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APRIL 2026

Advancing Climate Health for Vulnerable Groups in the United States: Looking Back and Looking Ahead

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Sustainability, Climate, and Geopolitics Program

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Acknowledgments

The authors wish to recognize the great efforts of colleagues from OCCHE, the Office of Environmental Justice, OASH, HHS, and federal health systems, as well as many others from inside and outside of the U.S. government who contributed to the work described in this paper. Their persistence, thoughtfulness, and care resulted in critical progress and many of them are continuing to advance protection of the nation's health and health systems every day. The content of this paper does not necessarily represent the views of organizations for which the authors currently work.

Sustainability, Climate, and Geopolitics Program

The Sustainability, Climate, and Geopolitics Program explores how climate change and the responses to it are changing international politics, global governance, and world security. Our work covers topics from the geopolitical implications of decarbonization and environmental breakdown to the challenge of building out clean energy supply chains, alternative protein options, and other challenges of a warming planet.

Summary

There is strong scientific consensus that climate change is harming the health of people in the United States and around the world through extreme weather events, as well as through broad impacts on chronic illness and infectious disease. In addition, the human causes of climate change (such as pollution from burning fossil fuel) cause great harm, contributing to millions of deaths around the world each year. Both the causes and the impacts of climate change exact a disproportionate toll on certain vulnerable U.S. populations, including Indigenous communities, communities of color, older people, and children.

In turn, climate-related risks require public health agencies, healthcare provider organizations, and other stakeholders to reckon with new caregiving requirements, operational challenges, and costs. In addition, healthcare is itself a major contributor to climate change in the United States: Estimates suggest that approximately 8.5 percent of the country's emissions are attributable to the sector. Climate change causes harm on an unmatched scale, and addressing it now could significantly reduce morbidity, mortality, and health sector costs. Our hope is that this paper forms the basis for deeper discussion of the opportunities to stimulate sector-wide action as rapidly as possible.

The administration of former U.S. president Joe Biden sought to address the growing threats of climate change to the United States through Executive Order (EO) 14008, which included a provision directing the Department of Health and Human Services (HHS) to establish a new Office of Climate Change and Health Equity (OCCHE). This paper documents in detail OCCHE's strategies, achievements, challenges, and lessons learned and provides short- and long-term recommendations for federal actions to address climate health threats. It also describes the headwinds the office faced, as well as its failures. Though the paper begins by describing federal actions related to climate change and health prior to 2021 (which include research, assessment, and technical support for public health and healthcare), its focus lies mainly on Biden administration actions.

Strategies and Achievements

Administration activities to address health sector sustainability and resilience, mainly led by OCCHE, fell into five categories:

1. Engaging HHS and other agencies to address climate change and health equity
2. Providing data to anticipate climate-related threats to health
3. Improving community resilience
4. Improving facility resilience
5. Decarbonizing the healthcare delivery system

OCCHE and HHS achievements in service of these strategies included:

- A White House–HHS Health Sector Climate Pledge (WH/HHS Pledge) that included over 130 health sector organizations committing to decarbonization and resilience goals

- A Centers for Medicare & Medicaid Services (CMS) waiver that reinforced microgrid investments and a CMS Innovation Center model that incentivized decarbonization reporting and action

- Unique data resources like the Heat-Related Emergency Medical Services (EMS) Activation Surveillance Dashboard, created with the National Highway Traffic Safety Administration; the Heat and Health Index, created with the Centers for Disease Control and Prevention (CDC); and the Climate and Health Outlook (CHO)

- A Climate Resilience for Health Care Toolkit providing detailed guidance on health system resilience

Though not written specifically for the health sector, the Inflation Reduction Act of 2022 (IRA) also offered healthcare organizations an unprecedented opportunity to receive funding for decarbonization and resilience measures, including on-site renewable energy and energy efficiency improvements. OCCHE introduced a large set of resources, tools, and webinars to support these organizations in taking advantage of these opportunities.

OCCHE successfully increased awareness and action on climate and health within HHS and, with more modest success, across the federal government, such as in federal health systems or the Environmental Protection Agency (EPA). Impacts on the broader health sector, especially through the WH/HHS Pledge and IRA outreach, were uneven, but would certainly have expanded had OCCHE not been terminated.

Headwinds

A lack of resources (including failure to appropriate funds for OCCHE) and prioritization from Congress and administration officials impeded OCCHE and administration efforts to address climate health challenges. Severe delays to key rules, like one from the Securities and Exchange Commission (SEC) that would have required broad corporate disclosure of climate-related action, also greatly hindered OCCHE's ability to engage the health sector. OCCHE's placement within the Office of the Assistant Secretary for Health (OASH) also limited the office's ability to accelerate climate-smart activities in other HHS divisions and federal agencies.

Recommendations

The paper closes with recommendations for action, both for the immediate future and in the event of a friendlier administration and Congress after the 2028 election cycle.

Recommendations for the Near Term

- Developing deeper evidence on climate health impacts and associated costs
- Producing more state and local case examples of successful health sector decarbonization and resilience, particularly in the most vulnerable areas
- Engaging impacted members of the public, clinicians, and other industry stakeholders to demand action that advances climate health and equity

Recommendations for Federal Actions in Future Administrations More Friendly to Climate Action

- Placing capable climate health staff in diverse federal agencies
- Developing a government-wide climate health action plan with explicit aims for protecting vulnerable populations
- Securing congressional support for critical policies, programs, and regulatory actions
- Restoring U.S. leadership on climate health in global health settings
- More closely connecting climate health actions with broader societal concerns such as economic justice and affordability

Action on the health implications of climate change, especially those actions that reduce economic risks and reduce operational costs, has strong potential for bipartisan support. The lessons and recommendations in this paper should help inform responses to what unfortunately are inevitable future climate health crises, both in the United States and globally.

Overview and Objectives

In view of the rapidly growing threats that climate change presents to the health of people living in the United States, especially certain vulnerable populations, the Biden administration sought to catalyze responsive federal, state, and local action. Orchestrated mainly by OCCHE, situated in HHS, these efforts sought to (a) knit together prior HHS efforts to combat the public health threats presented by climate change dating back to the early 1990s and (b) significantly expand the scope of related activity and investment by HHS and other federal agencies, as well as other public health and healthcare stakeholders.

OCCHE, HHS, and their government partners made notable progress against some goals and fell short in other areas because of serious funding constraints and administrative complexity, among other challenges. In December 2025, the Carnegie Endowment for International Peace hosted a convening of former administration officials and subject matter experts in an attempt to create an accurate record of this activity and generate insight for those tasked with similar work in the future, especially in view of the actions of the second administration of Donald Trump, which seriously undermine climate health. This paper attempts to summarize that discussion and learning.

While this paper is primarily focused on domestic policy within the United States, the lessons learned and recommendations have value for all countries that wish to make or implement national commitments to sustainable and climate-resilient health systems.

Background

In a landmark 2021 consensus statement, more than 200 medical journals—among them the *Lancet,* the *New England Journal of Medicine*, and the *British Medical Journal*—asserted that the cumulative impacts of climate change made it the twenty-first century's greatest threat to global health. The combination of catastrophic threats (such as increasing incidence of extreme heat, flooding, wildfires, and droughts) and impacts on chronic illness (such as cardiovascular illness, pulmonary illness, allergies, and mental health conditions) and infectious disease (such as vector-borne and waterborne diseases) puts enormous portions of the world's population at risk. This climate-related morbidity is independent from the harm created by the human causes of climate change (such as pollution associated with the burning of fossil fuel, manufacturing, chemical production, agriculture, deforestation, and indoor combustion like gas stoves), which itself results in millions of deaths each year.

