



National Institutes of Health

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# Update on the NIH Climate Change and Health Program

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**National Institute of Environmental Health Sciences**

**NINR Council Meeting – September 13, 2022**



# Calls to Action: Climate Change, Health, and Research

**THE LANCET**  
October 2021

**CLIMATE, HEALTH, AND EQUITY:**  
Recommendations for the Department of Health and Human Services

2021

...surprises  
...respond to hundreds of calls

Correspondence to: J Dobson  
jdobson@bmj.com  
Cite this as: *BMJ* 375:n2425  
<http://dx.doi.org/10.1136/bmj.n2425>

**Wildfires Are Intensifying. Here's How to Protect Your Health.**

Wildfire smoke is "like tobacco smoke without the nicotine," one expert said. Here are some ways to keep yourself — and your family — healthy.

**Despite rain, out-of-control wildfire continues to burn in California**

Individual action and promotion of systemic change... Juliet Dobson, <sup>1</sup>Sophie Cook, <sup>2</sup>Howard Frumkin, and...

Despite years of aspirational promises from governments and leaders, we have acted too slowly on the climate emergency. Time is running out to reverse, or even halt, the damage.

As respected community members, health professionals can introduce the climate emergency into conversations, share knowledge, and inform debate. <sup>12</sup> Doing something tangible can give us hope and purpose, provide relief from the growing problem of climate anxiety, <sup>13</sup> make us feel part of a collective whole, and help us square up to the challenge that...

## Summer in America is becoming hotter, longer and more dangerous

By Anna Phillips, Brady Dennis, Jason Samenow, John Muyskens and Naema Ahmed  
July 2, 2022 at 11:16 a.m. EDT

In recent months, we have witnessed the effects of climate change—from deadly floods in Western Europe and Zhengzhou, China, to Canada's heat dome and raging wildfires on the US Pacific Coast. The contamination of our environment by air pollutants co-emitted with greenhouse gas emissions is a political willingness across the globe to address the real change.

**CLIMATE**  
**Clin Pub**

September  
Heard on Morning Edition

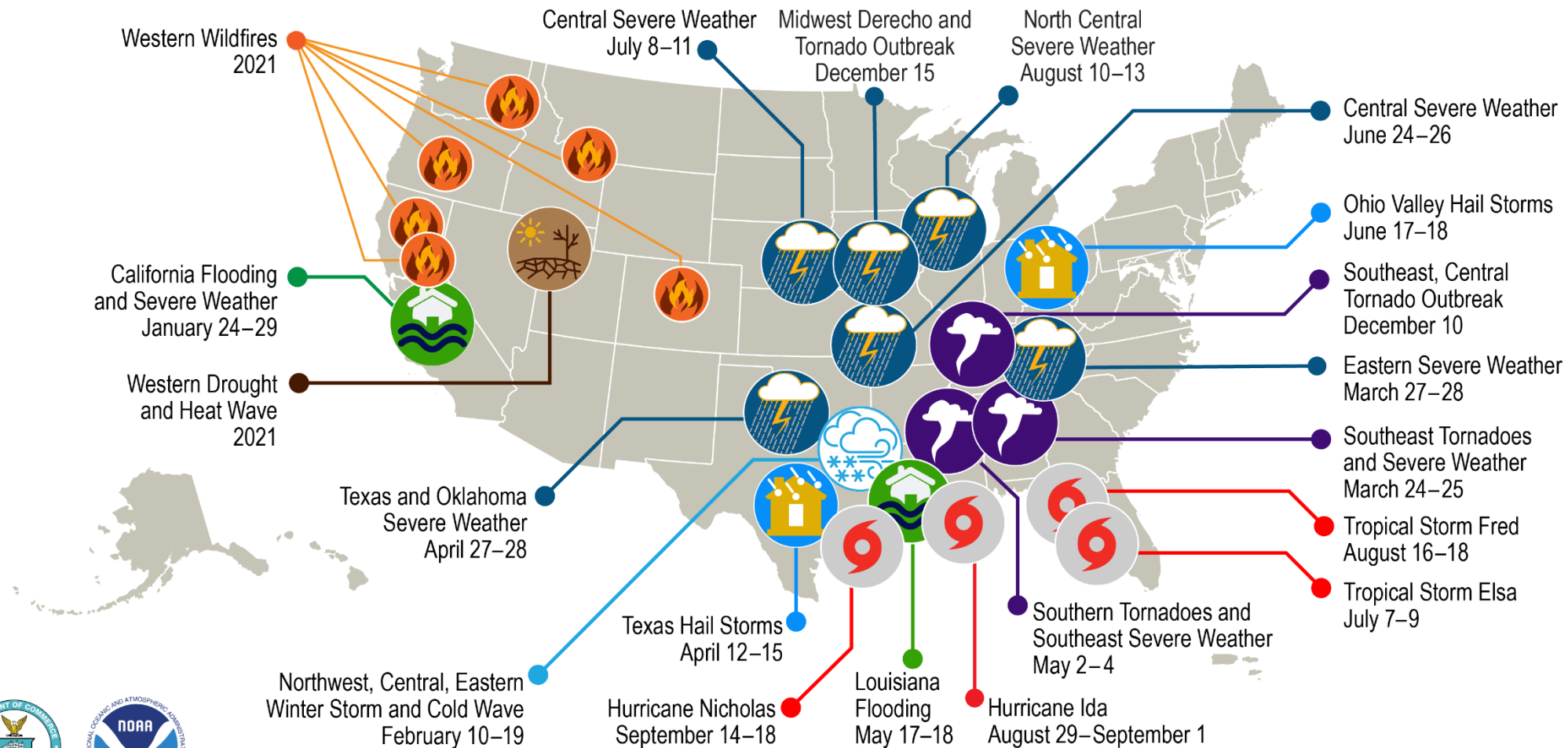
One in a hundred  
DeSantis' White  
Very damning letter  
Hear Dugina's father  
Incomper





