



THE IMPACTS OF CLIMATE CHANGE ON

HUMAN HEALTH

IN THE UNITED STATES:
A SCIENTIFIC ASSESSMENT

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NOAA Climate Services webinar – May 2017



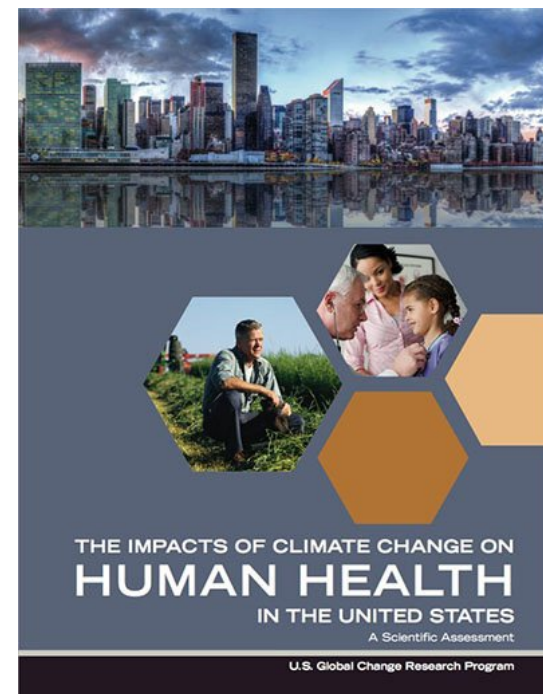
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Process and People

What was the process for development?

- Driven by the USGCRP Interagency Crosscutting Group on Climate Change and Human Health (CCHHG)
- Coordinated by the EPA
- Written by a team of ~100 Federal employees, contractors, and grantees from eight U.S. Federal agencies: HHS (NIH, CDC, NIOSH, ASPR, FDA, SAMHSA), NOAA, EPA, USDA, NASA, USGS, DOD (USUHS), VA
- Reviewed by the public and experts, including a committee of the National Academies of Sciences and the 13 Federal agencies of the USGCRP



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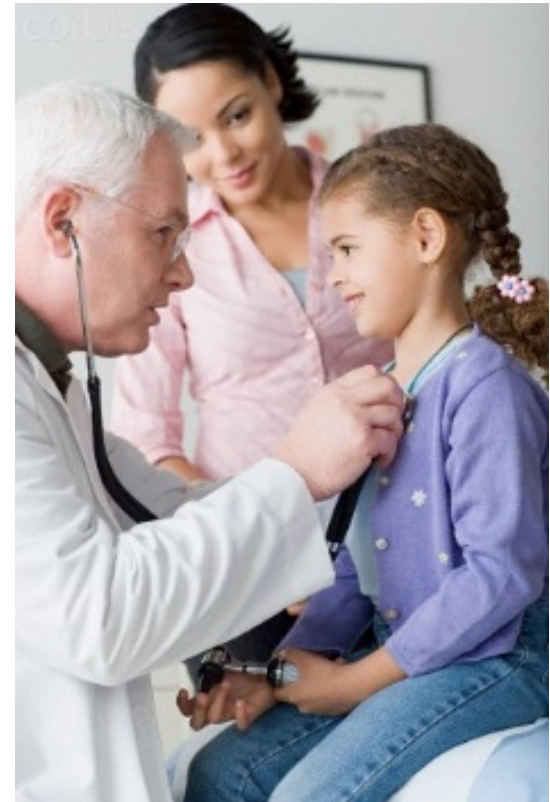
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Top Line Messages of the Report



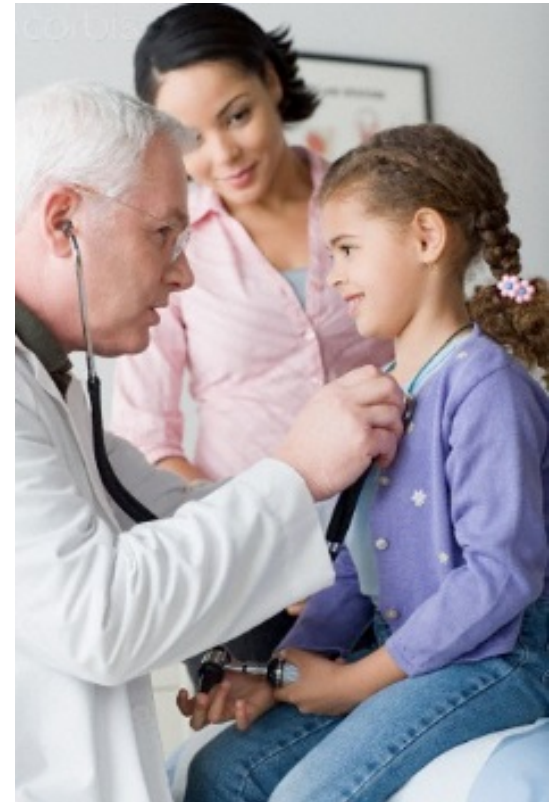
- Climate change is a significant threat to the health of the American people.
- This assessment significantly advances what we know about the impacts of climate change on public health, and the confidence with which we know it.
- Climate change exacerbates some existing health threats and creates new public health challenges.
- Every American is vulnerable to the health impacts associated with climate change.



