

Becoming Pediatrician-Advocates for Climate and Racial Justice

Advocating for Children Together (ACT) Conference
September 12, 2020
AAP CA1 Climate Change Task Force



Disclosure

We declare that neither we, nor any immediate member of our families, have a financial arrangement or affiliation with any corporate organization offering financial support or grant monies for this continuing medical education activity. In addition, we do not intend to include information or discuss investigational or off-label use of pharmaceutical products or medical devices.

Impact of Climate Change on Children's Health:

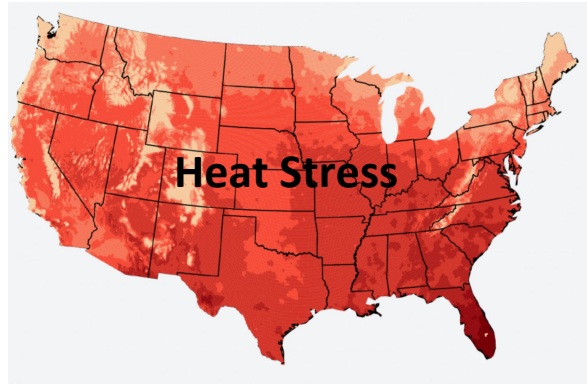
Pediatricians Should be Advocates

Kari Nadeau, PhD, MD

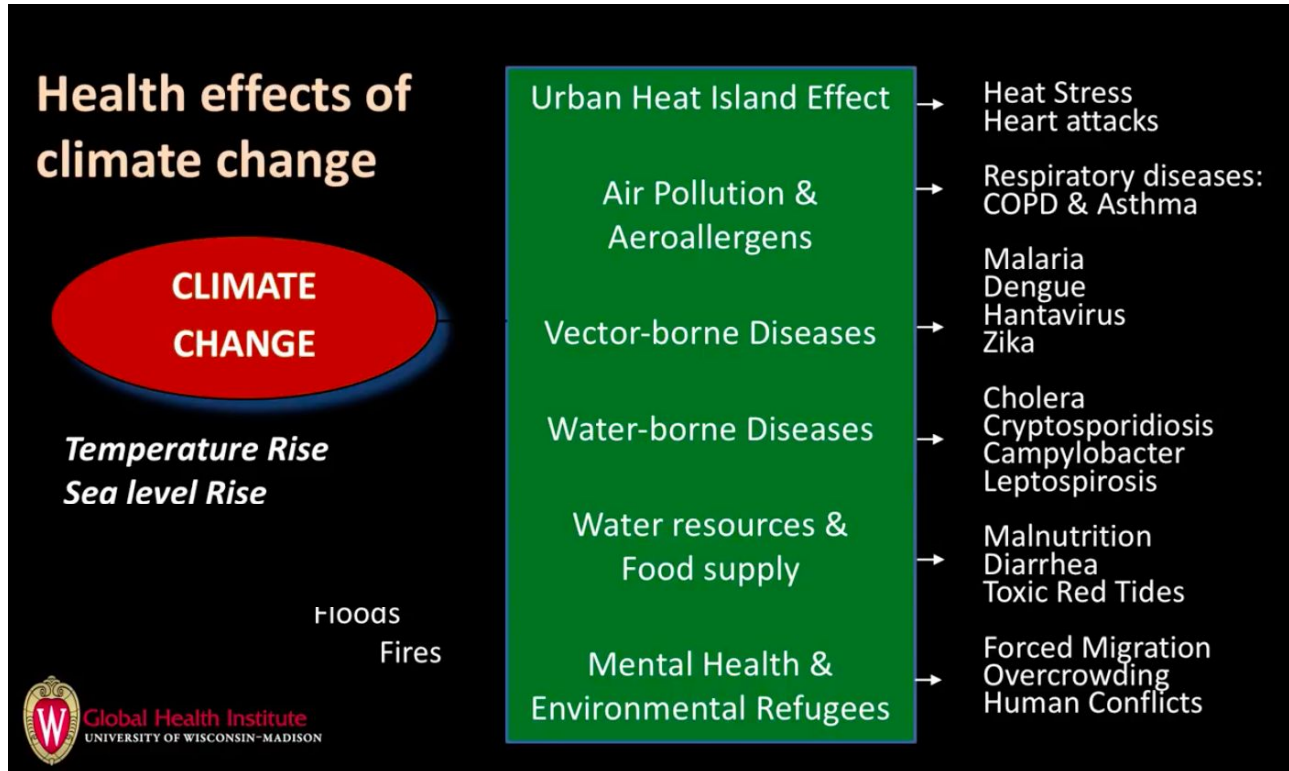


Faces of climate change

Causes of Climate Change



Health Effects of Climate Change in Children



Children and Climate Change

Children are the least responsible for climate change but bear the greatest burden of its impact.