# U.S. 2021 Billion-Dollar Weather and Climate Disasters

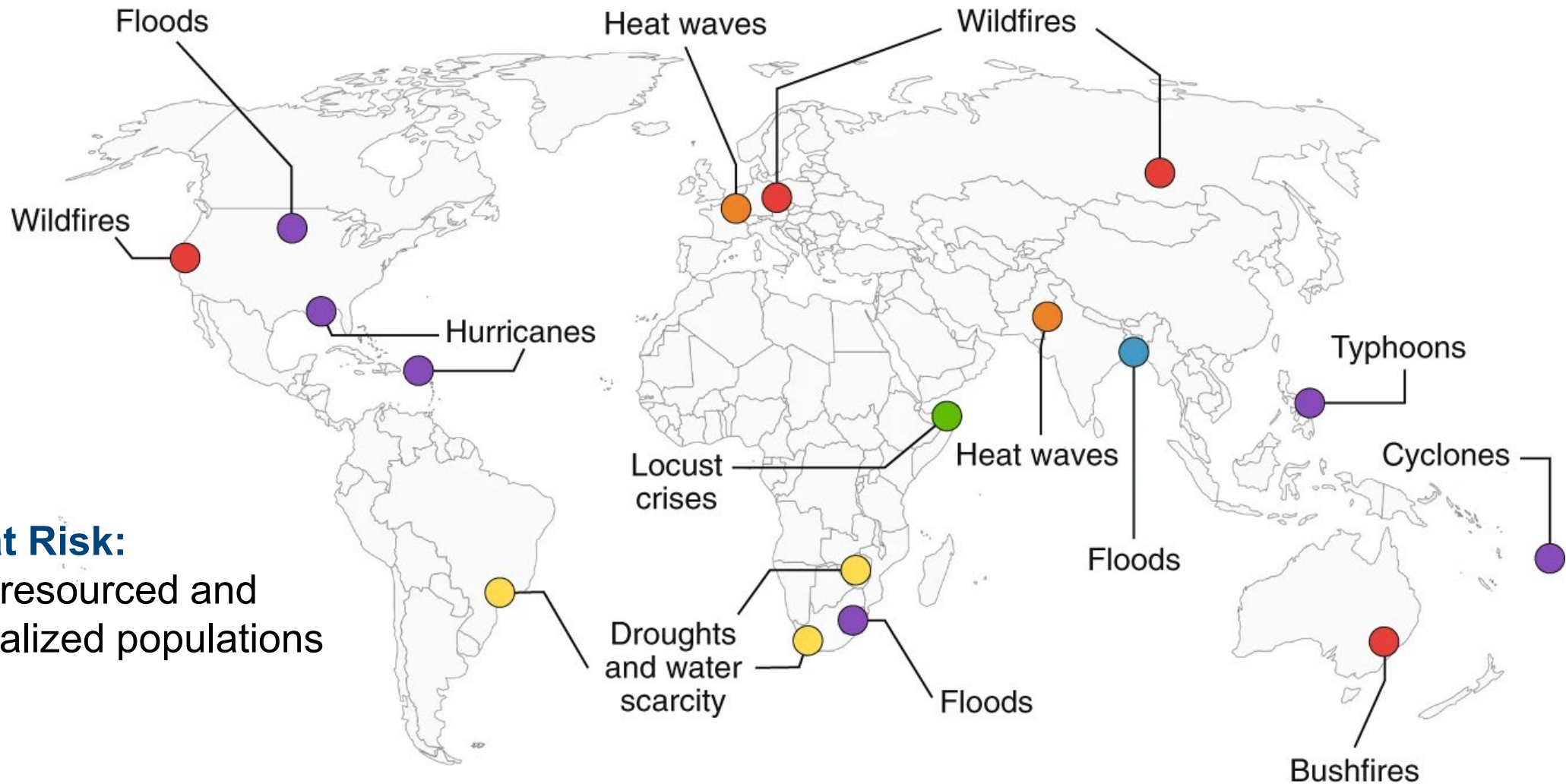
- Drought/Heat Wave
- Flooding
- Hail
- Hurricane
- Tornado Outbreak
- Severe Weather
- Wildfire
- Winter Storm/Cold Wave



