Health Impacts of Climate Change

Joan Widmer, MS, MSBA, RN
Deborah Gerson, MD
## What New Hampshire Residents Believe About Global Warming

### Beliefs

<table>
<thead>
<tr>
<th>Belief</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming is happening</td>
<td>71%</td>
</tr>
<tr>
<td>Global warming is caused mostly by human activities</td>
<td>57%</td>
</tr>
<tr>
<td>Most scientists think global warming is happening</td>
<td>59%</td>
</tr>
<tr>
<td>Global warming is affecting the weather</td>
<td>66%</td>
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</tbody>
</table>

### Risk Perceptions

<table>
<thead>
<tr>
<th>Perceived Harm</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming will harm plants and animals</td>
<td>72%</td>
</tr>
<tr>
<td>Global warming will harm future generations</td>
<td>72%</td>
</tr>
<tr>
<td>Global warming will harm people in the developing countries</td>
<td>67%</td>
</tr>
<tr>
<td>Global warming will harm people in the US</td>
<td>63%</td>
</tr>
<tr>
<td>Global warming will harm me personally</td>
<td>43%</td>
</tr>
</tbody>
</table>
The most important thing we can do is... Talk about it!

### Behaviors
- Discuss global warming at least occasionally: 37%
- Hear about global warming in the media at least once a week: 36%

### Policy Support
- Schools should teach about global warming: 77%
- Fund research into renewable energy sources: 79%
- Provide tax rebates for energy efficient vehicles or solar panels: 79%
- Regulate CO₂ as a pollutant: 73%
- Set strict CO₂ limits on existing coal-fired power plants: 68%

New Hampshire counties
This is NH-HWCA’s Mission

• We want to start the conversation on climate and health!

• We seek to raise awareness that climate change is real and that it is impacting each and everyone of us through its impact on human health – on YOUR health and the health of your loved ones.

• As healthcare workers are uniquely positioned to increase public awareness of the links between health and climate change, we seek to provide NH healthcare workers the tools to educate and mobilize the public in support of climate solutions to improve health for all.
Health Impacts of Climate Change

• Science of climate change
• Impact of climate on human health
• Health impacts important in New Hampshire
• Solutions and suggested actions
Science of Climate Change
What is Climate Change?

- A change in the average conditions — such as temperature and rainfall — in a region over a long period of time.

*Graph of change in annual global temperatures, compared to the average of global annual temperatures from 1880-1899. Credit: NASA's Goddard Space Flight Center*
What Causes Climate Change
For millennia, atmospheric carbon dioxide had never been above this line.
United Nations IPCC 2022

- Unequivocally due to human activity
- 1.1°C (2°F) warming since mid 1800s
- Will reach 1.5°C (2.7°F) within two decades
How Does Climate Change Affect our Health
Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health

The United Nations General Assembly in September 2021 will bring countries together at a critical time for marshalling collective action to tackle the global environmental crisis. They will meet again at the biodiversity summit in Kunming, China, and at the climate conference (COP26) in Glasgow, United Kingdom. Ahead of these pivotal meetings, we — the editors of health journals worldwide — call for urgent action to keep average global temperature increases below 1.5°C, halt the destruction of nature, and protect health.

Health is already being harmed by global temperature increases and the destruction of the habitats, ethnic minorities, poorer communities, and those with underlying health problems.2,4

Global heating is also contributing to the decline in global yield potential for major crops, which has fallen by 1.8 to 5.6% since 1981; this decline, together with the effects of extreme weather and soil depletion, is hampering efforts to reduce undernutrition.4 Thriving ecosystems are essential to human health, and the widespread destruction of nature, including habitats and species, is eroding water and food security and increasing the chance of pandemics.3,4,8

The consequences of the environmental crisis fall disproportionately on those countries and
How Our Health is Harmed by Climate Change:
Impacts Differ by Geographic Region

This graphic illustrates key impacts of climate change on health and is based on reports from the U.S. Global Change Research Program. For more information, visit www.globalchange.gov.
Extreme Temperatures
EXTREME HEAT
DAYS WITH A HEAT INDEX OF 90°F+

1979 CONCORD, NH 2020

Annual days with heat index of 90°F+.
Source: gridMET minimum relative humidity & maximum temperature datasets
What does extreme heat mean for personal health?

