Climate and Health Communications

"The main thing we can do about climate change right now is talk about it."[1]

– Bill Nye the Science Guy, 2016

Communicating about climate change and health requires the same public health communications skills that local health departments deploy every day in communicating about other complex public health issues. This section provides a brief discussion of crafting climate and health messages, some tips on climate and health communication, ideas about what LHDs can do to expand communication on climate and health, and sample language to integrate climate change into routine LHD messages.

The Role of Local Health Departments

Communicating accurate and timely public health information in a manner that can be interpreted appropriately and acted on by individuals, policy makers, and society is a core function of public health.[2] As trusted sources of health expertise, serving the most vulnerable and impacted communities, LHDs are uniquely positioned to help people understand that climate change is a serious and urgent health challenge and exacerbates health inequities, and that taking action on climate change benefits health. Local health departments have a professional responsibility to inform communities about the health risks of climate change and how to lessen them, and to foster and support climate action.[3]

Climate science ***is*** complex and there ***are*** many unknowns about our climate future. But you do not need to be an expert on climate science nor be able to forecast precise future impacts to talk about climate change and health. Most people in the U.S. already believe that climate change is happening.

"It turns out that the results of the fundamental material science of the environment are not sufficient to change enough brains."[9]

– George Lakoff

What Americans think about climate change

70% of Americans age 18–34 and 56% of Americans age 55 and older are worried about climate change and believe that global warming is happening, and more than 40% say they have personally experienced the effects of global warming.[4,5,6] Over 95% of Americans, agree (78% strongly so) that we have a moral responsibility to be good stewards of nature.[7] See the Yale Climate Opinion Maps to learn more.[8]

However, information alone is not sufficient to build the social and political will to vigorously tackle climate change. Prior public health success stories (think tobacco) demonstrate that social transformation requires a communication narrative that moves people to action and is linked to strategies for policy and systems change. Building will for climate action requires that more people connect climate change with their own lives and values, see change as possible, and see paths to join with others to take and demand action.[10] Effective communication is informed by impacted communities and serves to ***support*** advocacy and organizing to advance a robust agenda for change.

We're In This Together

"Yet if we ignore the dynamics of race and power, we are unlikely to devise climate solutions that benefit those who are most impacted or ensure solutions accessible to all. And if we do not hear, engage, and authentically include those most impacted, we will not benefit from the knowledge and ingenuity required to build climate resilience and move toward a just transition. ***The tension between transactional/technical and transformative approaches to climate change solutions informs very different communications strategies.*** Technical solutions alone will not achieve a society that is sustainable, equitable, and more harmonious with nature. That will require real democracy, full inclusion, and a social movement that addresses justice and climate change together."[11]

– Makani Themba

People interpret information through the lens of their own values and cultural identities. A core value underlying today's public health practice is that health is a ***collective*** responsibility. It takes societal and governmental action to make the policy, systems, and environmental changes required to address health inequities and the social determinants of health.

Frames are "interpretive storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who or what might be responsible for it, and what should be done about it".[12] In the United States, the starting point for most people—their default frame— is that individuals must solve problems for themselves without involvement from government. This "you're on your own" frame focuses on what individuals can do in their own lives and households, and minimizes the importance of collective action for policy and systems change.[13]

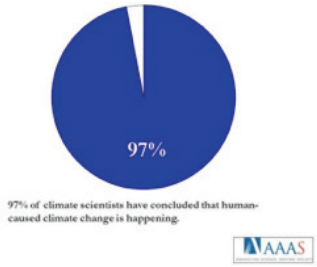
Public health communicators must start with a narrative of cooperation—"we're in this together"—that rallies people around a common cause, reframes the response to a problem from "What can ***I*** do?" to ""What can ***we*** do?" and helps people see how they can participate as ***social*** actors in defining problems and implementing solutions.[14]

Climate and Health Messages

There are many frames used in climate change communications, including environmental (glaciers and polar bears), economic, national security, preparedness, and health.[16,17] Fortunately for LHDs, there is evidence suggesting that a health frame engenders support for climate action.[18]

Climate and health messages are constructed like other public health messages. No single message can incorporate all of the information about climate change or its many solutions, but it is helpful to include language that reminds people about the scientific consensus on climate change.[19,20]

- **97% of scientists agree:** human caused climate change is happening



Public Health Messages[15]

- Establish or trigger an "environmental frame" that the places people live, work, and play affect their health.
- State values that allow people to connect your message with commonly held values such as fairness, opportunity, efficiency, and equality.
- State the problem and solution clearly so that the audience understands the need for unified societal action and specifically what you want them to do.

Environmental Trigger + Solution + Values = Public Health Message

Here's an example of a public health message that begins with an environmental trigger and uses the values of fairness and opportunity to promote more parks.

