



Creating an Optimal
Environment for Quality
Healthcare for Individuals,
Families, and Communities

Building a Climate-Resilient, Sustainable Health System in Service of the Most Vulnerable Beneficiaries

April 8, 2024



CMS 2024
Quality
Conference
Resilient and Ready Together

Creating an Optimal
Environment for Quality
Healthcare for Individuals,
Families, and Communities



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Air Pollution & Increasing Allergens

Asthma, allergies, cardiovascular and respiratory diseases

Extreme Heat

Heat-related illness and death, cardiovascular failure

Drought

Water supply impacts, dust storms, Valley Fever

Environmental Degradation

Forced migration, civil conflict, loss of jobs and income

Wildfires & Wildfire Smoke

Injuries, fatalities, loss of homes, cardiovascular and respiratory diseases

Degraded Living Conditions & Social Inequities

Exacerbation of racial and health inequities and vulnerabilities, loss of employment

Changes In Vector Ecology

Lyme disease, West Nile Virus, hantavirus, malaria, encephalitis

Food System Impacts

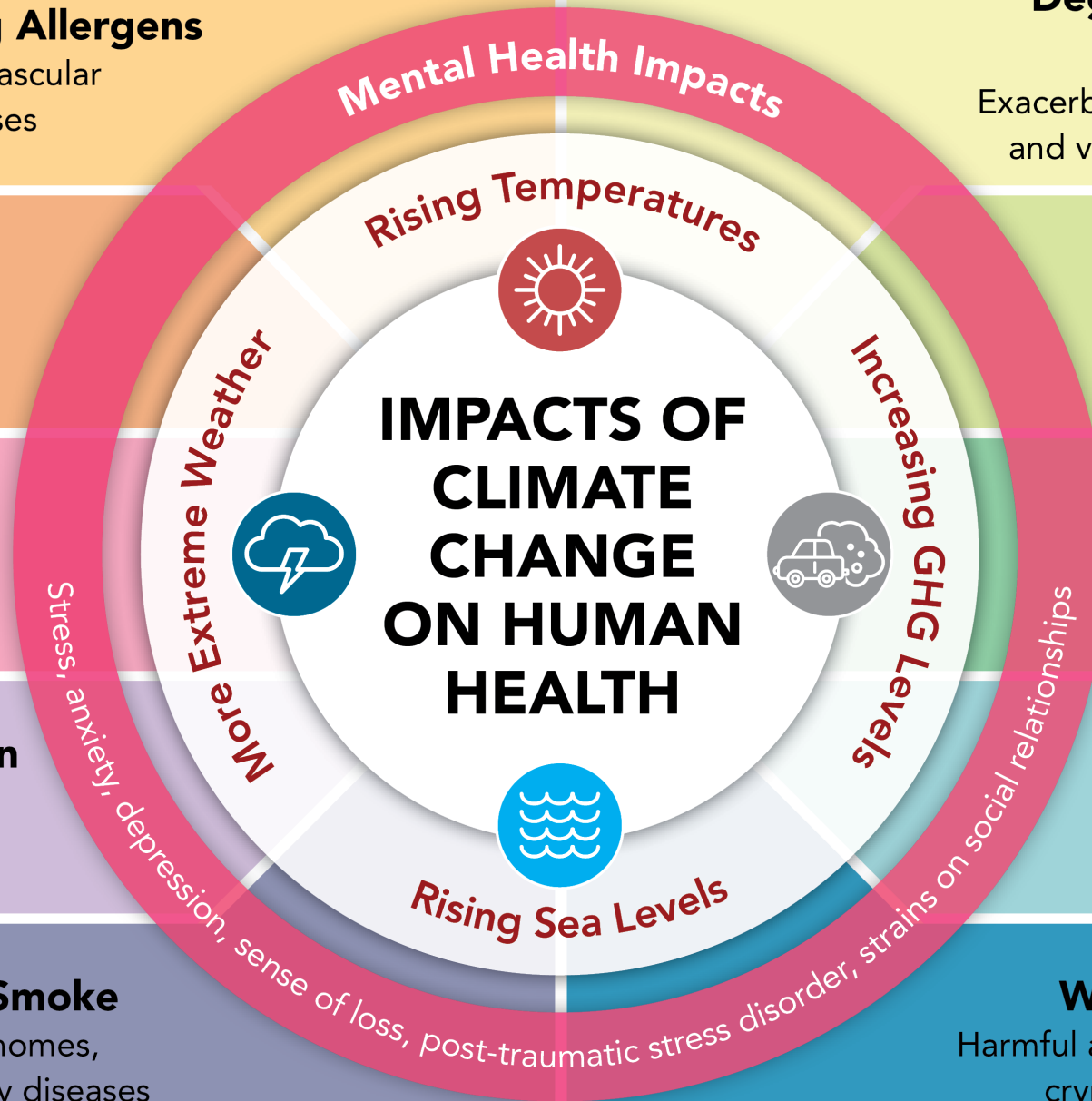
Malnutrition, food insecurity, higher food prices, foodborne illness