*This map denotes the approximate location for each of the 20 separate billion-dollar weather and climate disasters that impacted the United States in 2021*



# Global View of Climate Related Disasters and Events During 2019-2020



**Most at Risk:**  
Under-resourced and  
marginalized populations





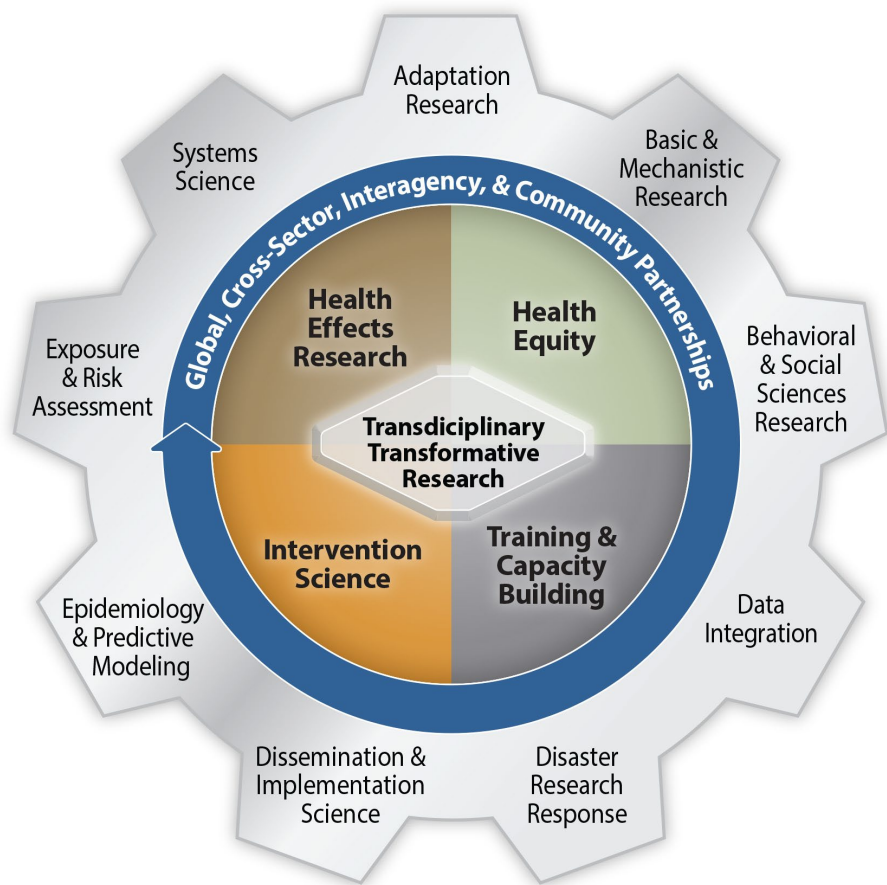
## Biden Administration Executive Orders Provide Impetus for Enhanced Focus on Climate Change across all Agencies