"Well-maintained parks provide people with safe places to play and be active. It's not right that children in some of our neighborhoods have plenty of nice parks and playgrounds nearby while others have none. That's why we are working with the Parks Agency to make sure there are sufficient funds to build new parks and playgrounds so that all children in our community have the opportunity for safe play and physical activity."

Climate and health messages:

- Establish or trigger an "environmental frame" to remind people that our health and well-being depend on clean air and water, healthy food, and a stable climate.
- State your values to allow people to connect your message with shared values such as fairness, opportunity, protection, preparedness, equality, responsibility, leaving the world a better place for our children.
- State the problem and solution clearly so that your audience understands the need for unified societal action, and specifically what you want them to do and when you want them to do it.
- Affirm that scientists agree that climate change is real, human caused, harmful, and solvable.

Environmental Trigger + Solution + Values + Scientists Agree = Climate and Health Message

Here are some examples of climate and health messages that use this message equation.

Fossil fuels, air pollution, and climate change

Everyone should have the opportunity for good health and a long life, but pollution from burning dirty fossil fuels for electricity is stripping whole communities of that opportunity. Pollution is dirtying the air, and scientists agree that burning fossil fuels is causing harmful climate change. At the health department, we have a responsibility to

protect our children, seniors, and most vulnerable communities from the health effects of air pollution and climate change. It may seem daunting but in fact we can make headway by supporting the city council proposal to put solar panels on all city buildings. That will speed our transition to clean and renewable energy, reduce our reliance on dirty fossil fuels, and improve our community's health.

Diesel pollution, climate change, and asthma

Our job at the health department is to protect the health of everyone in our community, particularly those who already bear disproportionate health burdens. Children in the Longview neighborhood are exposed to diesel pollution from nearby roadways and it is making them sick. Our latest data show that Longview children have higher rates of asthma than children in other parts of the city, and that they are missing school due to asthma attacks. This isn't surprising since older diesel trucks spew out air chemicals that cause air pollution. 97% of climate scientists agree that climate change is already happening and climate change also makes air pollution worse. Fortunately we have something we can do right now, in our own backyard, that will help the planet and help the children in Longview. A new low-interest loan program to help truckers purchase new, clean engines could significantly lower diesel pollution exposure in that neighborhood and increase economic opportunity.

Trees, urban heat islands, and equity

97% of climate scientists agree that climate change is happening now, and we can see that here in Warm Springs where our summers are getting hotter. Our job in the health department is to protect people from extreme heat—especially children and the elderly. Trees provide cooling shade and reduce the risk of heat illness. It's not fair that in some Warm Springs neighborhoods there are plenty of trees while others have almost none. We need your support so the health department and public works can work together to train youth to plant trees in tree-poor neighborhoods.

Climate change and meat consumption

We all have a responsibility to protect our children and their future. One easy way we can do that is by serving less meat to our kids. Eating too much meat increases the risk of heart disease. And meat production causes climate pollution. Scientists agree that climate change is happening and that it's going to get worse if we don't do something about it. We're asking the PTA to work with the Longview school district and us to start a Meatless Mondays program. Help our kids learn to eat healthy and fight climate change at the same time.

Climate change and safe routes for bicycling to school

Car pollution is now the biggest source of climate pollution in our state and 97% of scientists agree that climate pollution is causing climate change now. When children bike to school, there's no climate pollution and kids are more physically active. But in too many Los Carros neighborhoods, there's so much traffic that parents are afraid to let their kids bicycle. All of our kids should be able to safely bike to school so that they can be more physically active and we can reduce climate pollution. That's why the City Council put Measure X on the ballot to raise money for more protected bike lanes—it's a win for health and for the climate.

The Tobacco Industry and the Fossil Fuels Industry

Public health initiatives have faced aggressive attacks from powerful industries eager to protect profits in the face of public health efforts to promote health. Exhibit one is the multi-decade public health battle against the money, political power, and manipulation of Big Tobacco. The tobacco industry paid scientists to produce studies showing that smoking was not harmful and launched a well-funded public relations strategy to spread doubt about the increasing scientific evidence of tobacco's harms, attacking the credibility of science in general.[1] A 2006 ruling found three major tobacco companies guilty of racketeering and ordered them to issue corrective statements to the public on the health impacts of smoking.[2] More recently, the tobacco industry has targeted advertising at youth, low income, and communities of color, contributing to the persistent inequities in smoking-related deaths.[3]

"Doubt is our product, since it is the best means of competing with the 'body of fact' that exists in the minds of the general public"[4]

Brown and Williamson internal memo, 1969

There is strong evidence that for decades the fossil fuel industry also organized and financed a misinformation campaign to discredit the science of climate change and its impacts, undermine trust in the level of scientific agreement, equate climate science and climate action with a liberal political agenda, and cast doubt on the capacity to reduce fossil fuel use without exorbitant costs and at the expense of global development.[5,6,7,8,9] A 2013 study described a complex web of organizations funded to cast doubt on climate science and to obscure the connection between this effort and the fossil fuel industry.[10] As early as 1996, Mobil Oil made plans to account for sea level rise "due to global warming" in their offshore oil rig constructions while publically claiming that climate science was too uncertain to merit a response.[11,12]

