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Climate Change Health Risks & Health Benefits of Climate Action

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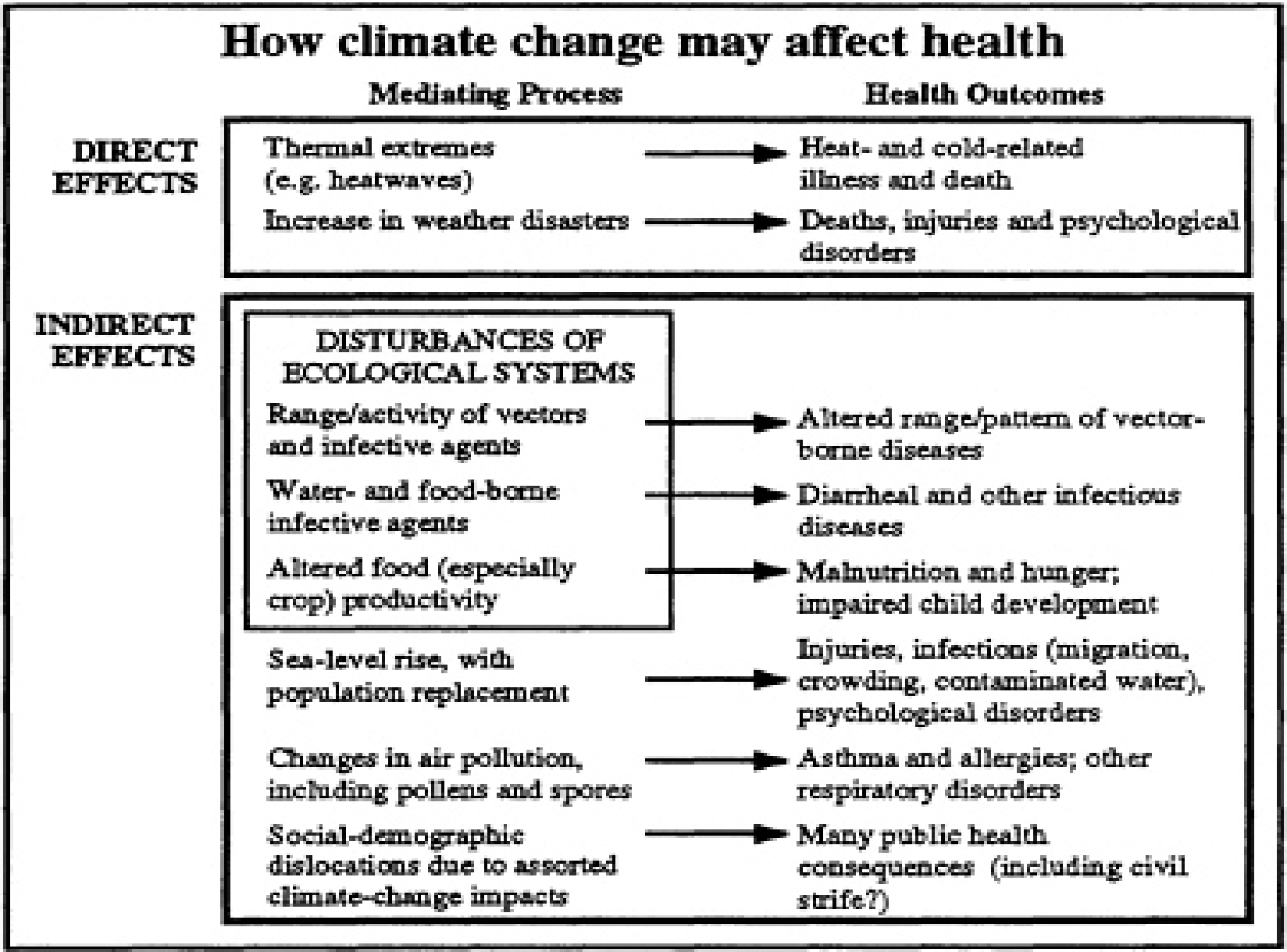
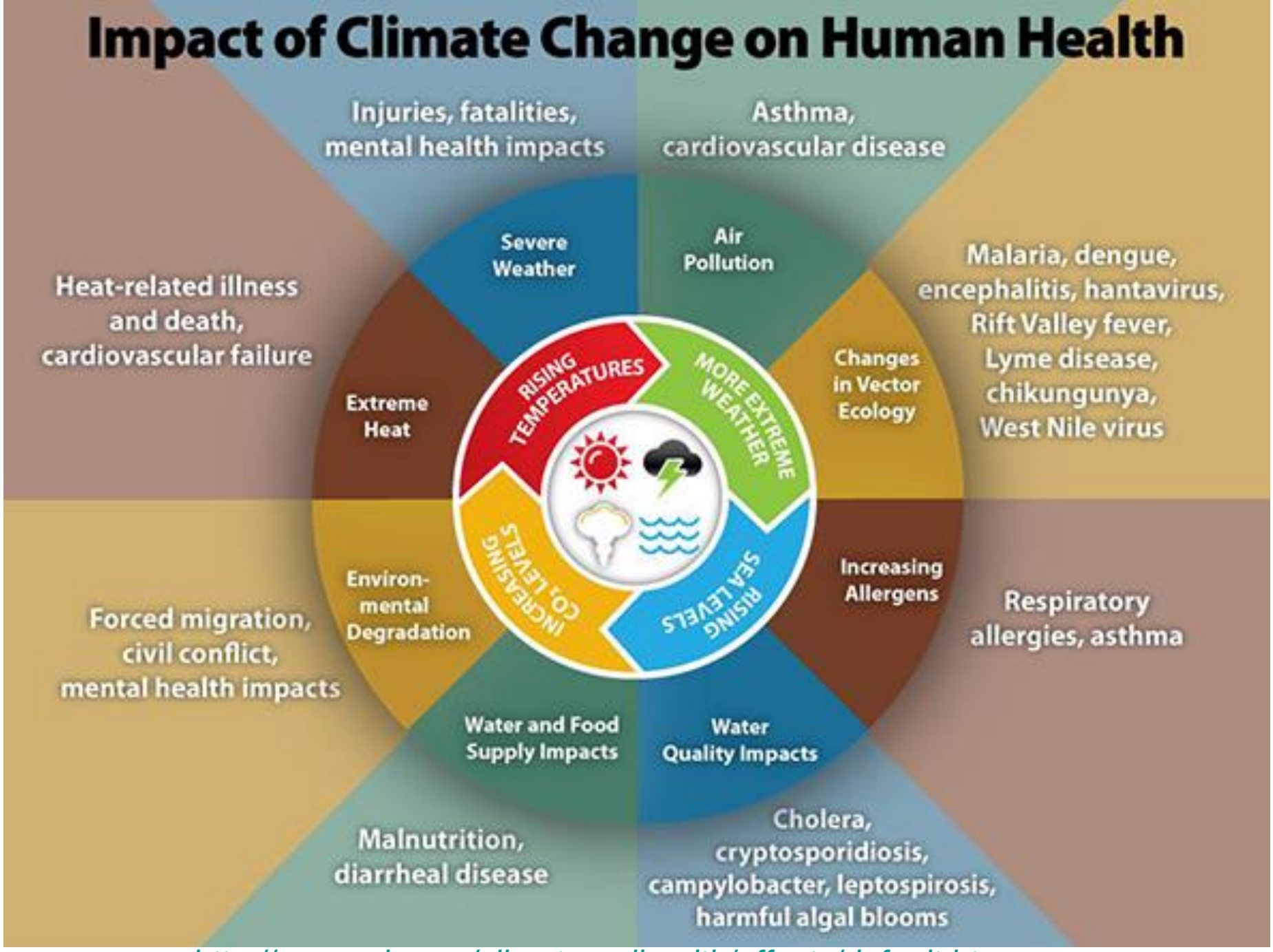
Climate Change Is Affecting Many Human Health Outcomes