- Mild Symptoms (rash, heat fatigue)
- Heat Exhaustion
  - Thirst, rapid heartbeat
  - Weak/Dizzy
  - Cramps/Headache
  - Nausea/Vomiting
  - Profuse Sweating
- Heat Stroke:
  - Confusion, Fainting, Coma
  - Skin dry or moist
  - Core (rectal) temp > 104⁰
- Risk of Mortality

[cdc.gov/extremeheat/warning](https://www.cdc.gov/extremeheat/warning)
Sweating Limitations

• Not effective when Relative Humidity 75%
• Can only replace 1 liter per hour by mouth
Health Effects of Extreme Heat

- 700 Heat-related deaths annually in US  
  MMWR; June 19, 2020

- 67,000 ER visits in US

- 10,000 Hospitalizations in US  

- 350,000 Deaths Annually Worldwide.  
  Lancet v 398 2021
Heat Deaths Increasing

[Bar chart showing deaths per million people by race/ethnicity]

- Asian American*
- White
- Hispanic
- Black
- Native American**

Notes: *Or Pacific Islander. **American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention

Source: National Weather Service
Individuals at Risk for Heat Injury

- Inner City Populations
- High School and College Athletes
- Agriculture Workers
- Construction Workers
- Landscapers
- Transportation Workers
- Children and Particularly Infants
- Elderly

Image ©Getty Images
Air Quality
Carbon-based Power

Carbon based power comes from burning of fossil fuels, which produces air pollutants, which are harmful to the lungs and heart.
Fossil Fuel Related Air Pollution

- Ground level Ozone
- Nitrogen Dioxide
- Sulfur Dioxide
- Particulate Matter
  - < 10 micron PM 10 – road dust, wildfires, demolition
  - < 2.5 micron PM 2.5 – burning fossil fuels
  - < 0.1 micron. Ultrafine PM – tail pipe exhaust

Note: Red Blood Cell is 8 microns

Particulate Matter – Health Impacts

- Worsening COPD in adults and asthma in children
- Causes lung cancer
- Causes vascular events: stroke and heart attack

Gas Stoves and Lung Health

Gas stoves produce NO2, Ozone, CO, and PM

• 42% increase in childhood asthma
• 21% increase in asthma later in life
• Almost as bad as living with a smoker.

International Journal of Epidemiology 2013: 42; 1724-1737
Climate Change is Worsening Pollen Season

- Longer growing season = pollen season
- Increased CO2 in the atmosphere drives photosynthesis and creates higher concentrations of pollen
- Higher levels of rainfall increases pollen output
- Average Peak Pollen Levels up 42% from 2001-2010, and by 2040 Scientists expect pollen counts to have more than doubled.

- American Academy of Allergy, Asthma & Immunology; American Lung Association; Global Change Biology: 2015, Vol.21
• 8.3% of Americans have asthma. 9.4% of children.

• Diagnosis of Asthma is increasing - up 43% from 1999-2018.

• Air pollution from burning fossil fuels (especially NO2 and ozone):
  • Long term exposure increases development of asthma
  • Causes attacks in asthmatics

• Climate change:
  • Higher temperatures increases ground-level ozone
  • Pollen can trigger asthma attacks
  • Wildfires – produce smoke which is more toxic to lungs than other air pollution

• Younger children are at higher risk

• https://www.hsph.harvard.edu/c-change/subtopics/climate-change-and-asthma/
Air Pollution as Cause of Death in Asthma

• Lived in area of high NO2 levels
• 27 Hospitalizations for Asthma
• Death Certificate listed Air Pollution Exposure as cause of Death
Disparities in NO2 Pollution Exposure by Race

COVID-19 pandemic reveals persistent disparities in nitrogen dioxide pollution

Gaige Hunter Kerr#1, Daniel L. Goldberg#1,2, and Susan C. Anenberg#2

#1Department of Environmental and Occupational Health, Milken Institute School of Public Health, George Washington University, Washington, DC 20052;
#2Energy Systems Division, Argonne National Laboratory, Lemont, IL 60439