Like the tobacco industry before it, the fossil fuel industry is targeting youth and communities of color that are disproportionately impacted by climate change and by more direct impacts of fossil fuel combustion. *Fueling U.S. Forward* is a Koch-funded campaign aimed at black voters purporting that they benefit the most from cheap fossil fuels and have the most to lose if energy costs rise.[13] The industry has spent tens of millions to fund curriculum and outreach materials that promote fossil fuels to K–12 students.[14,15]

Tobacco industry denormalization played an important role in successful anti-smoking campaigns. A key turning point in California's landmark anti-tobacco campaign was the decision to directly challenge the tobacco industry.[16] Denormalization rests on the "… fundamental and irreconcilable conflict between the tobacco industry's interests and public health policy interests."[17] It helps to erode industry's power to thwart tobacco control and to enhance public support and political will to tackle the reforms needed to end the tobacco epidemic.[18]

California's anti-tobacco social marketing campaign successfully:[19,20]

- Redefined tobacco from an individual problem (smoking) to a public issue (tobacco) to make room for a shift toward collective solutions through policy and environmental change.
- Shifted from blaming the smoker to focus on the need for rules that hold the tobacco industry accountable for the death and disability it has caused.

Continued on next page

The Tobacco Industry and the Fossil Fuels Industry *continued*

- Denormalized the use of tobacco
- Exposed industry as the "vector of disease" and showed how the industry was harming people in the pursuit of profit. An honest portrayal of the tobacco industry played a critical role in building public support for anti-tobacco policies at all levels.

To date public health communications on climate and health have not adopted an industry denormalization approach that exposes how the fossil fuel industry has knowingly deceived the public and imposed potentially catastrophic health and climate harms. A broad climate and health social marketing campaign that builds on lessons from successful public health campaigns is much needed.

Climate Communication Tips[21]

Keep these points in mind as you craft your climate and health communications:[22]

- Climate messages and communications strategies that integrate community knowledge, values, and beliefs can build a narrative of positive, transformational change and help to ensure that climate action builds toward a more just, equitable, and sustainable world. Talk to community residents about how they see the impacts and causes of climate change and what kinds of changes they want in their communities that will address their concerns ***and*** climate change.
- Communications serve to support strategy; the message is not an end in and of itself.
- Make it normal to support ***societal*** climate action instead of placing blame on the individual. Instead of saying "You need to reduce your carbon footprint", say "Communities across the state are taking steps to reduce carbon pollution and protect residents from the health harms of climate change."
- Ensure communications are culturally appropriate, available in multiple languages and low literacy formats.
- Use print and broadcast media, including ethnic, non-English, and very localized media; social media; telephone call-lines; print and broadcast marketing (bus ads, billboards); public forums and meetings. Pima County Health Department placed heat safety posters in local buses.[23]

Source: Pima County Health Department

- Use multiple messengers: weather forecasters, health care providers, school teachers, local business owners and service providers, youth, and community leaders.
- Repeat the message often.

"The most effective communication strategies are based on simple messages, repeated often, across multiple communications platforms, by many trusted messengers."

– Ed Maibach, George Mason University Center for Climate Change Communication

- Be consistent in what you say to different audiences, even if you say it differently.
- Try to use plain English:
    - Don't say "greenhouse gas emissions" when you can say "carbon pollution."
    - Say "clean energy" or "solar and wind energy" instead of "renewable energy technology" or "decarbonizing our energy system"
    - Talk about "preparation" for climate change rather than "adaptation" to climate change
    - Use the CDC "plain writing" guide[24]
- Use visuals that clearly convey the message
- Work with other agencies to harmonize messages
    - People may be confused about what to do when a health department alert cautions against outdoor activity on extreme heat days and air quality agencies ask people to "spare the air" by not driving on poor air quality days—often the same days!
        - "When it's really hot and air quality is poor, try to limit outdoor activity to early morning and evening, and use public transit instead of driving in mid-day."

- Work with other agencies to ensure common terminology and consistent messaging. For example, Philadelphia Department of Public Health recently convened all city departments that communicate or interact with the public about extreme heat and decided to use only two terms: "heat caution" and "heat health emergency."

Make climate change salient

Humans have evolved to prioritize immediately tangible threats over seemingly abstract risks.[25] Many people still see climate change as something that is distant in space and time—"not here, not now, not me," although that is changing as more communities experience devastating climate-related disasters.

