

**Elizabeth Blackwell Annual Public Lecture**

# Climate Changes Health

**Professor Kristie Ebi**  
**University of Washington**



[bristol.ac.uk](http://bristol.ac.uk)



@EBIBristol  
#EBIPublicLecture2022

# Practicalities

- **Fire assembly point:** exit right from main entrance, assemble by the fountain
- **Toilets:** accessible toilets at each end of the corridor. Further toilets down the stairs by the entrance
- **First Aid:** do let a staff member know
- **Elizabeth Blackwell Institute staff:** wearing purple lanyards
- **BSL interpreters**
- **Silent applause please**



# Welcome and introduction by

## Professor Rachael Gooberman-Hill

Director of the Elizabeth Blackwell  
Institute for Health Research

# Climate changes health

*Elizabeth Blackwell Public Lecture*  
*3 November 2022*

Kristie L. Ebi, Ph.D., MPH

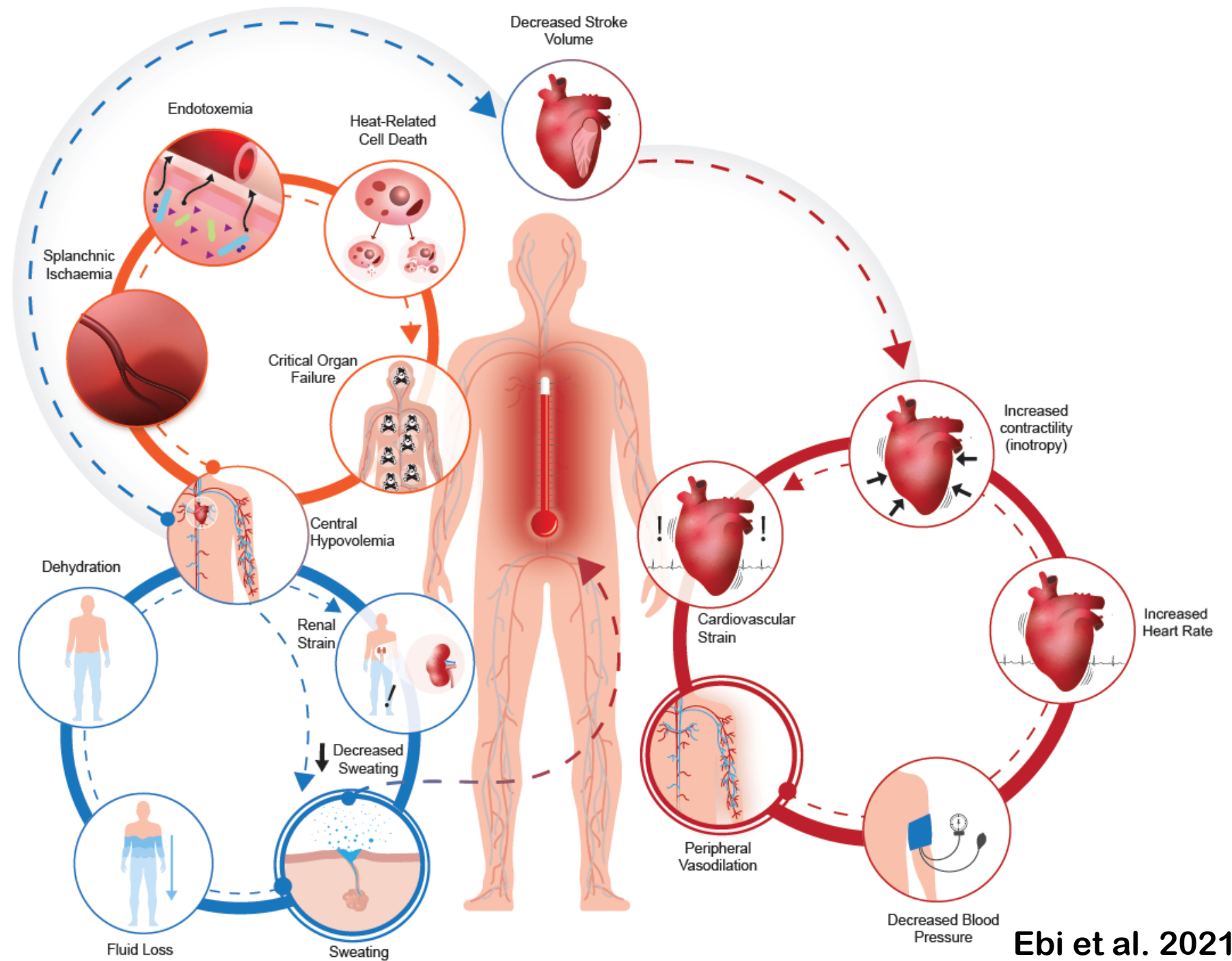
Center for Health and the Global Environment