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Scope of the Climate and Health Assessment



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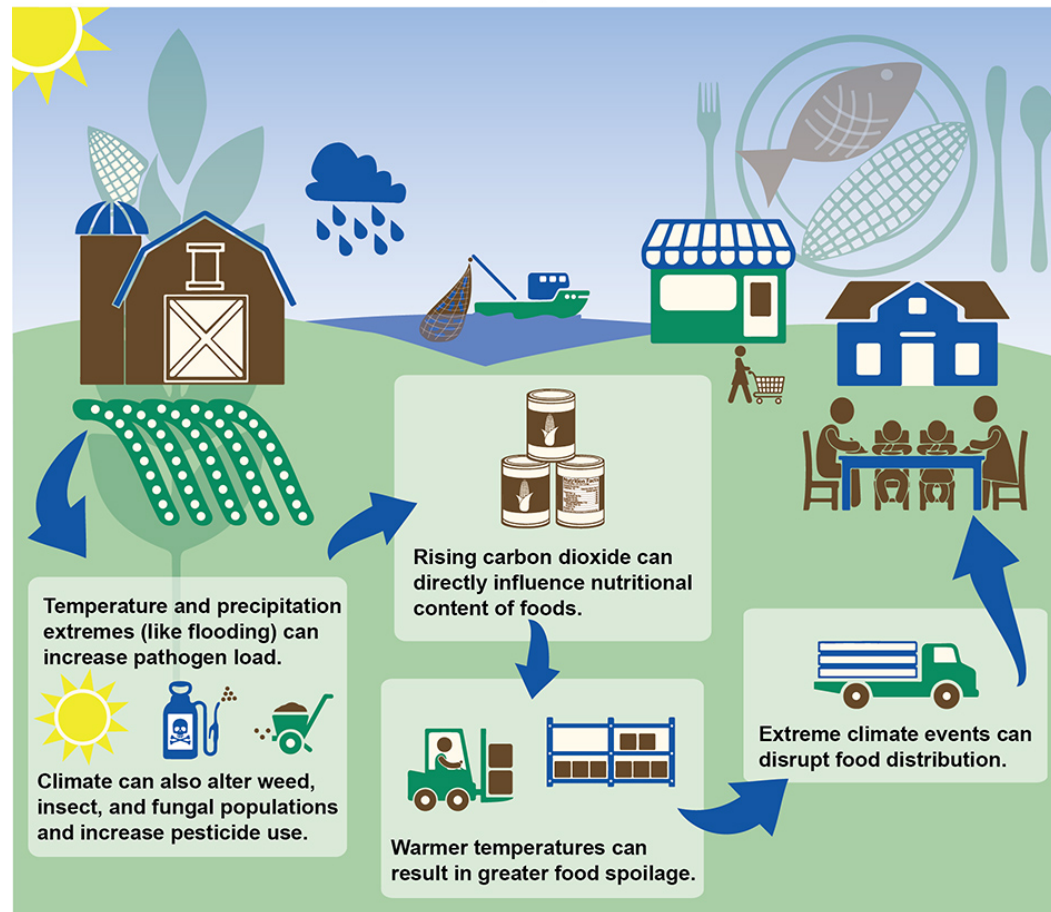


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FOOD SAFETY, NUTRITION, AND DISTRIBUTION

Farm to Table

The Potential Interactions of Rising CO₂ and Climate Change
on Food Safety and Nutrition