- Show how climate change has already affected your jurisdiction. When people see climate change as a ***local*** issue, they are more likely to describe it as ***personal*** issue.[26,27]
- Tell stories about people's personal experiences with the impacts of change. Use pictures, especially pictures of real people that have been affected by droughts, floods, wildfires, and storms.
- Extreme weather events create a "moment of proximity and heightened awareness" and an opportunity to start conversations about climate change and real climate solutions.[28]

Convey urgency

Climate science and the accelerating pace of climate change demonstrates that each day of inaction increases the risks of catastrophic climate change, but any discussion of a climate emergency is currently missing from the mainstream public domain. To convey the urgency of robust climate action, provide analogies that can help people understand that action now will prevent future harms.

"Think about a chronic smoker. At age 20, he thinks he's invincible, that cancer won't happen to him. By 45, with early COPD, he's addicted and assumes quitting won't help him anyway. When he's got lung cancer at 65, it's too late. As a society, we're like the 45 year old—we're addicted to fossil fuels, we see the signs of harm, but we're still not taking the actions needed to prevent a very bad outcome. The difference is that the smoker imperils himself and those around him, while our societal failure to act imperils us all. We can take a different path toward a healthy future if we act swiftly."

– Linda Rudolph, Center for Climate Change and Health

- Talk about climate change as an informed choice between better and worse outcomes: "… inaction is itself a choice in favor of severe climate change."[29]
- Offer information about how the climate is already changing (See Section 3—Climate Change 101).

Always follow the message about the urgency of climate action with the message that solutions are available and being pursued now.

Recognize complexity and uncertainty

Climate science ***is*** complex and there ***are*** many unknowns about our climate future. But you do not need to be an expert on climate science nor be able to forecast precise future impacts to talk about climate change and health. Rely on the scientific evidence and knowledge of experts, as all health professionals do when addressing any issue outside of their own specialty.

"The science linking human activities to climate change is analogous to the science linking smoking to lung and cardiovascular diseases. Physicians, cardiovascular scientists, public health experts and others all agree smoking causes cancer. And this consensus among the health community has convinced most Americans that the health risks from smoking are real. A similar consensus now exists among climate scientists, a consensus that maintains climate change is happening, and human activity is the cause."

American Academy for the Advancement of Science, "What We Know."[30]

- Reinforce what is known.
    - 97% of scientists agree that climate change is happening.[31] "That's enough for me as a public health professional to focus on how we can help to keep people from being harmed by it."[32]
    - Surveys show that physicians in many specialties are already seeing the impacts of climate change in their patients.[33,34,35,36]
    - The health harms of climate change and health benefits of climate action are well documented (See Sections 3—Climate Change 101, 4—Health Impacts, and 5—Health Benefits).
- Acknowledge but don't overstate uncertainty. Scientists are sure that climate change is happening, and that it is causing major impacts, but there are still uncertainties about how quickly impacts will occur or whether every storm or wildfire is due to climate change.[37]
    - When speaking about a particular extreme event, lead with what is known about how climate change is affecting that type of event; add information, if available, about the attribution of similar events to climate change.[38]
- Frame uncertainty as a reason to act.[39] "We need to hedge our bets rather than waiting so long to see exactly what happens that it will be too late—or far more costly—to deal with the impacts."
- Use health analogies to emphasize the importance of action despite some level of uncertainty regarding the specific climate impacts. "If you were given a cancer diagnosis and told that it is 'very likely' that it will progress without treatment, would you wait to see what happens?"

Offer hope

Many people are motivated to take action when they hear a doomsday message about climate change, and it's important to be honest about the magnitude of the problem.[40] But too much emphasis on climate impacts can leave some people feeling overwhelmed and powerless, leading to disengagement rather than action. It is essential to offer hope, the most consistent driver of intentions to engage, support policies, or change behavior.[41] The best way to offer hope is to show that we can tackle climate change together, using available and effective solutions that offer important health benefits.

- Give people information that lets them reason their way to solutions: "When we burn fossil fuels it emits carbon dioxide into the air that traps heat like a blanket and disrupts the climate."[42] "Cows produce methane—a potent climate pollutant. When we eat a lot of beef more cattle are raised."[43]
- Show positive things real people in your community are doing to fight climate change, including images of solutions in action.[44]

- Emphasize the health benefits of climate solutions to make climate action an obvious solution. Show how clean energy, active transportation, healthy food, and community greening are good for health (See Section 5—Health Benefits).
- Remind people that we've tackled big problems before and we can do the same for climate change.
    - We reduced infant and maternal mortality by 90% and 99% respectively since the 1900s, due to a broad range of interventions including better hygiene and nutrition, antibiotics, greater access to health care, and advances in maternal and neonatal medicine. (Of course, much more remains to be done to address huge inequities in premature births and maternal mortality, demonstrating the need to integrate equity in our strategies to address a broad range of health issues, including climate change).
- Activate cooperative values and provide normalizing language that "people like us are concerned and taking action."[45]
    - For example, rather than tell people to get out of their cars, talk about an opportunity to support a bike-sharing initiative that will provide affordable transport and reduce air and climate pollution.
- Offer climate solutions that address community health concerns. Seek ideas for community-driven climate solutions. There are many climate solutions. Some individuals or communities may get excited about trying to reduce food waste in school cafeterias, and others about promoting community solar—both reduce climate pollution and provide health benefits.
- Avoid the individual solutions trap. Individual behaviors in daily life are important, but community action and policy/systems change are required to address the root causes of climate change and health inequities.[46] Instead of talking about what individuals can do, talk about what "we" can do together.
    - If people ask about individual behavior, share ideas (e.g. eat less meat, walk and bike more) but mention too the collective actions (e.g. increasing access to affordable fruits and vegetables or safe places to bike) that will increase opportunities for health for everyone in the community.