The WHO estimates that nearly 90% of the burden of disease attributable to climate change is borne by children under the age of 5, in both developing and developed countries.

It will be difficult to overcome these challenges because nearly 20% of the world's children live in extreme poverty, which further compromises their social status and access to care.



Because of growing minds and bodies, children are uniquely vulnerable to climate changes

Infectious diseases

Many factors, including climate, influence patterns of infectious diseases like Lyme disease, mosquito-borne illnesses like West Nile virus, and childhood diarrhea. Rising temperature has been linked to the northward spread of Lyme disease in the United States, putting more children at risk of this disease.

Extreme weather events

Children's unique needs place them at risk of injury or death, separation from or loss of caregivers, and mental health consequences following weather disasters. Disasters can also harm children through devastation of the community resources on which they rely for their healthy mental and physical development like schools and hospitals.

Food security

Agricultural productivity and food prices can be affected by extreme heat, drought, flood and rising sea levels. The nutrient content of major crops like wheat and rice may be altered by rising atmospheric carbon dioxide concentration.

Mental health

Children from communities affected by weather disasters are at high risk of post-traumatic stress disorder, anxiety and depression.

LANCET 2019: Children Particularly Vulnerable to Health Effects of Climate Change

Heat waves can particularly affect children under the age of 12 months, and children under 5 who are vulnerable to undernutrition due to changes in crop yields, [diarrheal diseases](#) and mosquito borne diseases like [dengue and malaria](#). 2018 marked the second most climatically suitable year for the spread of bacteria-causing diarrheal disease, which produced particularly adverse outcomes in young children and infants.

Malnutrition as a health concern among infants —over the past 3 decades declines in average global yields of winter wheat (6%), soybeans (3%), rice (4%) and maize (4%).

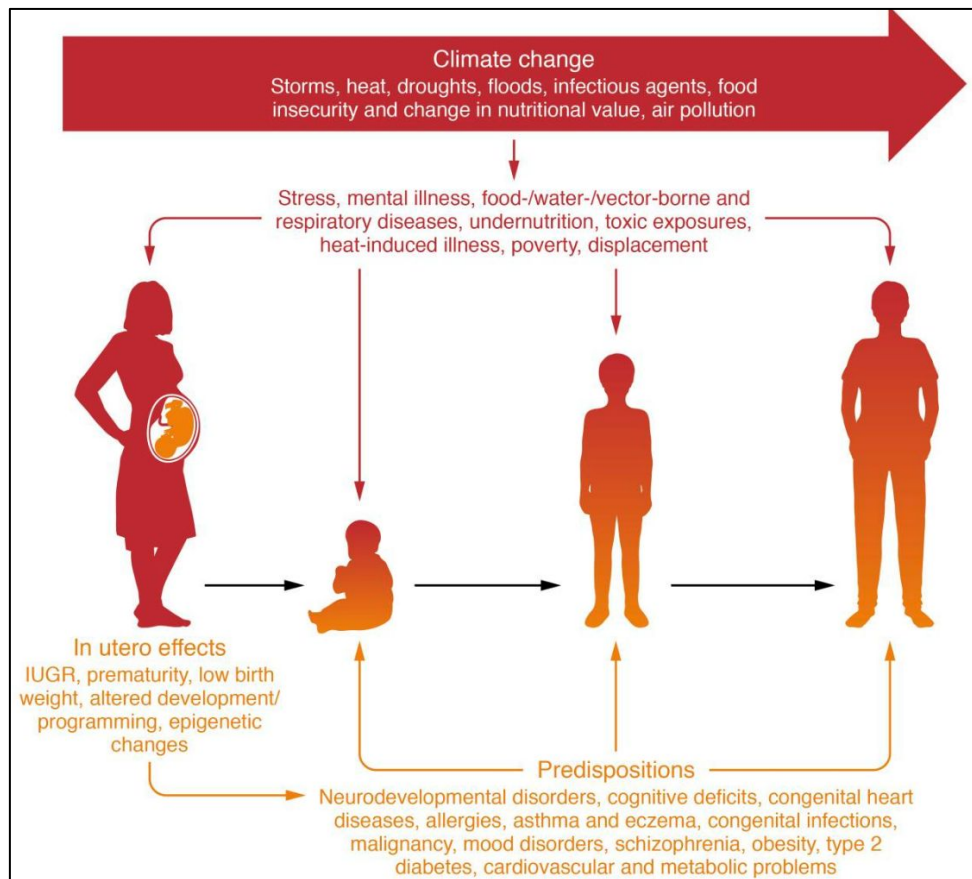
Disease transmission among children is of concern, with nine of the 10 most suitable years for dengue transmission occurring after 2000. In 2019, researchers [estimated that 60% of the globe](#) would be at risk for dengue by 2080, with climate change cited as a contributing factor.

