, the Sarasota County Health Department in southwest

Florida is receiving aid from FL BRACE to identify county communication and transportation needs to protect residents with mobility limitations in the event of a storm.

"Climate change presents challenges and threats to everyone's health, but some groups are more impacted," Chris Uejio, PhD, principal investigator at FL BRACE, told *The Nation's Health*. "Those populations are of concern during a disaster."

The BRACE system has worked well in Florida, said FL BRACE communications leader Tracy Ippolito. But implementation challenges remain. One is that public health workers at county health departments are inconsistent in completing evaluations, as recommended in the BRACE framework.

"If we are going to move from this mindset of being reactive to being proactive, that info is key," Ippolito told *The Nation's Health*. "But it is neglected because they are usually on to the next crisis, and opportunities to learn get missed."

APHA's "Adaptation in Action: Part II" report, updated in 2018, shares additional success stories from the BRACE program. To read the report, visit www.apha.org/climate. To learn more about BRACE, visit www.cdc.gov/climateandhealth. ■

— Mark Barna

Public health needs to play crucial role in energy justice

ENERGY JUSTICE is a public health issue, which is why APHA is working to elevate public health and health equity in discussions to create a cleaner energy economy. By pursuing energy justice as a priority, public health professionals can play a role in both challenging health inequities and mitigating climate change.

The U.S. energy sector is in a massive state of transition. The coal industry has been declining for decades due to increased use of lower-cost natural gas, more renewable energy options and policies designed to control greenhouse gas emissions.

At the same time, the global production peak for petroleum is becoming imminent.

As alternative energies become cost competitive, there is a need to monitor, evaluate and support a transition to a healthier energy supply. In the same way that climate change disproportionately affects certain populations, so does energy access.

Communities that are most affected by environmental harms and risks — such as people of color and low-income households — are further impacted by energy-related inequities. For example, people who live near extraction and combustion sites often have health effects from air pollution and improper waste disposal.

There are also disparities in energy access. In 2015, 31% of U.S. households said they struggled to pay energy bills or to maintain adequate heating and cooling in their homes.

About 20% said they skipped or cut back on basic necessities such as food and medicine to pay an energy bill. Energy-insecure populations have poorer health, fewer educational opportunities, limited political representation, fewer economic opportunities and inadequate access to health care.

With these health impacts in mind, APHA's Center for Climate, Health and Equity hosted a discussion with public health

and climate action leaders at APHA's 2019 Annual Meeting and Expo. We examined public health's role in the energy justice space and what a just energy future would look like.

The clearest priority that emerged was the need to support a culture change that prioritizes a just energy economy. Across our policies and financial systems, leaders must shift to a paradigm that values human well-being and an equal sharing of the risks and benefits of energy production and consumption.

As APHA pursues energy justice, we can serve as cross-sectoral conveners and elevate voices from affected communities. We can develop

resources and trainings on energy justice to equip public health professionals with the tools to confront related health inequities, and we can develop and support national and state energy policy that centers on health, equity and justice.

Working on energy justice as a public health issue is a win-win for everyone, and we are only beginning our commitment on the topic.

With a strong foothold in the climate adaptation sphere, APHA is expanding its climate mitigation portfolio through energy justice. We are eager to build and deepen partnerships to strengthen our efforts.

With the passion and expertise of APHA's membership and partners behind this issue, we can make significant, lasting progress toward an energy-just future. ■

— Rachel McMonagle

McMonagle is climate change program manager within APHA's Center for Climate, Health and Equity.



Photo by Joe Raedle, courtesy Getty Images

Heavy rains cause major flooding in Hollywood, Florida, in December 2019. The Centers for Disease Control and Prevention has created a framework to aid state health agencies in helping people with climate-related health and social issues.

Making climate change personal improves understanding

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urgent, finding effective methods for talking about it in ways that resonate, engage and motivate people to action has become increasingly important. Initially, such conversations were more challenging, as climate impacts often seemed remote and far off, said Meighen Speiser, executive director of ecoAmerica. Now, as communities around the world face new extremes in temperature, weather and disasters, such impacts are no longer so abstract. The unfortunate silver lining is that it also makes it easier to personalize the climate story, which is a particularly effective form of engagement.

“Climate change has come home to roost, and people are experiencing it in their daily lives,” Speiser said. “We’re in a moment right now in which good communication is absolutely key.”