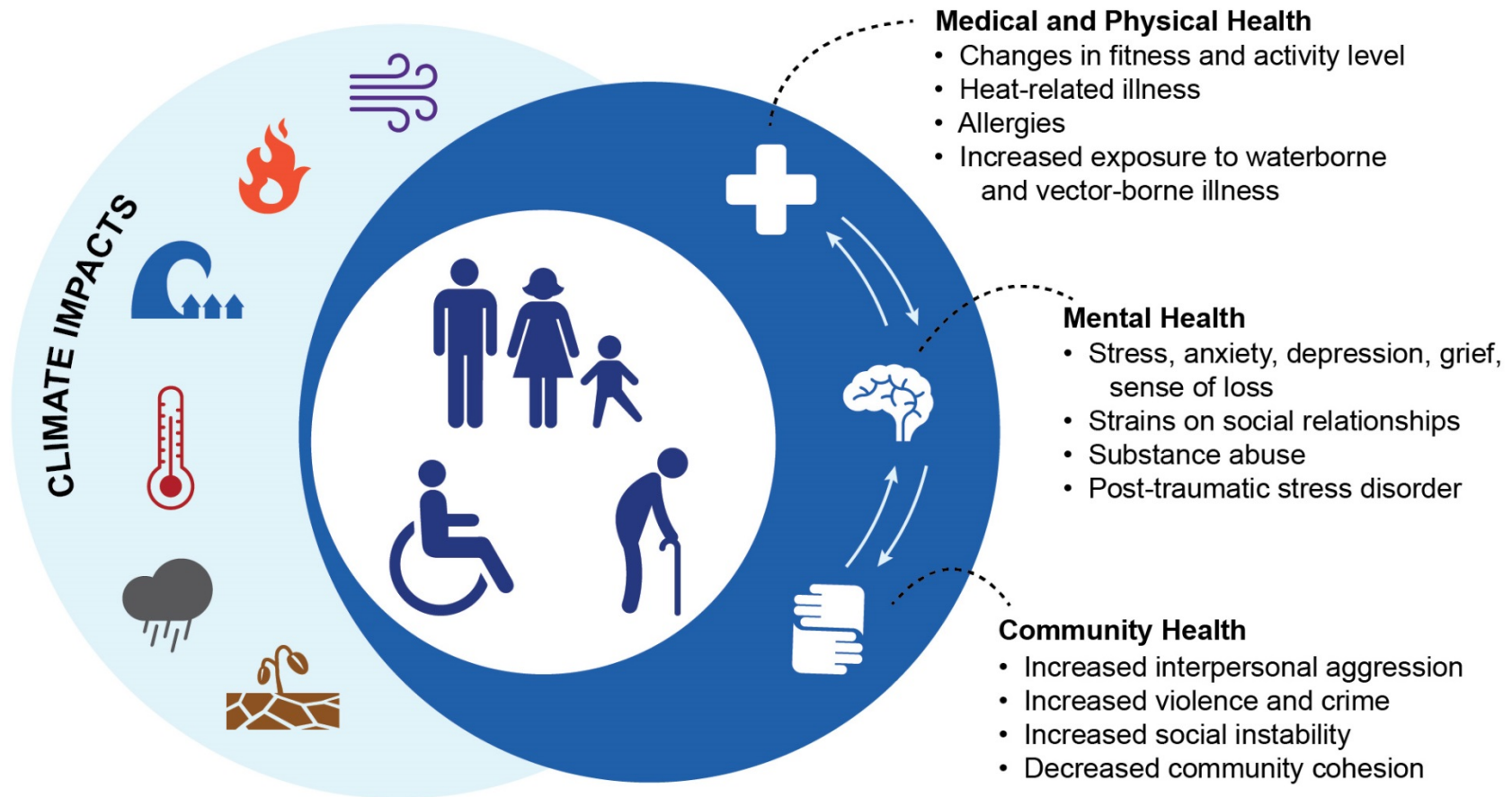




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MENTAL HEALTH AND WELL-BEING

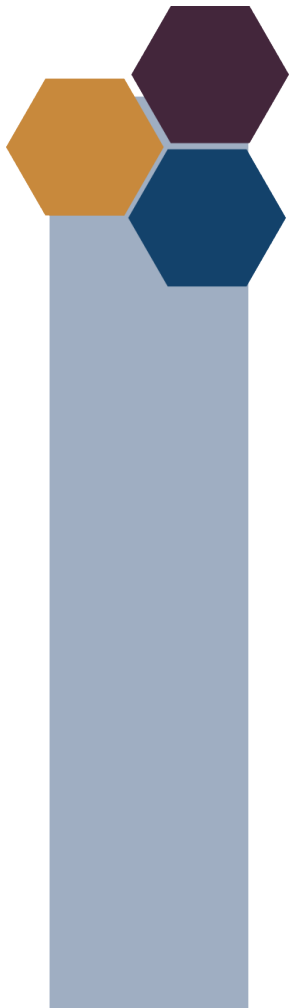
Impact of Climate Change on Physical, Mental, and Community Health