*Edited by Susan Solomon, Massachusetts Institute of Technology, Cambridge, MA, and approved June 11, 2021 (received for review October 26, 2020)

The unequal spatial distribution of ambient nitrogen dioxide (NO2), an air pollutant related to traffic, leads to higher exposure for minority and low socioeconomic status communities. We exploit the unprecedented drop in urban activity during the COVID-19 pandemic and use high-resolution, remotely sensed NO2 observations to investigate disparities in NO2 levels across different demographic subgroups in the United States. We show that, prior to the pandemic, satellite-observed NO2 levels in the least White census tracts of the United States were nearly triple the NO2 levels in the most White tracts. During the pandemic, the largest lockdown-related NO2 reductions occurred in urban neighborhoods that have 2.0 times more non-White residents and 2.1 times more Hispanic residents than neighborhoods with the smallest reductions. NO2 reductions were likely driven by the greater density of highways and interstates in these racially and ethnically diverse areas. Although the largest reductions occurred in marginalized areas, the effect of lockdowns on racial, ethnic, and socioeconomic NO2 disparities was mixed and, for many cities, nonsignificant. For example, the least White tracts still experienced ~1.5 times higher NO2 levels during the lockdowns than the most White tracts experienced prior to the pandemic. Future policies aimed at eliminating pollution disparities will need to look beyond reducing emissions from only passenger traffic and also consider other collocated sources of emissions such as trucks, diesel vehicles, and measured from satellite instruments (21, 24–27) over the United States, China, and Europe. According to government-reported inventories, roughly 60% of anthropogenic emissions of nitrogen oxides (NOx = NO + NO2) in the United States in 2010 were emitted by on-road vehicles (26), and up to 80% of ambient NO2 in urban areas can be linked to traffic emissions (29, 30). As such, NO2 is often used as a marker for road traffic in urban areas. Multiple lines of evidence such as seismic quieting and reduced mobility via location-based services point to changes in traffic-related emissions as the main driver of reductions in NO2 pollution during lockdowns, due to the large proportion of the population working from home (21, 23, 31, 32).

Here we exploit the unprecedented changes in human activity unique to the COVID-19 lockdowns and remotely sensed NO2 columns with extraordinary spatial resolution and coverage to understand inequalities in the distribution of NO2 pollution for different racial, ethnic, and socioeconomic subgroups in the United States. Specifically, we address the following: Which demographic subgroups received the largest NO2 reductions? Did the lockdowns grow or shrink the perennial disparities in NO2 pollution across different demographic subgroups? Although the lockdowns are economically unsustainable, how can they advance environmental justice and equity by informing transportation policies to reduce NO2 disparities and the attendant health impacts? 
Reducing air pollutants reduces demand for healthcare:

The 1996 Summer Olympics were in Atlanta, GA:

Traffic restrictions led to a 23% decrease in peak a.m. traffic

- Ozone levels decreased 28%.
- Emergency room visits for children with asthma decreased 42%.
- Children’s emergency room visits for causes other than asthma did not change.

Health Benefits of the Clean Air Act

- Since 1970 major pollutants reduced by 73%
- 230,000 fewer deaths per year
- 2.4 million fewer Asthma attacks per year
- 200,000 fewer Heart Attacks per year
- 66,000 fewer hospitalizations for COPD per year
- Cost of implementation of the Clean Air Act paid back 30 fold!
American Lung Association Report 2022

• 40% of Americans (135 Million) live with unhealthy air
• Populations of color are 3 times more likely to live in areas with unhealthy air

• Transitioning to zero emission energy and transportation will:
  • Save $1.2 Trillion in health care costs
  • Prevent 110,000 Premature Deaths
  • Prevent 13.5 million lost workdays
Clean Energy Means Cleaner Air
Extreme Weather Events
Extreme Weather Events

• More frequent and/or more intense extreme events are expected:
  • In NH, we expect increasing heavy rainfall, floods, storms, and storm surge
Heavy Downpours Increasing

Percent increase from 1958 to 2012 in the amount of precipitation falling in very heavy events. Very Heavy Precipitation is defined as the heaviest 1% of all daily events from 1958-2012.