Severe Weather & Floods

Injuries, fatalities, loss of homes, indoor fungi and mold

Water Quality Impacts

Harmful algal blooms, campylobacteriosis, cryptosporidiosis, leptospirosis



CDPH (Adapted from CDC, J. Patz)

Implications for CMS Beneficiaries

Elderly and disabled populations

- 350,000 heat-related deaths globally in 2019 - 80% more than the average between 2000-2005 (Romanello, et al. 2021) with outsized risk for elderly groups
- Scenarios project cardiovascular death from extreme heat increasing 162%-233% by mid-century (Khatana, et al. 2023)
- Disabled people at higher risk from catastrophic events due to compromised ability to shelter and access transportation
- Increased air pollution effects (e.g., cardiovascular impacts of particulate pollution) and infectious diseases (e.g., West Nile Virus)

Communities of color and low-income populations

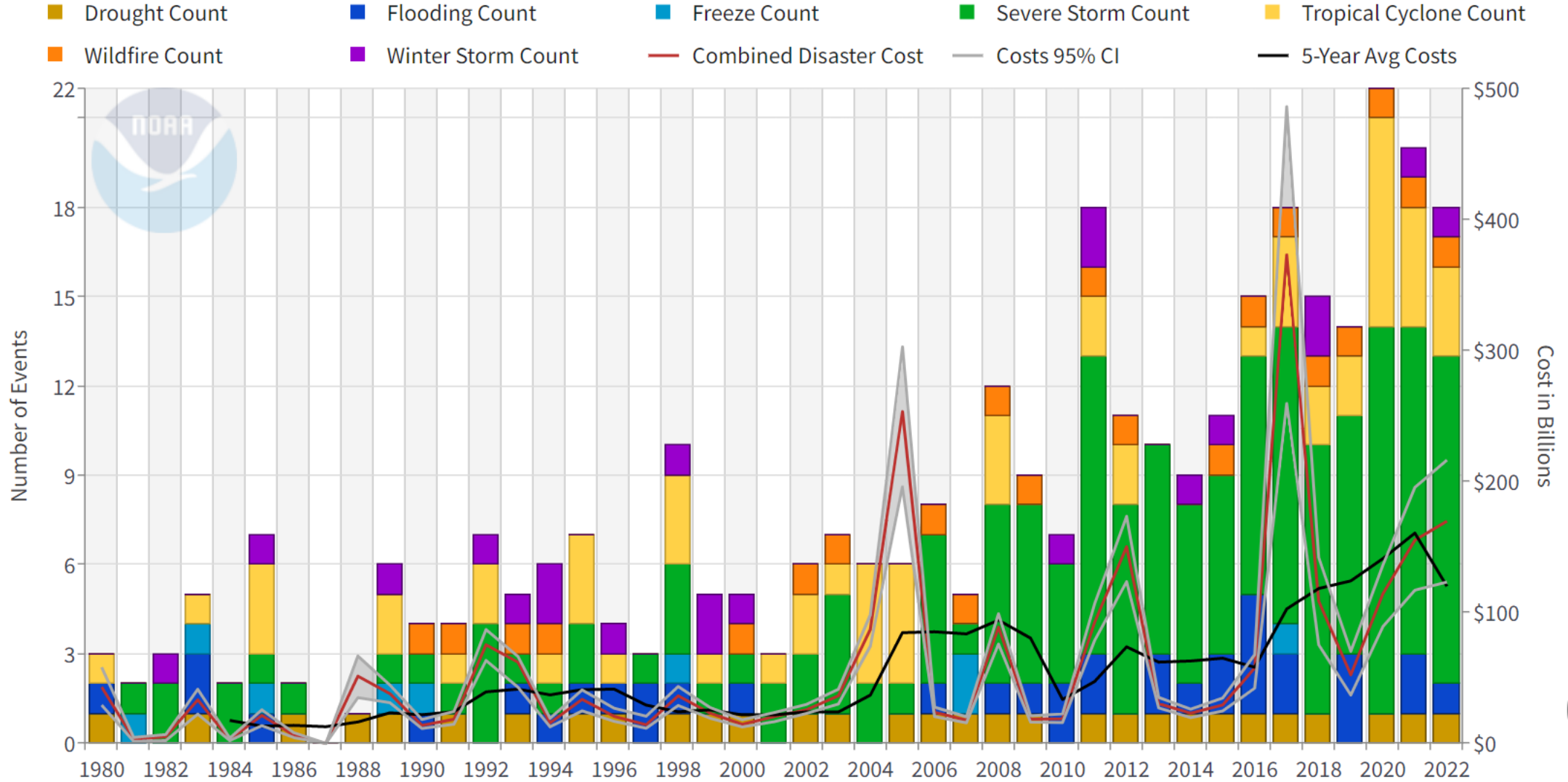
- Black people 40% more likely to live in areas with projected increases in heat-related mortality (Schramm, et al. 2020) and suffering much higher asthma rates due to increased particulate matter
- Significantly higher coastal exposures for black, indigenous and LatinX populations (EPA)