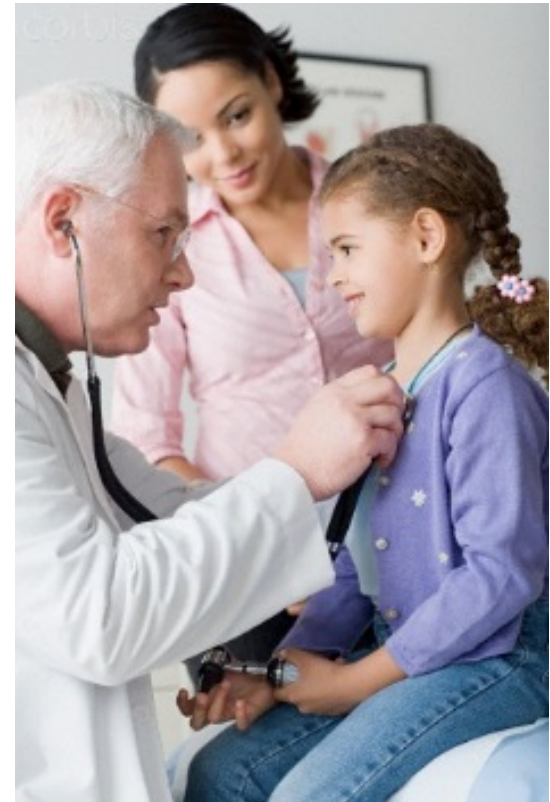
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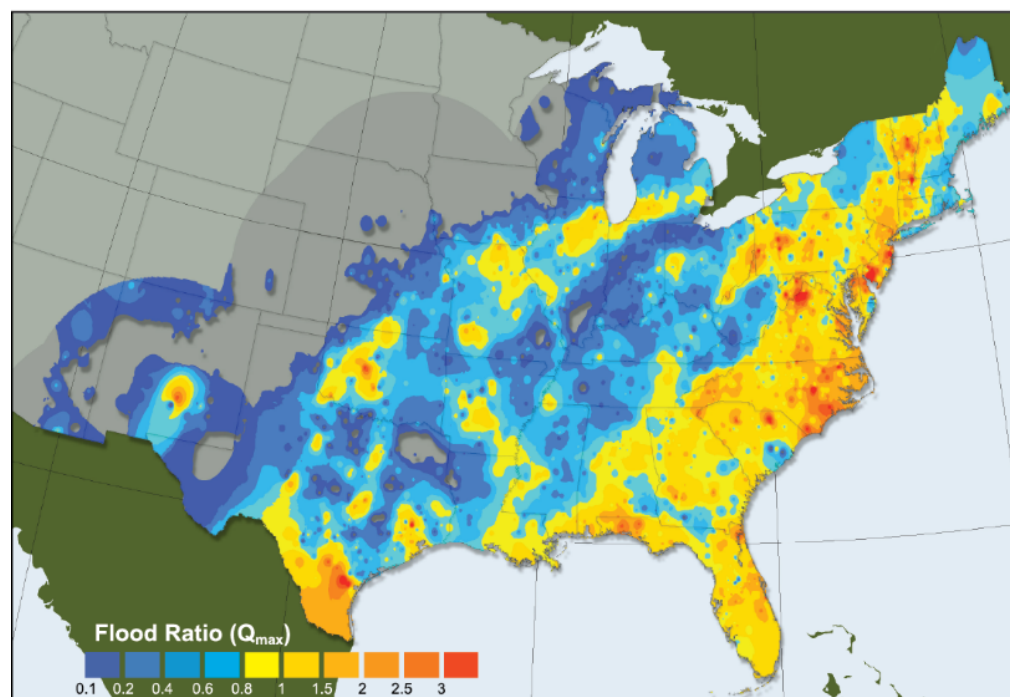


Examples of where climate change **exacerbates** existing health threats

People in flood-prone regions are expected to be at greater risk

- Drowning
- Blunt trauma from falling debris or objects in floodwater
- Electrocution
- Falls, cuts, puncture wounds, sprains, burns, hypothermia, animal bites
- Motor vehicle accidents from wet, damaged, or obstructed roads
- Gastrointestinal illness; wound infections; skin, eye, ear, nose, and throat infections
- Preterm birth, low birth weight
- Post-traumatic stress disorder (PTSD), depression, and general anxiety

Hurricane-Induced Flood Effects in Eastern and Central United States



Composite map of floods associated with landfalling hurricanes over the past 31 years, based on stream gauge data