**Climate change is adversely affecting people's physical and mental health**





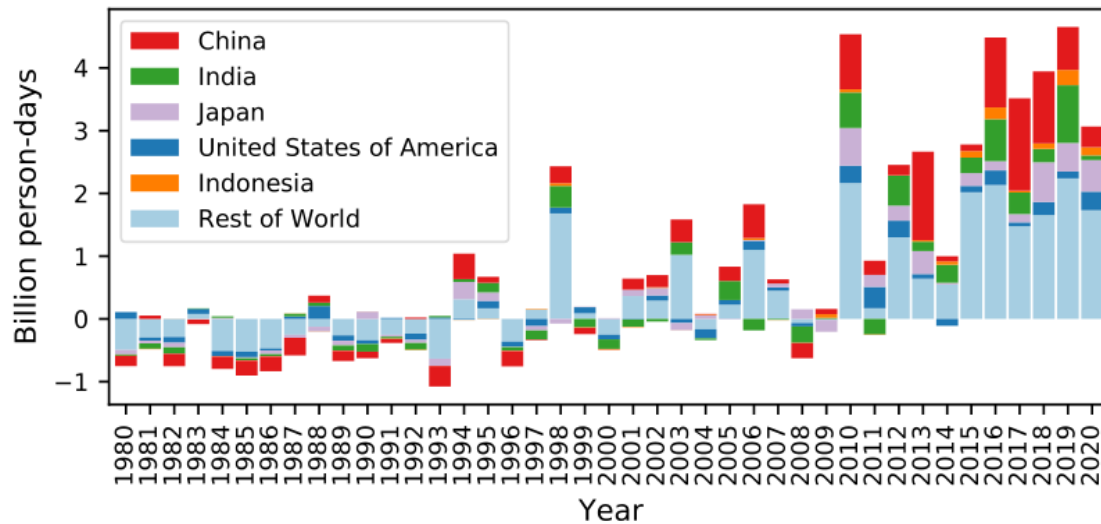
# Physiological pathways of heat strain



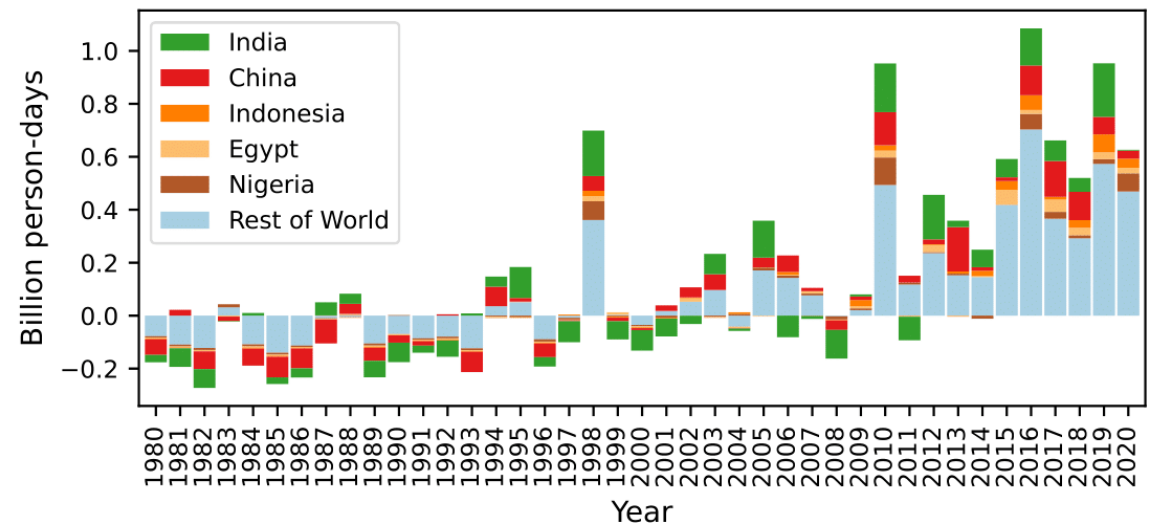
# Exposure of vulnerable populations to heatwaves

