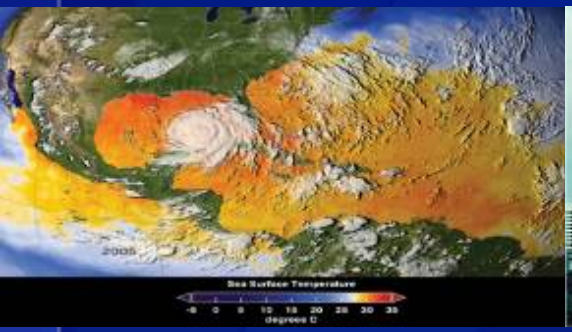
Climate Change and Public Health Adaptation



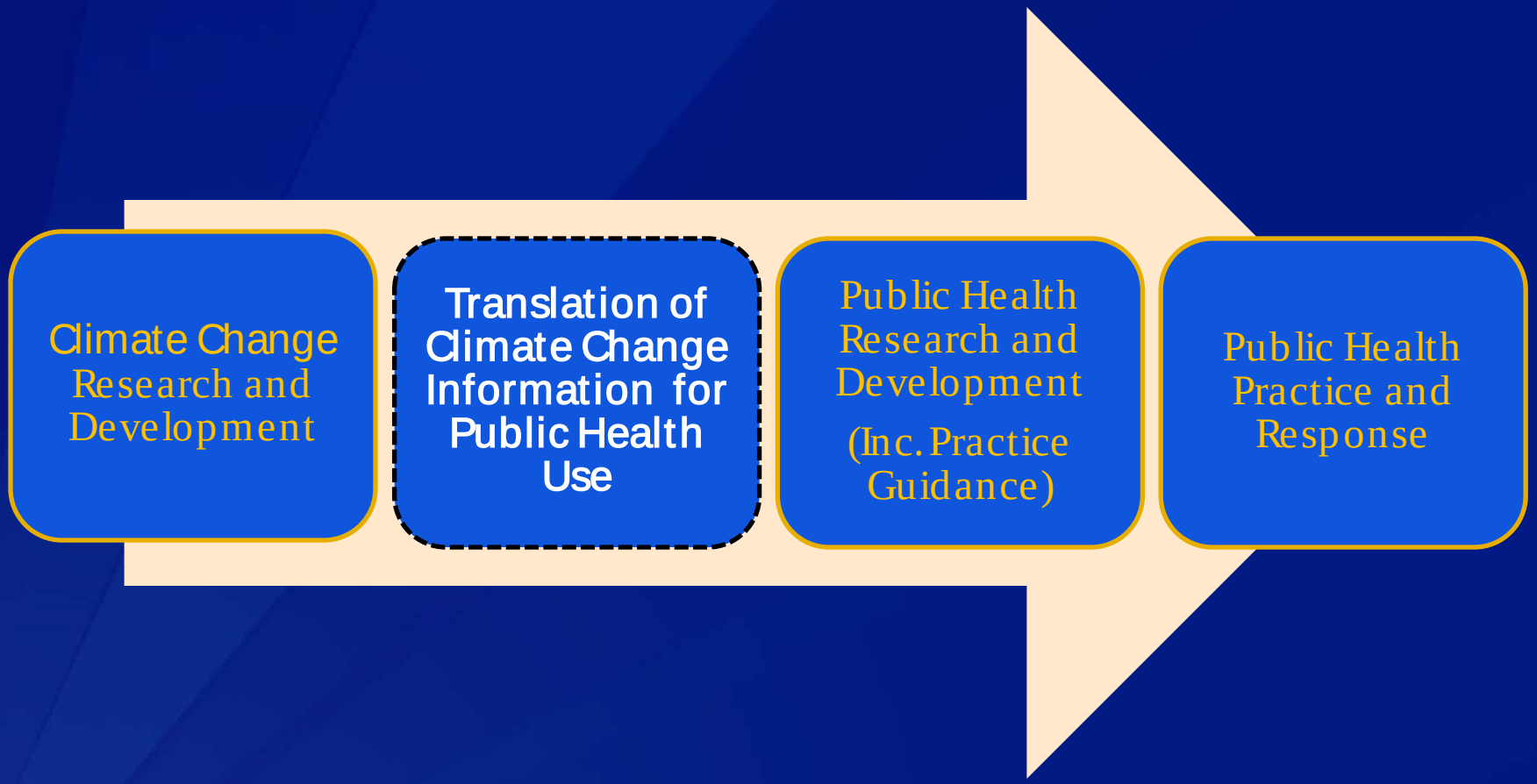


Gino D. Marinucci, MPH
Strategy & Policy Advisor
Climate and Health Program

National Center for Environmental Health
Division of Environmental Hazards and Health Effects