Implications for CMS Beneficiaries (cont.)

Children & pregnant women

- Developing fetus, children, & adolescents are vulnerable to exposures during critical windows of growth and development
 - Still-developing organ systems
 - Cumulative lifetime effects of hazardous exposures
- Children born today will face several times more extreme weather events over their lifetimes (e.g., heat waves) than their grandparents
- 2023 EPA report projections (for 2-4 degrees Celsius of global warming):
 - Childhood asthma incidence increases by 4-11% due to air pollution
 - Annual pediatric asthma ED visits increase 14-30% due to increased pollen exposure
 - Annual childhood Lyme disease cases increase 79-241%
 - 1-2 million children displaced due to flooding
 - Disproportionate impacts for low-income and minority children
- Climate related hazards such as extreme heat and air pollution are risk factors for adverse pregnancy outcomes such as preterm birth and low birth weight

United States Billion-Dollar Disaster Events 1980-2022 (CPI-Adjusted)



<https://www.ncei.noaa.gov/access/billions/time-series>

Implications for CMS Operations and Costs

Operations

- Almost 75% of hospital evacuations between 2000-2017 climate-related (Salas, et al. 2020).
- Eight Public Health Emergencies for climate-related hazards in 2022-2023

Costs

- OMB (2022) estimates that federal healthcare spending could increase between \$824 million and \$22 billion each year by the end of the century commensurate with expected public health effects of climate change (does not include CVD)
- 2012 study (Limaye, et al. 2019) looked at ten climate-related catastrophes with health care costs totaling \$10B-plus, more than half of which was borne by Medicare.

New York Times,
November 4, 2021

The screenshot shows a web browser displaying a New York Times article. The browser's address bar shows the URL: <https://www.nytimes.com/2021/09/07/climate/climate-change-health-threat.html>. The page header includes the New York Times logo, a search bar, and navigation links for 'CLIMATE', 'SUBSCRIBE FOR \$1/WEEK', and 'LOG IN'. The main headline is ***Medical Journals Call Climate Change the 'Greatest Threat to Global Public Health'***. Below the headline is a sub-headline: **An editorial published by more than 200 journals worldwide warned of 'catastrophic harm to health that will be impossible to reverse.'** Underneath the sub-headline are three icons: a gift icon for 'Share full article', a share icon, and a bookmark icon. A video player is partially visible below the text, showing a scene from inside a car. At the bottom of the article, there is a promotional banner that says 'Enjoy unlimited access to all of The Times.' The Windows taskbar at the bottom of the screen shows the time as 11:32 AM on 2/12/2024.

Put Another Way... (1)

There is simply no dimension of quality that climate change doesn't impact, for example:

- **Safety** (e.g., disruptions in essential services)
- **Timeliness** (e.g., disruptions in access to care during emergencies)
- **Efficiency** (e.g., unexpected costs and burdensome waste)
- **Effectiveness** (e.g., evolving, incomplete evidence base)
- **Equity** (e.g., disproportionate harm to vulnerable populations)
- **Patient-centeredness** (e.g., overburdened staff, further fragmented care)

Put Another Way... (2)

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Unequal Climate Vulnerability

People are at risk of experiencing climate change impacts when they are both **exposed** and **vulnerable** to **climate hazards**.