In 2020, person-days of heatwave exposure over 1986-2005 average

- Children < 1 year: 626 million more
- Adults > 65 years 3.1 billion more



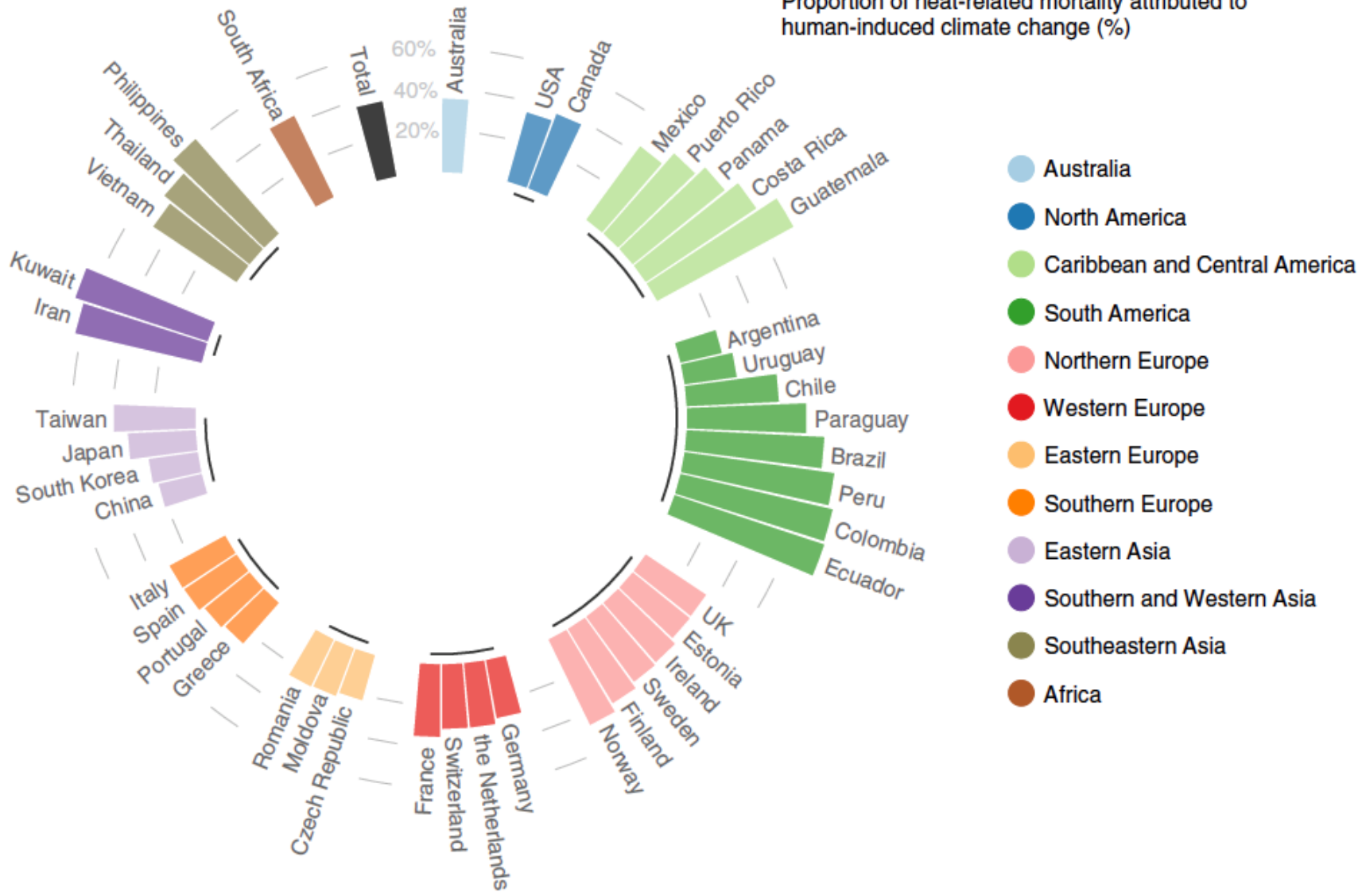
>65 year old



<1 year old



Proportion of heat-related mortality attributed to human-induced climate change (%)



# Heatwave plan for England



# Heatwave plan for England

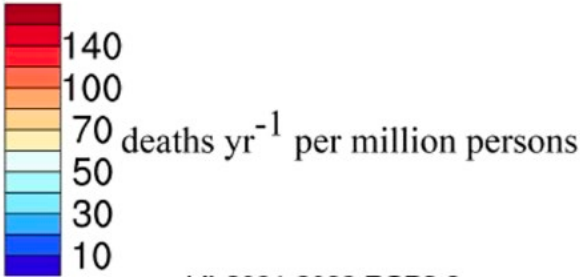
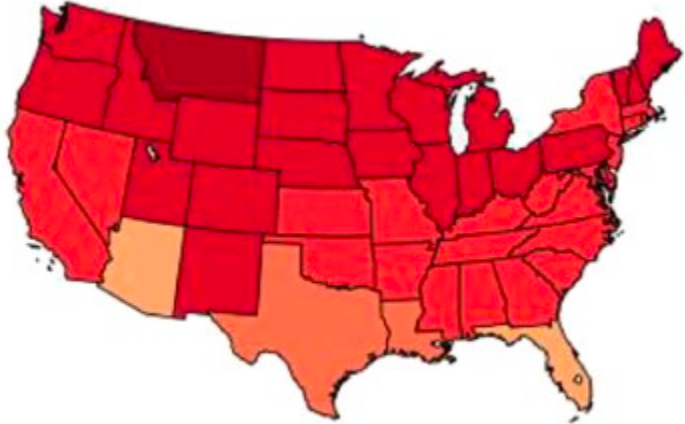


- **Between June and August: 3,271 excess deaths**
- **10-25 July: 2,227 excess deaths (10.4% above average)**
- **74% of deaths in adults over age 70 years**