[Deaths related to air pollution](#) reached 7 million in 2016, with ambient fine-particulate matter levels remaining at 2.9 million.

Children born today will grow up in a world that is more than 4° warmer than the pre-industrial average.

LANCET: The 2019 report on health and climate change: ensuring that the health of a child born today is not defined by a changing climate

Climate Change Alters Children's Health Before Birth



The “fingerprint” of climate change on future generations of children begins before they are born.

Pregnant mothers endure environmental crises similar to those their children will experience after they are born.

Maternal exposure to climate-related disruptions, such as floods, droughts, famine, heat extremes, air pollution, and increased infection risk, as well as the stress associated with extreme weather events, population displacement, and other environmental crises, shape the developing fetus any time during gestation.

These outcomes, evident from birth to adulthood may be mediated by epigenetic modulation, physiological resetting of hormonal feedback loops, inflammation, oxidative stress, and altered development of somatic structures, among others.

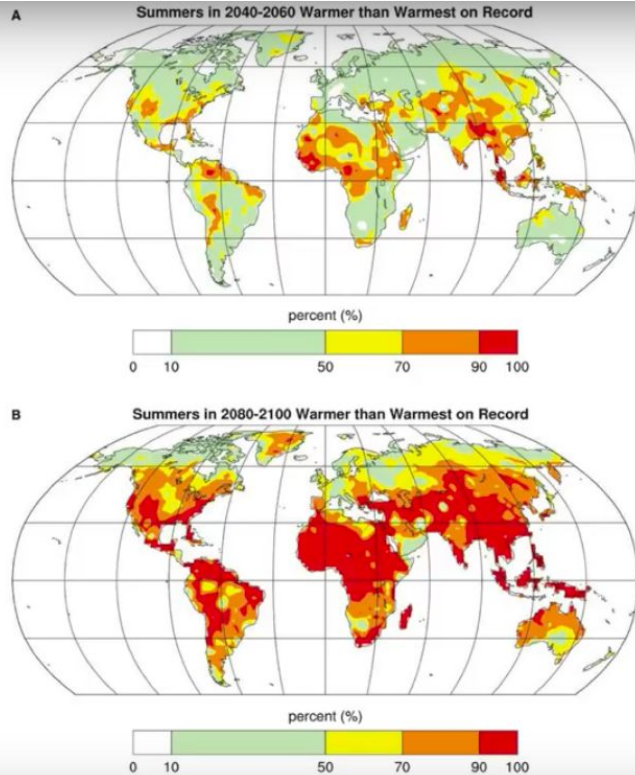


Fig. 3. Likelihood (in percent) that future summer average temperatures will exceed the highest summer temperature observed on record (A) for 2050 and (B) for 2090. For example, for places shown in red there is greater than a 90% chance that the summer-averaged temperature will exceed the highest temperature on record (1900–2006) (22).

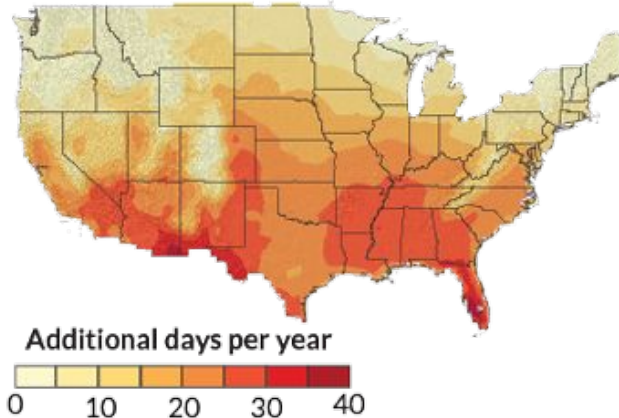
Future summers
warmer than
warmest on record

*Today's 900 million at
risk for hunger could
double by mid-century.*

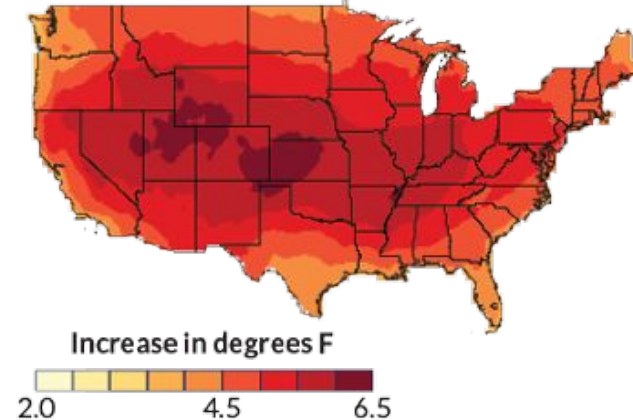
Battisi and Naylor, *Science* 2009

Changes in extreme and average heat by *mid century* with business as usual greenhouse gas emissions