Figure 1.1 – Climate Change Risk Framework



The Office of Climate Change and Health Equity (OCCHE)



HHS/OCACHE Vision for Climate Health and Equity

In the next five years, communities and the healthcare organizations that serve them are transformed...

- Every community and care provider in every U.S. geography is prepared for both disruptive and chronic climate impacts on its most vulnerable populations.
- Every healthcare institution is prepared for long-term operation in the face of climate catastrophes.
- Every hospital and health system in the United States is publicly tracking its greenhouse gas emissions and is on a path to net zero by tackling Scope 1, Scope 2 and Scope 3 emissions.
- *All HHS Operating Divisions and other relevant agencies are contributing toward these goals...*

HHS Commitments and Mobilization

- COP26
- HHS Strategy (HHS CCHE Working Group)
- Federal Health Systems (Executive Order 14057 and Federal Health Systems Learning Network)
- International procurement alignment (COP27)
- HHS Climate Change and Health Equity Strategy Supplement
- First Ever Health Ministerial Meeting (COP28)



White House/HHS Health Sector Climate Pledge

1. Reduce organizational emissions by 50% by 2030 and achieve net-zero by 2050, publicly accounting for progress on this goal.
2. Designate an executive-level lead for work on reducing emissions and conduct an inventory of Scope 3 (supply chain) emissions by the end of 2024.
3. Develop and release a climate resilience plan for continuous operations by the end of 2023, anticipating the needs of groups at disproportionate risk of climate-related harm.



June 30, 2022 White House Event

White House/HHS Health Sector Climate Pledge as of November 2023

133 Total Pledge Organizations

>290 Health Centers

7 Fortune 500 Organizations

900 Private-Sector Hospitals Represented

>15% Hospitals in US (Combined Gov and Private-Sector)*

7 Pharmaceutical Companies

**Including federal health systems, over 1,140 hospitals have made the Pledge commitments*

Commonwealth Fund 2023 Survey

Percentage of surveyed clinicians who “agreed” or “strongly agreed” with the following statement:

- It is important to me that my organization plays a role in addressing climate change/minimizing its impact on the environment. **79**
- It is important to me that I play a role in addressing climate change/minimizing impact on the environment at work. **75**
- It is important to me that I play a role in addressing climate change/minimizing impact on the environment at home or outside of work. **82**

Savings for Facilities and the Health System Overall

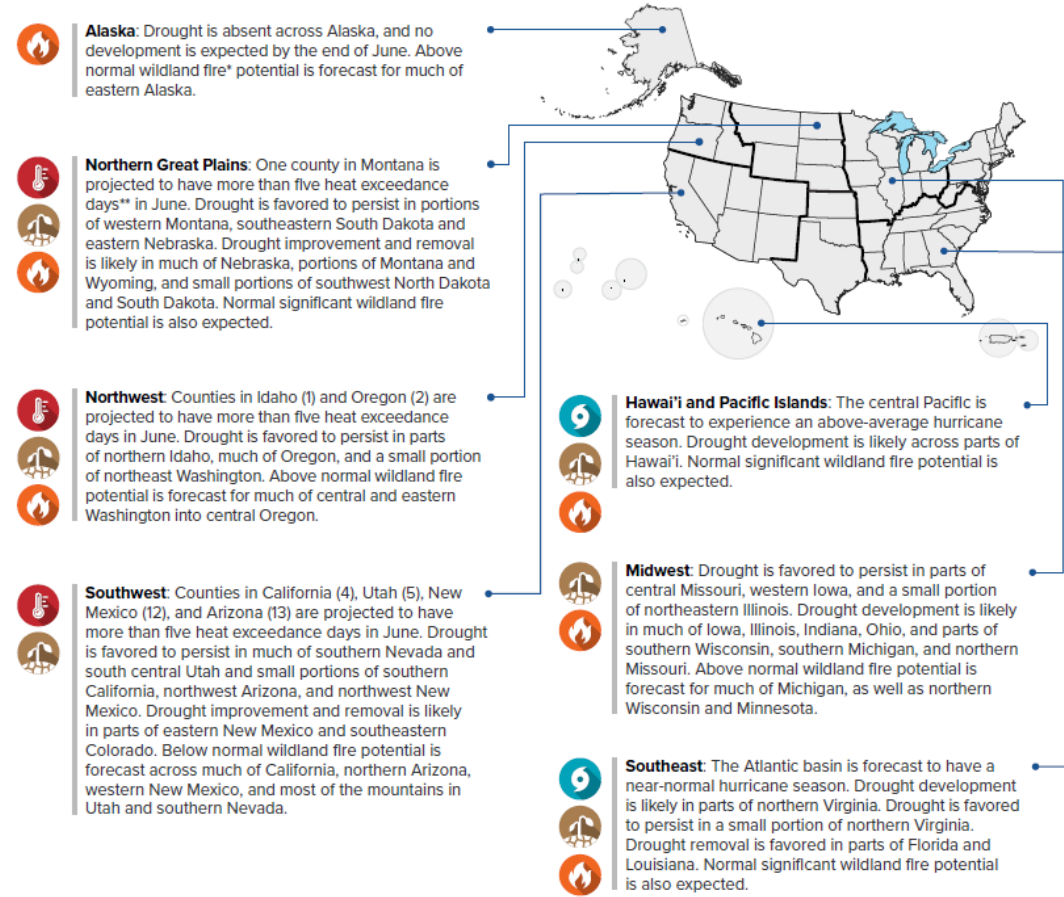
- “Data from new and retrofitted hospitals demonstrate that energy savings of 30% to 50% are often readily achievable...”
- \$390 million saved across 32 unique sector partners