As is true of many threats to public health and well-being, both the causes and impacts of climate change exact a disproportionate toll on certain vulnerable populations in the United States. We know, for instance, that those of lower socioeconomic status, communities of color, children, and older populations suffer unduly as a result of pollution, just as we know

that many of these same groups are at greater risk of harm from a variety of climate threats. Any serious effort to ameliorate these challenges must therefore seek to proactively protect these populations along with the general public. This focus was at the heart of a great deal of Biden administration policy, including the work on climate health outlined below.

Grave climate-related risks and stresses also introduce new caregiving burdens on public health agencies and healthcare provider organizations, threatening stable operations and access to care during catastrophic events. In addition, health systems, as well as public and private insurers, must bear significant additional costs to manage climate-related harm in affected populations. While it is sometimes challenging to determine the exact proportion of added healthcare costs caused by climate change (such as when a preexisting chronic condition like asthma is exacerbated by a climate-related event), an Office of Management and Budget analysis from 2022 notes the growing healthcare costs associated with a wide variety of climate change sequelae, predicting for example that additional federal health expenditures associated with just a subset of climate-related harms (wildfires, valley fever, southwest dust, and air quality) will total tens of billions of dollars by the second half of this century. A more recent study of the association between heat waves and adverse health outcomes among Medicare- and Medicaid-eligible individuals sixty-five years and older found that the incidence rate of heat-related emergency department visits increased 10 percent during heat wave days compared to non–heat wave days, highlighting the heat-related costs to Medicare and Medicaid programs. Another recent study estimates that heat events lead to nearly 235,000 additional emergency department visits and more than 56,000 hospitalizations in the U.S. population each summer, adding approximately $1 billion in healthcare costs. Though a more comprehensive, cross-cutting study of the health cost implications of climate change is warranted—and recommended below—that these costs will grow significantly now seems beyond dispute.

> **Estimates suggest that approximately 8.5 percent of U.S. emissions are attributable to the health sector, primarily stemming from the supply chain, but with significant direct emissions from hospitals and other healthcare facilities as well.**

In view of the serious threats to health presented by climate change and related implications for healthcare operations and costs, researchers and public officials have for decades attempted to more fully articulate risks and introduce clinical and operational interventions that might make the U.S. health system more ready, resilient, and efficient. They have also sought to increase acknowledgment of the healthcare sector's own carbon emissions as a contributor to the very problem they seek to address. Estimates suggest that approximately 8.5 percent of U.S. emissions are attributable to the health sector, primarily stemming from the supply chain, but with significant direct emissions from hospitals and other healthcare facilities as well. This demands urgent action on decarbonization from the health sector even as it prepares in parallel to manage the harm, disruption, and expense that added climate-related health demands introduce. Fortunately, many climate resilience investments also reduce emissions, including on-site renewable energy installations that help facilities stay open during emergencies.

Initial Government Action

Prior to 2021, federal actions related to climate change and health focused mainly on deepening understanding of relevant climate-related health threats and engaging community and health system stakeholders to prepare for these realities. These activities fell into four general categories: research, scientific assessment, support for local health departments, and support for health system resilience. A small group of healthcare facilities and other sector stakeholders (such as suppliers) were also required to report to the federal government on their greenhouse gas emissions, a first step in reckoning with the health sector's own significant contribution to climate change.

Research

Congress's Global Change Research Act of 1990 established the U.S. Global Change Research Program (USGCRP), a cross-agency initiative to better understand global environmental changes and what they would mean for the United States and the world. In so doing, it identified the National Institute of Environmental Health Sciences (NIEHS) at the National Institutes of Health (NIH) as the designated representative for HHS, responsible for studying health implications. The EPA contributed to the USGCRP but also conducted its own global change research activities to address the human health impacts of climate change starting in the late 1990s, with a clear focus on the development of national environmental health assessments.

The human health impacts of climate change became a more central focus of the USGCRP in December 2009, when the Interagency Cross-cutting Group on Climate Change and Human Health (CCHHG) was chartered. CCHHG coordinated all activities related to climate change and human health across the federal government from that time until 2021, including the contributions to Barack Obama's Adaptation Task Force and the Council on Climate Preparedness and Resilience that succeeded it in 2013.

> **Prior to 2021, federal actions related to climate change and health focused on deepening understanding of relevant climate-related health threats and engaging community and health system stakeholders to prepare for these realities.**

NIH issued its first research solicitation on climate change and human health in 2009; prior NIH research on climate change primarily focused on the effects of increased exposure to ultraviolet radiation caused by ozone depletion. Additional funding for climate change and health research subsequently came from the National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration, and in 2010, the ad hoc Interagency Working Group on Climate Change and Health led by NIEHS published "A Human Health Perspective on Climate Change," a research needs assessment.

Scientific Assessment

The Global Change Research Act also mandated that national climate assessments, describing the full range of risks to the nation associated with environmental threats, be produced every four years. While health risks were referenced in each of these projects, a landmark 2016 CCHHG publication, "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment," has served as a foundational resource in both articulating local and global threats and offering initial ideas for addressing them.

Support for Local Health Departments

CDC created its own climate and health program in 2006, and that program received its first congressional appropriation in 2009. The hallmark of the program, in addition to its own research on the public health impacts of climate change, was the development of the Climate-Ready States and Cities Initiative (CRSCI). Also known as the BRACE program in recognition of the "Building Resilience Against Climate Effects" framework that CDC promoted for use by state and local health departments, the CRSCI initially supported eighteen states and cities to develop climate and health vulnerability assessments and initiate planning for adaptation measures. CDC also provided support to tribes and territories through the Climate-Ready Tribes Initiative and the Climate-Ready Territories Initiative and to national public health associations for capacity-building.

CDC's Public Health Emergency Preparedness Program was created in 2002 under the Public Health Security and Bioterrorism Preparedness and Response Act, and then further expanded and formalized by the Pandemic and All-Hazards Preparedness Act in 2006. The program supports sixty-two states, territories, and large U.S. cities through cooperative agreements to develop emergency response plans and conduct drills and training. While the program was intended to address all hazards, for most of its first two decades it prioritized planning and drills related to bioterrorism threats.

Support for Health System Resilience

The Pandemic and All-Hazards Preparedness Act of 2006 created the Office of the Assistant Secretary for Preparedness and Response (ASPR, now the Administration for Strategic Preparedness and Response). Shortly thereafter, ASPR took responsibility for the Hospital Preparedness Program, which was originally launched at the Health Resources and Services Administration (HRSA) in 2002. As it has evolved over the past two decades, the program funds sixty-two states, territories, and major U.S. cities to support healthcare coalitions within their jurisdictions. Such coalitions are regional partnerships of hospitals, emergency responders, clinics, long-term care facilities, and public health departments that receive support for preparedness planning, training, and drills. While funds eventually reach healthcare facilities from primary grantees (state health agencies), they are neither targeted nor sufficient for capital improvements to enhance resilience.

CMS, through its 2016 Emergency Preparedness Rule, established a regulatory baseline of healthcare facility–level preparedness as a condition of participation in Medicare and Medicaid. The rule requires preparedness planning, emergency operations and procedures, back-up emergency power, and practice drills, among other requirements. While CMS does not provide technical assistance or funding to support investments in resilience, it does provide limited interpretive guidance and webinars to improve compliance. In 2019, CMS implemented a law allowing Medicare Advantage plans to cover temporary or portable air conditioning units, humidifiers, dehumidifiers, high-efficiency particulate air filters, and carpet cleaning to improve indoor air quality, though it is unclear how many plans have implemented such coverage.