# Projected annual heat-related deaths in 2091-2099

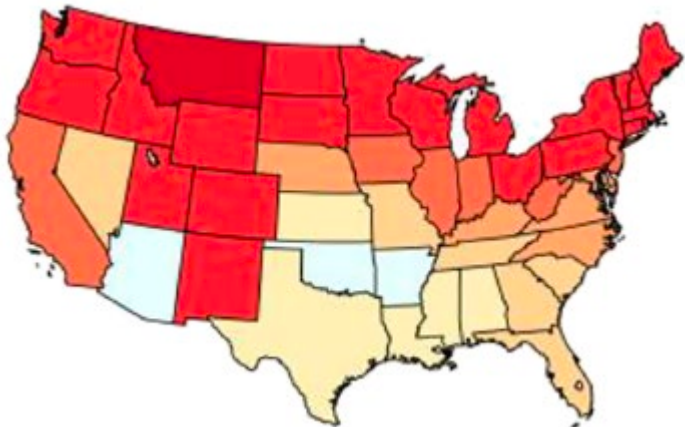
No adaptation; high emissions

No adaptation; low emissions



Adaptation; high emissions

Adaptation; low emissions

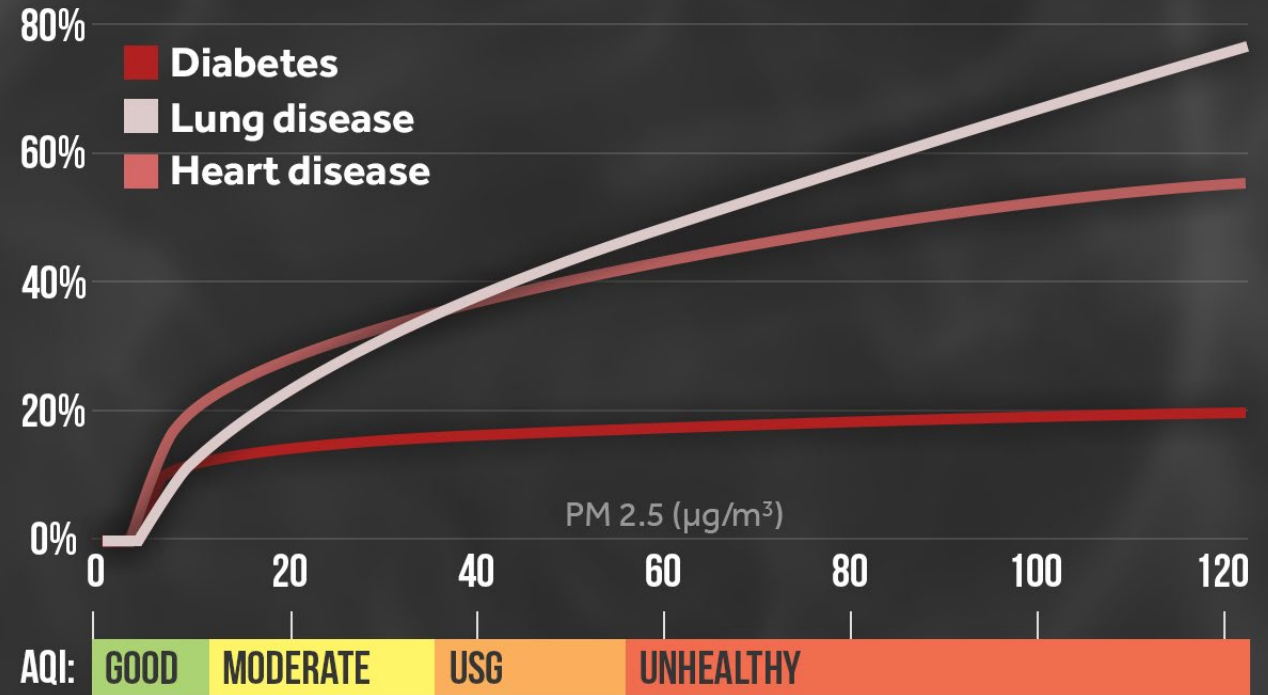


Shindell et al. 2020



# WILDFIRE SMOKE RISKS

Increased Risk