Department of Energy Better Buildings Initiative

The Climate and Health Outlook is an effort to inform health professionals and the public on how our health may be affected in the coming months by climate events and to provide resources for proactive action. An [associated webpage](#) includes additional resources and information, including more detail on the wildfire and drought outlooks and populations at risk.

Climate and Health Outlook

- 19 issues produced since May 2022
- Includes information on climate hazards:
 - Extreme Heat
 - Wildfire
 - Drought
 - Hurricane
 - Tickborne Illnesses
 - Pollen
 - Spring Flooding



Drought
 Wildfire
 Hurricane
 Heat

*Smoke from wildfires can impact health hundreds of miles from site of the fire.
 **A "heat exceedance day" is when the daily maximum temperature is above the 95th percentile value of the historical temperature distribution in that county.
 Developed with data from the Centers for Disease Control and Prevention, the National Oceanic and Atmospheric Administration, and the National Interagency Fire Center.

Climate Change as a Social Determinant of Health (SDOH)

“Similar to other SDOHs, climate change worsens health, increases health care costs, disproportionately impacts vulnerable communities, and exacerbates the effects of other SDOHs”

Ragavan MI, Marcil LE, Garg A. Climate Change as a Social Determinant of Health. Pediatrics. 2020 May;145(5):e20193169



Image source:
Centers for Disease Control
& Prevention

Protecting Vulnerable Patient Populations from Climate Hazards: A Referral Guide for Health Professionals

For Providers:

- ✓ Low-Income Home Energy Assistance Program (LIHEAP)
- ✓ Low-Income Household Water Assistance Program (LIHWAP)
- ✓ Weatherization Assistance Program
- ✓ Cooling Centers
- ✓ Medicaid state plan amendments, demonstrations and other authorities
- ✓ Medicare Advantage Plans
- ✓ Disaster Supplemental Nutrition Assistance Program (D-SNAP)

For Patients:

- ✓ Climate and Health Outlook
- ✓ HEAT.gov
- ✓ Tips for People Who Take Medication: Coping with Hot Weather
- ✓ Ready.gov
- ✓ Climate Change and Extreme Heat: What You Can Do to Prepare

Health Sector Resource Hub

The Office of Climate Change and Health Equity (OCCHE) Health Sector Resource Hub is a place where organizations committed to becoming more resilient and sustainable can find helpful resources and supports.

OCCHE envisions an American health sector that both: (1) adapts to increased crises and chronic stressors in service of its most vulnerable populations and (2) uses the best available evidence and technology to mitigate its own emissions. However, despite a growing recognition of the health problems associated with climate change and the need for action, many organizations – and particularly those serving the most at-risk communities – struggle to make investments in sustainability and resilience because of insufficient funding.