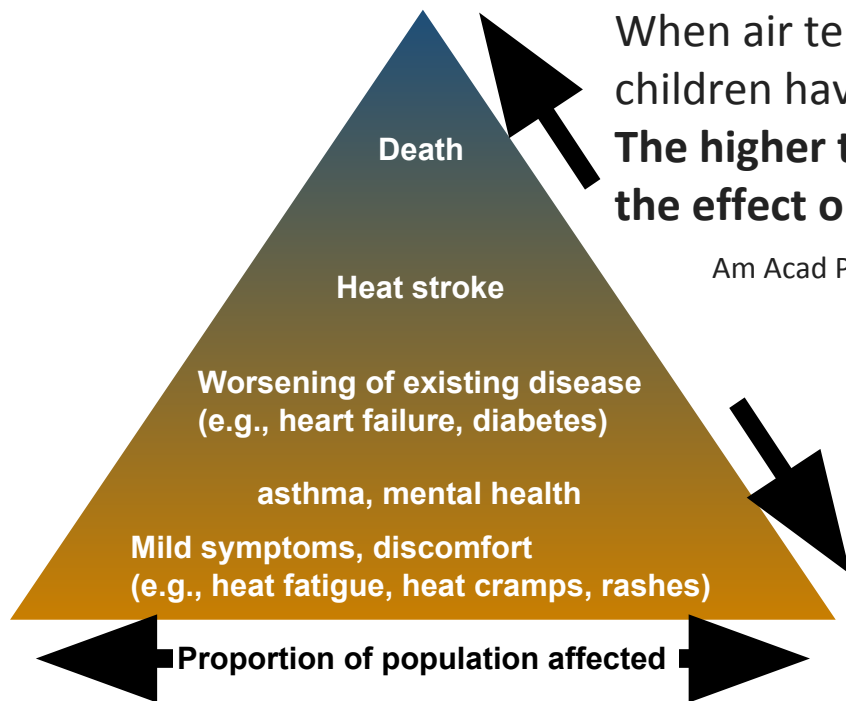
Change in number of days above 95° F



Change in average summer temperatures



Health effects associated with extreme heat

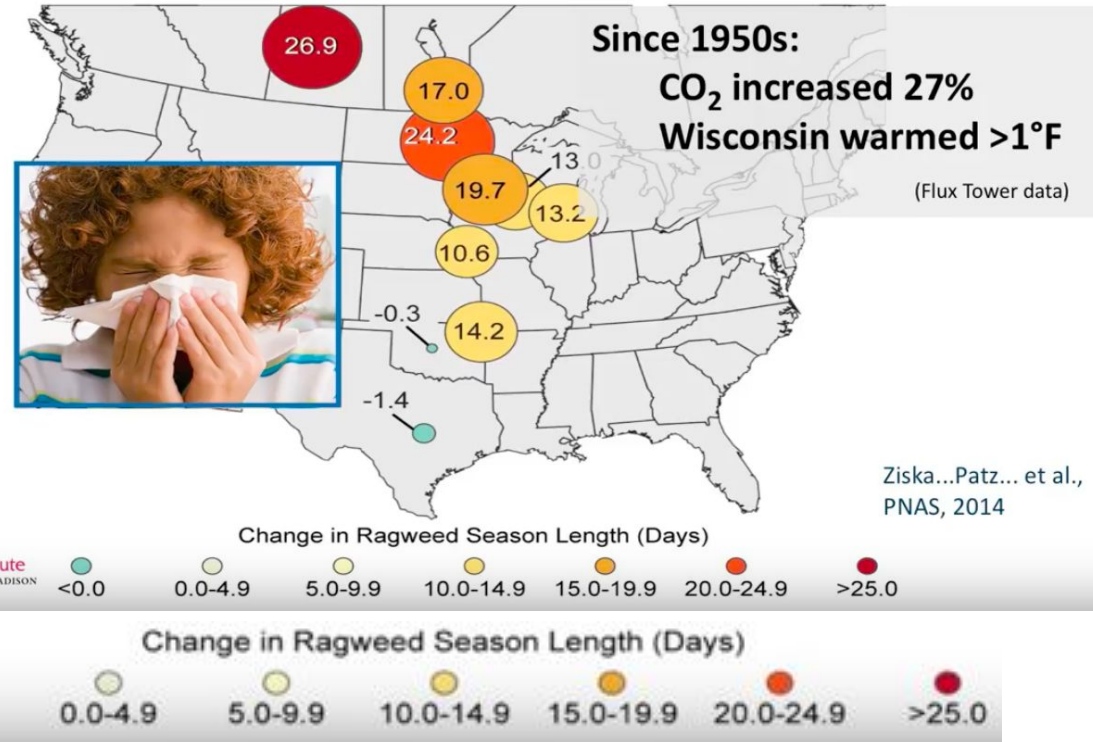


When air temperature exceeds 35°C (95°F), children have a lower tolerance than do adults.