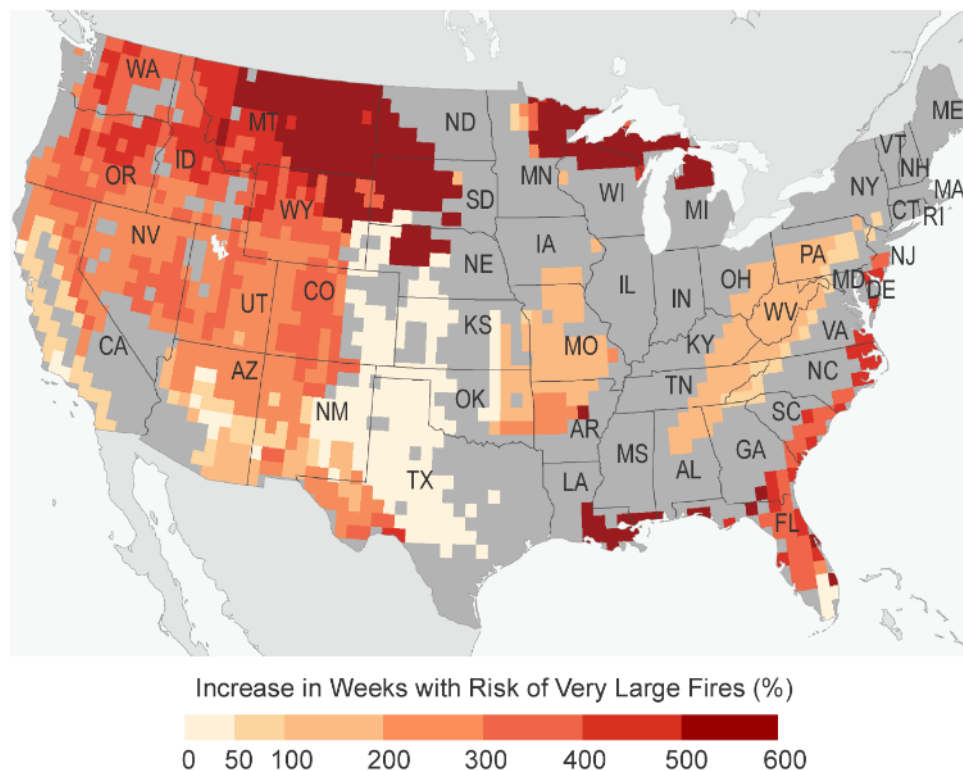


Examples of where climate change **exacerbates** existing health threats

Climate change is projected to increase the frequency and intensity of large wildfires, with increased associated health risks:

- Exposure to smoke (carbon monoxide, ozone, toxic chemicals, fine and coarse particulate matter)
 - Acute and exacerbated respiratory problems, such as shortness of breath, asthma, and COPD
 - Risk of cardiovascular disease and premature death
 - Low infant birth weight
- Motor vehicle deaths and injuries
- Burns and injuries to first responders
- Post-traumatic stress disorder (PTSD), depression, and general anxiety

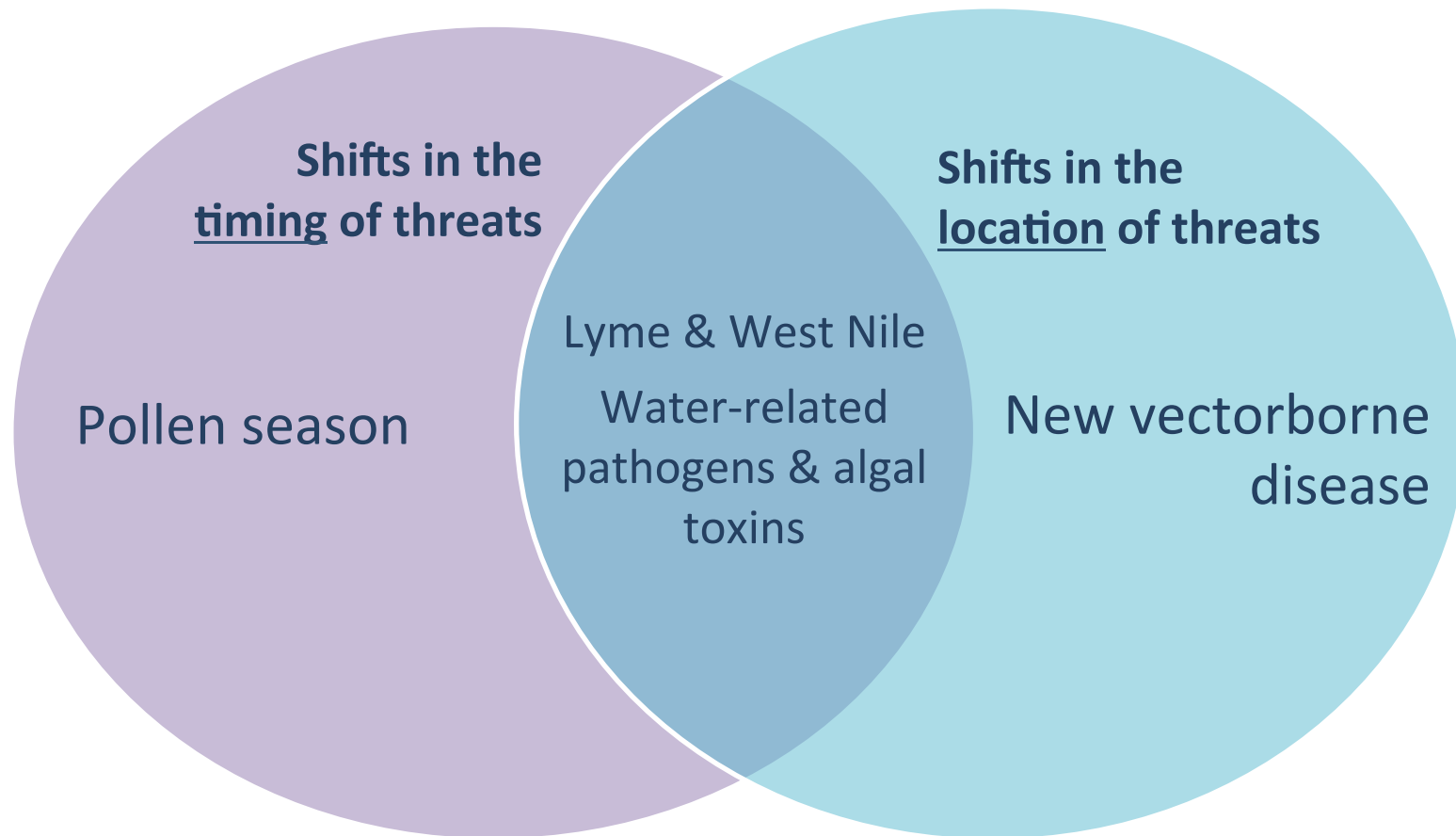
Projected Increase in Risk of Very Large Fires by Mid-Century



