

# Impacts of climate change across the cancer control continuum

*Revised PAR Concept Proposal*

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# Aims of PAR

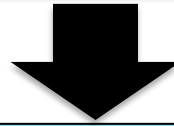
- Stimulate and support research in the area of climate change and cancer risk and control
- Create a portfolio that address questions on cancer etiology and control with respect to climate change

# Climate Change in the Context of Cancer Control

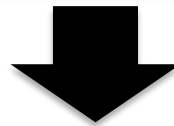
Climate change: A **process of long-term shifts** in weather patterns, largely from anthropogenic processes



Environmental impacts:  
Heat waves, Wildfires, Droughts, Flooding, Extreme weather

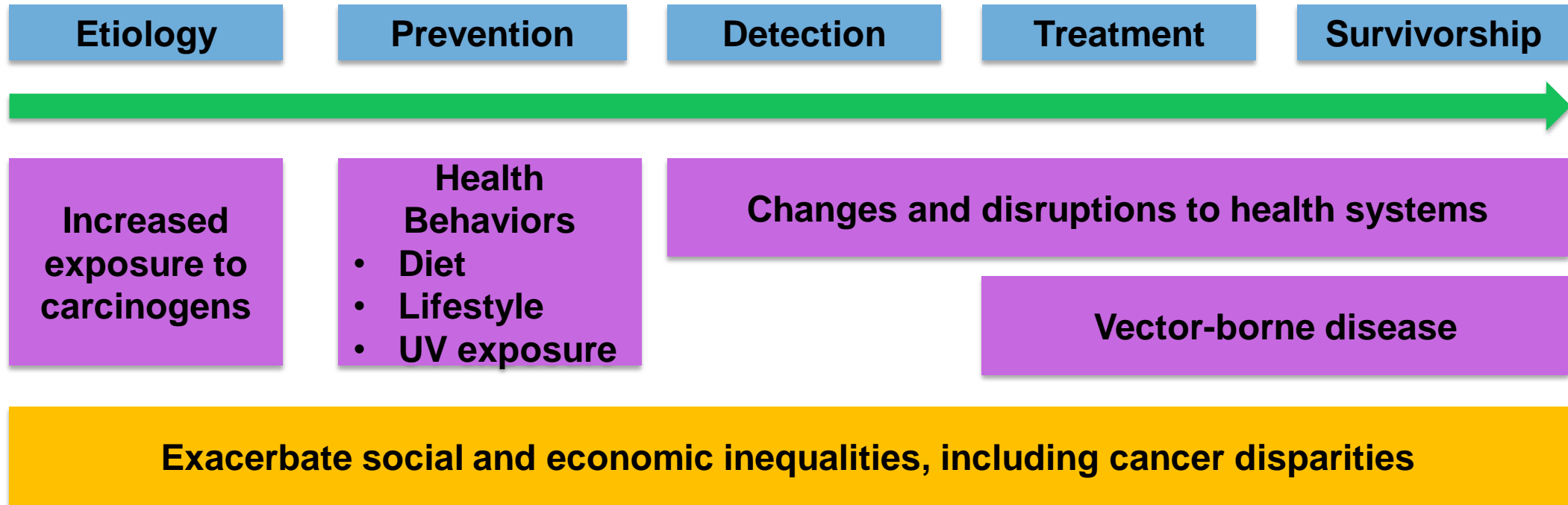


Effect exposure pathways over time:  
Air/water quality, Food quality/availability, Vector-borne disease, Social/behavioral