Based on research and the real-life experiences of



Photo by Ajr_images, courtesy iStockphoto

When climate change is framed in terms of the personal health effects, people are more receptive to messaging on the topic.

its grassroots partners, ecoAmerica recommends a number of steps for effective climate communication, such as identifying and connecting on common values, focusing on local realities, avoiding doom and gloom, and emphasizing solutions. Health, in particular, tends to resonate with people, Speiser said. In fact, an ecoAmerica poll released last year found that over half of Americans reported experiencing cli-

mate-related health impacts, and 90% believed people have a “moral responsibility” to ensure a safe and healthy climate. Sixty-six percent agreed that if the U.S. took steps to prevent climate change, it would also benefit health.

Not only does health resonate with audiences, public health professionals are particularly good climate messengers as well, said Edward Maibach, PhD, MPH, director of the Center for Climate Change Communication at George Mason University.

“We (health professionals) are trusted,” said Maibach, an APHA member. “But we need to get on with the business of sharing what we know much more frequently, much more assertively. Other voices are working hard to confuse the public and policymakers about climate change. We need to speak up and speak out.”

While public health professionals may be well-versed in the research behind climate change, Maibach cautioned against leading with climate science. Instead, he recommended simple, clear explanations about the myriad ways climate change is already harming people’s health, as well as equally clear and simple explanations about actions people can take to protect their health — “numbers numb, but stories sell,” he added. At the same time, he said lies and misinformation about climate change should not go unchallenged.

“We should tackle them head on and set the record straight,” he said. “(Health professionals) are highly

trusted, so it’s absolutely critical that we debunk and rebut.”

Maibach noted that only one-third of Americans see themselves as environmentalists, while almost everyone cares about health.

“The way to make climate change personal is to show people how climate change threatens the health of their loved ones and other members of their community, especially children,” he told *The Nation’s Health*. “Even more importantly, the way to get people excited about climate solutions is to show them how such solutions — like clean energy — will immediately help everyone live more healthfully and breathe more easily.”

Until relatively recently, many scientists believed that if people simply understood the science on an issue, it would be enough for them to take action, said Julia Hathaway, PhD, MEM, a postdoctoral researcher with the Alda Center for Communicating Science at Stony Brook University. The theory is known as the information deficit model and assumes that people are “empty vessels and if we just provide them with the right information, it’ll make a difference,” she said. But research shows that facts are not always successful at changing hearts and minds. On top of that, some people have been effective at sowing doubt about climate change.

“We tend to interpret facts in accordance with our cultural attachments — we want the world to be as we understand it,” Hathaway told *The Nation’s Health*. “It’s really hard to communicate science in a way that people can engage with on a personal level. In that way, the public health frame can be a great way to connect.”

Putting a public health frame on climate change reaches people where they are and offers them actionable information, she said, such as suggestions to walk more and drive less, which produces benefits for both personal health and the local environment.

“We all know people who are being affected by climate change right now, but the challenge is to help

them validate what they’re feeling with the science,” Hathaway said. “Those personal stories are so meaningful — they reach us at a level that’s really, really powerful.”

APHA’s Center for Climate, Health and Equity is helping public health professionals learn how to more effectively use personal stories to talk about climate change through its new workshop. Previewed at a national environmental conference in January, APHA’s Making Climate Change Personal workshop illustrates how stories about climate change’s impact on human health, and the solutions that address it, can be a more effective advocacy tool. The workshop will be taught at several more conferences this year.

“When told well, stories change lives,” said Louise Dettman, APHA communications specialist. “We all have a responsibility to share what we know and what can be done about climate change in a way that everyone can hear.”

Like so many other communication challenges, talking effectively about climate change means knowing one’s audience, said Olena Alec, MPA, director of engagement at the Climate Reality Project, which supports more than 21,000 climate activists in 154 countries. For too long, she said, the complexity of climate science may have scared people away from becoming voices for climate action in their communities. But the reality is that climate change is now part of common experience.

When training local climate advocates, Alec said the project emphasizes two main points. First, learn about the climate impacts and solutions most relevant to the audience — “that’s how you make it personal.” Second, relay the urgency of climate change while also offering hope.

“Every single person can be an effective communicator about the climate crisis,” Alec told *The Nation’s Health*.

For more on climate change communication, visit www.climatechange.org. For more on work by APHA’s Center for Climate, Health and Equity, visit www.apha.org/climate. ■

— Kim Krisberg

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Livelihoods, economies at growing risk

US tribes working to adapt in face of climate change threats

NOT FAR FROM the Arctic Ocean in the middle of one of Alaska's busiest oil fields, the small village of Nuiqsut is at the epicenter of the climate crisis, facing threats from both the cause and effects of climate change.

"We're seeing it firsthand," said Rosemary Ahtuanguaruak, an Inupiaq activist and member of the Nuiqsut City Council. "The amount of change we're going through is very concerning."