Projected percentage increases in weeks with risk of very large fires by mid-century (2041-2070) compared to the recent past (1971-2000)



Examples of where climate change creates **new** public health challenges



Examples of where climate change creates **new** public health challenges

Shifts in the timing of threats

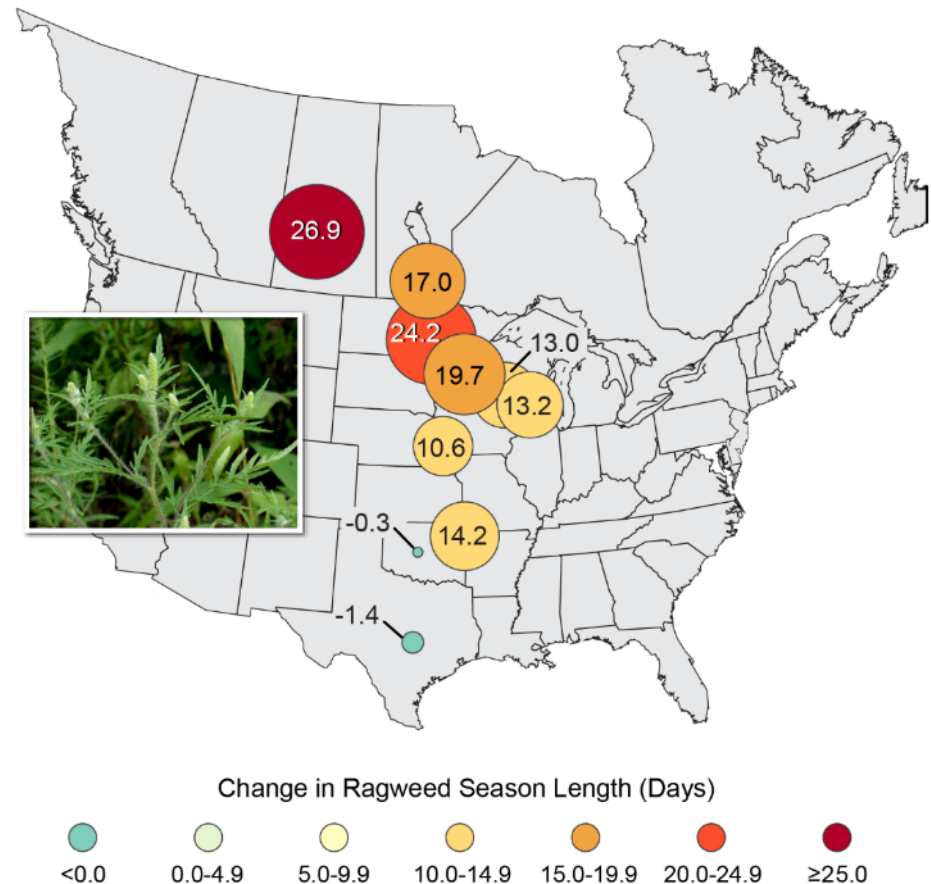
Between 1995 and 2011, the **duration** of the ragweed pollen season length has increased by as much as 27 days