Source: Kenneth Kunkel, Cooperative Institute for Climate and Satellites, North Carolina State University and NOAA NCDC
Higher Tides, More Flooding

Peak # of Concurrent U.S. Coastal Floods Yearly

Annual maximum number of NOAA tide gauges exceeding a minor flood threshold in a single day, 1970 to September 2020
Sea Level Rise & Coastal Flooding

- Predicted SLR 10 - 14 inches for the East coast in the next 30 years
- Over 2,544 properties in NH at risk from tidal flooding already
- Tides and storm surge heights to increase and reach further inland
- Damaging coastal flooding will occur more frequently by 2050 (4 events/year)

Heavy Downpours, Flooding, and Health

• Accidents and traumatic injury.
• Spread of contaminants (bacterial, viral, toxic waste) into soils and waterways.
• Increased mental health problems.
• Disrupts healthcare systems

Sept. 29
Steddi Soudani looks over her flood-damaged Fort Myers apartment.
Why the increase?

- Increase in population and material wealth
- Much growth along coasts, wildland-urban interface, or river floodplains
- Climate change increasing frequency and intensity of extreme weather: drought, wildfires, hurricane intensity, sea level rise

Mosquito and Tick-Borne Infections
What is a Vector Borne Disease

- Infection transmitted by arthropods, such as mosquitoes, ticks, and fleas.
- Examples - West Nile Virus, Eastern Equine Encephalitis Virus, Lyme disease, and malaria.
Peripheral Blood Smear Review

- [https://www.cdc.gov/parasites/babesiosis/diagnosis.html](https://www.cdc.gov/parasites/babesiosis/diagnosis.html)
Tick-borne diseases

- Tick-borne diseases are increasing across the country and in NH.
- People in New Hampshire are at risk for several different tickborne diseases, including:
  - Lyme disease
  - Anaplasmosis
  - Babesiosis
  - Powassan virus infection

Preliminary data from the NH DHHS/DPHS

https://www.cdc.gov/lyme/resources/TickborneDiseases.pdf
Reported Lyme Disease Cases in 1996 and 2018

https://www.epa.gov/climate-indicators/climate-change-indicators-lyme-disease
How Can Climate Change Increase Vector-Borne Diseases?

• Deer ticks are mostly active on warm humid days – shorter winters increase their active period

• Other factors-host prevalence (deer, mice), proximity of humans to vectors, modified behaviors

https://www.epa.gov/climate-indicators/climate-change-indicators-lyme-disease

Longer Frost-Free Season

Source: USDA National Wildlife Research Center, Climate Change Indicators in the United States
Mental Health and Well-Being
Impact of Climate Change on Physical, Mental, and Community Health

**Medical and Physical Health**
- Changes in fitness and activity level
- Heat-related illness
- Allergies
- Increased exposure to waterborne and vector-borne illness

**Mental Health**
- Stress, anxiety, depression, grief, sense of loss
- Strains on social relationships
- Substance abuse
- Post-traumatic stress disorder

**Community Health**
- Increased interpersonal aggression
- Increased violence and crime
- Increased social instability
- Decreased community cohesion
Extreme Weather Events and Mental Health

• Following extreme weather events, mental health issues have been shown to increase including:
  • Acute stress, PTSD, and increased rates of depression, general anxiety.
  • Interpersonal and domestic violence.
  • High-risk coping behaviors, such as alcohol abuse.
  • Suicidal thoughts and actions

• Worse for people facing recurring disasters, those with pre-existing mental illness, and those in vulnerable populations

Extreme Heat and Mental Health

• Link between extreme heat and increasing violence, aggressive motives, and/or aggressive behavior.

• Individuals with mental illness are especially vulnerable:
  • Increased incidence of aggressive behavior, violence, suicide and ER/hospital admissions
  • Many mental health medications impact temperature regulation
  • In six case-control studies involving 1,065 heat wave-related deaths, preexisting mental illness was found to triple the risk of death due to heat wave exposure.