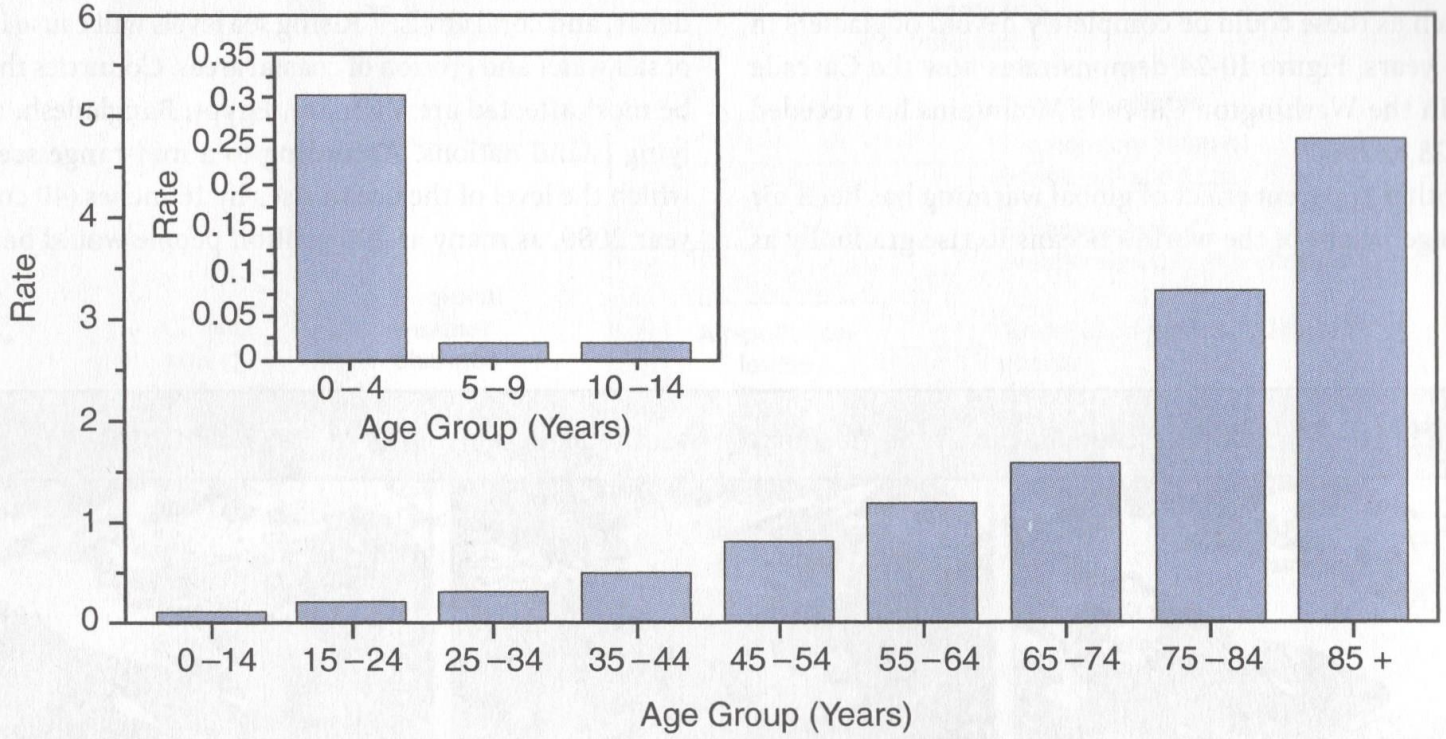
http://www.cdc.gov/climateandhealth/effects/default.htm