- Executive orders in 2021 and 2022 which focus on climate change and health equity across the Federal Government
- President Budget CCH support for NIEHS/NIH in FY22 and FY23
- Inflation Reduction Bill has unprecedented funding for CC related infrastructure projects
- Create of Office of Climate Change and Health Equity in HHS





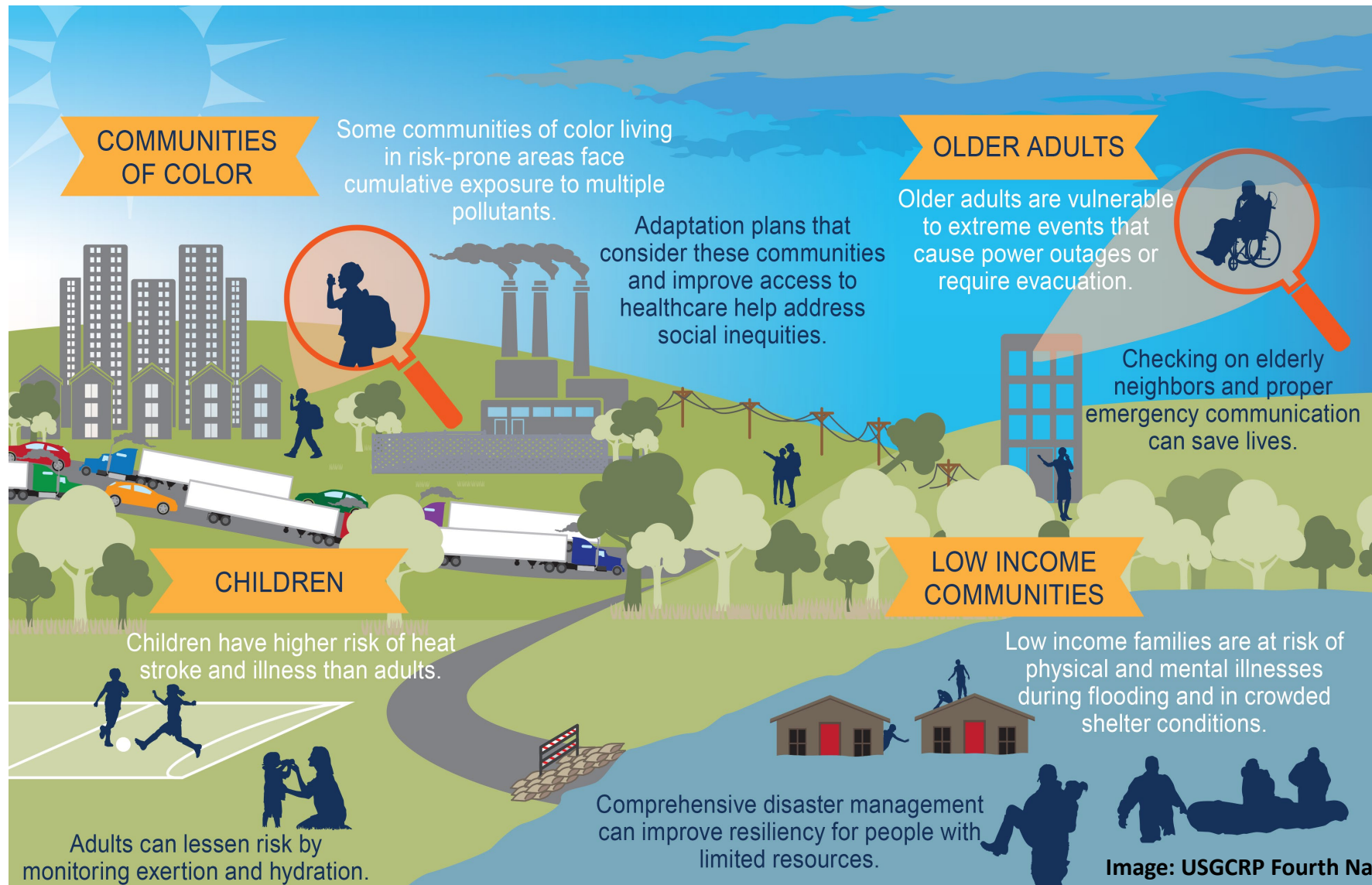
# NIH Climate Change and Health Initiative



<https://www.nih.gov/ClimateandHealth>



## Populations at Higher Risk of Exposure to Climate-Related Health Threats





## NIH Climate Change and Health Initiative

**Goals:** Reduce health threats across the lifespan and build health resilience in individuals, communities, and nations around the world, especially among those at highest risk.