Climate Anxiety

- 65% of Americans are worried about climate change

Concern differs by age:
- 70% of Americans 18 to 34 worry about global warming,
- 62% of those 35 to 54
- 56% who are 55 or older

A recent study asked 10,000 young people (ages 16-25) in 10 countries how they felt about climate change and government responses to it:
- Nearly 60% saying they felt ‘very’ or ‘extremely worried.’
- 45% of participants said their feelings about climate change impacted their daily lives.

Healthcare System Contribution to Greenhouse Gas Emissions
The health care sector contributes to the climate crisis

- In 2018 the health care sector was responsible for 8.5% of U.S. greenhouse gas emissions and
- the loss of 388,000 disability-adjusted life-years
- U.S. health care greenhouse gas emissions rose 6% from 2010 to 2018 and are the highest per capita in the world
- 82% of health care emissions are from the supply chain – food, pharmaceuticals, chemicals, medical devices, and supplies

https://doi.org/10.1377/hlthaff.2020.01247
If the U.S. health care sector were ranked as a nation

It would rank 13th in the world for emissions, more than entire U.K.

(Eckleman & Sherman, 2016)
US health care leaves a big carbon footprint

The U.S. is the 1st in terms of health care sector GHG emissions accounting for 27% of the global health care footprint

https://noharm-uscanada.org/ClimateFootprintReport
Why does health care have a large climate impact?

- Energy use for heating, cooling, lighting & water use
- OR, waste anesthetic gases
- Waste hauling, treatment, & landfill gases
- Meat production & food transport
- Fleet vehicles
- Employee commutes
- Supply chain – pharmaceuticals

https://nursesclimatechallenge.org
How to take action

- Set a greenhouse gas goal for the hospital/health system
- Invest in renewable energy
- Reduce, reuse, recycle
- Include climate risks in emergency preparedness plans
- Reduce OR energy, waste and anesthetic gases
- Choose local, sustainable foods & reduce food waste
- Educate your community
- Carpool, bike, walk, or take public transport

https://nursesclimatechallenge.org
Is there hope?
Can we fix this?
Responding to Climate Change requires a 2-pronged approach

Mitigation:
- Reducing Emissions
- Stabilization of greenhouse gases

Adaptation:
- Adapting to climate changes already occurring
Mitigation

We have many of the solutions available to us now!
Globally, wind could supply worldwide electricity consumption 40 times over.
Wind Power Progress

- **US wind electricity generation has increased**
  - From 6 to 338 billion kilowatt hours between 2000 and 2020
  - Wind turbines make up 8.4% of the total U.S. utility-scale electricity generation.

- **Offshore wind**
  - The U.S. could produce more than 7,200 terawatt-hours per year of electricity from offshore wind.
  - Almost twice the amount of electricity the U.S. consumed in 2019.
Enough solar energy reaches Earth every hour to fill all the world’s energy needs for a full year.
Solar Energy Progress
How Do Projections Compare With Reality?

Source: Fresh-Energy; Bloomberg New Energy Finance
Auto Manufacturers Are Moving to Electric Vehicles

Companies with Electric Models in Production

Data: Bloomberg New Energy Finance, EVObsession
We Can Save With Renewable Energy

- **Clean and healthy**
- Creates **jobs**
- More **equitable**
- Addresses **environmental injustice**
- **Costs less**
- **No heat waste or water use**

**Worldwide energy prices over the last decade**

Generation costs in dollar/cents per kWh

<table>
<thead>
<tr>
<th>Year</th>
<th>Solar</th>
<th>Wind</th>
<th>Nuclear</th>
<th>Coal</th>
<th>Gas</th>
<th>Cost Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>35.9</td>
<td>13.5</td>
<td>12.3</td>
<td>11.1</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>3.7 (-90%)</td>
<td>4.0 (-70%)</td>
<td>16.3 (+33%)</td>
<td>11.2 (+1%)</td>
<td>5.9 (-29%)</td>
<td></td>
</tr>
</tbody>
</table>
Many other solutions

