



AMBIENT HEAT EXPOSURE AND HEALTH: ENVIRONMENTAL JUSTICE IMPLICATIONS

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NATION

'Horrific': Record-breaking Pacific Northwest heat wave blamed for 107 deaths in Oregon

Steven Vargas USA TODAY

Published 7:50 p.m. ET Jul. 5, 2021 | Updated 3:46 p.m. ET Jul. 6, 2021

More Than 2,300 People Have Now Died in India's Heat Wave

Rohit Inani / New Delhi @josefkisdrunk | 3:31 AM ET

TIME

Heatwave deaths: 760 lives claimed by hot weather as high temperatures continue

Up to 760 people in England have died as a result of the current heatwave, figures show, and the death toll is set to rise further still.

The Telegraph

Europe

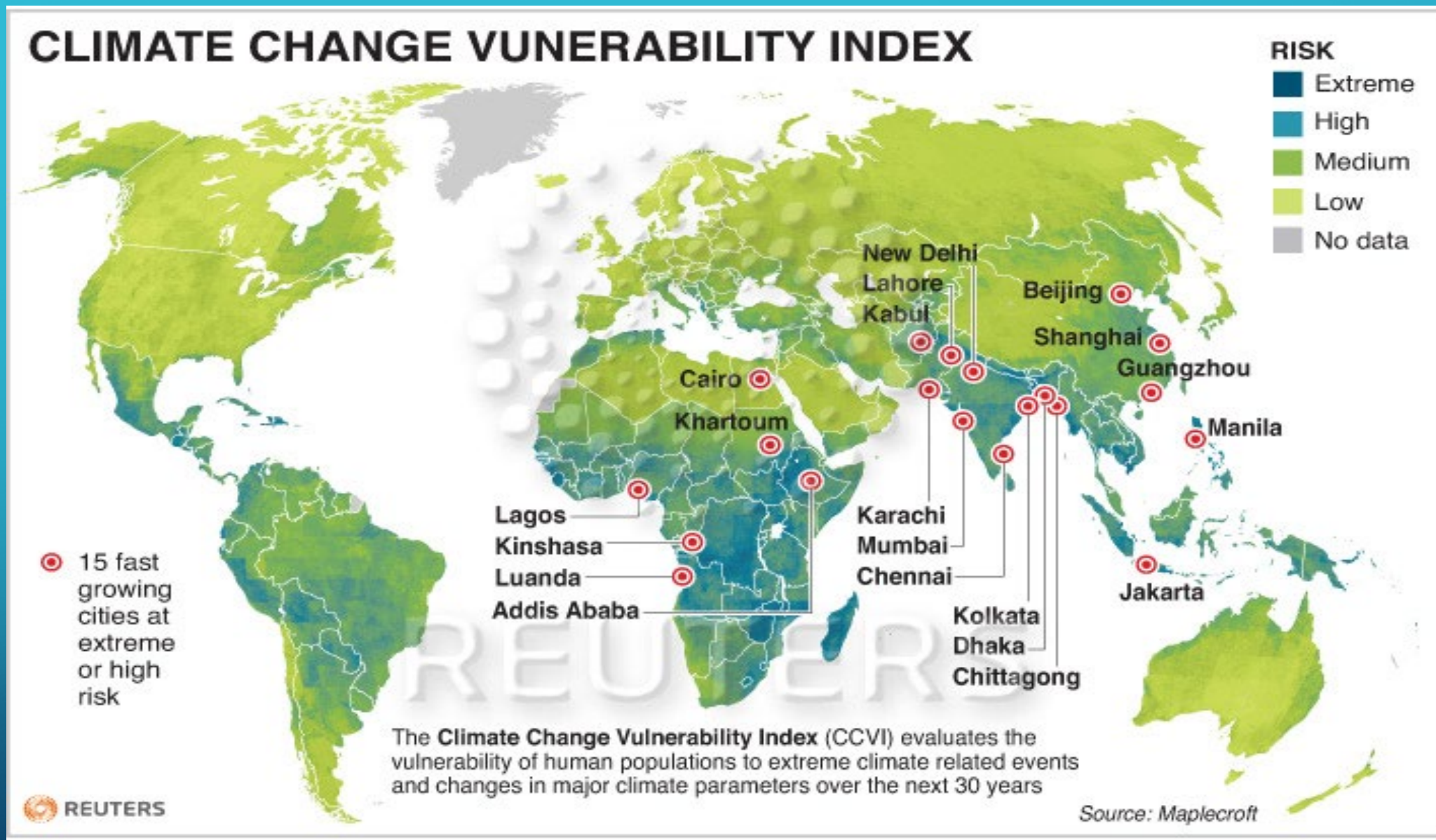
BBC

Death rate doubles in Moscow as heatwave continues

Heatwave blamed for large spike in the number of deaths in Victoria last week

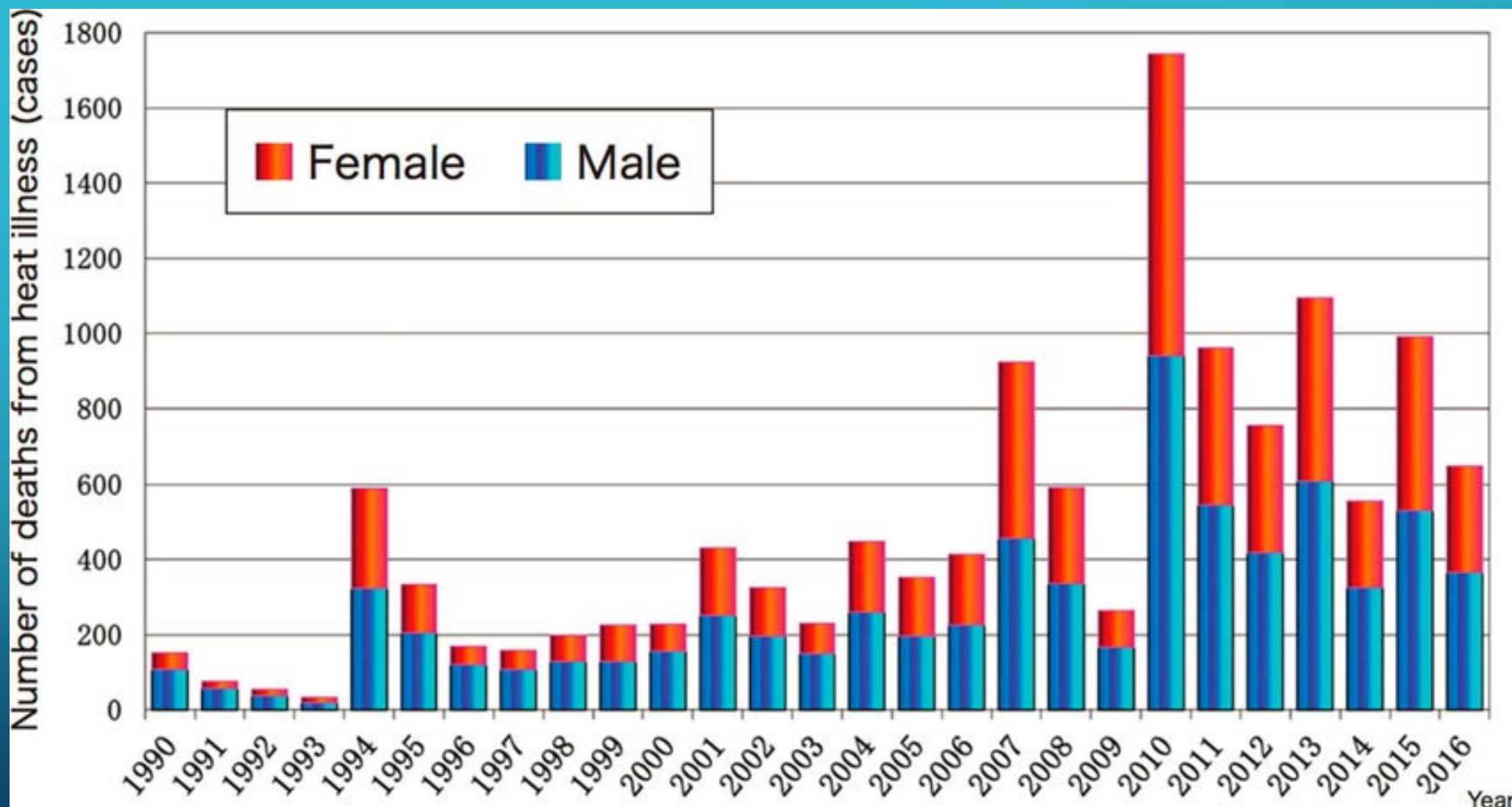
Updated 22 Jan 2014, 5:44pm