Globally, Impacts *UNEVEN*

- **Women, children and the poor are worst affected:**
  - Additional 20-25 million **under-nourished children** by 2050 (17-22% global increase)
  - **Low and middle-income countries often unable** to adapt - higher exposures, burden of disease
  - Natural disasters **kill more women than men**

Older Adults At Greatest Risk

FIGURE 10-25 Average rate* of heat-related deaths†, by age group—United States, 1979–1995.

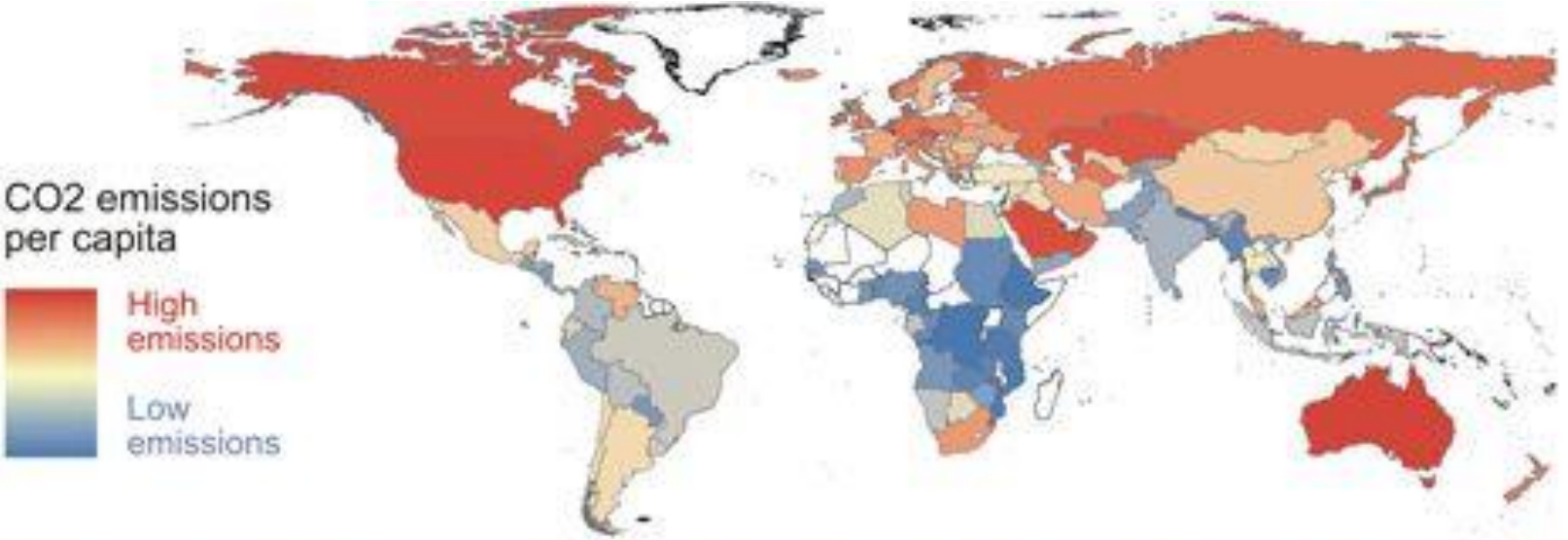


*Per 1 million population.