All federal
resources and
opportunities



**Compendium of Federal Resources
for the Health Sector**

**Quickfinder for Leveraging the IRA
for the Health Sector**



Inflation
Reduction Act
resources

Webinars



**Accelerating Healthcare Sector
Action Webinar Series**

**Protecting Vulnerable Patient
Populations from Climate Hazards: A
Referral Guide for Health
Professionals**




Referral guide
(just released)

The Resource Hub is designed to help the health sector understand what resources, tools, and informational materials are available to accelerate the important work of emissions reduction and climate resilience. It includes the Compendium of Federal Resources, which reviews the relevant programs and policies and maps them to key steps in a health organization's journey to meet the challenges of climate change. These steps align closely with the commitments of the [White House-HHS Health Sector Climate Pledge](#). One important tool featured in the Compendium is [*Guidance for the Health Sector - PDF](#) on using the Environmental Protection Agency's free benchmarking tool ENERGY STAR® Portfolio Manager to track building-related energy and greenhouse gas (GHG)

Additional HHS Resources


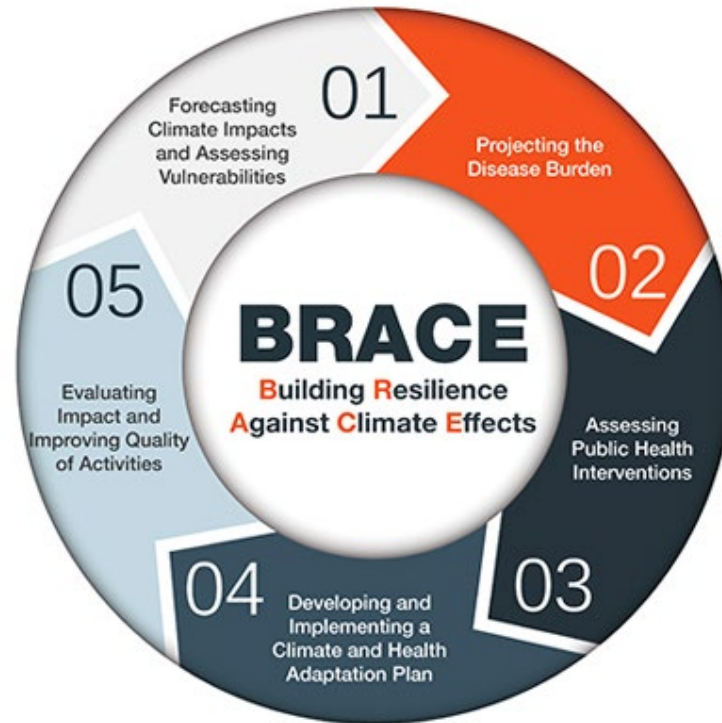
Reducing Healthcare Carbon Emissions

A Primer on Measures and Actions for Healthcare Organizations to Mitigate Climate Change






AHRQ
Agency for Healthcare Research and Quality

AHRQ Publication No. 22-M011
September 2022
www.ahrq.gov



Primary Protection: Enhancing Health Care Resilience for a Changing Climate



U.S. Department of Health and Human Services
December 2014

CMS Action on Climate Resilience and Sustainability

- Growing agency-wide attention to climate change and its impacts on beneficiaries
- Multiple centers rolling out climate-related initiatives since 2021 including:
 - Center for Clinical Standards and Quality (CCSQ)
 - Center for Medicare and Medicaid Innovation (CMMI)
 - Center for Medicare (CM)
 - Center for Medicaid and CHIP Service (CMCS)
 - Office of Minority Health (OM)
 - Office of Program Operations and Local Engagement (OPOLE)
 - Emergency Preparedness and Response Operations (EPRO)

CMS Requests for Information (2022)

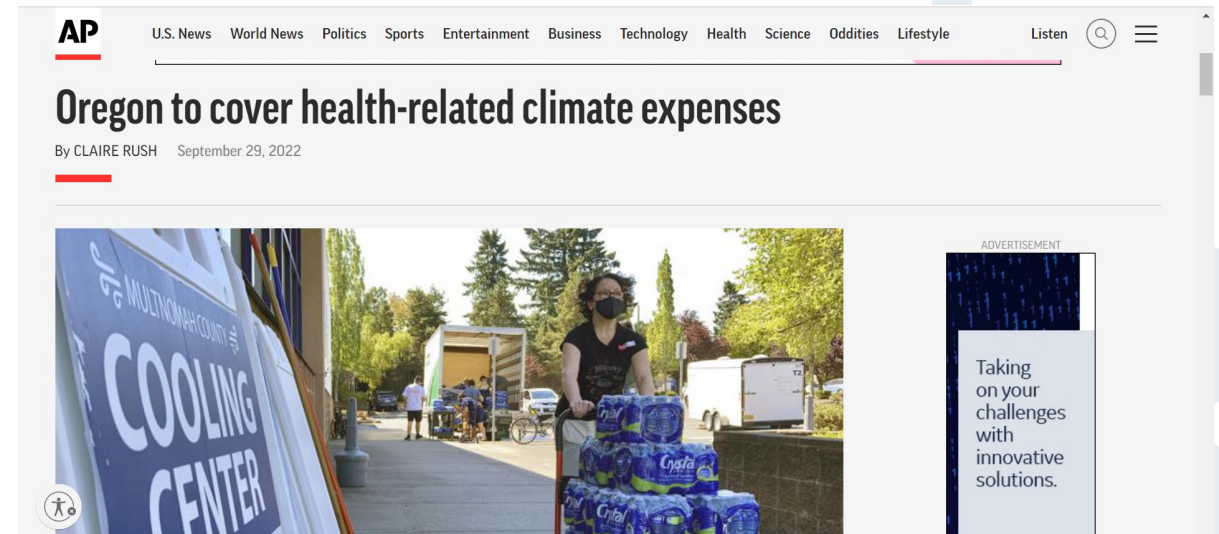
- Two CMS Requests for Information issued in 2022
 - Notice of Benefit and Payment Parameters NPRM
 - Medicare Inpatient Prospective Payment System NPRM
- Questions for commenters regarding risks related to climate change, facility resilience and sustainability (including reporting of emissions)
- Broad consensus on the importance of climate readiness, especially on behalf of vulnerable and marginalized populations
- Differing views on how best to catalyze industry-wide sustainability