The higher the air temperature, the greater the effect on the child.

Am Acad Ped 2020

Warming, CO₂ and ragweed season



Air Pollution Causes Premature Deaths

Energy Sector

Air pollution: ~7 million premature deaths/yr. (~1 in 8 deaths/yr.)

Global burden of disease report, 2015



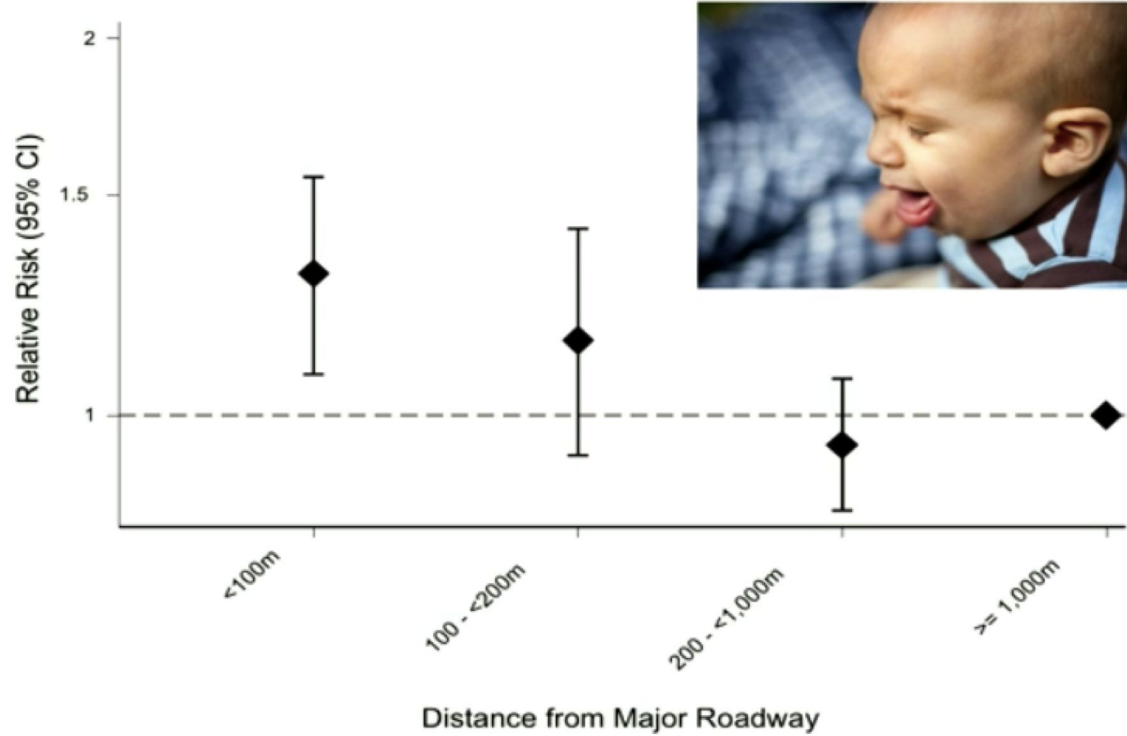
Transportation

Physical inactivity: 5.3 million premature deaths/yr.