While it lacks a health sector–specific program, the Federal Emergency Management Agency (FEMA) has also historically provided some funding for capital investments in healthcare facility hardening through its Building Resilient Infrastructure and Communities program and Hazard Mitigation Grant Program, as well as through public assistance after disasters.

Health Sector Decarbonization

Since 2010, the EPA's Greenhouse Gas Reporting Program mandated reporting of greenhouse gas emissions data and other relevant information from facilities that exceeded 25,000 metric tons of carbon dioxide or equivalent emissions per year. While this program did not impact many hospitals (approximately thirty-four hospitals reported in 2022), it did provide transparent data on major healthcare emitters, including suppliers. On September 12, 2025, the EPA released a proposal to effectively end the reporting program. The health sector has also been impacted by broader air quality regulations for vehicles and power-generating facilities, many of which may be overturned in the aftermath of the February 2026 "endangerment finding" rescission.

The EPA and the Department of Energy (DOE) also offered decarbonization tools and guidance to the health sector. The Energy Star program (previously at the EPA and now jointly run with DOE) offers support for healthcare organizations seeking to become more energy-efficient, particularly through the Portfolio Manager tool (used by over 3,500 hospitals) and related competitions to try to stimulate emissions reductions. DOE's Better Buildings Program likewise has healthcare-specific guidance and case studies. Both programs have been impacted by recent reorganizations.

State, Local, and Nongovernmental Actors During This Period

The federal government was not alone in its efforts to lower the healthcare sector's greenhouse gas emissions and protect communities from climate change–related hazards. This work has been championed for years—and in some cases decades—by health professionals,

public health leaders, and organizations including Health Care Without Harm, the Alliance of Nurses for Healthy Environments, and the Medical Society Consortium on Climate and Health. Since 2002, Health Care Without Harm has been collecting voluntarily provided data from hospitals and recognizing their sustainability achievements. Many hospitals have also been compelled to share this information with their state or local governments since the late 2000s. When it comes to preparing for climate-related hazards, multiple states have implemented heat plans and heat standards for workers. States have also leveraged the Low Income Home Energy Assistance Program (LIHEAP) and Medicaid to address heat and air quality issues through energy bill assistance and furnishing air conditioners and air filters.

Biden-Era Action

In the lead-up to the 2020 election, the climate change and health advocacy community offered several recommendations in anticipation of a potential Democratic administration. The issue was also taken up by the Biden administration's Health Policy Committee, which prepared detailed policy memos describing both the extent of climate-related health threats and the importance of HHS engagement. One suggestion that emerged was to establish an HHS office focused on climate and health.

OCCHE was created through EO 14008, "Tackling the Climate Crisis at Home and Abroad," which was signed by Biden in late January 2021. EO 14008 directed the HHS secretary to establish an office "to address the impact of climate change on the health of the American people." It also directed the secretary to "establish an Interagency Working Group to Decrease Risk of Climate Change to Children, the Elderly, People with Disabilities, and the Vulnerable as well as a biennial Health Care System Readiness Advisory Council, both of which shall report their progress and findings regularly."

> **OCCHE was created through EO 14008, which directed the HHS secretary to establish an office "to address the impact of climate change on the health of the American people."**

The vague nature of these directives (which did not specify where OCCHE would reside within HHS or what its specific functions would be), meant that those forming the office sought first to articulate how it would operate and what its strategic priorities would be. The office was formally launched within OASH in August 2021, and it continuously refined its strategy over the course of the months that followed. In addition to OCCHE's extensive internal consultations, HHS issued five formal requests for information regarding climate and health through CMS (which issued two such requests), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Agency for Healthcare Research and Quality (AHRQ), and NIH. Consisting of over 250 comments in total, this input included

several recurring recommendations: increasing investments in research and educational training on climate change and health, increasing related funding and technical assistance from HHS agencies, creating and propagating standard measures of facility resilience and sustainability, regulating health system action on emissions reduction, and—above all—centering equity and the needs of the most vulnerable communities in shaping policy.

In April 2021, a large group of climate and health advocates also published a sign-on letter. It included five central suggestions:

- Develop a national climate and health equity strategic action plan
- Hold each HHS agency accountable for developing its own climate and health equity strategic plan
- Establish high-level collaboration with sister agencies to optimize climate and health equity in all policies
- Develop a national healthcare decarbonization strategy
- Partner with the EPA and the White House Office of Science and Technology Policy to develop tools to screen potential health impacts of all major infrastructure projects and climate policies

Each of these forms of input was helpful in shaping OCCHE's strategy, and several additional provisions of EO 14008 and other executive orders also helped to shape HHS's broader work related to climate change. For example, EO 14008 included the creation of the National Climate Task Force, with representation from HHS and a requirement for agencies (including HHS) to identify a chief sustainability officer (CSO) who would oversee the development of the agency's Climate Action Plan to address the emissions of agency buildings and operations. It also mandated the creation of the Interagency Climate and National Security Working Group and reinstated a 2016 memorandum that pointed out the need for early warning systems for the health-related effects of climate change.

Other relevant executive orders included:

- EO 14057, "Catalyzing Clean Energy and Jobs Through Federal Sustainability," which obligated all federal agencies to achieve net zero emissions by 2050, thereby requiring deep engagement from federal health systems on decarbonization and accelerating OCCHE's efforts to reduce emissions in the health sector.
- EO 14096, "Revitalizing Our Nation's Commitment to Environmental Justice," which led to the creation in May 2022 of a sister office to OCCHE, the Office of Environmental Justice, which focused on the protection of disadvantaged communities exposed to pollution and other environmental hazards.

- EO 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis," which called for stronger regulations and consideration of public health in regulatory decisionmaking, but did not meaningfully engage HHS on that score. This order also created the Working Group on the Social Cost of Greenhouse Gases, which included analysis of health impacts in its work.

Major Strategies

The Biden administration sought to improve the health sector's resilience to climate change and decrease its greenhouse gas emissions through five strategic priorities, many of which were spearheaded by OCCHE as the sole office focused exclusively on the intersection of climate, health, and equity. Unfortunately, the office had limited resources—its initial budget called for $3 million and eight full-time equivalents, but those funds were never appropriated. OCCHE operated on a budget half that size, and, consequently, had to be opportunistic in pursuing activities where there was strong interest and potential for partnership with other agencies, leading to notable but uneven progress.

> **OCCHE benefited from the inclusion of a cross-cutting climate goal in the overall HHS strategy and developed a climate and health equity strategy supplement in 2023 to outline how the department would accelerate action domestically.**

Engaging HHS and Other Agencies to Address Climate Change and Health Equity

Because HHS's limited work to address the health impacts of climate change had previously occurred in disparate offices and was somewhat siloed, OCCHE focused intentionally on catalyzing awareness, engagement, and coordinated action across HHS and other federal agencies. To develop aligned objectives and activities, OCCHE benefited from the inclusion of a cross-cutting climate goal in the overall HHS strategy (Objective 2.4: "Mitigate the impacts of environmental factors, including climate change, on health outcomes") and developed a specific climate change and health equity strategy supplement in 2023 to outline how the department would accelerate action domestically (and complement an adaptation plan for HHS properties prepared by the HHS CSO). The supplement was particularly useful, as it required each division of HHS to identify clear goals and involved major agencies like CMS, CDC, NIH, the Food and Drug Administration (FDA), and the Administration for Children and Families (ACF). The creation of the supplement and bimonthly convenings of a new department-wide Climate Change and Health Equity Working Group were both key to OCCHE's efforts to generate buy-in, commitments, and action from powerful actors across HHS. OCCHE also partnered with agencies outside HHS through various intragovernmental bodies, including an OCCHE-convened Federal Health Systems Learning Network that consisted of the Veterans Health Administration, the Indian Health Service,

the Defense Health Agency, and the Bureau of Prisons and focused on the implementation of EO 14057. The combined impact of this work can be seen in the actions discussed below.