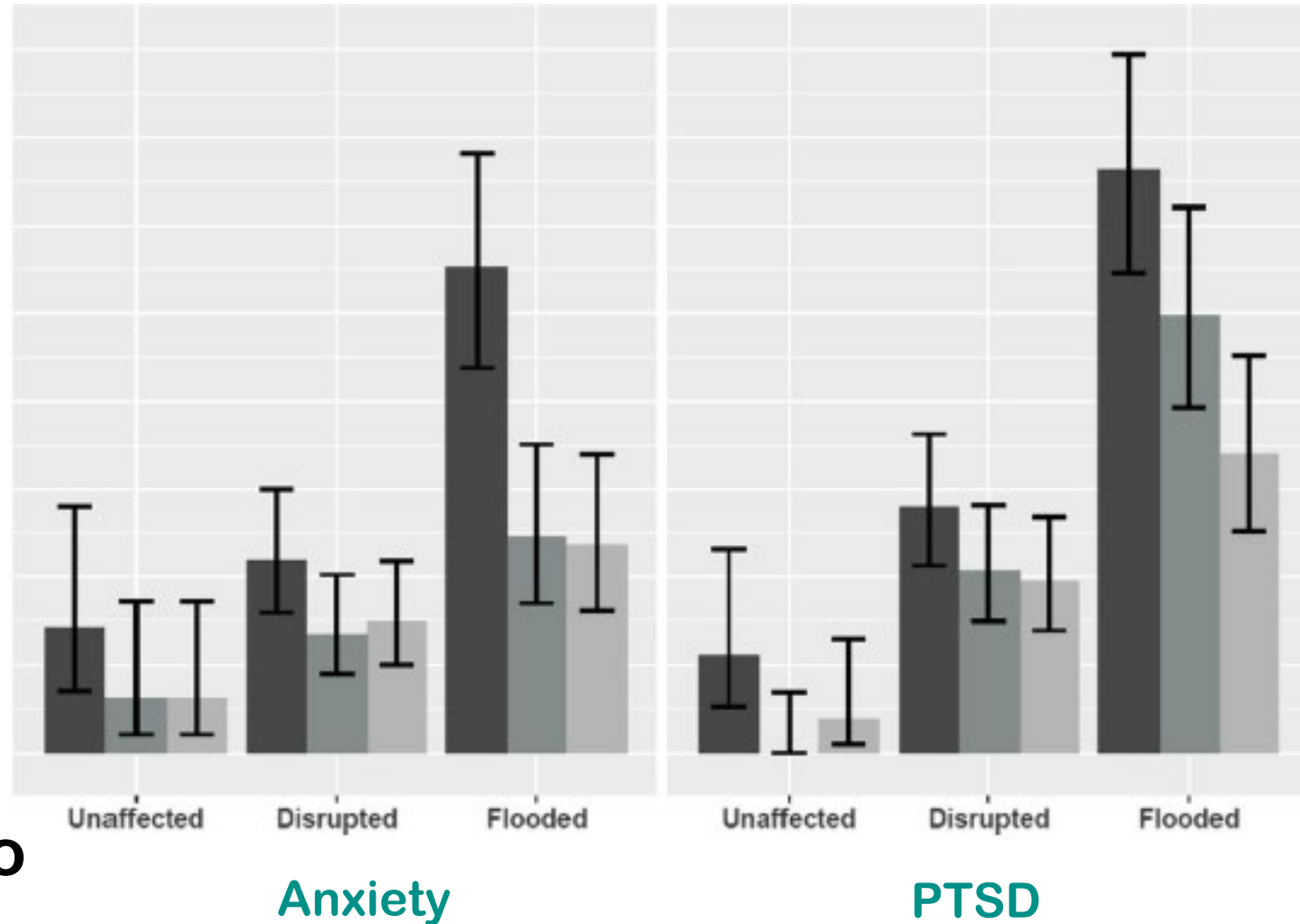


USG = Unhealthy for sensitive groups  
Source: Bowe et al (2018), Cohen et al (2017)

# 2013-2014 winter floods

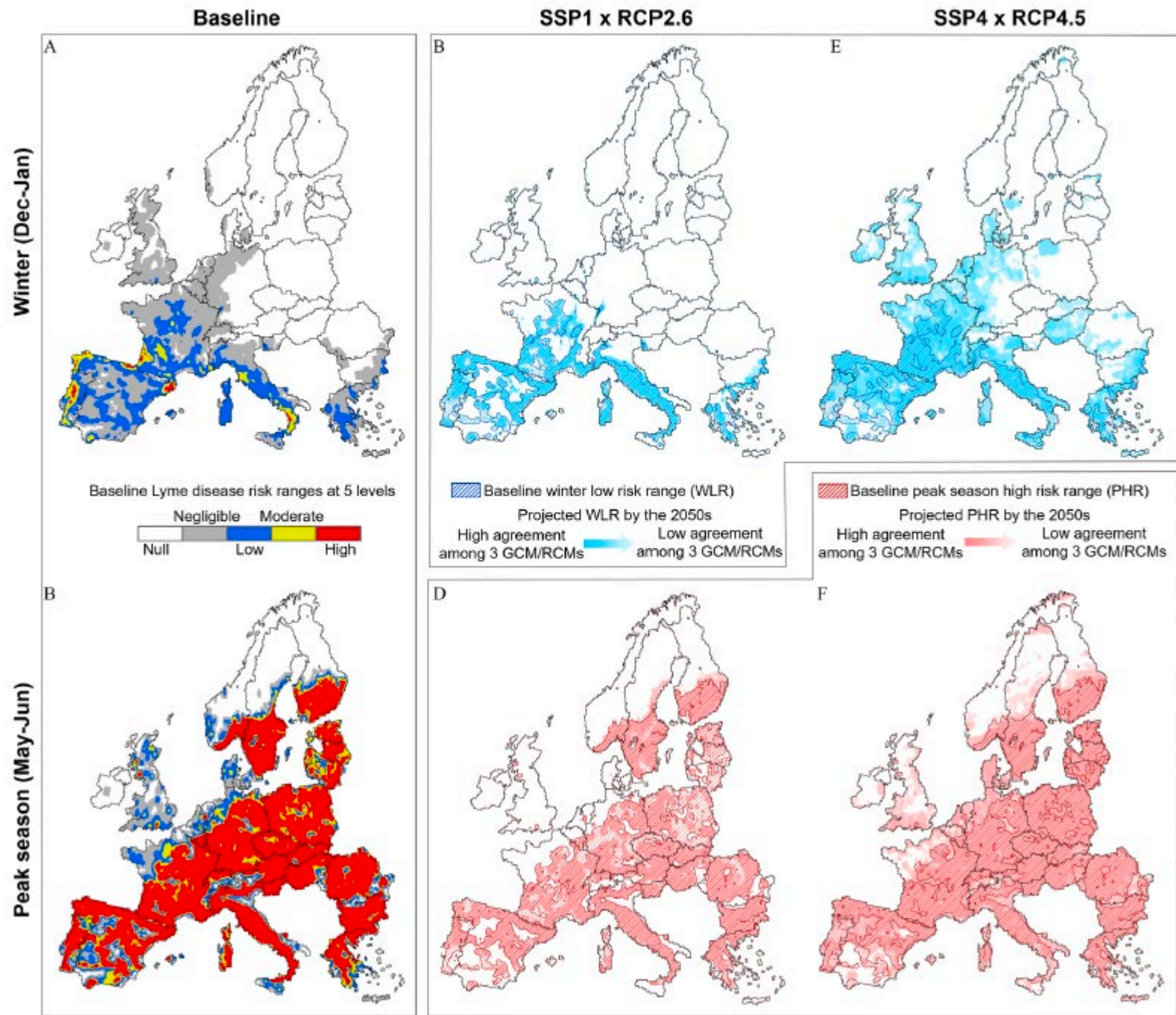


In year 3, prevalence of probable PTSD in people who were flooded with persistent damage was 30%