### Objectives:



**Identify risks and optimize benefits** to the health of individuals, communities, and populations from actions to mitigate or adapt to climate change.



Develop the necessary **research infrastructure and workforce** to enable the generation of timely and relevant knowledge, drawing from the full spectrum of biomedical disciplines.



**Leverage partnerships** with other scientific and social disciplines and organizations to achieve the most impactful results.



**Innovate** across the research translation continuum to ensure findings are credible, accessible, and actionable for achieving these goals.



# Climate Change Affects Health Directly and Indirectly

## Direct Effects

- Heat-related illness
- Respiratory disease
- Heart disease
- Food-, water-, and vector-borne diseases
- Injury
- Premature death
- Mental health impacts
- Poor maternal and birth outcomes

## Indirect Effects

- Chemical releases into environment
- Changes in air, water, food quality and quantity
- Population displacement
- Interruptions to health care
- Infrastructure and supply chain disruption
- Economic impacts – more people living in poverty







## Governance Structure for CCH Initiative

### Executive Committee

- Composed of: NIEHS, FIC, NIMHD, NIMH, NINR, NICHD, NHLBI
- Governance

### Steering Committee

- Representatives of all EC ICs
- Planning, strategy, and implementation

### Climate Change and Health Working Group

- 18 ICs, 4 Offices
- 140+ participants
- Interest group, engagement, and ideas

## An NIH Opportunity: Initiative Goals and Objectives

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## An NIH Opportunity: Initiative Vision

The NIH will address the **climate crisis with the urgency, foresight, innovation, and collaborative spirit** this challenge requires.

NIH will **strengthen capacity** at **home and abroad** and promote the **best science** and **most impactful interventions**, with an emphasis on **health equity** and **community-engaged** research.

NIH will develop a **sustainable model** to support a **pipeline** of needed **health researchers and research** and promote **collaborations** with other federal agencies and research organizations.