OCCHE also took several deliberate actions to deepen capacity for climate-related action across HHS. Detailed employees—that is, government workers permitted to temporarily work in another office—were drawn from key HHS divisions, including AHRQ, CDC, CMS, FDA, HRSA, and SAMHSA, augmenting OCCHE's expertise and building capacity for more effective action on climate change and health equity within each of these divisions when details were completed. In addition, all Senior Executive Service (SES) members (the highest-ranking civil servant leaders at HHS) were required beginning in 2023 to undertake annual educational training on the health impacts of climate change, with the goal of introducing this content into their work in a more systematic, cross-cutting way. OCCHE also developed a climate health training manual for all HHS staff.

Providing Data to Anticipate Climate-Related Threats to Health

Another of OCCHE's strategic priorities was to develop tools and resources to assist health professionals and the public in making data-informed decisions to better prepare for and respond to climate-related health threats. OCCHE developed the Climate and Health Outlook (CHO), which was the first-ever seasonal forecast for health in the United States. The CHO delivered monthly and seasonal climate-related forecasts for hazards like heat, drought, wildfire, and hurricanes alongside information about the health impacts of each hazard and actions and resources to stay safe. In addition to publishing the CHO on a monthly or seasonal basis and providing guidance to others on creating their own seasonal forecasts, OCCHE partnered with ASPR to develop an interactive Climate and Health Outlook Portal, which provided county-level information on forecasted climate-related hazards as well as information on individual risk factors in impacted counties that could increase vulnerability to negative health outcomes from forecasted hazards.

OCCHE also partnered with the National Highway Traffic Safety Administration's National Emergency Medical Services Information System (NEMSIS) to develop the Heat-Related EMS Activation Surveillance Dashboard, also known as EMS HeatTracker. This interactive geospatial tool was the first ever to map EMS responses to heat-related illness across the country, providing additional information on the health impacts of heat not captured by emergency department and hospitalization datasets. By showing where people actually fall ill from heat, the tool helps local decisionmakers and communities prioritize life-saving interventions and resources in the areas that need it most.

Utilizing heat-related illness data from NEMSIS, OCCHE partnered with CDC to develop the Heat and Health Index, the first national tool to incorporate spatially granular heat-related illness and community characteristics data to measure extreme heat vulnerability. The index provides ZIP code–level rankings to help identify which areas across the country may be at increased risk of experiencing negative health outcomes from heat. The tool also incorporates data on preexisting health conditions, sociodemographic factors, and natural

and built environment characteristics to help communities understand which factors may be driving vulnerability and help inform interventions to decrease risk.

In addition, several cities (such as Washington, New York, and Philadelphia) and states (such as Wisconsin) developed EMS heat response trackers and heat vulnerability indices.

Improving Community Resilience

The Biden administration creatively leveraged existing programs to ameliorate some of climate change's impact on people living in the United States, but could have done more with appropriated funds specific to this purpose. For example, HHS's ACF published guidance on how to use LIHEAP and Community Services Block Grant funds to address extreme heat and wildfire smoke. The guidance clarified that these block grant programs could be used to furnish air conditioners, disseminate work supplies like protective gear, and establish cooling centers. However, these programs were not originally designed for addressing the risks of climate change, and LIHEAP in particular struggled because the grant structure established by Congress was designed to help with heating bills, rather than to address the cooling required by extreme heat. In addition, OCCHE explored the concept of developing community resilience hubs to help manage climate catastrophes and other crisis events but was not able to do much more than to learn about these approaches from vulnerable areas that introduced them and to document preexisting examples.

The administration also established guidance and regulations to support the coverage of health-related social needs by state Medicaid agencies, including items like air conditioners and air filters for at-risk beneficiaries. Multiple states added or improved their coverage of these items during the Biden administration, including Oregon, California, and North Carolina. However, because these items are not considered primarily medical in nature by Medicaid's regulations, this coverage was often contingent on waiver approval from CMS. Waiver approval takes time and introduces the risk that an unfriendly administration will drop a new policy when waivers are renewed (typically every three to five years).

Programs already designed to protect workers and educate clinicians were more straightforward to adapt to climate hazards. Fifty-two years after the National Institute for Occupational Safety and Health (NIOSH) first recommended a potential Occupational Safety and Health Administration (OSHA) heat standard, the Biden administration's OSHA succeeded in proposing to regulate outdoor worker exposure to extreme heat. If finalized, this regulation will be the first federal heat standard to protect workers. It builds off work in a handful of states that already have heat standards for workers as well as NIOSH research. Under the Biden administration, NIOSH also produced foundational research to support the creation of a wildfire exposure standard for workers. If finalized, this research would set the stage for a recommended heat standard that could be taken up by OSHA. Given Biden's and his HHS secretary Xavier Becerra's focus on farmworkers and other outdoor laborers, HHS also released numerous educational resources to support health professionals and workers in responding to climate change, including a Quick Start Guide for Clinicians on Heat and Health and a Heat Stress Prevention Training Program.

Improving Facility Resilience

Under the Biden administration, OCCHE sought to strengthen the climate resilience of healthcare facilities like hospitals, community health centers, and rural health clinics. OCCHE published a much-needed Climate Resilience for Health Care Toolkit, updating guidance for healthcare emergency management professionals and other clinical and operational stakeholders and providing rich case studies. OCCHE staff also collaborated with ASPR to incorporate climate risks into the Risk Identification and Site Criticality Toolkit for conducting all-hazards risk assessments. Such risk assessments are critical to the emergency preparedness planning required by CMS for Medicare- and Medicaid-participating healthcare organizations. CMS was also poised to update its Emergency Preparedness Rule to better incorporate climate risks, but the regulation was never published. This failure occurred for many reasons, including competing priorities early in the administration to combat the pandemic, lack of urgency from key leaders, and the rush to finalize already-proposed rules after the 2024 election. In collaboration with OCCHE, CMS did seek to offer technical assistance to healthcare organizations through a new Decarbonization and Resilience Initiative for hospitals as part of the CMS Innovation Center (CMMI) Transforming Episode Accountability Model and the agency's Quality Improvement Organization (QIO) network for hospitals, nursing homes, and other facilities—but these programs have been discontinued or greatly diminished. The second Trump administration eliminated the CMMI initiative in its Inpatient Prospective Payment System final rule for 2026 and substantially cut the budget for the QIO program.

Decarbonizing the Healthcare Delivery System

The IRA offered healthcare organizations an unprecedented opportunity to receive funding for activities that decreased operating expenses and improved care. Through loans, grants, and tax credits, healthcare organizations could finance activities like on-site renewable energy, energy storage, energy efficiency improvements, and efforts to tackle urban heat islands. Prior to the IRA's passage, OCCHE had held webinars to introduce healthcare organizations to federal funding opportunities like the Green and Energy Efficient Mortgage Insurance Premium for healthcare facilities introduced by the Department of Housing and Urban Development (HUD) in 2022 but, as the largest climate investment in history, the IRA both opened vast opportunities and presented complexity that was difficult to navigate. To support healthcare organizations, OCCHE created a Quickfinder Guide (preserved without formatting here), a webinar series with program experts from across the government and case studies featuring healthcare organizations that successfully leveraged IRA programs. To further facilitate the use of clean energy and energy storage, OCCHE collaborated with CMS to publish a waiver permitting most facilities to use microgrids for emergency power.