CMS Microgrid Categorical Waiver (2023)

- Updated requirements on back-up energy in keeping with National Fire Protection Association (NFPA) Health Care Facilities Code (NFPA 99)
- Most provider organizations can now move beyond diesel-powered generators to microgrid systems (e.g., fuel cells, solar, wind)
- Makes investing in on-site power generation and clean energy solutions considerably easier

Momentum on Resilience (MA, CMCS)

- Letter on Implementing Supplemental Benefits for Chronically Ill Enrollees (April 24, 2019) for Medicare Advantage Organizations
- Oregon Health Plan 1115 Demonstration Waiver (other states emulating) allowing for investments in a/c, air filters, generators, etc.
- Community Benefit investments in several systems



Planned Updates to CMS Emergency Preparedness Rule

“This proposed rule would revise and update national emergency preparedness requirements for Medicare- and Medicaid-participating providers and suppliers to plan adequately for both natural and man-made disasters, **including climate-related disasters**, and coordinate with federal, state, tribal, regional, and local emergency preparedness systems based on lessons learned during the COVID-19 public health emergency and other recent events.”

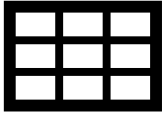




RegInfo.gov (OIRA/OMB)

The Inflation Reduction Act's Transformative Potential



Drew Angerer/Getty Images

Investments and Actions Potentially Facilitated by the IRA

Investment	Examples Strategies/Actions	Example IRA Program(s)
 <p data-bbox="417 411 794 561">Investing in On-Site Renewable Energy Generation</p>	<ul data-bbox="945 411 1559 511" style="list-style-type: none"> • Microgrid w/ battery storage • Solar array 	<p data-bbox="1760 411 2410 561">Investment Tax Credit with Direct Pay, Low-Income Communities Adder</p>
 <p data-bbox="417 629 868 725">Energy Efficiency Building Improvements</p>	<ul data-bbox="945 601 1574 701" style="list-style-type: none"> • LED lighting • Optimizing air exchange rates 	<p data-bbox="1760 601 2410 751">Greenhouse Gas Reduction Fund, Rural Energy for America Program</p>
 <p data-bbox="417 819 703 915">Low-Emissions Transportation</p>	<ul data-bbox="945 791 1518 891" style="list-style-type: none"> • Install EV charging stations • EV fleet acquisition 	<p data-bbox="1760 791 2379 941">Qualified Commercial Clean Vehicles Credit, Alternative Fuel Property Credit</p>
 <p data-bbox="417 1011 774 1106">Increased Building Resilience</p>	<ul data-bbox="945 982 1472 1082" style="list-style-type: none"> • Hurricane resistant shell • On-site power system 	<p data-bbox="1760 982 2346 1132">Stafford Act authority for low-carbon and net-zero energy projects</p>
 <p data-bbox="417 1200 843 1296">Increased Community Resilience</p>	<ul data-bbox="945 1172 1671 1272" style="list-style-type: none"> • Mitigating climate and health risks from urban heat islands 	<p data-bbox="1760 1172 2321 1322">Environmental and Climate Justice Program: Community Change Grants Program</p>

“Quickfinder” for Leveraging the IRA for the Health Sector



- About HHS
- Programs & Services
- Grants & Contracts
- Laws & Regulations

Home > Climate Change & Health Equity, and Environmental Justice at HHS > Climate Change and Health Equity > The Office of Climate Change and Health ...