The Climate Gap: poorest areas most affected by climate change although not the biggest carbon emitters

CENTERS FOR DISEASE CONTROL ~ 700 ANNUAL DEATHS



BUT THIS NUMBER IS SEVERELY UNDERREPORTED...

HEAT-RELATED DEATHS ARE UNDERREPORTED BECAUSE...

No systematic definition for heat wave

Varies by local health department or region

vulnerable subgroups differ (include in heat advisories)

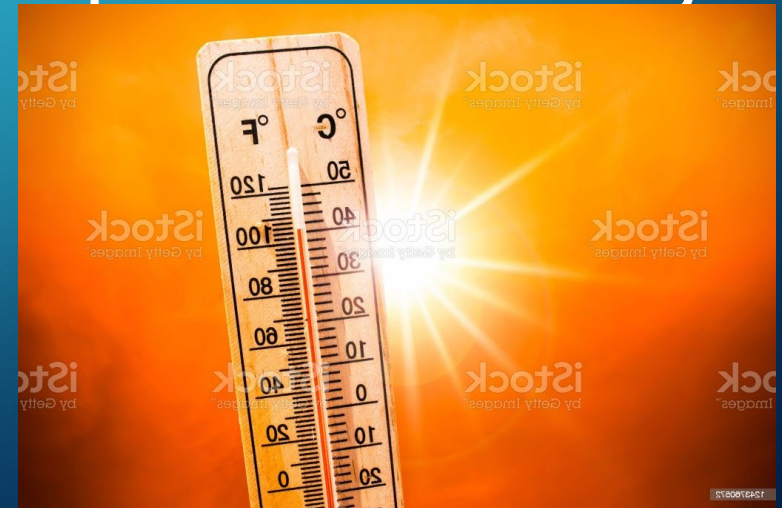
example: 98th % of temperature distribution in specific area for 2+ days