The slow pace of IRA guidance hampered some health systems' ability to use programs prior to the end of the Biden administration. Healthcare organizations also struggled because IRA programs were not designed with the health sector in mind; for example, nonprofit hospitals were generally not able to go through the complex allocation process to leverage the energy

efficiency deduction. It often took OCCHE staff months to hold meetings with offices implementing key IRA programs—although when those meetings occurred, OCCHE was sometimes able to win useful clarifications for the health sector (like clarifying ambulance eligibility for commercial clean vehicle funding). Healthcare organizations were able to use the IRA's funding to finance reliable backup power for their rural facilities, free electric vehicle charging for patients and staff, and even a program to give patients a discount on their energy bills. With additional time, OCCHE likely would have been able to support many more healthcare organizations in using these programs to lower operating costs, reduce their pollution output, and invest in climate resilience. Certain IRA opportunities remain available—like the geothermal heat pump credit—as does the microgrid waiver.

> **On Earth Day 2022, the White House and HHS launched a commitment to ambitious emissions reduction and resilience goals that was ultimately signed by organizations representing over 940 hospitals.**

While the IRA was the main source of federal financing for health sector emissions reduction, OCCHE also sought to catalyze additional health sector action by securing commitments for action on resilience and decarbonization and offering supportive tools and learning opportunities. On Earth Day 2022, the White House and HHS launched the WH/HHS Pledge, a commitment to ambitious emissions reduction and resilience goals that was ultimately signed by organizations representing over 940 hospitals.[1] The pledge mobilized the health sector and aligned key nongovernmental partners around a shared vision for health sector climate action. AHRQ's decarbonization primer was published shortly after the pledge's launch and remains a key reference for health sector organizations. In recognition that energy efficiency is both a vital decarbonization strategy and a cost-saver for healthcare organizations, OCCHE and the EPA also released guidance on how to leverage the Energy Star Portfolio Manager to monitor building-related energy use and save on electricity bills. In 2024, the SEC finalized a rule that would also have required climate-related disclosures (including emissions) from certain healthcare organizations, though its legal defense was discontinued by the Trump administration.

In addition to guidance on emissions associated with buildings and energy use, OCCHE published high-level guidance to help the health sector tackle Scope 3 (supply chain) emissions, and also recognized that federal health systems play their own role in aligning incentives for healthcare suppliers. For example, in 2021, under the Biden administration, the Veterans Health Administration changed its inhaler formulary from highly polluting

1 Specifically, pledge signers committed to the following: a) At minimum, reduce organizational emissions by 50 percent by 2030 (from a baseline no earlier than 2008) and achieve net zero emissions by 2050, publicly accounting for progress on this goal every year; b) designate an executive-level lead for their work on reducing emissions by 2023 and conduct an inventory of Scope 3 (supply chain) emissions by the end of 2024; and c) develop and release a climate resilience plan for continuous operations by the end of 2023 or within six months of signing the pledge, anticipating the needs of groups in their community that experience disproportionate risk of climate-related harm.

metered-dose inhalers to dry-powder inhalers. To address emissions across the government, the Biden administration also published, but was never able to finalize, a Federal Acquisition Regulation that would have required suppliers over a certain size to track and reduce their emissions. OCCHE worked with international counterparts, including the National Health Service (NHS) in England, to create guidance that would help suppliers navigate different countries' sustainable procurement standards. While the Trump administration has withdrawn the Federal Acquisition Regulation and OCCHE was never able to publish its guidance, other countries have successfully created procurement guidance that OCCHE contributed to during drafting.

Political Context and Headwinds

Several cross-cutting challenges seriously hampered the work of the Biden administration on climate and health, with many stemming from a lack of resources and prioritization from Congress and administration officials. Early in the administration, an understandable focus on pandemic recovery and lack of specificity in executive orders stymied efforts from OCCHE to engage with officials from key parts of HHS, including CMS, ASPR, CDC, and FDA. In addition, OCCHE's placement in OASH limited its authority and influence within HHS, despite the seriousness and urgency of the climate health crisis. By repeatedly failing to fund OCCHE and designing its major climate law—the IRA—without health sector–specific funding opportunities, Congress made it more difficult for OCCHE to do the work envisioned by its chartering executive order: building its team, providing meaningful technical assistance and resources to healthcare organizations, and convening advisory groups. Numerous interagency committees also proved time-consuming and redundant to preexisting structures, and the slow pace of IRA guidance also created challenges for healthcare leaders hoping to leverage its funding opportunities. Finally, years of research on climate change had generally failed to include health services research, leading to a lack of peer-reviewed evidence regarding the benefits of health sector climate action in terms of quality of care and reduced operating expenses. Without a clear mandate from Congress, such evidence is necessary to support the development of federal regulations (for example, Medicare and Medicaid participation requirements).

> **By repeatedly failing to fund OCCHE and designing its major climate law without health sector–specific funding opportunities, Congress made it more difficult for OCCHE to do the work envisioned by its chartering executive order.**

Externally, OCCHE faced some opposition to action on climate change from certain private sector health organizations; some national industry associations also expressed concern about the burdens that climate-related work could place on their members and questioned HHS's legal authority to regulate on climate change. Citing similar burdens, health industry stakeholders also expressed concern about the Federal Acquisition Regulation requiring suppliers

to track and reduce emissions and joined other industries in strongly pushing back on proposed SEC climate disclosure regulation, stalling its finalization. The National Academy of Medicine's Climate Collaborative, a public-private effort to take action on decarbonizing the health sector, provided a venue for debating and resolving such issues, though progress was gradual. In early 2024, the Joint Commission proposed adding sustainability measures to their accreditation standards and sought public comment. Intense opposition from hospitals and health systems curtailed that proposal and resulted in the Joint Commission instead developing a certification program for sustainability that was separate from the much more powerful accreditation criteria (which can be de facto conditions of participation in Medicare and Medicaid for most hospitals). Cumulatively, these private sector actions diminished OCCHE's ability to recruit the majority of hospitals and health systems to the WH/HHS Pledge or to similar efforts. The lack of regulatory requirements that resulted from this widespread industry opposition relegated OCCHE to advocating for sustainability work through, for example, access to IRA funding and appealing to economic interests and social responsibility, rather than through regulatory compliance.

Assessment of Progress and Lessons Learned

Assessment of Progress

Despite the challenges enumerated above—and associated limitations and delays—OCCHE and other government agencies nonetheless had some success in catalyzing action to address the health threats associated with climate change. In an attempt to accurately describe the nature and extent of that progress, this paper uses a framework (noted in a 2017 article by Joe McCannon, Becky Margiotta, and Abigail Zier Alyesh) to assess how successful OCCHE and HHS were at raising awareness of climate-related threats (awareness), securing commitments to act (will-building), and actually changing policy or practice (implementation) among key stakeholder groups: internal HHS and federal government actors, health sector stakeholders outside of the federal government (such as state and private sector entities), and members of the public.

With respect to internal stakeholders, progress was significant. By the close of the Biden administration, all relevant HHS agencies, including major operating divisions like CMS, NIH, ACF, and CDC, had come to understand the nature of the threats climate change presented to the populations they served. Through a combination of OCCHE efforts and increasingly visible catastrophic and chronic health impacts, these agencies became well aware of the need to act and in most cases had senior-level sponsorship, evidenced by commitments of human resources to address these challenges. In turn, almost all HHS agencies

initiated or deepened activities to enhance climate resilience or stimulate decarbonization, undertaking activities that ranged from introducing new tools for public health and health-care organizations (like CDC and OCCHE heat-tracking tools) to introducing new policies or incentives (like the CMS microgrid waiver or the CMMI Decarbonization and Resilience Initiative). A set of ninety accomplishments and planned activities, involving each operating division and many staff divisions, is recorded in the HHS Climate Change and Health Equity Strategy Supplement. While HHS and its agencies did not fund these actions as fully as possible and did not completely integrate them with other ongoing work (for example, the agencies failed to update the Emergency Preparedness Rule to incorporate prospective climate-related risks), these actions nonetheless represent some progress over the four-year period in question.