Acknowledge complicity

Nearly everyone in industrialized nations enjoys convenience, mobility, and comfort—such as driving, flying, using energy to light, heat and cool our homes, and consuming goods—made possible by abundant fossil fuel energy. But now we know the great magnitude of the health and climate costs of our dependence on fossil fuels and industrial agriculture. Now that we have more feasible and affordable options that allow us to move on to less polluting, clean, safe, and sustainable renewable energy, transportation, and food systems, we have a responsibility to do so.

Interrupt the spiral of silence

People are social beings. The more they hear family, friends, and respected community leaders talking about an issue, the more they see that issue as worthy of attention. Conversely, even people who care about an issue may shy away from discussing it if they infrequently hear other people talking about it. Unfortunately, climate change is in just such a "spiral of silence".[47]

While 60% of Americans say that climate change is important to them personally, fewer than 50% say they hear it discussed in the media at least once a month, only 20% say people they know talk about it once a month, and 70% say they rarely or never discuss it with family and friends.[48] Americans also routinely

overestimate the prevalence of climate skeptic views, and underestimate levels of support for renewable energy and other climate solutions.[49]

One lesson from other public health challenges is that public health problems are hard to address without naming them and their causes, even if that means talking about "taboo" topics or confronting powerful interests. Effective STD and HIV/AIDS prevention requires talking about sex. Addressing health inequities requires talking about poverty and racism. Achieving the transformative systems changes required to effectively protect health and advance equity in the era of climate change requires naming climate change and its causes, while tailoring the message for the audience and context. LHDs have a professional responsibility to break the spiral of silence by informing communities about this urgent health threat and the actions needed to address it.

"We've been working on extreme heat for a few years, because it's clearly getting worse. But we never talked about climate change. About six months ago we started talking bringing together our partners for a community discussion on heat and other climate impacts. With the support of our Director, we even decided to put "climate change" right into the title for the forum. We were all worried that there would be backlash from more conservative community leaders. But none of them said a word. In fact we got a lot of really favorable responses from people who were glad that the subject was finally out in the open!"

Maricopa County (AZ) Health Department Program Manager

_Do_ talk to conservatives

Climate change may have become a politically polarized issue, but that doesn't mean you shouldn't talk about climate and health to people in more conservative communities.[50] Very strong majorities in the U.S.—across party lines—believe their community should do more to address climate change and prepare for its impacts, including provide clean energy, expand public transportation and enhance walkability, reduce air and water pollution, and conserve energy.[51] 80% of Americans—including 62% of Trump voters—agree that the U.S. should regulate and/or tax carbon pollution.[52]

- Highlighting scientific consensus may neutralize polarizing worldviews, so be especially clear that 97% of climate scientists agree that climate change is happening and is caused by human activities.[53]
- Focus on local impacts: Conservatives are more likely to consider the need for action when they can see how climate change affects them personally.[54]
- Appeal to values such as accountability, conservation of resources, responsibility, caring for our children.[55,56]
- Emphasize solutions that have health benefits and are efficient and cost-effective.

"There is a tendency, particularly in government and politics, to avoid focusing on difficult problems until they balloon into crisis. We would be fools to wait for that to happen to our climate…When you run a company, you want to hand it off in better shape than you found it. In the same way, just as we shouldn't leave our children or grandchildren with mountains of national debt and unsustainable entitlement programs, we shouldn't leave them with the economic and environmental costs of

climate change. Republicans must not shrink from this issue. Risk management is a conservative principle, as is preserving our natural environment for future generations."[57]

– Henry Paulson, Former (Republican) Secretary of the Treasury, 2014

Climate Change, Health, and Equity: The Essential Messages

- Climate change is happening now—97% of climate scientists agree.
- Climate change is caused by human activities.
- Climate change is harming our health and the health of our communities now.
- Some people and communities bear an unfair burden of these health harms, including low-income communities, communities of color, native and tribal communities, the very young and very old, and those with chronic illnesses.
- There is a real danger that those harms will be catastrophic unless we take action now. We can't afford to take that risk.
- Together we can do something about climate change: we already have solutions that are working and could be put into practice widely and cost-effectively now if we take and demand action.
- We can shift to clean renewable energy // make it easier to walk, bike and take public transit // increase access to healthy and local food // plant trees and green our communities // stop burning dirty fossil fuels that cause climate pollution // invest to prepare for and protect from the harms of climate change.
- These climate solutions bring substantial health benefits: clean air, soil and water; less asthma, heart disease, and obesity; more places to play and be active; less stress and improved mental health; and more resilient communities.
- People in every community deserve to have the opportunities and resources to be healthy in the era of climate change.
- There has been deliberate disregard for our health and the health of the planet. The fossil fuel companies have acted like the tobacco companies—intentionally misleading us about the harms of fossil fuels and climate change, and spending millions to oppose climate policy.
- The problem is urgent: climate change is a health emergency. We need to do more, and more rapidly.
- We all have the responsibility to take action for healthy people, healthy places, and a healthy planet.