Day vs night thresholds

Heat-related deaths or illnesses only reported

during heat wave (**surveillance bias**) or

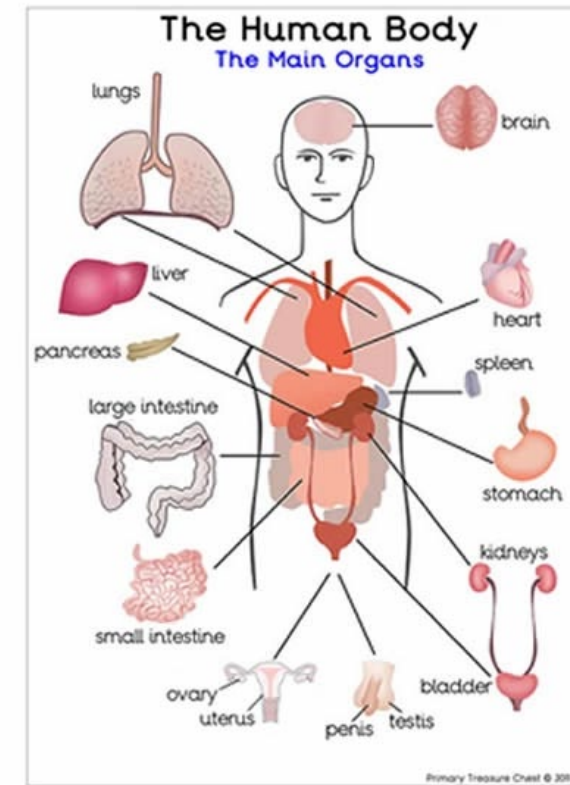
when no other cause is suspected



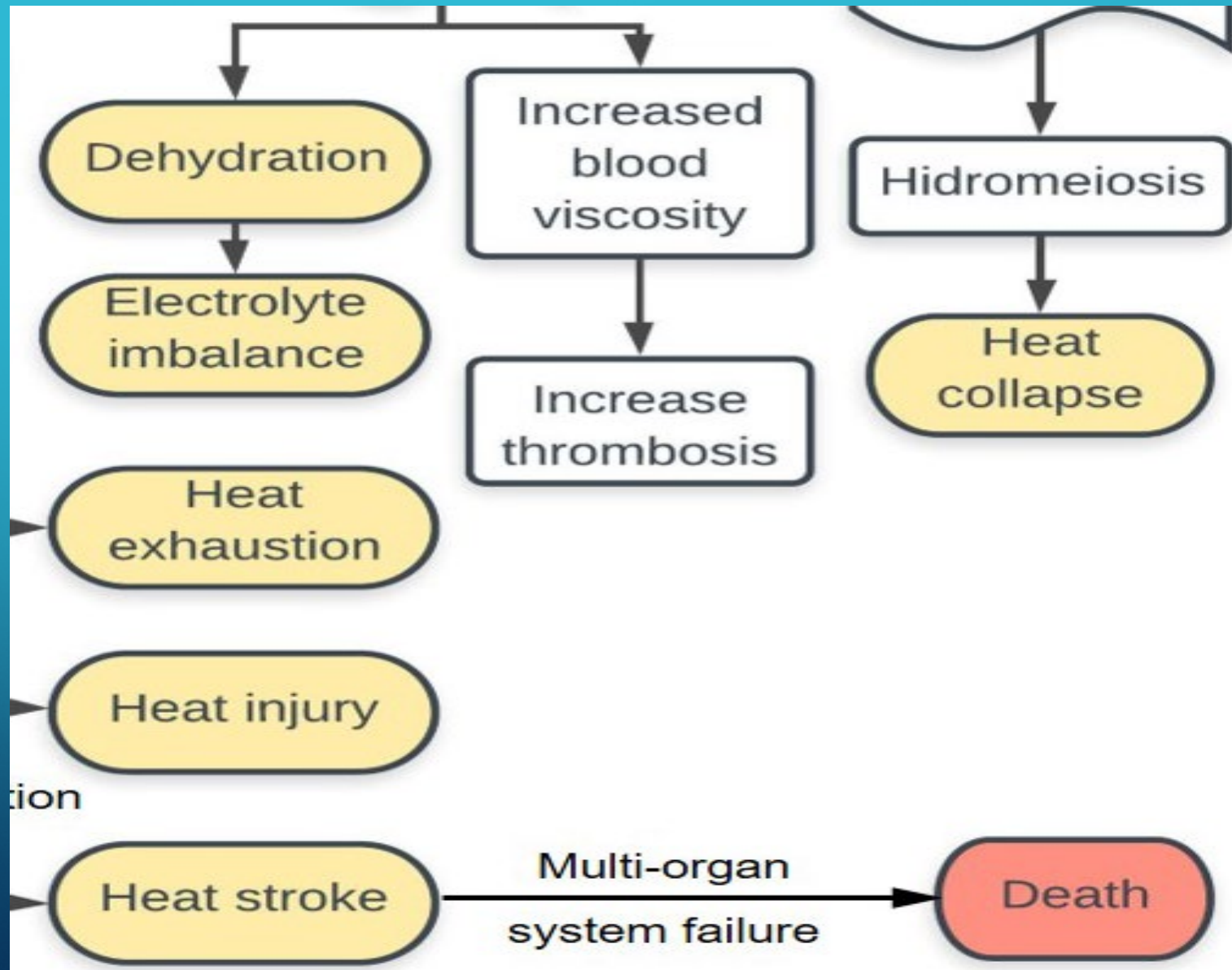
Essential to consider several health outcomes

❖ Increases in temperature (or heat wave) increases the risk of:

- Emergency Room Visits, Hospital Admissions, and Mortality
 - Dehydration and Heat Illness
 - Cardiovascular
 - Respiratory
 - Diabetes
 - Mental Health
 - Liver and Kidney
 - Infectious
 - Gastrointestinal
- Adverse Birth Outcomes
 - Preterm Delivery, Low Birth Weight, Stillbirth



HOW CAN HEAT STRESS LEAD TO DEATH?