Outside of HHS, there was also increased attention to the health impacts of climate change, although it was uneven. Federal health systems, for example, took very seriously the requirements for decarbonization action in EO 14057, dedicating teams to meet its requirements, and also took operational resilience for their healthcare facilities into consideration. The EPA also collaborated with OCCHE to update guidance for its Portfolio Manager platform to better support healthcare organizations in tracking emissions. The agencies that implemented the IRA met with OCCHE to hear the health sector's concerns and eventually took part in sessions to educate the health sector on the tax incentives and grants made available by the law. However, gaining the sector's attention was generally difficult, and neither OCCHE nor any other HHS agency was invited to be involved in shaping relevant regulations in order to make them more relevant or actionable for the health sector. At the level of state government, some states made significant attempts to deepen climate resilience, particularly among Medicaid populations, through the use of waiver authorities and by leveraging LIHEAP. Many states and localities also introduced incentives and requirements to report facility emissions, including through Medicaid.

OCCHE's independent analysis of emissions disclosures and energy use reporting in U.S. hospitals concluded that 29 percent were required to report their emissions or were voluntarily doing so by the end of 2024.

Engagement of the broader health sector during this period was significant, if not quite as widespread. By 2024, a Commonwealth Fund survey showed that almost 80 percent of clinicians viewed climate change as an important issue for their hospital systems to address while nearly as many clinical leaders reported in the same study that their facilities were pursuing climate-related policies of some kind. Similarly, the WH/HHS Pledge engaged hundreds of stakeholder organizations, and OCCHE's independent analysis of emissions disclosures and energy use reporting in U.S. hospitals concluded that 29 percent were required to report their emissions or were voluntarily doing so by the end of 2024. Some of these commitments appear to have stimulated a reduction in emissions; for example, Practice

Greenhealth found that in 2024, approximately 500 hospitals—about two-thirds of which were pledge signatories—avoided 185,000 metric tons of emissions through climate mitigation projects, an accomplishment equivalent to getting 40,412 gas-powered vehicles off the road. There were also significant efforts from states (such as Michigan) and coalitions (such as the CHARGE Partnership or the essential hospital cohort) to accelerate the uptake of IRA funding opportunities by the health sector.

As noted above, most facilities were already required by federal regulations such as the CMS Emergency Preparedness Rule and federal programs such as the Hospital Preparedness Program to pursue minimum standards of emergency readiness prior to the Biden administration and the creation of OCCHE. However, despite awareness of climate-related threats, the degree of clinical and operational preparedness for relevant climate-related stressors and catastrophes still appears highly variable, both in surveys of facilities and in differences in operational resilience during climate-related events.

Over 70 percent of the U.S. public now accepts that global warming is occurring, and associated awareness of the health threats associated with climate change appears to be growing. However, the number of people living in the United States who expressed serious or moderate concern about the health threats associated with global warming was still under 40 percent in 2024, and in 2025, climate change still ranked behind issues like affordability, corruption, democracy, and immigration for American voters. Moreover, concern about climate health appears to be associated with personal exposure, as those experiencing climate-related catastrophes are much more likely to characterize climate change as a threat. There is therefore little to suggest that the American public has comprehensively reckoned with climate-related health threats and less to indicate that any broad action has occurred at an individual level with respect to deliberate preparation for climate-related health threats. Public engagement and action might have improved had HHS, OCCHE, and other federal agencies had budget and staffing to support efforts to effectively convey the harm and costs associated with climate change and communicate the health co-benefits of climate action to internal and external stakeholders.

As represented in table 1, our view is that efforts during the Biden administration by OCCHE and other federal agencies to increase awareness, engagement, and action on climate and health were most successful within HHS, with some successful collaborations elsewhere in the government (for example, in the federal health systems and the EPA) and with a subset of other health sector stakeholders. As the work expanded to the broader health sector and the public, it became gradually more diffuse in its impact. Nonetheless, there was meaningful progress and, had the November 2024 presidential election had a different outcome, numerous impactful federal policies could have been implemented (such as the Decarbonization and Resilience Initiative, the updated Emergency Preparedness Rule, the updated Federal Acquisition Regulation, or additional IRA guidance), putting wind in the sails of states, localities, healthcare organizations, companies, and nongovernmental organizations committed to equity, decarbonization, and resilience.

Table 1. Success of OCCHE and HHS in Catalyzing Action on Health and Climate Change

	Raised Awareness	Built Will	Achieved Implementation
HHS	Yes	Yes	Partial
Federal Government	Yes	Partial	Partial
Other Health Sector Stakeholders (for example, health systems, states)	Yes	Partial	Partial
Public	Partial	No	No

Note: "Raised Awareness" in this context means the targeted organization or group broadly understands the health threats associated with climate change and understands appropriate actions to enhance resilience and reduce emissions. "Built Will" means that the organization or group has made public commitments to action to advance climate health and equity. "Achieved Implementation" means that the organization or group has taken relevant actions to deliver on commitments and/or has successfully improved outcomes.

Critical Lessons for Future Administrations

Reflection on efforts to advance climate health and equity during the Biden administration yields several key insights that can inform future policymakers and HHS leaders. These include lessons on governance, funding and strategic engagement, and policy.

Governance

- Significant new policy directions require engagement of senior political officials (ideally at or above the cabinet level). OCCHE often struggled to connect with divisions of HHS and other agencies where senior leaders and staff did not feel climate and health were part of their core mission, a directive that usually comes from the top. OCCHE tended to have more success when the Office of the Secretary of HHS was directly involved—for example, on farmworker health.
- Similarly, a cross-cutting office like OCCHE is best situated—at least initially—as an initiative within the secretary's office. While OASH has traditionally been the home of certain cross-cutting offices, elevation to the secretary's office would likely have facilitated engagement with and greater support from HHS divisions and other agencies. Over time, the office might pursue permanent authorization from Congress to become a standalone agency or have its operations absorbed into a larger agency like CMS, with stable funding made available.

- OCCHE's mission was compromised by a lack of congressional awareness and support. Given the central importance of receiving congressional authorization and appropriation for a new office created by executive order, a focus on aggressive congressional outreach and education should be a priority for any future similar program. Such support also indicates that the office is intended to last multiple administrations, which transforms how it interacts with federal and nonfederal stakeholders alike, because the stakeholders can count on a continuing partner.

Funding and Strategic Engagement

- Lasting health policy transformation for climate change requires subnational public and private sector support. It is extremely difficult to engage effectively as a federal agency without some kind of incentive in the form of grants, cooperative agreements, or other funding transfer mechanisms. A future office seeking to create cross-cutting transformative policy change must have adequate funding and mechanisms to be able to engage strategically with and directly support these stakeholders.

- Likewise, climate and health funding appropriated by Congress, such as the IRA, should be implemented as intended. Uncertainty created by cuts to implementing agencies, maneuvers to pull back money that had already been transferred, and massive changes to the law have significantly hampered the IRA's ability to finance clean energy and climate resilience solutions.

- An understanding that climate mitigation and resilience is integral to public health must be clearly communicated to the public. Conveying the benefits of climate action to communities is a key entry point to much deeper engagement from the public, media, and policymakers. Similarly, strategic communications must "connect to pain"—such as disasters, disruptions in service, invisible or chronic health problems, and affordability—to inspire policy and program solutions for vulnerable groups.