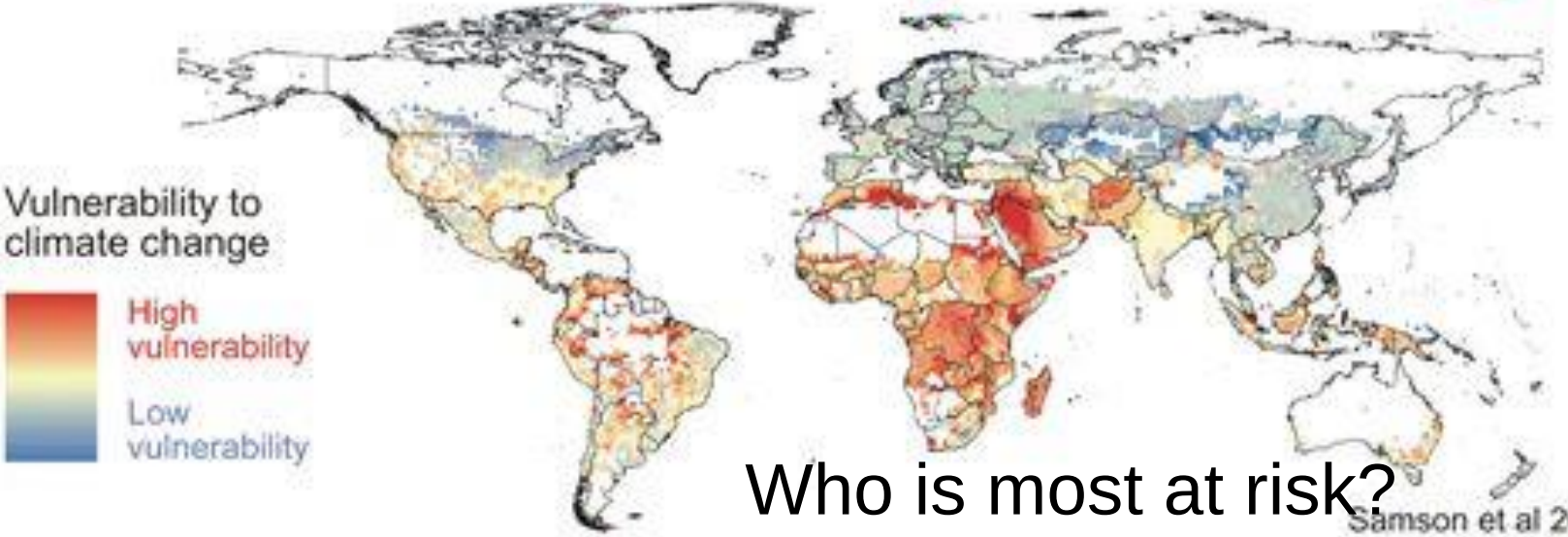
† Underlying cause of death attributed to excess heat exposure classified according to the *International Classification of Diseases, Ninth Revision,* as code E900.0, "due to weather conditions."

Source: Reprinted from the Centers for Disease Control and Prevention. Heat-Related Mortality—United States, 1997. *MMWR*. 1998;47:474.

Who is most responsible?:



Those who contribute the least greenhouse gases
will be most impacted by climate change



Who is most at risk?

Samson et al 2011

Ann Am Thorac Soc. 2015 Feb;12(2):274-8

American Thoracic Society Member Survey on Climate Change and Health

Mona Sarfaty[1], Brittany Bloodhart[1], Gary Ewart[2], George D. Thurston[3], John R. Balmes[4], Tee L. Guidotti[5], and Edward W. Maibach[1]

Surveyed a random sample of ATS physicians to assess their understanding of, clinical experiences with, and preferred policy responses to climate change.

Responses were received from members in 49 states and the District of Columbia (n = 915); the response rate was 17%.

"Which, if any, of the following groups will disproportionately experience any negative health effects from Climate Change?"

Response Options	Percent Response (of total survey responses, N = 915)
	Yes
Young children ages 0 to 4	66%
Older children ages 5 to 17	33%
Young adults ages 18 to 39	17%
Middle aged adults ages 40 to 60	14%
Older adults ages 60+	63%
People with chronic diseases	75%
The poor and the working poor	65%
People of color	27%
None of the above because climate change isn't happening	5%

But What if We Take Action?
What Health Benefits Could We Achieve?

- The Lancet Commission has recommended that, over the next five years, governments:
    1. Invest in climate and public health **research, monitoring and surveillance**
    2. Scale-up financing for **climate-ready health systems**
    3. **Rapid phase out** of **coal-fired plants** to protect cardiovascular and respiratory health
    4. **Encourage a transition** to cities that support and promote **healthy lifestyles**

2015 Lancet Commission Conclusion:

Acting to prevent to climate change could be the biggest global health opportunity of the 21st century

Climate Change: The Greatest Public Health Threat
Climate Mitigation: The Greatest Public Health Opportunity

WATCH LANCET COMMISSION VIDEO: https://www.youtube.com/watch?v=sWhoe9xTC4A

The Quandary of Climate Change Policy: The Carrot or the Stick?
(Thurston, Nature, 2013)

- **The limitations of climate change disaster fears as a policy action motivator are:**
  - ***the most severe potential effects of climate change are decades away***
    - Society tends to discount things in the future.
  - ***most of the climate benefits of mitigation are not local***
    - Those investing in mitigation receive little more climate benefit than those who do nothing

https://www.nature.com/articles/nclimate2013

The Quandary of Climate Change Policy: The Carrot or the Stick?
(Thurston, Nature, 2013)

