THE IMPACT OF CLIMATE CHANGE ON HUMAN HEALTH

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What Climate Change Topics are Most Reported?

Cracks in the Greenlan producing massive wat scientifics: economies for

As Smoke From Bushfires Chokes S Australian Prime Minister Dodges on Change

Earth May Have Just Seen Its 8th Strongest Tropical Cyclone on Record

An advanced satellite analysis found Supertyphoon Halong had 192-mph winds

By Jeff Masters on November 9, 2019

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Tourists walk across flooded St. Mark's Square two days after Venice suffered the highest tide in 50 years. ©Fabio Muzzi/iStockphoto
An Emphasis on Physical Events

- Temperature changes
- Severity and frequency of natural disasters
- Sea level rise
- Human welfare
  - Societal
  - Economic

All of these Relate to Human Health!
So How Does Climate Change Impact Health?

Famine in Somalia (2018; CNN Image)  Rohingya Flood Refugees (2019; BBC Image)
But Climate Change Also Hits Us Closer to Home!

Florida Keys Deliver a Hard Message: As Seas Rise, Some Places Can’t Be Saved
Climate Change and Vector-borne Disease

Changing climate can impact the distribution and range of vectors. Allows disease to spread into new areas and populations.

*Aedes mosquito*  
*Deer tick*
Lyme Disease

Best known and most common of the U.S. vector-borne diseases

Classic “bullseye” rash

Potential long-term neurological effects and inflammation

Image from the CDC
Lyme Disease

Cases are increasing and ranges expanding. Climate is likely culprit

Reported Cases of Lyme Disease -- United States, 2001

Reported Cases of Lyme Disease -- United States, 2018

From CDC historical data
Invasive Asian Longhorn Ticks

- New arrival to the U.S. (2017)
- Climate change allows it to spread far more widely

So What’s the Big Deal?

- More aggressive biters
- Can reproduce without mating
- Thousands can be found on animals at once

‘Clone tick’ swarms, new to U.S., are killing cattle by draining their blood, chasing after humans

Updated Jul 12, 2019; Posted Jul 12, 2019
Climate Change and Valley Fever

- Severe respiratory infection caused by inhalation of *Coccidioides*, a soil fungus

How is Valley Fever Affected by Climate Change?

- Wet conditions cause rapid growth
- Extreme heat or drought cause dusty soil and airborne particles
Climate Change and Cardiovascular and Respiratory Related Disease

- Dust Storm in Phoenix, AZ (2011)
- Brush Fire in Bastrop, TX (2011)
Climate Change and Cardiovascular and Respiratory Related Disease

- Wildfires, dust storms, higher temps increase harmful air pollution
- More asthma, decreased lung function, more school absences, increased premature death

Image from the National Climate Assessment (2018)
Climate Change and Cardiovascular and Respiratory Related Disease

- Increased allergens due to longer pollen seasons
- Extreme heat related illness and death
  - Concerning for outdoor workers, elderly, children

Figure 2 from Ziska et al (2011); PNAS
Climate Change and Mental Health

Image from Anna King, Northwest News Network
Climate Change and Mental Health

Mental health can range from minimal stress to anxiety to depression to suicidality.

Natural disasters can present a heavy mental health burden:

- Loss of property
- Loss of livelihood
- Increased substance use
- Relocation
Climate Change and Mental Health

**Solastalgia:** mental or existential distress caused by environmental change

Image from Grant Blankenship, NY Times