Policy

- Climate resilience, with its need for long-term planning and dedicated funding streams, is hindered when it is assigned to agencies responsible for emergency response. This will become more true as climate change increases the frequency and severity of natural disasters. The skill sets and disciplines necessary for emergency response are quite different from those required for longer-term climate resilience, and when one agency or one senior leader is responsible for both, the longer-term problems tend not to receive necessary attention or investment.

- While there is clearly a need for climate resilience for the nation's hospitals, much of the suffering and poor health outcomes associated with climate change come from system failures and inadequate resilience in community health centers, nursing

homes, post-acute care, primary care, rural facilities, and other organizations that serve vulnerable groups. These types of service providers generally lack programming or funding for climate resilience. Regional care coalitions under the Hospital Preparedness Program have been encouraged to include these facilities in their training and preparedness activities, but there is no dedicated funding for them.

- In the future, design and implementation of climate and health funding should consider the specific needs of the health sector as both a major economic segment and an essential community service. As noted above, nonprofit hospitals were generally not able to go through the complex allocation process to leverage the energy efficiency deduction. In addition, while OCCHE did all it could to support health sector entities, dedicated funding opportunities and technical assistance could have massively accelerated the healthcare sector's ability to take advantage of the IRA's substantial and transformative resources.

- Finally, Congress must legislate to help existing federal programs adapt to climate change. For example, while LIHEAP can be used for cooling assistance, its grant structure favors heating assistance, and it could also be redesigned to incentivize the introduction of renewable technologies that enhance energy efficiency. In addition, Congress should consider how the Medicare and Medicaid programs can provide care better adapted to the risks of climate change through telehealth, better care coordination, and updated coverage policies for items like air conditioners.

Recommendations

Given that the health risks associated with climate change are growing—and given that federal forces are currently exacerbating these threats through negligence and destructive policy like the "endangerment finding" rescission—those seeking to protect vulnerable populations from climate-related harm cannot afford to break stride. Indeed, for the remainder of the second Trump administration and beyond, stakeholders from state and local governments, public health agencies, health systems, healthcare suppliers, civil society, and the public must carry out a set of activities that build political momentum and produce bright spots for the future, like effective local policies, models of resilience, and decarbonization in communities and facilities.

In areas where they have political control or significant funding, organizations must creatively address challenges of awareness, engagement, and implementation, helping the public and policymakers to both grasp the severity of climate-related health threats to vulnerable populations *and* introduce approaches to financing, care delivery, and operations—in public health and healthcare—that reliably protect those at risk and increase sustainability and efficiency. Where Trump administration policy increases emissions, risk, and harm,

advocates of climate action must simultaneously communicate those dangers in ways that are compelling and introduce national and local alternatives.

Accordingly, we recommend a series of near-term and longer-term actions that those seeking to advance climate health can pursue, and we enthusiastically invite other ideas for accelerating this work. We recognize that many of these actions are already being championed by nongovernmental organizations and other health sector stakeholders and give illustrative examples of certain ongoing efforts; these highlights are not intended as a comprehensive list.

Near-Term Recommendations (2026–2028)

From now until the end of the second Trump administration, funders, government, donors, and the researchers they support should*:*

- Build evidence around health and operational cost-savings associated with healthcare resilience and mitigation actions, driving awareness of best practices. Peer-reviewed research on these topics can help set the stage for state and federal incentives, new care standards and accreditation requirements, and performance improvement activities.

- Produce studies to document the specific health harms and associated costs of destructive Trump administration climate policies and the delayed transition to clean energy, as well as the health benefits and savings associated with emissions reduction policies at state and local levels (such as congestion pricing in New York City).

- Backfill and expand national and local data and surveillance information on climate and health that has been deleted or discontinued by the current administration in order to create a more complete picture of current climate health impacts (like the screening tools created by Public Environmental Data Partners) and outline future risks. These efforts should seek to more comprehensively map health risks, harms, and healthcare costs associated with climate change, using artificial intelligence where appropriate to improve predictions and stratify information to better assist vulnerable groups.

- Comprehensively map (for the United States) the current health co-benefits and cost savings associated with broader economy-wide investments in climate mitigation and renewable energy.

- Study the health implications of climate-related phenomena (such as migration, international conflict, and further erosion of equity) and threats and opportunities associated with new technologies like artificial intelligence.

Taken together, actions like these can help build a broader narrative that both frames the climate health crisis as an issue of national concern and highlights potential solutions, which would help spur new policy and collective action and become an asset to the larger movement to tackle climate change.

Funders and the nongovernmental organizations they support should:

- Convene key industry stakeholders to identify policy priorities for a future administration that promote equity, lower pollution, and increase resilience to climate-related health hazards. Specifically, such discussions should include: experienced federal, state, and local officials in the healthcare, environment, energy, disaster management, economic, and tax fields who can identify potential policy levers for future administrations (like CMS conditions of participation, community benefit requirements, LIHEAP updates, updated tax deductions for building efficiency, or loan programs), as well as private sector stakeholders (such as healthcare executives, insurance executives, employers, accreditors, and representatives from life sciences, pharmaceuticals, and device industries), researchers, and representatives of the most vulnerable segments of the public.

- Organize members of the public, clinicians, provider organizations, and insurers that have experienced disproportionate climate-related harms—such as disruptions in service, catastrophic damage, and chronic exacerbations associated with pollution and climate change—to document experiences and advocate for justice in federal and state policy action.

- Highlight state, local, rural, and facility-based bright spots of resilience (like Practice Greenhealth's Environmental Excellence Awards data for hospitals) and mitigation, reinforcing these through communications and learning networks.

- Explore with accrediting agencies the potential testing of more rigorous facility requirements for climate resilience and sustainability.

- Identify and support effective models of engaging health system suppliers on Scope 3 emissions reduction at national and state levels (such as the Collaborative for Healthcare Action to Reduce MedTech Emissions or Practice Greenhealth/Health Care Without Harm's Climate Excellence Standard).

- Explore points of intersection and potential alignment between efforts to improve climate health and reduce harm from indoor and outdoor pollution (like toxic exposures from gas stoves).

Funders and the advocacy organizations they support should:

- Test alternate framings of information on risks, harms, and benefits of action on

climate health with the public, policymakers, provider organizations, insurers, and the media in order to determine the resonance of different health and affordability messages for electoral campaigning and future policymaking and identify the most effective channels of communication.

- Communicate tested climate and health messages, including compelling data points and talking points, to relevant candidates and policymakers and engage influencers (for example, the PeopleSay.org) and influential local leaders in affected areas on climate change, public health, and affordability to advance messaging that connects climate action to health benefits.

Congress, federal officials, and state and local officials should:

- Protect and accelerate the efforts of federal staff continuing to lead impactful climate and health work, including staff implementing key tax credits for renewable energy generation and storage as well as the Energy Star program (now jointly run by the EPA and DOE), which recently released a label standard for medical imaging equipment. From the outside, stakeholders can both advocate for the continuation of valuable programs and help healthcare organizations take advantage of these opportunities.

- Fund further demonstrations at state, local, and facility levels of the health and cost benefits of investments in resilience (like leveraging Medicaid Managed Care and Medicare Advantage flexibilities to furnish air conditioners for at-risk beneficiaries or establishing resilience hubs) and sustainability (like on-site renewable energy or building efficiency improvements).

- Link innovative state and municipal stakeholders to one another and to innovative international consortia to align with state-of-the-art policies and programs.