Increases in temperature and CO₂ result in earlier flowering, but also greater floral numbers, greater pollen production, and increased allergenicity

Aeroallergen exposure contributes to:

- Asthma episodes
- Allergic rhinitis, sinusitis, conjunctivitis
- Urticaria (hives)
- Atopic dermatitis or eczema
- Anaphylaxis

Ragweed Pollen Season Lengthens



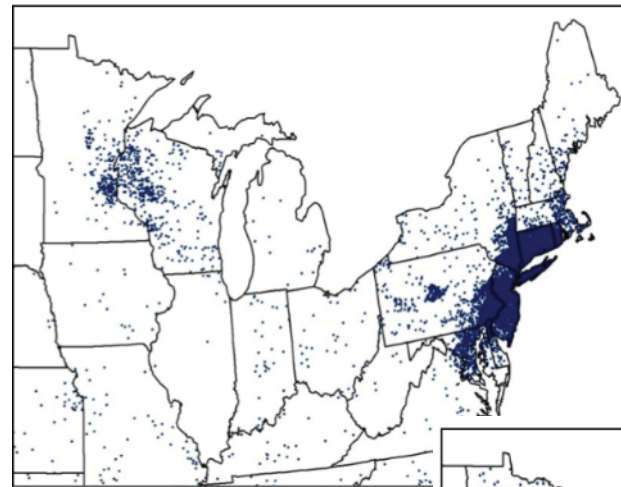
Examples of where climate change creates **new** public health challenges

Shifts in the location of threats

Weather-related variables can determine geographic distributions of ticks

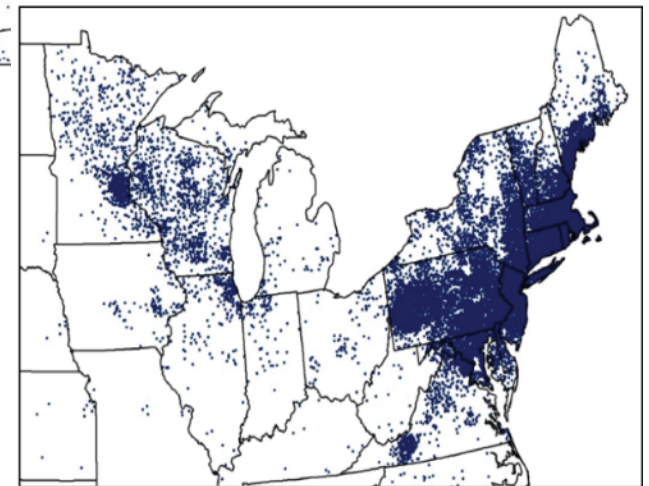
Low minimum temperatures can limit tick population survival

Declines in rainfall and humidity can also limit geographic distribution of blacklegged ticks