REASONS FOR DISPARITIES

EXPOSURE

Greater exposures to heat and air pollution
(environmental racism/justice)

- Closer to power plants, fossil fuel combustion, freeways; urban heat island
- Historical redlining

HEALTH OUTCOMES

- Lower socioeconomic status: high cost of using air conditioning (AC) and/or relocation may not be feasible
- Less access to health care/using ER for primary care
- Even with same access to health care, there may be *differential treatment*



HOW ARE OUR STUDY RESULTS USED?

Publish manuscripts in peer-reviewed scientific journals

Contribute to State and federal government reports and criteria air pollutant standards

Present at workshops, meetings, and scientific conferences; develop fact sheets

Provide consultation to other government and non-profit agencies, e.g., State Legislation, CARB, Air Districts, County, Tribes, etc.

Deliver scientific message to the public via media interviews (SF Chronicle, NY Times, *The New Yorker*, BBC News, National Geographic among others

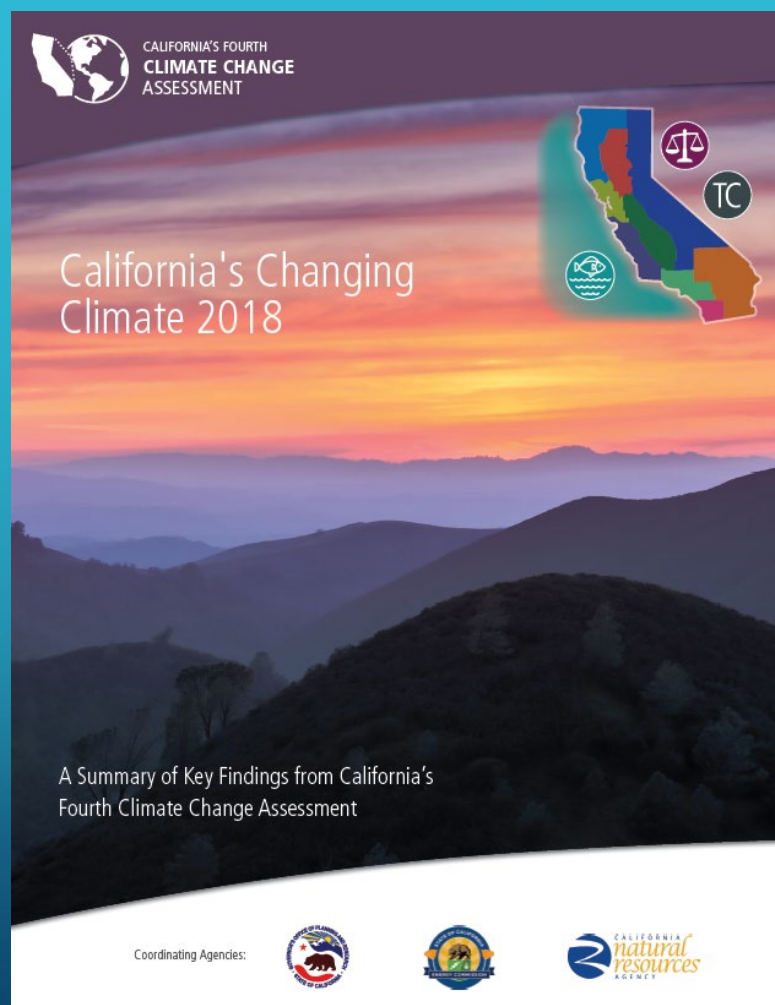
Shows such as *SoCal Connected* and *Years of Living Dangerously*