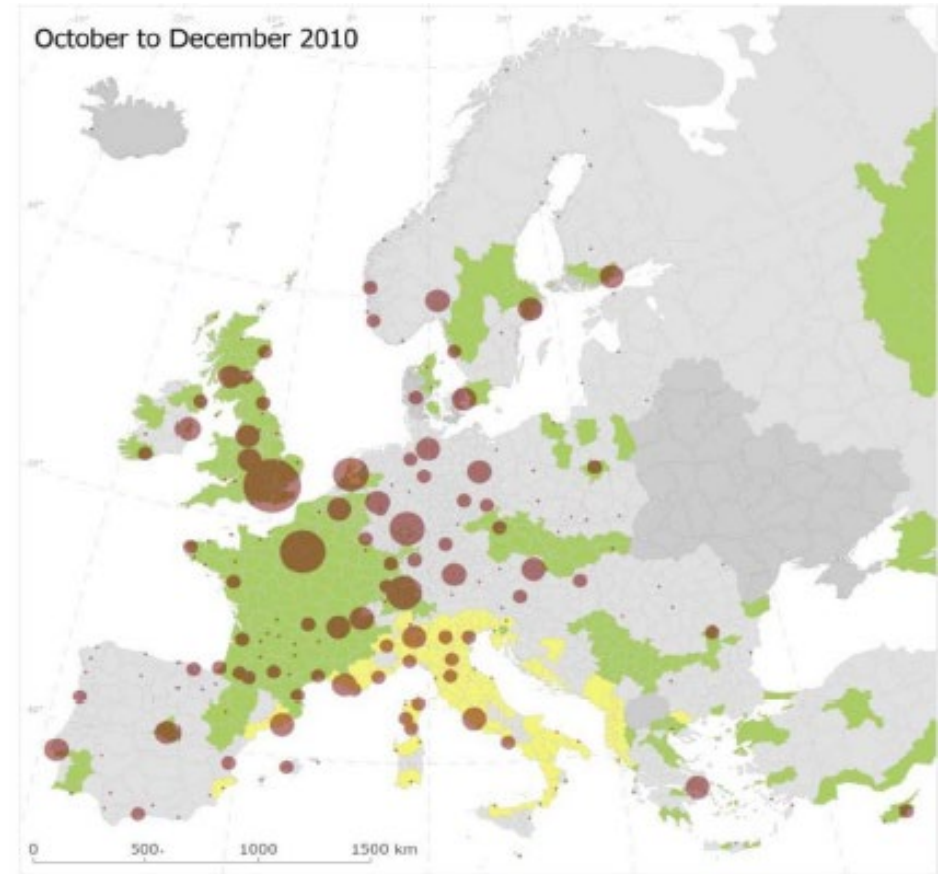
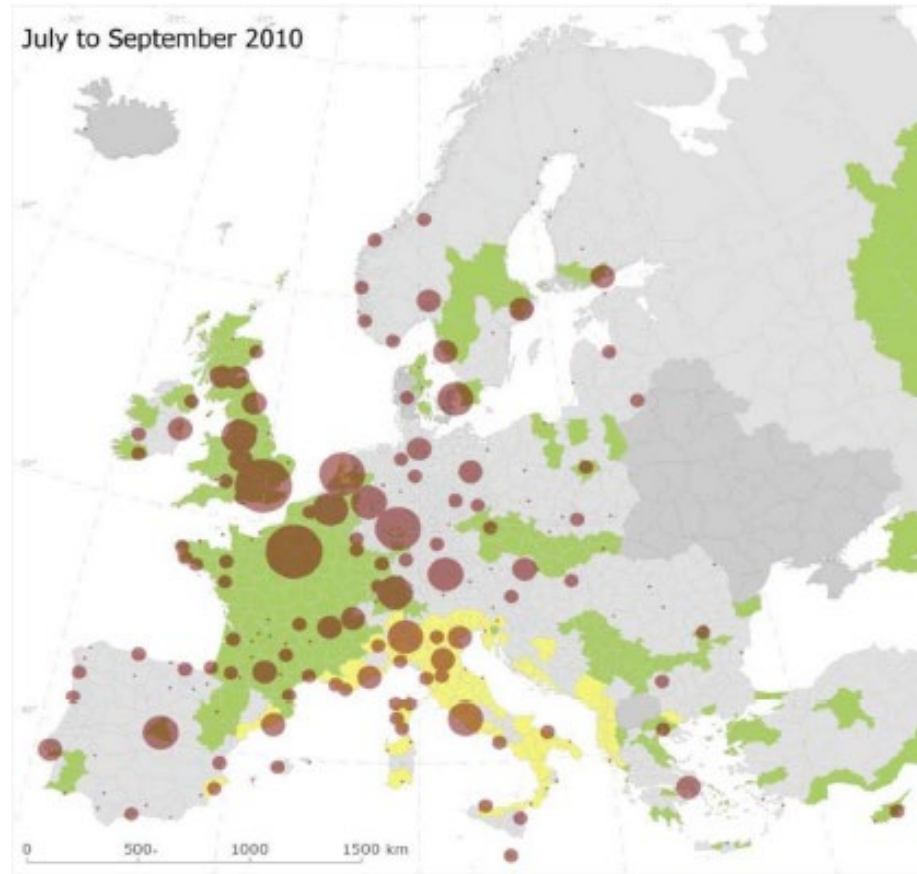