In a nutshell

"It's real. It's us. It's bad. Scientists agree. There's hope."[58]

– Anthony Leiserowitz , Yale Project on Climate Change Communication

What Local Health Departments Can Do?

Local health departments have many opportunities to communicate to various audiences about climate change, health, and equity, including: (1) focused efforts to inform about climate change—health—equity connections; (2) collaboration with other agencies to integrate health into climate change communications; (3) integration of climate change into routine public health department messages.

"We envision a community where there is a universal understanding of climate change risks, its effects, and actions that can be taken to mitigate or adapt to the effects of climate change. This is facilitated by consistent and unified climate and health messaging across agencies and organizations."

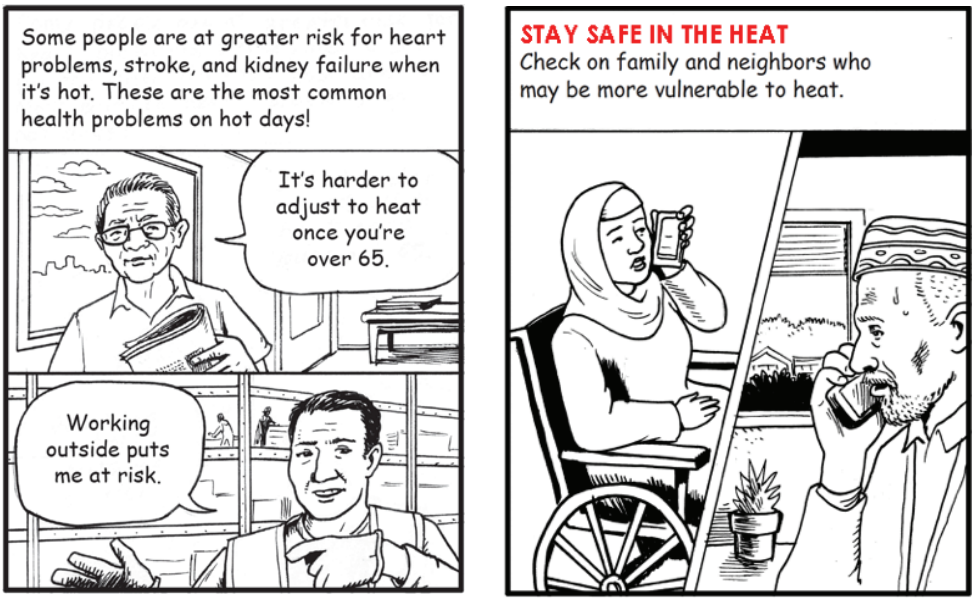
– Maricopa County Climate and Health Strategic Plan[59]

- Develop strategies and design and disseminate materials and events to inform the community, public health and health care professionals, and policy makers about climate change, health and equity.
    - Prepare a report(s) on Climate Change, Health, and Equity in your jurisdiction to raise general awareness.
        - Los Angeles County published "Your Health and Climate Change in Los Angeles County" and "Framework for Addressing Climate Change in Los Angeles County" for the general public. For health care providers: Climate Change and Health in LA County: Opportunities for Clinical Intervention.[60,61,62]
    - Convene a Climate, Health and Equity public workshop.
        - Salt Lake City and County Health Department holds an annual Climate and Health Symposium.
        - Maricopa County hosted Bridging Climate Change and Public Health summits, which led to a Climate and Health Strategic Plan.[63]
    - Climate, health and equity vulnerability assessments (CHEVA) provide an excellent tool for initiating community conversations about climate change.
        - New Orleans Health Department partnered with Gulf Coast Center for Law and Policy to host community meetings to review a CHEVA, map the city's extreme weather response protocol, and identify community health needs.
        - Multnomah County Health Department partnered with Coalition of Communities of Color to conduct a CHEVA displayed as an interactive map, and to inform advocacy and guide county investments.[64]
        - Minneapolis Health Department used a CHEVA to identify vulnerable communities, partner with community organizations for workshops on climate change and health.