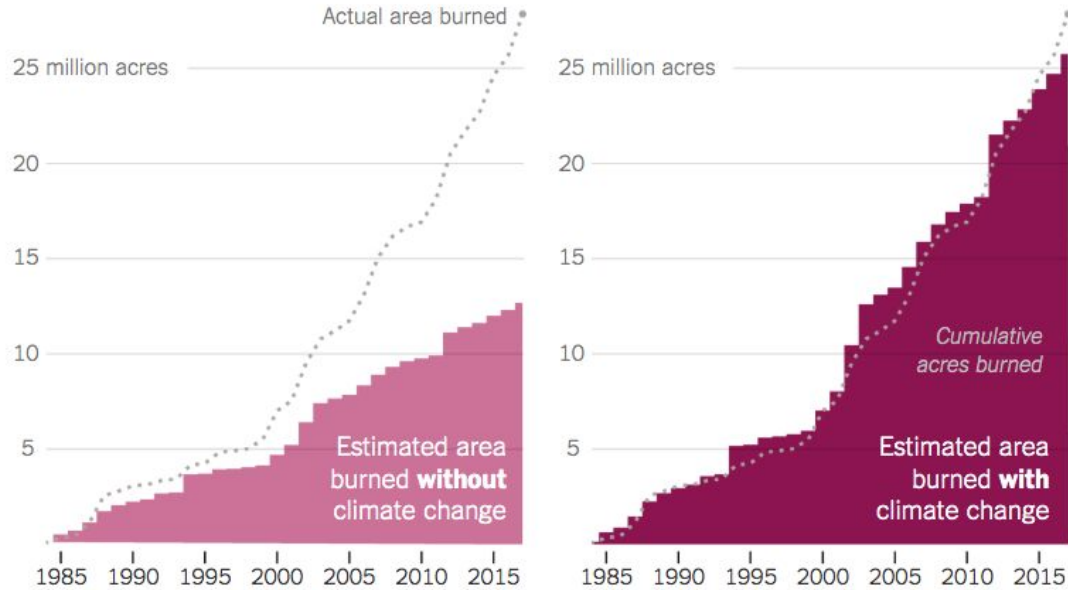
Lee et. Al, 2012



Traffic and Early Life Respiratory Infections



In the West, Forest Fires Burn More Acres in a World Warmed by Climate Change

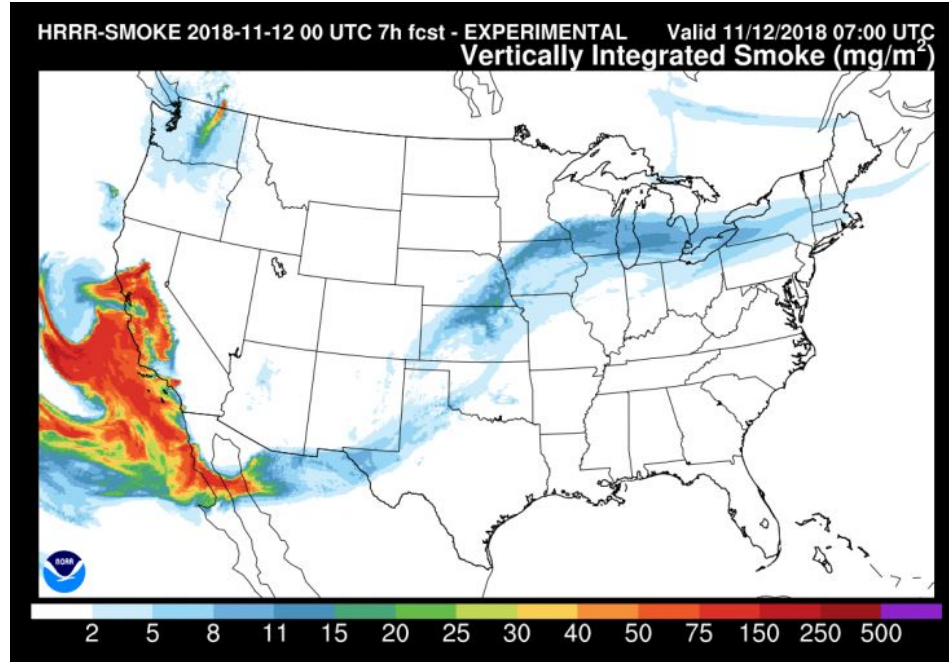


Source: [Proceedings of the National Academy of Sciences](#); data updated through 2017 by A. Park Williams

PNAS October 18, 2016 113 (42) 11770-11775

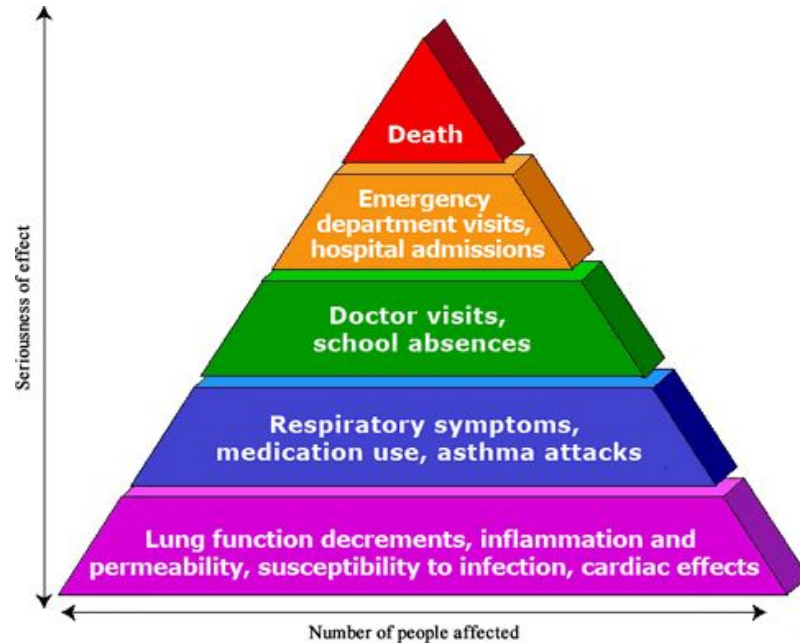
Can wildfire smoke make you sick?