- About the Office of Climate Change and Health Equity (OCHE)
- Climate Change & Health Equity, and Environmental Justice at HHS
- About the Office of Environmental Justice (OEJ)



The Office of Climate Change and Health Equity (OCHE) Quickfinder for Leveraging the Inflation Reduction Act for the Health Sector

The Quickfinder for Leveraging the Inflation Reduction Act (IRA) for the Health Sector is meant to help health stakeholders take advantage of the opportunities for resilience and emissions reduction in this historic legislation. It is divided into the following sections:

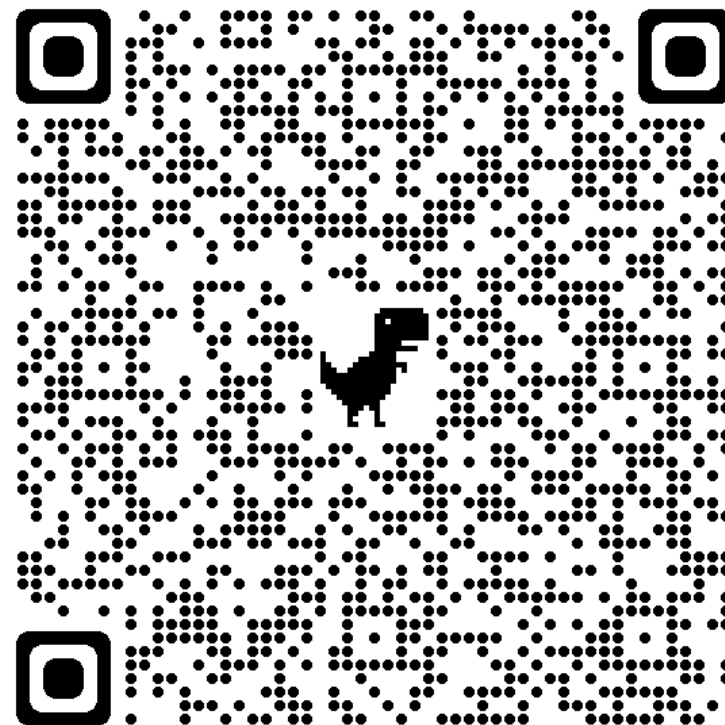
1. Background
2. Overview of Investments and Actions Potentially Facilitated by the IRA
3. Relevant IRA Programs for the Health Sector
 - A. Tax Incentives and Direct Pay Provisions
 - B. Grants and Incentives for Lowering Emissions
 - C. Grants and Incentives for Climate Resilience

Appendix A: Example Use Cases

Appendix B: General Advice for Grant Applicants

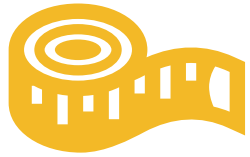
The Quickfinder will be updated as needed to reflect new announcements and additional relevant programs. Major updates will also be shared through [OCHE Alerts](#). For a more comprehensive list of federal programs that can assist the American health sector with emissions reduction and climate resilience (both IRA and non-IRA), please visit the [Health Sector Resource Hub](#). OCHE's [webinar series](#) explores these opportunities in greater detail with experts from across the government. All sessions are recorded and available any time.

Have you leveraged the IRA? OCHE would love to hear about your experience and, if you're comfortable, share what you learned with other health stakeholders. Please email OCHE@HHS.GOV. OCHE also welcomes any questions or suggestions.



IRA Catalytic Program Approach

Self-Assessment



Define & prioritize opportunities for energy efficiency, renewable energy, and climate resilience

Understand IRA Opportunities



Identify corresponding IRA programs that can support those initiatives

Navigate Applications



Learn in community with peer organizations to address specific challenges and share relevant case examples



Case Example: CrescentCare Community Health Center (NOLA)

Ways to Take Action

- *Learn*
 - OCCHE Health Sector Resource Hub
 - HHS Climate Change and Health Equity Strategy
- *Commit*
 - White House-HHS Health Sector Climate Pledge
- *Engage*
 - Catalytic Program on the Inflation Reduction Act
 - Summer 2024 referral guides and self-assessment resources

“The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise -- with the occasion. As our case is new, so we must think anew, and act anew.”

--Abraham Lincoln