- Grid Flexibility
- High-Efficiency Heat Pumps
- High-Performance Glass
- Insulation
- Landfill Methane Capture
- LED Lighting
- Low-Flow Fixtures
- Methane Digesters
- Micro Wind Turbines
- Microgrids
- Net-Zero Buildings
- Nuclear Power
- Ocean Power
- Offshore Wind Turbines
- Onshore Wind Turbines

- Project Drawdown (drawdown.org)
Crazy-sounding solutions

**How Animal Poop Can Power the Detroit Zoo**

Animals at the Detroit Zoo produce more than a ton of manure a day. Instead of paying to truck it away, the zoo plans to start construction this summer of the nation’s first zoo-based biodigester.

1. **Animal Waste**
   - More than a ton of animal waste will be collected each day from various zoo animals.
   - Animal waste is kept in the digester vessel at 100 degrees for 28 days allowing it to be digested by microbes.

2. **Biodigester**
   - The biogas will be used at the zoo to power a generator. The system can save the zoo about $120,000 annually.

3. **Electricity**
   - Fertilizer and compost for zoo grounds
   - After digestion, the leftover waste material will be used as fertilizer or compost.

**Source:** Dawn Kirk, Biosystems & Agricultural Engineering, Michigan State University

**Images:**
- Crazy-sounding solutions
- How Animal Poop Can Power the Detroit Zoo

**Links:**
- [BBC News](https://www.bbc.com/news/10333304)
- [CNN Style](https://www.cnn.com/style/article/refreeze-arctic-design-scn/index.html)
Inflation Reduction Act, 2022

Change in Jobs

- 2020
  - High: 1,519,000
  - Moderate: 1,516,000
  - Low: 1,424,000

- 2025
  - High: 593,000
  - Moderate: 542,000
  - Low: 464,000

Historical CO2 emissions (billion metric ton)

- 2005 emissions ~6.6 billion tons
Impact of Decreased Particulate Emissions due to IRA in 2030

- 3,700 to 3,900 avoided deaths
- 99,000 to 100,000 avoided asthma attacks
- 405,000 to 417,000 avoided lost workdays

- Avoided deaths will be concentrated in communities of color which are more commonly located near polluting infrastructure.

NH Greenhouse Gas Emissions By Sector 2019

- Transportation: 47%
- Residential: 19%
- Commercial: 9%
- Electricity Generation: 11%
- Industrial: 10%
- Agriculture: 3%
- Waste: 1%

Data Source: NH Department of Environmental Services
State Renewable Portfolio Standards Are Rising

Class I or new renewable energy resources (%)

VT: 2020 – 59%
2025 – 63%
2030 – 71%
2035 – 75%
2040 – 75%

ME
MA
CT
RI

NH
Adaptation

Helping people while we wait for mitigation to kick in!
The BRACE framework is a process that allows health officials to develop strategies and programs to help communities prepare for the health effects of climate change.
2021 Projects in NH

Currently on hold due to loss of funding

Source: NH DHHS, Division of Public Health Services
Source: www.dhhs.nh.gov/dphs/climate/index.htm
Suggested Actions
Individual Actions

• Call, write, or email your elected officials – Make your voice heard!
• VOTE with climate in mind
• Join a climate group
• Talk about climate
• Consumer choices
• Lifestyle choices
• Fossil Fuel Divestment
We are students, trainees, early, mid and late-career professionals, and retirees, from a wide variety of healthcare settings, both clinical and nonclinical.
Who Are We

We work in independent practices, community hospitals, academic centers, laboratories, professional associations, nonprofits, local and state government, schools, long-term care facilities, and home care.

We are concerned by the impact of climate on individual and population health and see a hopeful way forward through education and advocacy in support of climate solutions.

We are from rural and urban NH communities.