Health outcomes

# Climate Change and Cancer



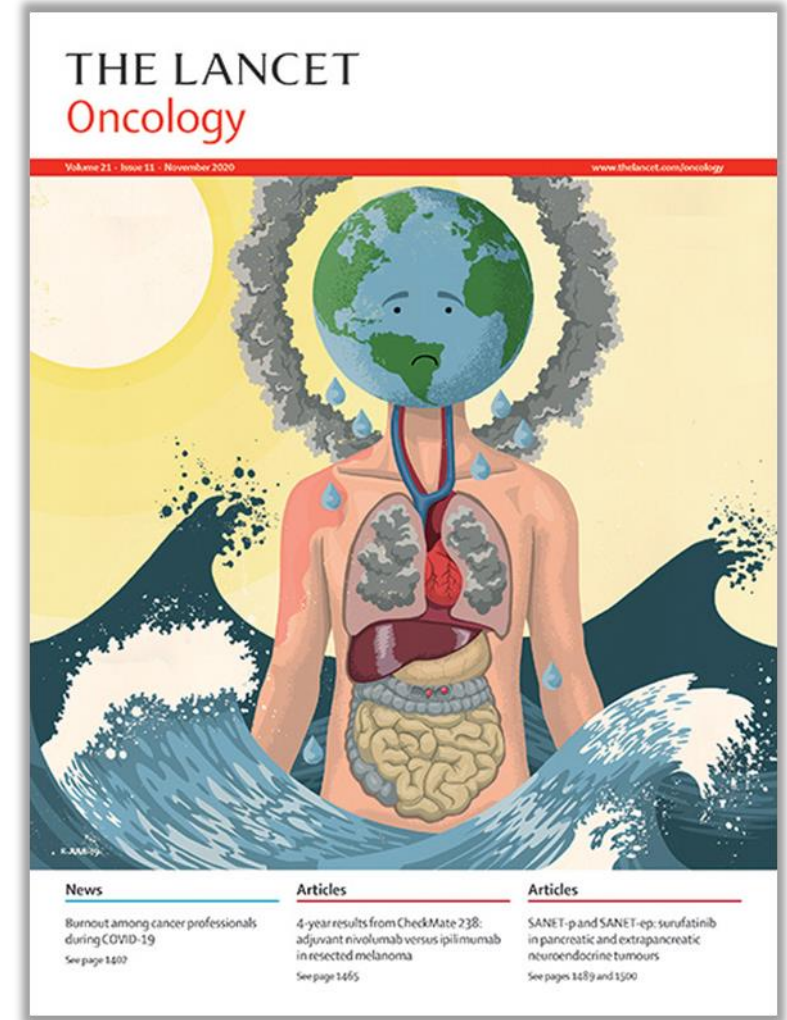
Adapted from Hiatt and Beyler, Lancet Oncol, 2020

# Climate Change and Cancer

Review of publications examining climate change and cancer concluded:

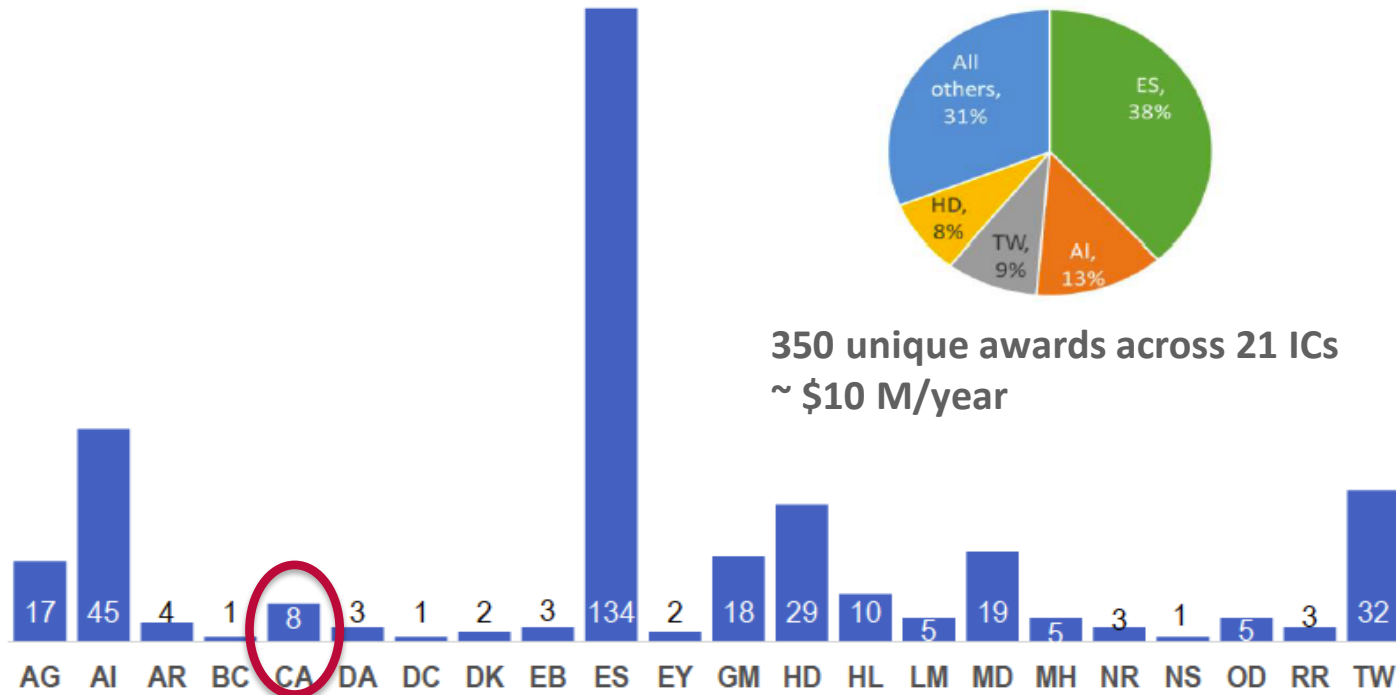
- The biggest climate change-related cancer threats are likely to be from exposure to **air pollution** and other **carcinogens**, and alterations in **food and water supply**
- Climate change will **exacerbate social and economic inequities**, including inequities in cancer incidence and outcomes
- The biggest challenge to the global cancer burden could come from **disruption of health care systems** required for cancer diagnosis, treatment, and care