- Collaborate on campaigns with businesses, schools, community partners, and other agencies to educate and act on climate solutions example.
  - Launch a Turn it Off campaign to reduce vehicle idling that produces air and climate pollution.[65]
  - Encourage energy conservation and efficiency to reduce climate and air pollution and energy costs, through a Switch Off campaign.[66]

- Coordinate with other agencies to integrate health messaging into their climate change materials.
  - Provide language on health impacts and solutions related to the climate work of other agencies.
    - Work with city/county Offices of Sustainability and planning agencies to integrate health into climate (mitigation and adaptation) action plans and sustainability or resilience plans.[67] The ReFresh Milwaukee community sustainability plan integrates language on climate change and health considerations.[68]
    - Collaborate with planning to integrate climate and health messages into General Plans.[69,70] The 2016 King County Comprehensive Plan includes multiple strategies and language on climate change and health.[71]
    - Incorporate climate change into local air quality agency Spare the Air alerts.
  - Coordinate with other agencies to make sure that your messages are not contradictory and confusing.
    - Philadelphia Department of Public Health convened all city departments that interact with the public about extreme heat, and standardized use of the terms ***heat caution*** and heat ***health emergency*** to describe health risks during an extreme heat event.

- Integrate climate and health messages into documents, educational materials, and health promotion information
  - Include climate change in the Community Health Assessment and Community Health Improvement Plans
    - Macomb County (MI) Health Department included climate change in the 2016 Forces of Change Assessment component of its Community Health Assessment.[72]
    - New Orleans Health Department included an objective to reduce climate impacts on health in its 2015 Community Health Improvement Plan.[73]
  - San Luis Obispo County Public Health Department partnered with the California Department of Public Health on the OutsideInSLO campaign in developing a series of informational materials: Healthy and Climate Friendly Food and Healthy and Climate Friendly Travel.[74,75]
  - Minnesota Department of Health developed a Health and Climate Film and Educational Materials for Middle School Teachers to inform teachers and student about climate change and health and adaptation and mitigation strategies.[76]



Source: Public Health Seattle-King County

  - Public Health Seattle-King County developed a series of "zines" depicting diverse people and communities discussing their risk and response during extreme heat events.

- Work with health care providers to post and distribute climate change and health information for patients
  - Center for Climate Change and Health's Climate and Health Posters[77]
  - University of California, San Francisco's Climate and Health Posters[78]
  - Natural Resources Defense Council's Factsheets and Posters[79]
  - CDC and APHA Climate Effects on Health Fact Sheets[80]
- Be opportunistic: Integrate climate messages into routine and emergency LHD communications

Below are some examples of how commonly issued educational materials, alerts, and advisories can be simply modified with a climate message to tell people that climate change is happening now and affects our communities.

Extreme Heat

Heat Press Release

Original: High temperatures need to be taken very seriously. People should protect themselves and watch out for others who may be vulnerable to extreme temperatures, especially the elderly, people with existing health conditions and people who are isolated.[81]

Modified: High temperatures need to be taken very seriously, ***especially since climate change is making our summers hotter***. People should protect themselves….

Health Department Twitter

Original: It is easy to get distracted. Look before you lock.…[82]

Modified: ***Climate change is making extreme heat days more common.*** Never leave baby alone in a hot car. Look before you lock.

Water Quality

Harmful Algal Bloom Press Release

Original: The Department of Health is warning citizens to stay out of the water and to keep their pets and children out as well. … Harmful algal blooms occur when warm water and nutrients combine to make conditions favorable for blue-green algae growth.[83]

Modified: Harmful algal blooms occur when warm water and nutrients combine to make conditions favorable for blue-green algae growth. ***Climate change is causing warmer water temperature, making harmful algal blooms more frequent.***

Wildfires

LHD Website on Wildfire Safety

Original: Droughts and dry conditions throughout various times of the year increase the risk for wildfires. Careless use of fire in highly wooded areas can also dramatically increase the chance of a wildfire, which can then quickly spread across trees and dry brush and threaten homes and businesses that are in vicinity.[84]

Modified: Droughts and dry conditions increase the risk for wildfires. ***Climate change is making our summers hotter and dryer.***

Air Quality

Air Pollution

Original: The EPA reports air pollution levels using the Air Quality Index (AQI). AQI reports the level of ozone and other air pollutants. When the AQI is 101 or higher, it is dangerous for people with asthma. You may have to change your activities and medicines.[85]

Modified: AQI reports the level of ozone and other air pollutants. ***Warming due to climate change is increasing ozone levels.*** When the AQI is 101 or higher, it is dangerous for people with asthma.

Allergens

Community Health Worker Pediatric Asthma Home Visiting Program

Original: Pollen comes from trees, flowers, grass, and weeds and can trigger asthma. High pollen counts in the spring and fall seasons are known to be asthma triggers for some children.[86]

Modified: Pollen comes from trees, flowers, grass, and weeds and can trigger asthma. High pollen counts in the spring and fall ***are increasing due to climate change*** and can trigger asthma in children.