Nuiqsut is already experiencing shifts in the local environment, such as earlier thaws and warmer temperatures, which are making it harder to sustain traditional ways of survival, Ahtuanguaruak said. Ice cellars, for example, which have been used for generations to safely store food in leaner months, are succumbing to erosion and flooding. Unseasonable weather is making it harder to dry fish and meat, and it is getting more difficult to hunt whales and caribou, both key sources of affordable food and nutrition.

The town has grocery stores, but prices are high because everything has to be airlifted in.

"You could spend your whole paycheck and still

not feed your family," Ahtuanguaruak, an APHA member, told *The Nation's Health*. "And it doesn't even have the nutritional value we need for our harsh environment."

As climate change continues, tribal communities like Nuiqsut are especially vulnerable to its direct and indirect impacts. According to the U.S. Global Change Research Program, the changes threaten indigenous peoples' livelihoods and economies. Such disproportionate impacts, coupled with existing disparities in health and opportunity, make climate planning and adaptation critical.

"Because of the unique relationship that tribal communities have with the land, climate change poses a real threat to their ways of life."

— Ivana Castellanos

of the unique relationship that tribal communities have with the land, climate change

poses a real threat to their ways of life," said Ivana Castellanos, MPH, a policy analyst at APHA's Center for Public Health Policy, which convenes the Tribal Public and Environmental Health Think Tank. "We have to do more to be inclusive of traditional knowledge as a valued resource in the fight against climate change."

At the National Indian Health Board, the Climate Ready Tribes Initiative, a program funded by the

Centers for Disease Control and Prevention, has supported 10 tribes in conducting local climate work and research, according to Angelica Al Janabi, MPH, the initiative's public health project coordinator. Efforts range from climate-related health research to community outreach and education.

For example, Blackfeet Nation in Montana convened a climate-health advisory team of tribal representatives, and developed a climate communications plan to guide its outreach. The Swinomish Indian Tribal Community in Washington indigenized CDC's Building Resilience Against Climate Effects framework to make it more relevant to tribal needs and created modules fellow tribes can use. And the Lummi Nation, also in Washington, used funds to boost monitoring and education related to harmful algae blooms.

"In many ways, tribes are leading the way in this area," Janabi told *The Nation's Health*. "But at the same time, we do need more funding to maintain and grow this work."

In the northwest corner of California, traditional knowledge and practices are key to the Karuk Tribe's new climate adaptation plan, which it released last year. For example, the plan elevates traditional fire use as a solution to increasing wildfire risks, said Bill Tripp, deputy director of eco-cultural revitalization at the tribe's Department of Natural Resources. For a century, he said, the tribe has been prohibited from maintaining local forests using indigenous fire regimes and over time, that absence helped create the conditions for massive wildfires.

"What's unique about our plan is our proposal to once again embrace fire as a part of our natural system," Tripp told *The Nation's Health*.

The tribe's first demonstration project, created in concert with the new climate plan, is now underway and focuses on integrated fire management.

For more on tribal health and climate change, visit bit.ly/healthtribes. For more on the tribal think tank, visit www.apha.org. ■

— Kim Krisberg



Photo by Josh Edelson, courtesy AFP via Getty Images

The Spainhower family lost their home in the Camp Fire in Paradise, California, in 2018. Climate-related extreme weather is harming the mental well-being of many people, a study says.

Climate change threatens mental health of vulnerable communities

MORE THAN two-thirds of U.S. adults say they have some anxiety about climate change, while nearly half of young adults say stress about the global phenomenon impacts their daily lives.

The polling statistics — released by the American Psychological Association in early February — are among the latest to highlight the mental health effects of a changing climate. The numbers build on previous work showing several pathways through which climate change impacts mental well-being, from the mental health consequences of more severe and frequent natural disasters to research finding that people already living with mental illness face greater health risks due to extreme heat. Like so many other climate impacts, mental health stressors will likely hit disadvantaged communities the hardest.

"Communities with fewer resources also have a harder time dealing with events like floods and fires," said Lynn Bufka, PhD, senior director for practice research and policy at the American Psychological Association. "If a community doesn't have the resources it needs to recover from climate-related problems, that's an added layer of stress."

Climate-related mental health impacts include increases in the incidence of stress, anxiety and depression, as well as increases in more severe mental health problems such as post-traumatic stress disorder. Women,

children and older adults tend to be particularly vulnerable to such impacts, especially those related to stress and anxiety. First responders, such as firefighters and health workers, also face an increased risk of climate-related mental health consequences, including short- and long-term substance use.