Hiatt and Beyler, Lancet Oncol, 2020



# Portfolio Analysis

## Distribution of Grants across NIH ICs (FY2011-2020)



- No active awards
- 8 awards in the past 10 years
- Most (6 of 8) were applications in response to a PAR or RFA
- New: GEOHealth U01/U2R awards

# PAR: Impacts of climate change across the cancer control continuum

**Goal:** Stimulate and support research in the area of climate change and cancer risk and control and build a portfolio that address questions on cancer etiology and control with respect to climate change

- Advance understanding of the impact of climate change on cancer risk, behaviors, and outcomes
- Avoid/mitigate the impacts of climate-related cancer care delivery disruptions
- Reduce health inequities of the effects of climate change across the cancer control continuum
- Create new collaborations to further research and action in this area
- R01, R21 with standard receipt dates and standing study section review
  - Clinical trials allowed to accommodate behavioral studies
  - Prioritize applications focused on cancer health disparity populations

# Example Research Areas

- Understanding the impact of changing/modified environmental exposures
  - Wildfires contribute ~18% of total PM → more frequent & severe fires exacerbate and change the chemical composition of PM exposures → impacts on cancer risk and interactions with other diseases not understood
- Avoid/mitigate cancer care disruptions → 100-yr disasters are becoming 10-yr → infrastructure, care delivery, and preparedness need to be reimagined
- Understanding susceptibility of cancer patients or survivors to vector-borne disease spread
- Leverage geospatial and health informatics data to investigate the effects of climate change on cancer-related risk factor behaviors (e.g., physical activity, dietary intake, sun protective behaviors).



# BSA Member Feedback

- Include both cancer risk and burden
- For cancer care delivery, expand beyond cancer survivors
- Maintain a logical flow of ideas when listing specific areas of interest in the PAR
- Definitions:
  - Be consistent – e.g. disparities vs inequities
  - Be explicit – e.g. defining communities
- Expanding information on systems/individual interventions

# Summary and Q&A

- Climate change can have severe consequences for health, including cancer
- Impacts of climate change have potential to increase cancer health inequities
- Research needed to understand and address:
  - Cancer risks and outcome (carcinogenic exposures, vector-borne disease)
  - Healthcare delivery disruptions
  - Behavioral interventions (drivers/mitigators of climate change and cancer risk)
- Limited investment in climate change and cancer to date
- PAR – R01, R21 with standard receipt dates to stimulate high-quality, cancer-focused research in this area