Longer-Term Recommendations

In the future, administration officials at a federal level who are aligned with an agenda to advance climate and health should:

- Elevate climate and health to a prominent place in administration policy strategy, explicitly integrating health co-benefits and cost calculations into all climate-related policy and integrating climate change considerations into health-related policy as a critical social determinant of health

- Strongly position climate and health throughout the executive branch with fully funded staff or offices in: the Executive Office of the President (like the Council on Environmental Quality or Domestic Policy Council); the HHS Office of the

Secretary (proposed location of reinstated office on climate health and equity, which should have a minimum of twenty full-time employees); major HHS divisions (like NIH, CMS, CDC, ACF, and FDA); federal health systems; and other relevant agencies (like the Department of the Treasury, the EPA, FEMA, and DOE)

- Launch an integrated climate and health strategy, articulating:
  - Government-wide aims in this area (such as objectives related to reduction in climate-related illness, increased resilience in vulnerable communities, or decreased sector-wide emissions)
  - Specific planned strategic actions and associated funding requests from HHS divisions that relate to research, measurement, technical assistance, financial assistance, regulatory action, and clinical training (which CMS and HRSA significantly fund)
  - Key climate and health policies that HHS or other agencies can immediately revisit or reintroduce within existing authorities, such as:
    - The CMMI Decarbonization and Resilience Initiative, with payment incentives for third-party verified emissions reductions
    - Updates to the CMS Emergency Preparedness Rule, including the explicit addition of prospective risk from climate change–related hazards in the all-hazards approach (for example, facility preparedness for flooding)
    - Subject matter focus on facility climate resilience via the CMS QIO program, resulting in effective technical assistance to nursing homes and other healthcare organizations
    - Approval of state waivers from Medicaid organizations seeking to address health-related social needs exacerbated by hazards like extreme heat through policies such as air conditioner and air filter coverage for at-risk beneficiaries
    - Expansion of NIOSH's foundational research to support the creation of a wildfire exposure standard for workers
    - Finalization of the Federal Acquisition Regulation that would have required suppliers over a certain size to track and reduce their emissions, including health sector suppliers who should also be engaged to introduce sustainable products and medicines
    - Implementation of the SEC rule requiring organizations to provide certain climate-related information in their registration statements and annual reports

- Reinstatement of HUD's Green and Energy Efficient Mortgage Insurance Premium for Healthcare Facilities
- Finalization of OSHA's proposal to regulate outdoor worker exposure to extreme heat

– New climate and health policies that can be introduced via HHS, other agencies, or executive order, such as:

- Phaseout of desflurane across federal health systems, following the lead of the National Health Services of England and Scotland, and inclusion of a specific place to track anesthetic gases in the Energy Star Portfolio Manager
- Development of a decisionmaking framework for declaring public health emergencies for climate-related hazards that haven't previously triggered emergency status (such as extreme heat).
- Separation of climate resilience for the health sector from the emergency preparedness and response functions of ASPR. This should involve creating a new and unique office for health sector resilience within CMS or HRSA, or as part of a new OCCHE.

– New policies, pending congressional funding and statutory authorization, such as:

- Expansion of CMS statutory authority to introduce requirements for health systems to report and reduce emissions and other forms of environmental pollution
- Expansion of FDA statutory authority to track emissions in production of approved drugs, technology, and equipment
- Appropriated funding for facility resilience and sustainability investments through the CMS QIO program or for resilience hub development in vulnerable communities through HRSA technical assistance programs
- Updates to LIHEAP's grant structure and additional funds to ensure cooling assistance is available in addition to heating assistance
- Inclusion of health sector concerns in the reinstatement of certain clean energy, energy efficiency, and climate resilience programs established by the IRA
- Expansion or reintroduction of tax rebates for home electrification and sustainable appliances (for example, shifting away from gas stoves)

    - Expansion of federal extreme heat response funding and flexibilities, either through amending the Stafford Disaster Relief and Emergency Assistance Act or through new legislation

    - Introduction of requirements for hospital community benefit investments and Community Health Needs Assessments to prioritize community resilience and readiness for vulnerable populations

- Keep intact—and secure additional funding for—international, national, and local learning networks that have emerged to maintain momentum and improve climate health since 2025.

- Restore U.S. support and prominence in global health settings through dedicated staff and funding, with formal coordination among the HHS Office of Global Affairs, the U.S. Agency for International Development (USAID) or equivalent, and the State Department.

Notably, we believe that a subset of these recommended actions has potential to generate bipartisan interest and consequently may merit particular attention in the coming months and years. For example, a recently-launched bipartisan Congressional Extreme Heat Caucus is evidence of broad concern on this topic, and the introduction of state government offices and resources to address extreme heat impacts in affected "purple" states like Arizona also suggests increasing understanding of related threats. Likewise, while there is broad variability in climate-related health exposures and health systems readiness, ongoing investments in community resilience and infrastructure hardening in Republican states like Florida indicate growing acceptance of increasing catastrophic weather events (regardless of beliefs about their source).

Relevance to Other Governments and International Activity

While the U.S. health system is unique in many respects (including its size, privatization, fragmentation, and spending levels) the approaches and challenges described above are nonetheless relevant to other governments seeking to catalyze action on climate and health. In particular, learning and recommendations related to interagency governance and collaboration seem broadly applicable, as do OCCHE efforts to systematically build capacity throughout HHS. Ensuring that the health implications of climate change are understood and accounted for across government departments and in legislative bodies is critical for any country seeking to reflect the destabilizing nature of climate change in planning healthcare services, healthcare spending, and disaster preparedness and introduce associated regulations. Proactively educating all health authorities on climate health avoids isolating this critical knowledge in any one office or expert group.

In addition, OCCHE's interactions with private sector healthcare institutions might prove relevant for countries where a large proportion of care comes from private sources; many of the office's strategies for raising awareness, building will and supporting implementation of new practices in hospitals and health systems, for example, are repeatable. Its interactions with other private sector stakeholders (like insurers and suppliers) and the research community through entities like the National Academy of Medicine's Climate Collaborative can also be instructive.

International exchanges of knowledge on climate and health are also critical, and OCCHE sought to contribute to those where possible. The United States sent its first high-level delegation to the twenty-sixth United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP26) meeting in Glasgow in 2021. The establishment of the COP26 Health Programme, which called upon countries to commit to decarbonizing and enhancing the climate resilience of their health systems, occurred at the same time OCCHE was formally launched, providing an impetus to add a "climate smart health care" focus to the existing mandate for public health protection provided by EO 14008. HHS had previously engaged internationally (for example, through NIEHS and its World Health Organization Collaborative Center for the Environmental Health Sciences), but the establishment of OCCHE and OCCHE's broader health system mandate allowed the United States to play a stronger leadership role in international climate change and health activities than had been previously possible. U.S. commitments may have been a contributing factor in the large number of countries signing on to the COP26 Health Programme. OCCHE also played a key role in establishing an informal working group of countries seeking to harmonize national procurement standards for sustainable healthcare products from multinational supplier organizations.

In 2022, the World Health Organization launched the Alliance for Transformative Action on Climate and Health as a platform to support countries that had committed to the COP26 Health Programme. OCCHE staff participated in several of the alliance's working groups, although USAID represented the U.S. government on issues of health system resilience in lower-income countries. OCCHE sought in this group to catalyze more action among wealthier countries with greater capacity and greater responsibility for carbon emissions, but efforts in that regard focused mainly on aligning procurement policies through the informal procurement working group noted above.

Broadly speaking, the United States and other countries with public health systems learned a great deal from the United Kingdom and especially England, the global leader in government action on climate and health through a well-staffed Sustainable Development Unit within NHS England created by the Climate Change Act of 2008 and more recently the Greener NHS Program. The legislative mandate for decarbonization was renewed and expanded under the United Kingdom's Health and Care Act of 2022, which formally required NHS England to achieve net zero greenhouse gas emissions by 2040. The commitments and resources of this office are worthy of study and emulation.

About the Authors

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