In 2016, the U.S. Global Change Research Program described the threat of climate change as a "key psychological and emotional stressor," with people impacted by both direct experiences with climate-related events and via exposure to climate change information and news.

"We're certainly seeing a lot of anxiety around climate change," Bufka told *The Nation's Health*. "Especially among (young people), there's lots of fear about what the future holds."

While progress is being made to consider mental health needs in climate planning, Bufka noted that the country's mental health workforce is already struggling to meet everyday needs. In the meantime, there are ways to cope, such as taking personal actions to mitigate climate change, Bufka said.

"You can't stamp out hope for change," she said. "If people feel hopeless, it'll be very hard to make the changes that are needed."

For more on climate and mental health, visit www.apa.org. ■

— Kim Krisberg



Photo by Bonnie Jo Mount, courtesy The Washington Post/Getty Images

Eunice Brower cleans waterfowl with her daughter in their home in Nuiqsut, Alaska, in May 2019. Warmer temperatures in the village caused by climate change make it more difficult to hunt certain animals and keep food fresh in ice cellars.

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Access to water linked to health equity Water quality, availability made worse by climate change in US

PROTECTING the nation's drinking water is already a daunting task, and climate change is expected to make it even harder.

"Climate change isn't necessarily causing all the drinking water problems we experience, but it is exacerbating them," said Laura Feinstein, PhD, a senior researcher at the Pacific Institute in Oakland, California. "It's going to take advantage of the vulnerabilities already in the system."

The institute is one of many organizations and agencies studying the impacts of climate change on water and the systems charged with pumping safe drinking water into people's homes. According to the U.N., water is the primary medium through which people will experience the effects of climate change, with warmer temperatures shaping the amount, distribution and quality of available water. In the U.S., for example, communities in the Northeast and Midwest are likely to experience more rain and runoff, which can lead to greater flood risks. In other parts of the country, longer, more severe droughts are expected.

Compounding climate effects on the natural water cycle is an aging drinking water infrastructure and a patchwork of water systems of varying capacity and preparedness. In California, for instance, the vast majority of water systems are medium to small ones,

Feinstein said, with about 400 systems serving most of the state's population. The problem is that systems that serve only a few thousand residents typically lack the resources to prepare for and adapt to climate change.

During California's hottest drought on record, which lasted from 2012 to 2016, about 150 small- and medium-sized utilities reported impending shortages and many had to rely on water being trucked in from elsewhere, she said, while residents had to restrict their water use. The strain was especially acute in already disadvantaged communities, some of which were forced to pay drought surcharges, exacerbating affordability issues.

"The communities most vulnerable are relatively small, rural and economically disadvantaged," Feinstein told *The Nation's Health*. "There's a compounding effect when you have a small number of paying customers — it limits the system's capacity to do things like build in access to emergency water supplies and maintain the water treatment infrastructure."

A solution, she said, is to consolidate smaller water systems into larger ones —

an idea the U.S. Environmental Protection Agency supports as well. Last year, California lawmakers created the Safe and Affordable Drinking Water Fund to help water systems in the state maintain an adequate and safe supply of water, and to support consolidation efforts.

Among the many groups that support California's new drinking water fund is the Water Equity and Climate Resilience Caucus, which launched in 2018 to build a national network focused on frontline communities of color and low-income communities.

According to the caucus, millions of Americans are

already being served by water systems with health-based violations, while federal funding for water and wastewater utilities has declined nearly four-fold

between 1980 and 2014. Climate change will only exacerbate such vulnerabilities, with low-income and minority communities hit disproportionately hard, said Ronda Chapman, a senior associate at PolicyLink, which co-convenes the caucus.

To confront the problem, the caucus is organizing face-to-face meetings between its members and members of Congress in the hopes of elevating equity issues within climate planning and mitigation efforts.

"This is a question of access," Chapman told *The Nation's Health*. "When we have communities already living through these realities, they don't have the time or relationships to make these demands. But the caucus can help make sure they get heard."

Both Chapman and Feinstein said there is room for change; however, the time to act is now.

"This work needed to happen decades ago, so that's the level of urgency we're at now," Chapman said. "We need to get moving."

To learn more, visit www.pacinst.org or www.policylink.org.

— Kim Krisberg



Photo by Izzetugutmen, courtesy iStockphoto

Water is the primary way people will experience the effects of climate change, the U.N. says.



Photo by Zstockphotos, courtesy iStockphoto

Water pumps sit idle in La Grange, California, in 2015 due to a severe drought. At the time, the state was in the midst of its hottest drought on record, resulting in water rationing.