Weather, climate and health: The link

- Weather and climate have always had a key influence on human health
  - direct exposure to the elements (heat, cold)
  - providing conditions that help or hinder the spread of disease (bacteria, mosquito habitat)
- This influence will likely increase with climate change & some of these impacts may be severe
- Patterns of disease that are influenced by environmental factors will change


Climate Change Research and Development
Translation of Climate Change Information for Public Health Use
Public Health Research and Development
(Inc. Practice Guidance)
Public Health Practice and Response

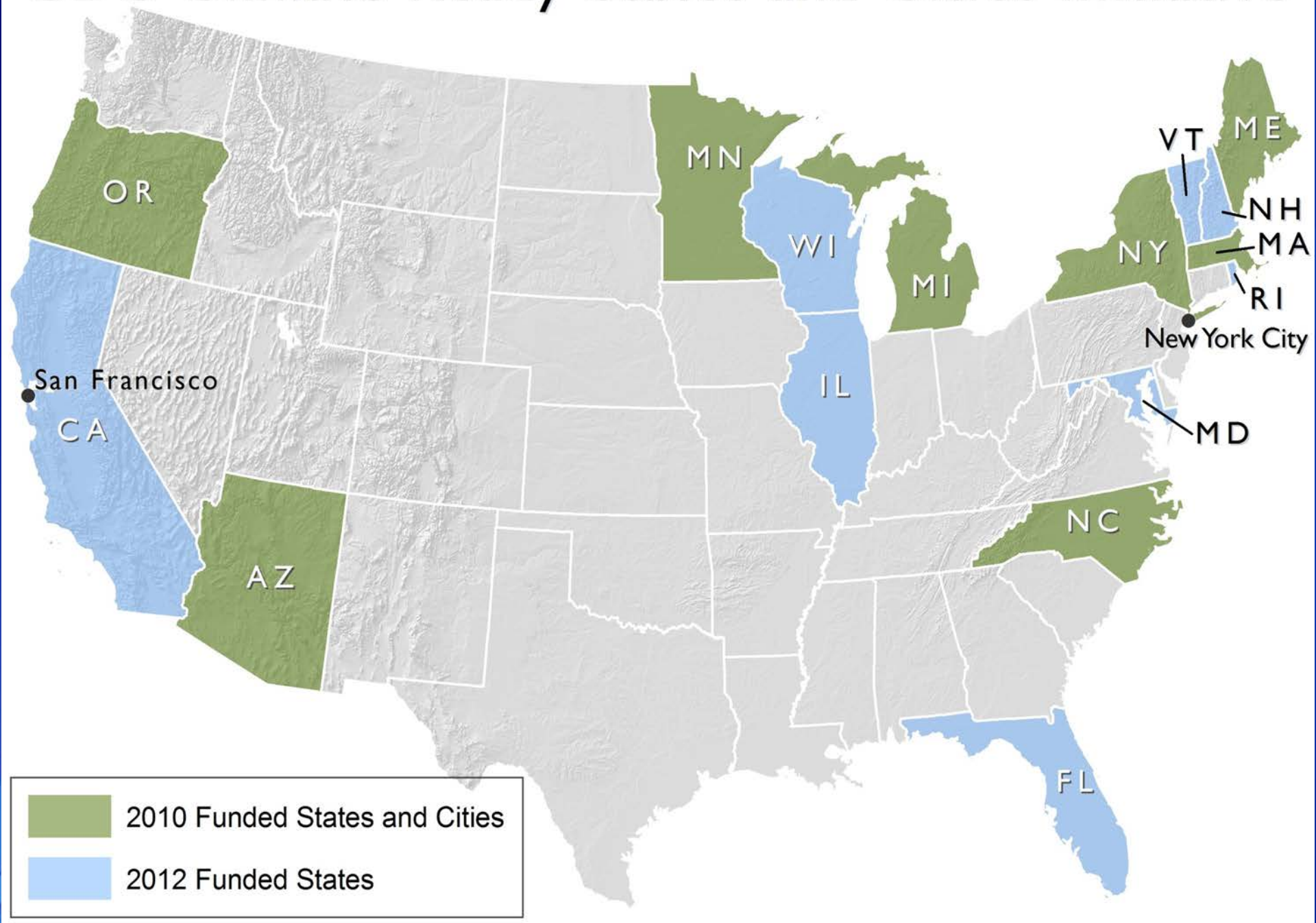
The Climate and Health Program's 3 critical roles:

(1) to **analyze and translate** the latest findings in climate science to our public health partners;

(2) to apply these findings to **decision support tools** that will aid in the state and local public health response (i.e.: vulnerability maps, surveillance tools, communications tools); and

(3) to **provide leadership** inside and outside CDC to ensure that public health concerns are represented in climate change adaptation and mitigation strategies and to create linkages between public health and efforts in other sectors

CDC Climate Ready States and Cities Initiative



BUILDING RESILIENCE AGAINST CLIMATE EFFECTS (BRACE)

Climate and Health Program, National Center for Environmental Health

APPLICATION OF THE BRACE FRAMEWORK

Application of the BRACE Framework

- Maine – Providing important information to the Department of Education
  - Air conditioning
  - Shade covering
- New York State – Tick borne disease prevention and preparedness
  - Education targeting new areas that are unprepared
- New York City – Developed a more sensitive and tailored heat warning system for New York City
  - Retrospective analysis of hospitalization, mortality
  - Projections of relevant climatic conditions
  - Understanding of heat island effect in New York

Application of the BRACE Framework

- North Carolina – Storm surge and critical infrastructure
  - Identification of inundation at 0.5m, 1m and 2m
  - Vulnerable drinking water sources
  - Vulnerable water treatment and wastewater treatment facilities
- Massachusetts – Use of existing preparedness infrastructure for heat events
  - Working with Education Department to ensure that each district has a school equipped with air conditioning
  - Schools that currently act as evacuation centers will be equipped to operate as cooling centers

Public health prevention model

The model demonstrates three tiers of action for preventing fatalities.

- **Primary Prevention** – Preventing the hazard. Preventing the disease.
  - Don't Smoke. Practice safe sex. Healthy diet. Physical activity.
- **Secondary Prevention** – Preventing unsafe exposure to the hazard, or early ID and intervention for the disease.
  - Secondhand smoke laws. Regular STD tests. Breast exams.
- **Tertiary Prevention** – Keeping the person alive after exposure to unsafe levels or progression of the disease.
  - Radiation therapy. Drug based treatment. Surgery.

Public health prevention model: Heat

Hazard: Extreme heat events

- **Primary prevention:** Reducing heat as a hazard. Urban tree canopy. Green roofs. Urban design.
- **Secondary prevention:** Reducing exposure to excess heat. Cooling shelters. Air conditioning subsidies.
- **Tertiary prevention:** Reducing fatalities. Hospital preparedness. Public health response.
- ***Primordial primary prevention:*** *Reduction in GHG's. Encouraging vehicle efficiency. Alternative transportation*

Public health prevention model: Heat and climate change

Hazard: More frequent & intense hazardous heat events

- **Primary prevention:** Reduction in GHG's. Encouraging vehicle efficiency. Alternative transportation
- **Secondary prevention:** Reducing exposure to excess temperature. Urban tree canopy. Green roofs. Urban design.
- **Tertiary prevention:** Cooling shelters. Air conditioning subsidies.
- ***Quaternary prevention:*** *Reducing fatalities. Hospital preparedness. Public health response.*

CDC Tools and Resources

- Description of the BRACE Framework
- Description of CRSCI
- Climate Change & Extreme Heat Events Guidebook *NEW!*
- Links to the CRSCI Grantee websites
- Links to climate data sources
- Links to health data sources
- Training for recognizing, preventing and treated heat-related illness
- Climate and health webinars
- Climate and health publications

http://www.cdc.gov/climateandhealth/

Gino D. Marinucci, MPH
Strategy & Policy Advisor
Climate and Health Program
National Center for Environmental Health
Centers for Disease Control and Prevention

gmarinucci@cdc.gov
Tel: +1 770-488-0779
http://www.cdc.gov/climateandhealth/

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov Web: http://www.cdc.gov