- *In contrast,* the mitigation associated **clean air health benefits** (and their monetary valuations) are:
  - ***more immediate in time***
  - ***local to the places that do the improvement***
    - occurring primarily in the regions and nations that take these steps to mitigate CO_2 **(See Figure 1)**
- Clean air health better motivates climate mitigation action

https://www.nature.com/articles/nclimate2013

Climate Mitigation Measures that Will Improve Your Health *(While Saving the Planet)*

(Thurston et al., ES&T, 2018)

- **Eat less meat**, more legumes
  - Reduce heart disease, less infectious disease from Concentrated Animal Feeding Operations (CAFOs)
- **Reduce Fossil Fuel Extraction**
  - Fewer black lung cases and fewer mine accidents
- **Reduce Fossil Fuel Combustion**
  - Lower Air Pollution and fewer associated adverse health effects

(https://pubs.acs.org/doi/10.1021/acs.est.8b00859)

Air Quality Co-Benefits Come with Climate Change Mitigation

Air Quality Policies

Climate Change Policies

Human Health

- ***Many policies to improve air quality would lower GHG emissions.***

- ***Many policies to avoid/mitigate climate change would improve air quality right away.***

Air Pollution Reductions From EPA Clean Power Plan Climate Program (Driscoll et al, Nature, 2015)

BAU

Clean Power Plan Program

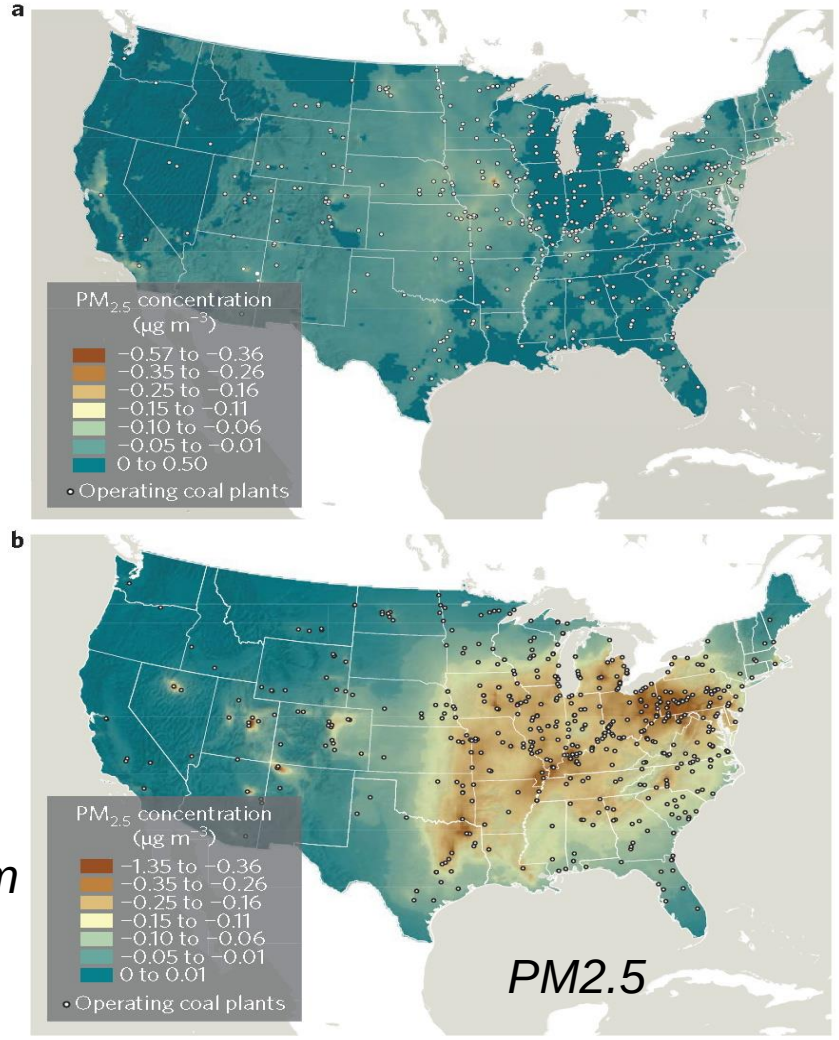


Figure 2 | Maps for the continental USA of difference in annual average concentrations of $PM_{2.5}$ in 2020 for scenarios 1 and 2, less the reference scenario. a, Scenario 1; and **b**, scenario 2.