Sea Level Rise

Seawater Intrusion Pamphlet

Original: Some coastal wells in Washington are now unusable because of seawater intrusion. This is particularly true in coastal areas where high population growth has placed increased demands on groundwater supplies. Seawater intrusion can potentially render large portions of Washington's coastal aquifers unusable through degradation of water quality. Health issues are a concern in seawater-intruded areas, particularly for people on salt restricted diets.[87]

Modified: Some coastal wells in Washington are now unusable because of seawater intrusion, ***which is worsened by sea level rise due to climate change***. This is particularly true in coastal areas where high population growth has placed increased demands on groundwater supplies…

Storms and Flooding

Flood Advisory

Original: Heavy rain causes floodwaters to rise and pool on streets and throughout neighborhoods. In these situations, be aware of the following…[88]

Modified: ***Climate change is increasing the frequency of intense storms with heavy rainfall.*** Heavy rain causes floodwaters to rise and pool on streets and throughout neighborhoods. In these situations, be aware of the following…

Nutrition and Food Security

Eat Local

Original: Local food is fresher and tastes better than food shipped long distances from other states or countries. Fresher food is more nutritious.[89]

Modified: Local food is fresher, tastes better, ***and causes less climate pollution*** than food shipped long distances from other states or countries. Fresher food is more nutritious and ***better for the environment***.

Eating Outdoors, Handling Food Safely

Original: Picnic and barbecue season offers lots of opportunities for outdoor fun with family and friends. But these warm weather events also present opportunities for foodborne bacteria to thrive. As food heats up in summer temperatures, bacteria multiply rapidly. To protect yourself, your family, and friends from foodborne illness during warm-weather months, safe food handling when eating outdoors is critical.[90]

Modified: Picnic and barbecue season offers lots of opportunities for outdoor fun with family and friends. ***But as climate change is making our summers even hotter***, these warm weather events also present opportunities for foodborne bacteria to thrive…

Food and Water Safety During Power Outages and Floods

Original: Emergencies can happen, especially with extreme weather conditions. When they do, the best strategy is to already have a plan in place. This includes knowing the proper food safety precautions to take before, during, and after a power outage—and being prepared to safely handle food and water in the event that flooding occurs.[91]

Modified: Emergencies can happen, especially with extreme weather conditions ***that are becoming more frequent and severe due to climate change***. The best strategy is to have a plan in place. This includes knowing the proper food safety precautions….

Nutrition and Healthy Eating

Original: "It can be challenging to serve healthy meals when you're trying to save money. Consider serving budget-friendly meatless meals once or twice a week. Meatless meals are built around beans, lentils, vegetables and whole grains. These plant-based proteins tend to be less expensive and offer more health benefits than meat.[92]

Modified: Consider serving budget-friendly meatless meals once or twice a week. Meatless meals are built around beans, lentils, vegetables and whole grains. These plant-based proteins are less expensive, offer more health benefits than meat, ***and reduce climate pollution from animal agriculture***.

Physical Activity

Original: "Walking and cycling trips help make the air we breathe cleaner. Also, walkers and cyclists breathe less air pollution than people inside an idling or slow-moving car."

Modified: Walking and cycling trips help make the air we breathe cleaner ***and slow climate change. Walking and cycling cause no harmful climate or air pollution!*** Also, walkers and cyclists breathe less air pollution than people inside an idling or slow-moving car.

Vector-borne and communicable disease

News Update- Zika Virus

Original Zika Alert: The announcement of three recent Zika cases in Hidalgo County, including one that appears to have been transmitted locally by mosquitoes, demonstrates that Zika remains a threat in the Rio Grande Valley….

Residents of the Rio Grande Valley should remain on alert for Zika and take precautions even during the winter months because it often stays warm enough there for mosquito activity to continue through much of the winter...[93]

Modified with Climate Messaging: Three recent Zika cases in Hidalgo County demonstrates that Zika remains a threat in the Rio Grande Valley… Residents should remain on alert for Zika and take precautions even during the winter months. ***Climate change is making our winters milder***, so mosquito activity is even more likely to continue through the winter.

For More Information and Resources on Climate and Health Communications:

- Climate Advocacy Lab - Climate Chat: An Everyday Guide to the Science of Talking about Climate Change[94]
- Climate Outreach[95]
- Don't Even Think About It: Why Our Brains Are Wired To Ignore Climate Change[96]
- Center for Climate Change Communication- Conveying the Human Implications of Climate Change[97]
- Toward Consensus on the Climate Communication Challenge[98]
- Climate Visuals[99]
- Communicating the Health Effects of Climate Change[100]
- Center for Climate Change and Health, Public Health Institute - Climate Change and Health Communications, Workshop Summary[101]
- ecoAmerica - Connecting on Climate: A Guide to Effective Climate Change Communication,[102] Let's Talk Health & Climate: Communication Guidance for Health Professionals[103]
- The Climate Reality Project - Communicating the Climate Health Connection[104]
- World Health Organization - Strategic Communications Framework for effective communications[105]