We are a grassroots, non-partisan organization.
NH Healthcare Workers for Climate Action
How We Work

- We operate through 5 working groups
- We are governed by a Board of Directors
- We are guided by an Advisory Board of local and national environmental and health experts
- We have a small, but dedicated and highly effective staff:
  - Emily Thompson, Director of Operations
  - Peter Jones, Director of Philanthropy
Behavioral Health Working Group

Chair: Dr. Bob Feder

Objectives:

• Strategize about approaches to education and advocacy on the impact of climate on the mental health of children and adults.
• Develop recommendations and guidelines for behavioral health clinicians whose patients are dealing with symptoms related to climate change.
• Reduce the behavioral health impacts of climate change by developing recommendations and guidelines for communities to increase their climate change preparedness.
• Establish collaborations with national and state groups.

Learn more at: https://www.nhclimatehealth.org/behavioral-health
Children’s Health Working Group

Chair: Dr. Carl Cooley

Objectives:
- Develop strategies for climate-informed pediatric care.
- Advocate for adoption of positive climate and health policies by child healthcare organizations, such as NH AAP.
- Engage the broader child healthcare community, including trainees and early-career healthcare workers in climate action.

Learn more at: https://www.nhclimatehealth.org/childrenshealth

Children’s Poster
Available in English/Spanish
Free at:
https://www.nhclimatehealth.org/merchandise
Climate Justice Working Group

Co-Chairs: Semra Aytur, PHD, MPH
          Suzanne Gaulocher, PHD, MPH

Objectives:
• Actively listen to community issues on health equity/climate justice and social determinants of health.
• Partner with the NAACP-Manchester, the Medical Society Consortium on Climate and Health, and other community organizations on issues related to climate justice, environmental justice, and social determinants of health.
• Design collaborative health equity/climate justice projects with communities across the state of NH.

Learn more at: https://www.nhclimatehealth.org/climate-justice
Policy & Advocacy Working Group

Co-Chairs: Emily Thompson, BS
Joan Widmer, MS, MSBA

Objectives:
• Track, monitor and communicate with NH HWCA participants regarding active legislation in NH relating to climate and health.
• Contribute evidence-based information from expert healthcare voices at public hearings for proposed legislation relating to climate and health.
• Advocate for climate solutions to improve health for all.

Learn more at: https://www.nhclimatehealth.org/policy-advocacy-working-group
Communication & Education Working Group

Co-Chairs: Dr. Bob Dewey and Dr. Deborah Gerson

- Oversee NH-HWCA’s website: www.nhclimatehealth.org
- Coordinate the video project with The Nature Conservancy.
- Develop strategies for community outreach and marketing.
- Lead blog writing campaign for www.nhclimatehealth.org/blog
- Organize educational resource section on www.nhclimatehealth.org
- Create an interdisciplinary program of interactive webinars with state and national experts.

Learn more at: https://www.nhclimatehealth.org/communications-and-education-working-group
NH Healthcare Workers for Climate Action
What We Are Doing

- We offer 2-3 educational webinars each month sharing information from local and national experts regarding the impacts of climate change on human health. These webinars are free, provided virtually and available online for viewing later. Many webinars offer continuing education credits (CME, CEU).
  
  - [https://www.nhclimatehealth.org/our-events](https://www.nhclimatehealth.org/our-events)

- We have a Letters-to-the-Editor Subcommittee which is drafting LTE’s regarding various climate health issues, submitting these to local and state-wide media outlets.

- We have programs engaging students from University of New Hampshire, Dartmouth College, Plymouth State University, and Southern NH University.
We have a Speaker’s Bureau whose speakers travel around the state to speak about the impact of climate change on health at Rotary Club meetings, medical conferences, Garden Club meetings, student groups, library gatherings, etc.

If you are involved in a group that would like to hear our message contact us at: https://www.nhclimatehealth.org/contact-us
How Can You Help?

- Join our ranks, sign-up on our website to receive our bi-monthly email updates.
- Participate in a Working Group.
- Participate in our Health System Sustainability campaign, urging NH Hospitals and Health Systems to sign onto the recent DHHS sustainability goals.
  - [https://www.nhclimatehealth.org/health-system-sustainability](https://www.nhclimatehealth.org/health-system-sustainability)
- Donate to our 501(c)(3) organization.
  - Donations are tax deductible.
- Attend an educational webinar.
- Follow us on Social Media.
  - LinkedIn
  - Facebook
  - Twitter (@NHClimate)
  - Instagram
The end