2001

Changes in Lyme Disease Case Report Distribution



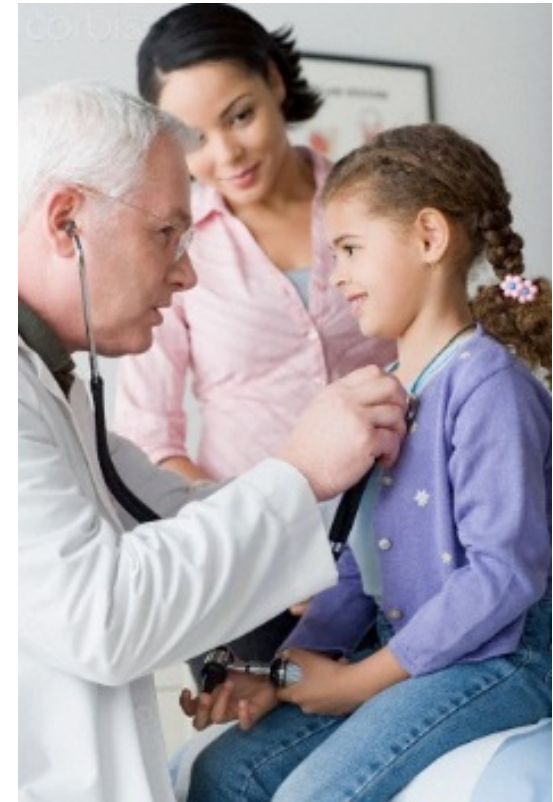
2014



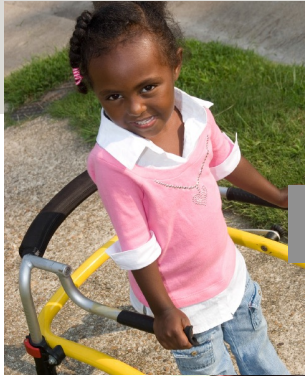
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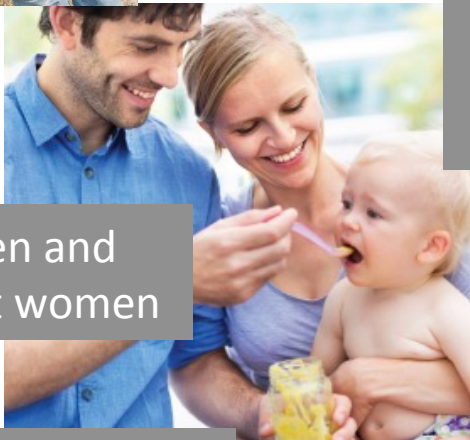
Populations of Concern



People with disabilities



Communities of Color, Low Income, Immigrants, and Limited English Proficiency Groups



Children and pregnant women

Older adults/elderly



Occupational groups



People with pre-existing medical conditions

Indigenous peoples



Multiple requests from public engagement opportunities for tailored communications materials



Climate and Health Resources

EPA Resources on Climate Change and Human Health

Climate Change, Health, and Populations of Concern

Communication Materials

This set of eight communication material kits describes how each of the following groups is subject to climate change:

- Children
- Communities with Environmental Justice Concerns
- Indigenous Populations
- Occupational Groups
- Older Adults*
- People with Disabilities*
- People with Existing Medical Conditions
- Pregnant Women

Each kit includes:

- A 2-4 page factsheet, in English and Spanish, available as a printable PDF
- A customizable PowerPoint presentation
- High resolution images sized for networking platforms
- A summary paragraph and shorter messages for different communication formats.

* These factsheets are also available in large font.



www.epa.gov/climate-impacts/climate-change-health-and-populations-concern



Climate Change Impacts

Website

This website explores the impacts of climate change by U.S. region, state, and sector (for example, health, energy, and water sectors).

The site was recently updated with health assessment findings from the U.S. Global Change Research Program report, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*.



www.epa.gov/climate-impacts



Climate Change and Human Health Risks In Your State

Website

This website features a clickable map that lets you select a state to learn about climate change impacts. It provides examples of related health risks and information on how to prepare for, and respond to, these impacts.



www.epa.gov/climate-impacts/climate-change-and-human-health-risks-your-state



Resources Covered:

1. Climate change impacts website
2. Populations of Concern
 - Communication Materials
 - Factsheets
3. Clickable Map
4. Online Quiz
5. Lifestage Factsheet
6. Extreme Heat Guidebook
7. Other Resources
 - State Factsheets
 - EPA Reports



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How Much Do You Know About the Health Impacts of Climate Change?

Online Quiz

A ten-question interactive online quiz challenges you and your friends on your climate and health knowledge, and lets you share your climate score on social media.

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www.epa.gov/climate-impacts/quiz-how-much-do-you-know-about-health-impacts-climate-change

Climate Change Indicators in the United States

Report

EPA partners with other government agencies, academic institutions, and organizations to compile key indicators of the causes and effects of climate change. This report includes a six-page spread on what these indicators can tell us about climate change and health.

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www.epa.gov/climate-indicators

State Climate Change Impacts

Factsheets

As our climate changes, every state will become warmer. But other impacts of climate change are likely to be very different from state to state. These fifty-four state factsheets present overviews of climate change impacts for each U.S. state and territory.

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www.epa.gov/climate-impacts/climate-change-impacts-state

The Benefits of Global Action on Climate Change

Report

EPA's Climate Change Impacts and Analysis (CIRA) project shows that reducing global greenhouse gas emissions will significantly benefit Americans by saving lives and avoiding costly damages across the U.S. economy. The report describes findings for six sectors, including human health.

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www.epa.gov/cira/

How Will Climate Change Affect My Health?

Factsheet

Climate change can affect your health in different ways at different stages of life. This graphic shows the health impacts of climate change from infancy through older adulthood.

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www.epa.gov/climate-impacts/climate-change-and-health-impacts

Climate Change and Extreme Heat

Guidebook

Extreme heat events are expected to become more common, more severe, and longer lasting as our climate changes. Learn about extreme heat in a changing climate: Why is extreme heat on the rise? How might it affect you? What can you do before and during an extreme heat event to reduce your risk?

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www.epa.gov/climatechange/extreme-heat-guidebook

CLIMATE CHANGE INDICATORS IN THE UNITED STATES 2016

FOURTH EDITION

CLIMATE CHANGE and EXTREME HEAT

What You Can Do to Prepare

Email us at climatehealth@epa.gov



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THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH IN THE UNITED STATES: A SCIENTIFIC ASSESSMENT

To view the full report:
health2016.globalchange.gov

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