Plumes from Worst wildfire in California History Reach the East



Newsweek

Ozone (O_3) Health Effects

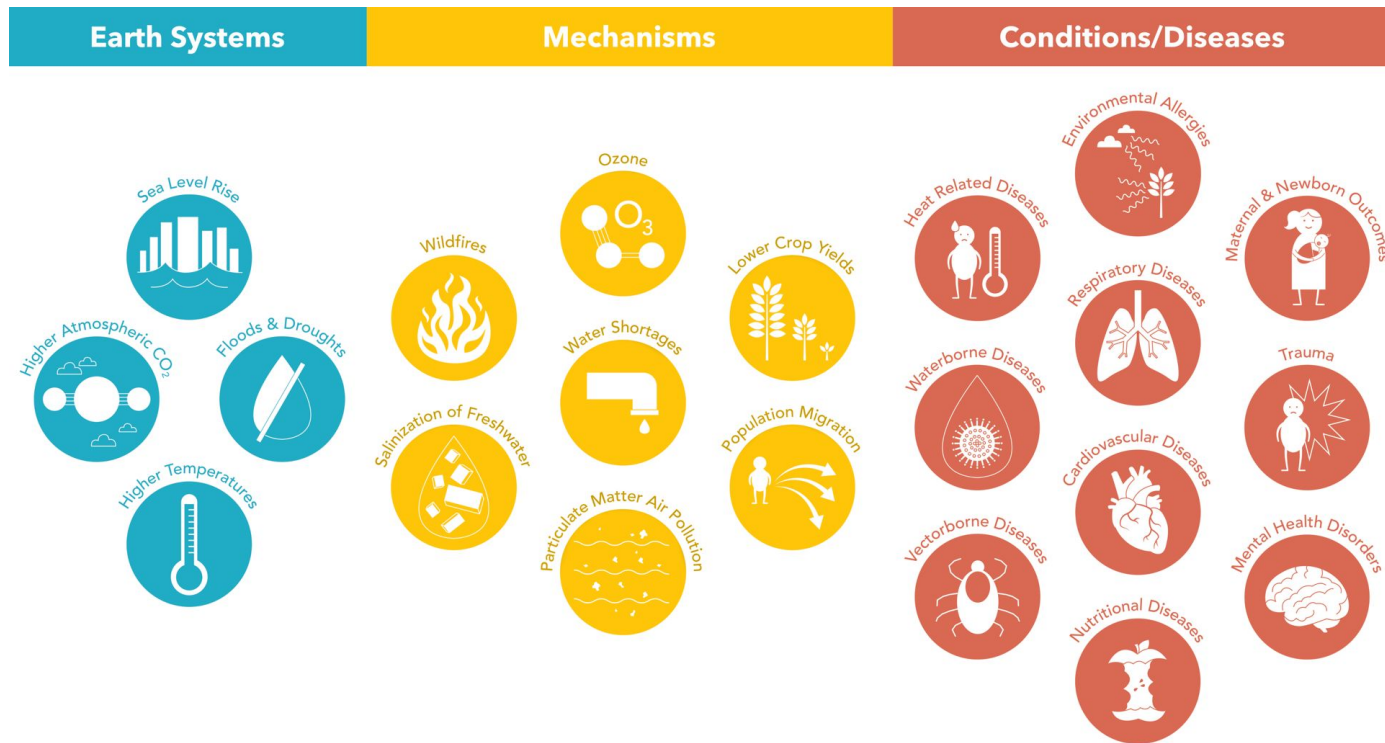


EPA



Healthy lung airway (top)
inflamed lung airway (bottom)

Pathways from greenhouse gas emissions to health outcomes



How Can Doctors Help Children and Parents?

Strong Messaging on Climate and Health



SIMPLE, CLEAR MESSAGES.

REPEATED OFTEN.

BY A VARIETY OF TRUSTED VOICES.

1. There is a consensus among scientists that climate change is happening and that humans are causing it.

2. It's bad *for people*.

3. It's solvable.

Health messages have the greatest force in making Americans see climate as an issue worth taking on.



Childhood exposure to green space 'may help' brain development

Published on 28-03-2018 at 09:23

We can build green



Lucile Packard
Children's Hospital
Stanford



Between 2000-2016 green certified buildings:

saved \$6.7 billion in energy costs and prevented hundreds of deaths
30MT CO₂ ~11,000 asthma attacks
~16,000 lost days of school

Provide access to affordable & reliable public transportation, increase safety and convenience of active transportation and electrify motor vehicles



Vote 2020!