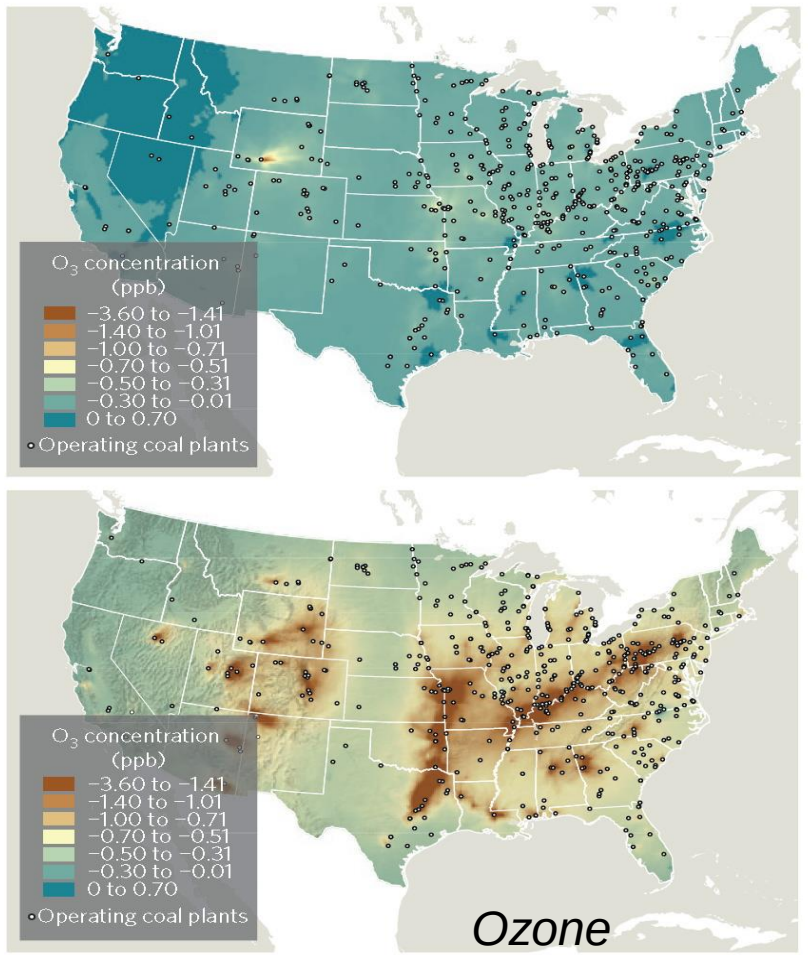


Figure 3 | Maps for the continental USA of difference in annual average concentrations of peak summertime O_3 in 2020 for scenarios 1 and 2, less the reference scenario. a, Scenario 1; and **b**, scenario 2.

http://www.nature.com/nclimate/journal/v5/n6/full/nclimate2598.html

Implications

- While damage from Climate Change has begun, the greatest effects of climate change are distant in time (which the public and politicians tend to discount).
- Taking action to reduce Climate Change CO_2 emissions will also lower other air pollutants.
- These other pollutant reductions provide significant immediate and local human health co-benefits and dollar valuations, *especially if it reduces coal burning.*
- Making the public more aware of such local and immediate health benefits of climate action will:
  - Lower their personal distance from the issue
  - Change their attitude towards climate change action.