Implement policy changes starting with local health departments

- SB 65/Momnibus: improve maternal and fetal health outcomes;

- AB 2238 and 2240: statewide heat ranking

- and naming system, perinatal and infant, children's health from extreme heat



	CLIMATE IMPACT	DIRECTION	SCIENTIFIC CONFIDENCE FOR FUTURE CHANGE
	TEMPERATURE	WARMING ↗	Very High
	SEA LEVELS	RISING ↗	Very High
	SNOWPACK	DECLINING ↘	Very High
	HEAVY PRECIPITATION EVENTS	INCREASING ↗	Medium-High
	DROUGHT	INCREASING ↗	Medium-High
	AREA BURNED BY WILDFIRE	INCREASING ↗	Medium High

WHAT WE CAN DO TO PREPARE FOR HEAT EXPOSURE

Prepare NOW

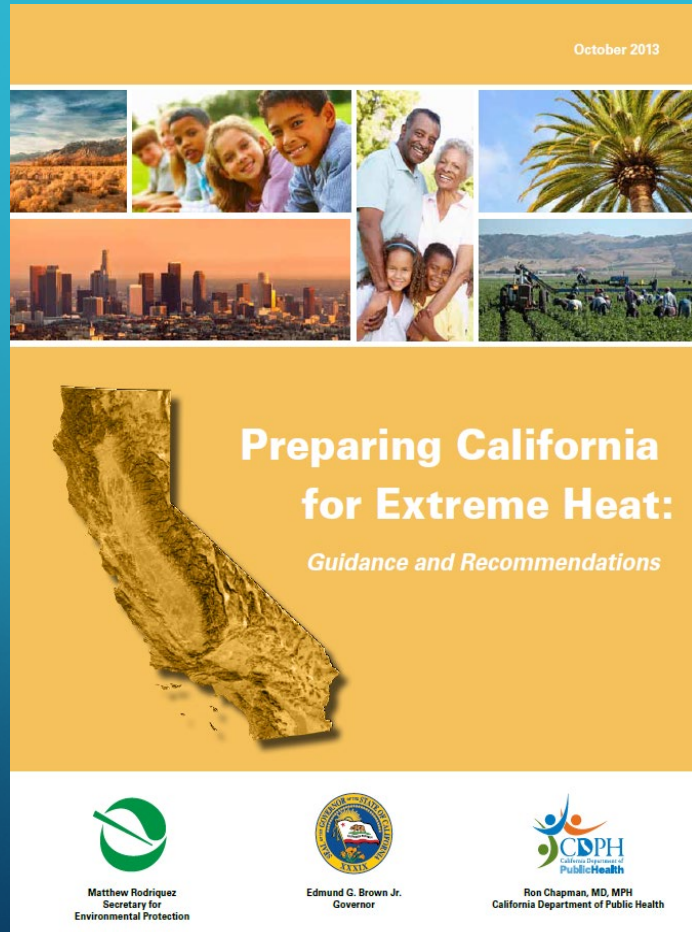
- Do not rely on a fan as your primary cooling device.
- Cover windows with drapes or shades.
- Weather-strip doors and windows.
- Use window reflectors such as aluminum foil-covered cardboard to reflect heat back outside.
- Use a powered attic ventilator or attic fan.
- Install window air conditioners and insulate them
- Learn to recognize the signs of heat illness.

DURING

- Find air conditioning.
- Avoid strenuous activities.
- Wear light clothing.
- Check on family members and neighbors.
- Drink plenty of fluids.
- Watch for signs of heat cramps, heat exhaustion and heat stroke.
- Never leave people or pets in a closed car.

More info at <https://www.ready.gov/heat>

HEAT-HEALTH ACTION PLANS CAN BE EFFECTIVE



- 18/51 countries in Europe (2014)
- Canada: Montreal, Toronto
- Cities throughout the US:
Chicago, Pittsburgh, Baltimore, etc.
- California: San Diego County

THANK YOU!

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