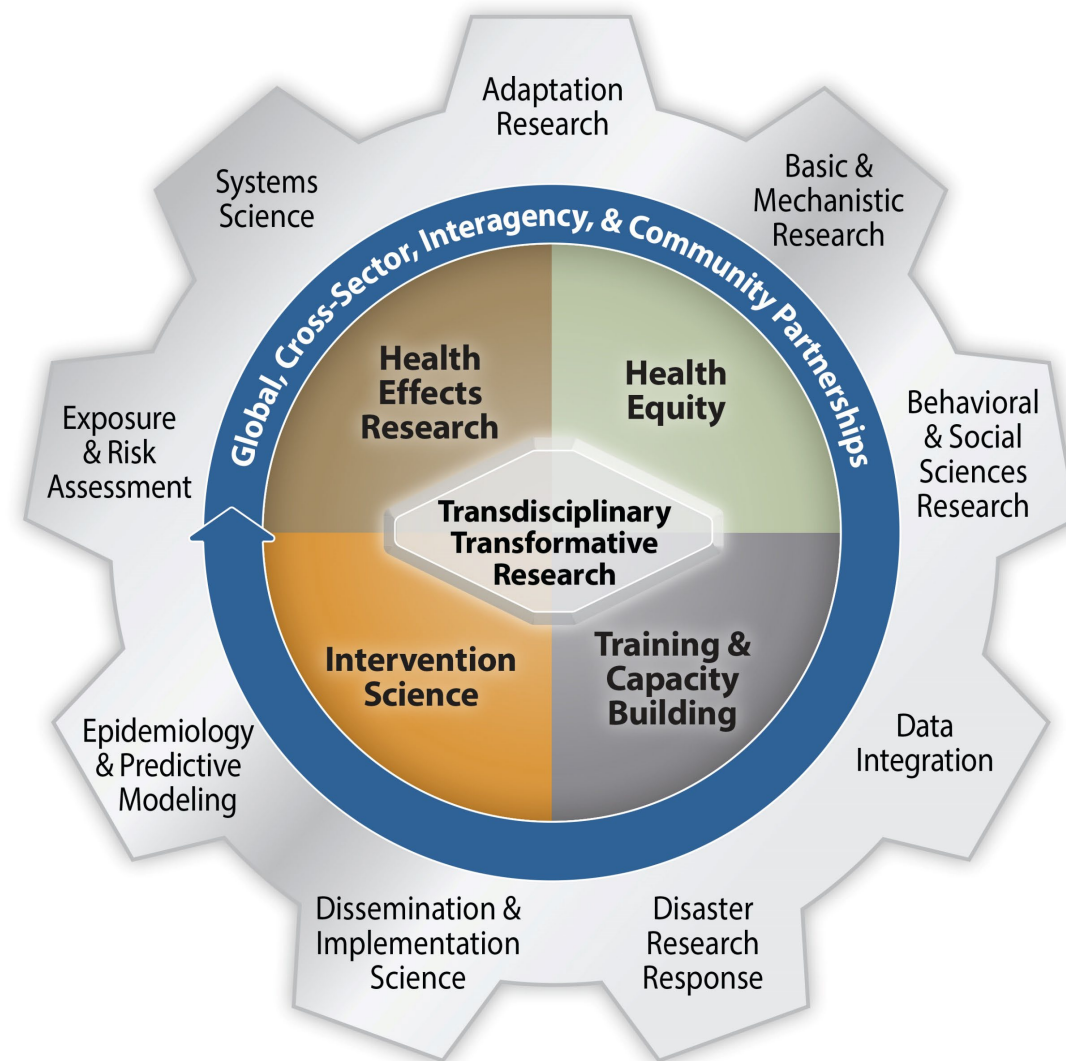
Combined, these efforts will empower **transdisciplinary solutions that will advance human health** in a rapidly changing world.





## Transdisciplinary Transformative NIH Research

- Core Elements
  - Health Effects Research
  - Health Equity
  - Intervention Research
  - Training and Capacity Building
- Achieved through Partnerships
- Focuses on 9 Areas of Sciences
- Goal is to reduce health threats from climate change across the lifespan and build resilience





# NIH Climate Change and Health Initiative: Funding Opportunities

- **NOT-ES-22-006: Notice of Special Interest: Climate Change and Health**
  - Supports CCH research in the U.S. and globally
  - Encourages use of common data elements and collection tools; requires submission of a Data Management and Sharing Plan
  - Sign on from 16 ICs: NIEHS, NHLBI, NHGRI, NIA, NIAID, NIAMS, NICHD, NIDCR, NIMH, NINDS, NINR, NIMHD, NLM, FIC, NCI, ODP
- **NOT-ES-22-009 & NOT-ES22-010: Notices of Special Interest: Innovative Technologies for Research on Climate Change and Human Health (SBIR/STTR)**
  - Supports technologies for capturing the effects of climate change/extreme weather on human health and to reduce the health threats posed by climate change
  - STTR NOT-ES-22-009: Sign on from 10 ICs: NIEHS, NEI, NHLBI, NIA, NIAID, NICHD, NIMH, NIMHD, NINR, NCATS
  - SBIR NOT-ES-22-010: Sign on from 12 ICs: NIEHS, NEI, NHLBI, NIA, NIAMS, NIAID, NICHD, NIMH, NIMHD, NINR, NLM, NCATS

## NIH Climate Change and Health Initiative: Funding Opportunities

- **RFA-ES-22-003: Research Coordinating Center for the Climate Change and Health Community of Practice (U24 – Clinical Trial Not Allowed)**
  - Brings together multidisciplinary researchers and trainees to conduct solutions-driven research on health impacts of climate change
  - Sign on from 10 ICs: NIEHS, FIC, NHLBI, NIAID, NIAMS, NICHD, NIMH, NIMHD, NINR, NCI
- **Community Engagement Alliance for Climate Change and Health (ACE-CCH)**
  - Promotes community engagement research partnerships, building on the successful community engagement program established by NIH to address COVID-19 (CEAL)
  - Will ensure inclusion of underserved and racial/ethnic minority and rural populations
  - Uses NIH Other Transactions Authority
  - Sign on from 8 ICs: NHLBI, NIEHS, NIAID, NIMH, NIMHD, NINR, NICHD, NCI