Vote 2020!

Physicians vote at rates less than the general population: we all must VOTE!

Vote for elected officials who have bold plans to combat climate change.






Talk to your patients about voting.

Contact elected representatives about safe voting.

Thank You to the Meeting Organizers



Personal Stories Can Shift Climate Change Beliefs and Risk Perceptions: The Mediating Role of Emotion

Abel Gustafson  , Matthew T. Ballew , Matthew H. Goldberg , Matthew J. Cutler, Seth A. Rosenthal  & A

Published online: 10 Aug 2020

 Download citation

 <https://doi.org/10.1080/08934215.2020.1799049>



YALE PROGRAM ON
Climate Change
Communication



**LINKING CLIMATE TO HEALTH IS
HIGHLY EFFECTIVE IN MOVING VOTERS,
SURVEY FINDS**

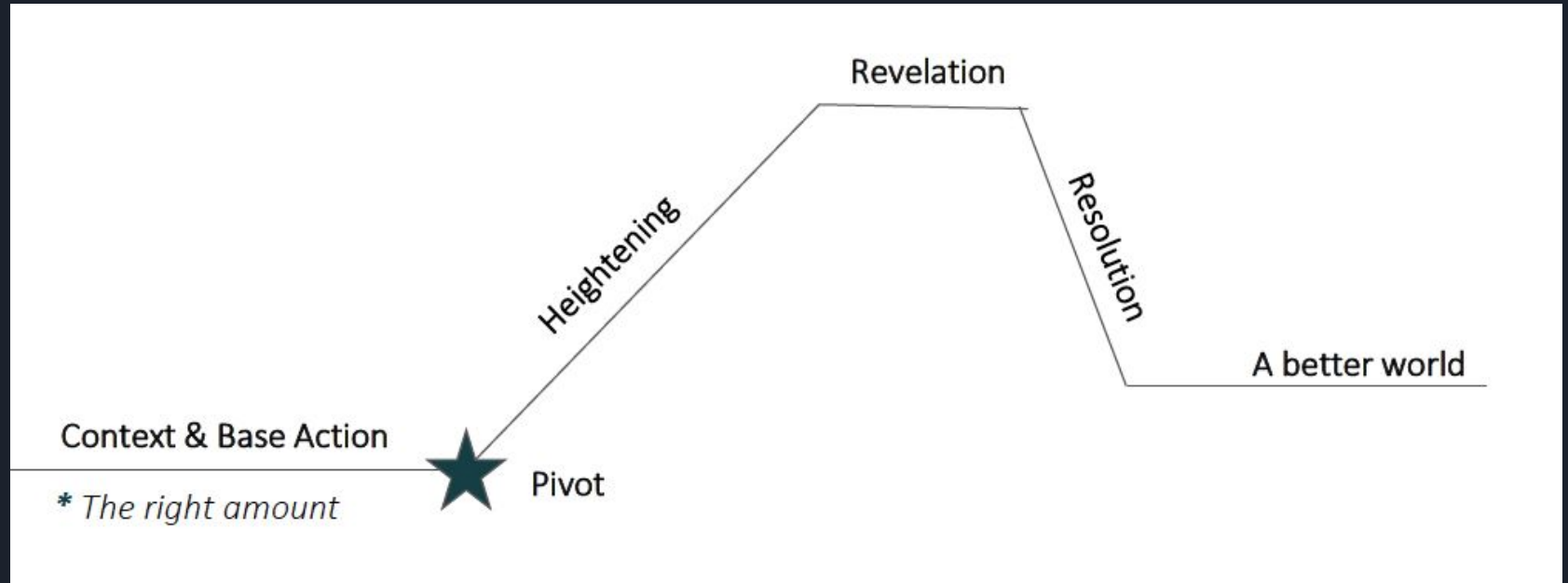


Anatomy of a Story for Climate, Health + Voting

- “A story is about a **relatable character** overcoming a **clear obstacle** to reach a **realistic goal**.”
 - Think about which **characters** in the story your audience will relate to.
 - Provide **context** - an inciting memory to activate the story - and heighten the stakes.
 - Remind us of the **values** that should drive decisions - health, caring for children, justice.
 - Try to cast the audience as a “**helper**” in the story by voting for good climate policy.

Adapted from Burness Communications’ “Storytelling with Purpose” Training

Anatomy of a Story



From Burness Communications' "Storytelling with Purpose" Training



Story Template

- Start by identifying yourself
- Tell us briefly about a person or incident to make a climate/health impact more personal for your listeners
- Very briefly, link the problem you've identified to climate change
- Tell us how this makes you feel, or how it relates to your own core values
- Identify a solution that relates to the problem you've described and promotes health and mitigates climate pollution or builds climate resilience
- Close