The Take-Home Message

- The health and science community has a **vital role to play** in accelerating progress to tackle climate change (as it did with public sanitation and smoking)
- Key needs:
  - Ensuring mitigation strengthens public health
  - Communication about health and climate risks and public health opportunities from mitigation
  - Adapting to face new and emerging health risks

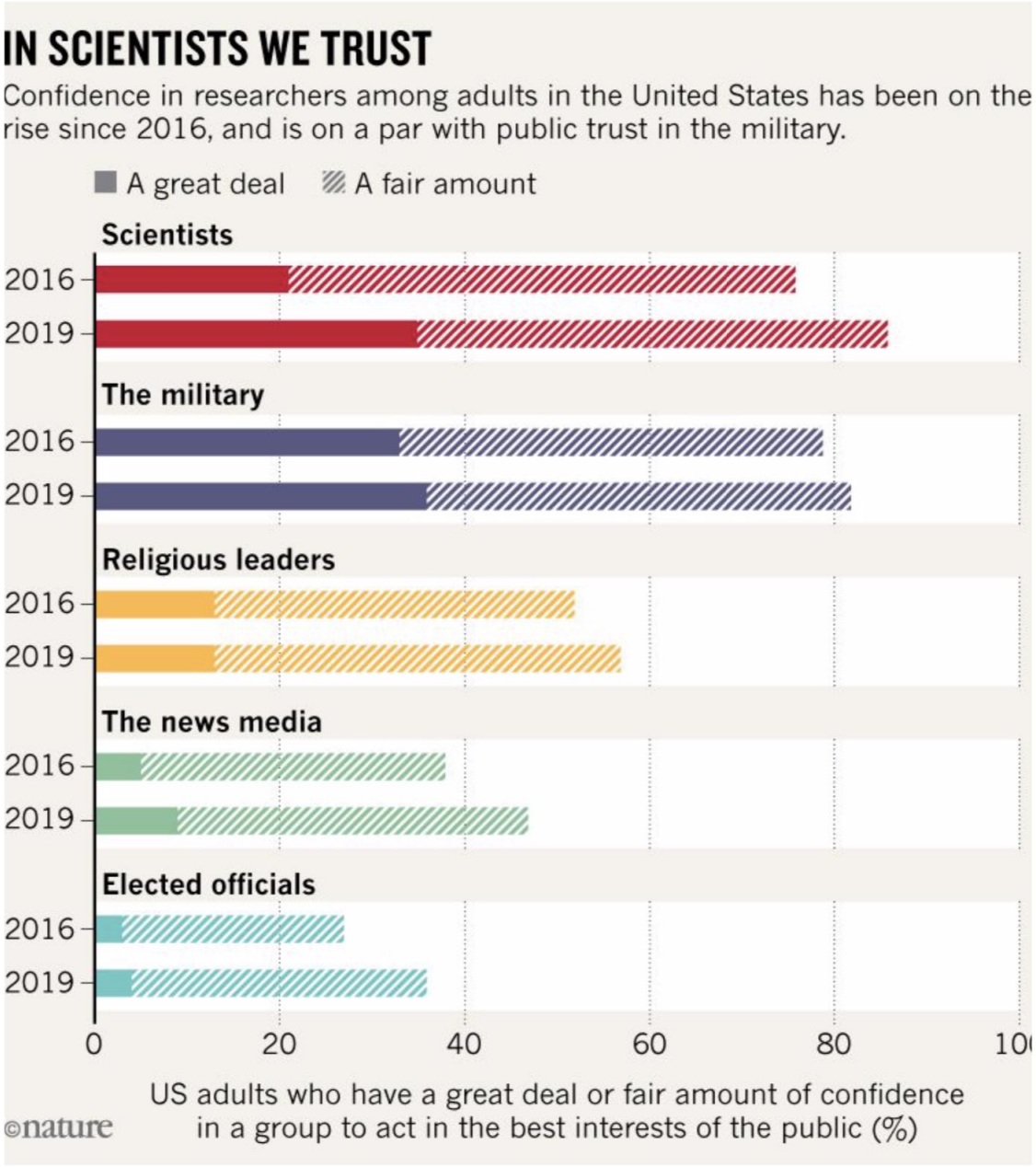
You have a Platform: Use it!

Scientists Are Among the Most Trusted by the Public

Pew Research Center

(Nature, 06 August 2019)

https://www.nature.com/articles/d41586-019-02389- 8



We Can All Benefit from Climate Action