## Climate and Health Scholars Program

- ‘In residency’ program bringing established scientists with a solid track record of research in climate and health to NIH to share knowledge & expertise across the domains of the CCH Strategic Framework
- Build NIH capacity in CCH research
- Provide lectures, discussion groups, and trainings on methodologies and approaches to study relevant questions
- Invite scholars from academia, NGOs, other research organizations
- Virtual, in-person, hybrid
- International scholars welcome
- Flexible schedule between November 2022 and September 2023





## Types of Activities for Climate and Health Scholars while at NIH



- The Scholar will present their research to many audiences across NIH
- Participate in monthly NIH Wide Working Group Calls
- Meet with CCH Initiative Executive Committee Directors & the leadership of interested ICs
- Engage with scientists in the Intramural Research Program and Extramural Research Programs across the NIH
- May work on state of the science reviews, & white papers with NIH staff
- May be asked to present at the CCH public Webinar series
- Leading a journal club on a CCH topic area for NIH staff
- Opportunity to lead a small training sessions to share details of methodologies of approaches that they have developed as part of their research.

## **NINR Research: Addressing Hazardous Indoor Air Quality in Adult Asthma**

- Indoor gas cooking releases methane which is a greenhouse gas associated with climate change
- Low-income households in New York City are more likely to use gas appliances, increasing poor IAQ
- Uncontrolled asthma can be exacerbated by poor IAQ. Black adults have the highest morbidity and mortality from asthma in comparison with other populations in this area
- This project will increase understanding of the impact of poor IAQ on uncontrolled asthma in low-income Black adults in NYC



**1 R01 NR019275-01A1:** BREATHE: An efficacy-implementation trial of a brief shared decision making intervention among Black adults with uncontrolled Asthma in Federally Qualified Health Centers (FQHC). M. George, PI, Columbia School of Nursing



## NIH Research: Hurricanes Can Increase Chronic Health Problems

- **Worse chronic health following a hurricane:**  
An NIMHD funded study found that following Hurricane Maria in Puerto Rico adults had more unhealthy behaviors and chronic conditions.
- **Hurricane preparedness affects health:**  
Being less prepared was associated with worse health and higher odds of developing a new non-communicable disease after the storm
- **Better information and economic resources are needed** to prepare for disaster-related impacts and can help reduce morbidity and mortality following disasters



This work led to a new funding opportunity (PA-20-172):  
Long-Term Effects of Disasters on Health Care Systems Serving Health Disparity Populations

## Research Needed: Children's Health

- Understand how **factors**, such as economic status, diet, living situation, geographic location, and stage of development, can impacts children's exposure to health threats due to climate change in the U.S and internationally
- Determine factors that could increase a child's **adaptive capacity** or **resilience** to climate change related events or illnesses

### Example research projects:

Study the **mental health impacts** of children who have experienced extreme weather events

Develop **mapping indicators** for low-middle income countries to determine where to focus resources for children





## Research Needed: Health Care Systems

- Study how climate change impacts the health care workforce and systems both in the U.S and internationally
- Determine how climate change affects access to health care services
- Understand how climate change impacts existing inequities in health care services, access, and quality
- Increase climate and health literacy among nurses, community health workers and other health care professional
- Map systems that provide services such as **dialysis**, **chemotherapy**, **prenatal care**, and assistance for **people with disabilities**





## Other activities and engagements

- Representation on the US Global Climate Research Program
  - OSTP activity
  - Climate Change and Health Working Group
- Climate and Health Literature Portal
- PCORTF Data Integration exercise
  - Wildfires
- Engagements with other Federal Agencies and Organizations
  - CDC, NSF, EPA, NOAA
  - Wellcome Trust
  - Burroughs Wellcome Foundation
- International Society for Environmental Epidemiology
  - Symposium on Strategic Initiatives in US and Europe
  - Pre-conference workshop on CCH research needs in LMICs





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# Climate Change and Health Initiative



# Thank you

<https://www.nih.gov/climateandhealth>

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