# Baseline and projected Lyme disease risk under low and moderate greenhouse gas emission scenarios in the 2050s

Li et al. 2019



# Airport final destination of international travelers from dengue affected areas

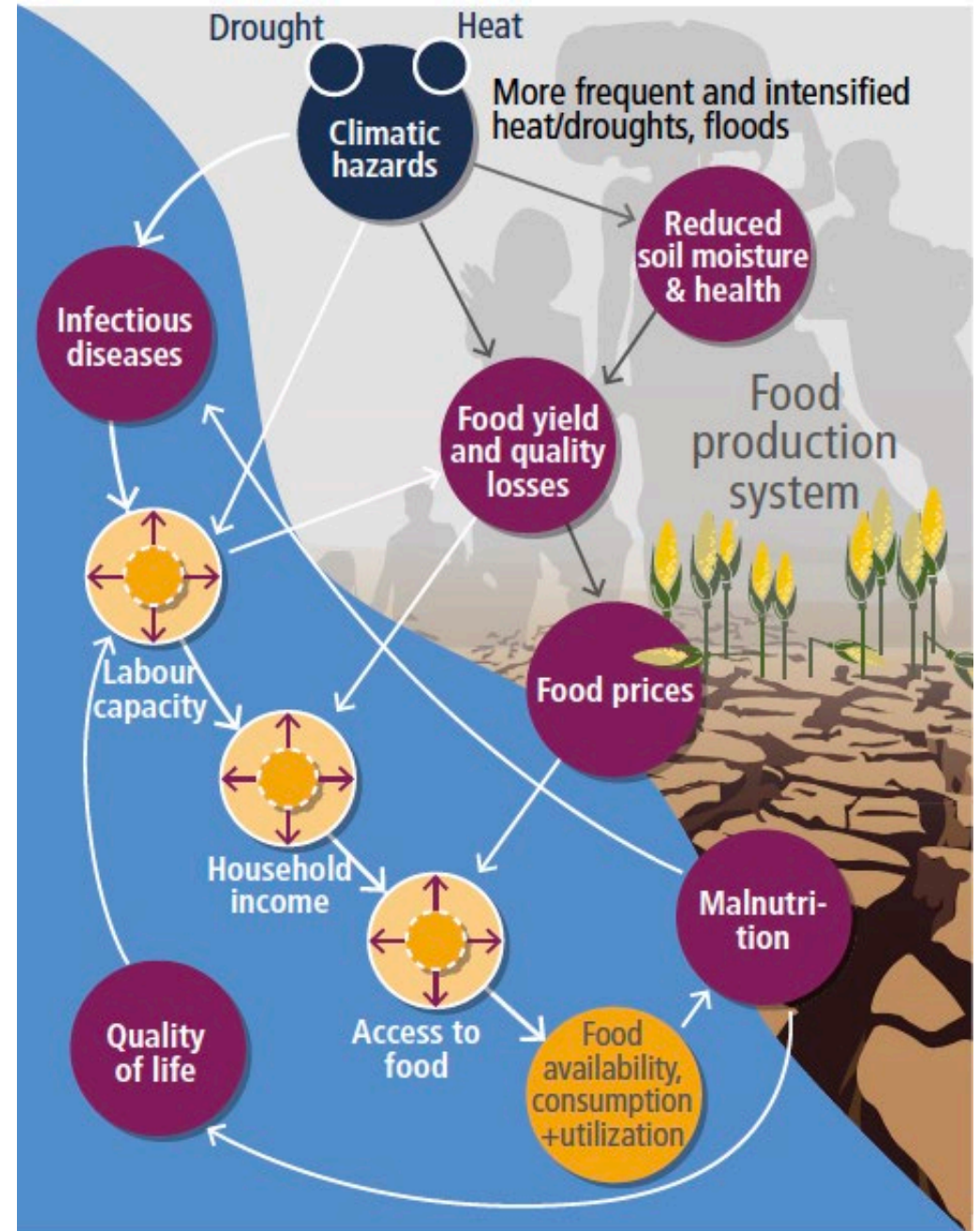


**Semenza et al. 2014**

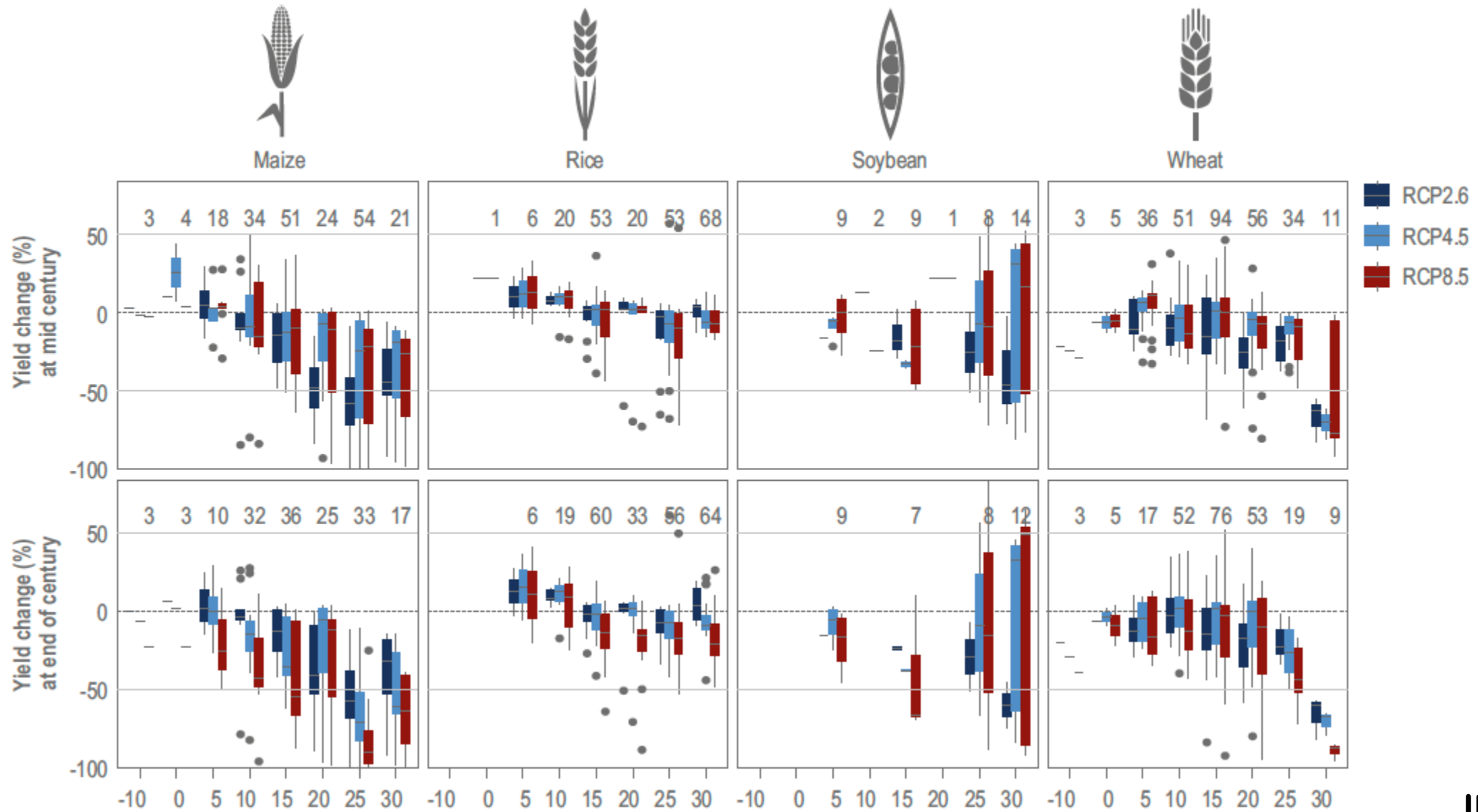


# Cascading impacts of climate hazards on food and nutrition

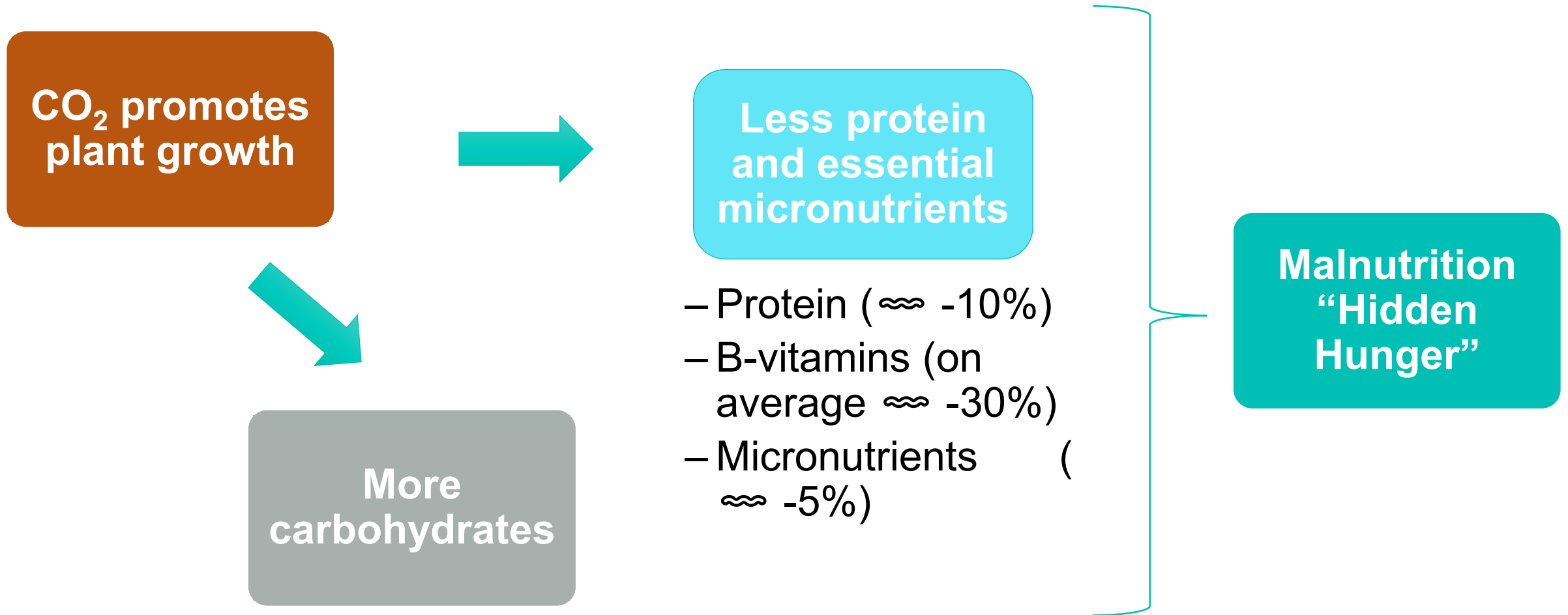
IPCC 2022



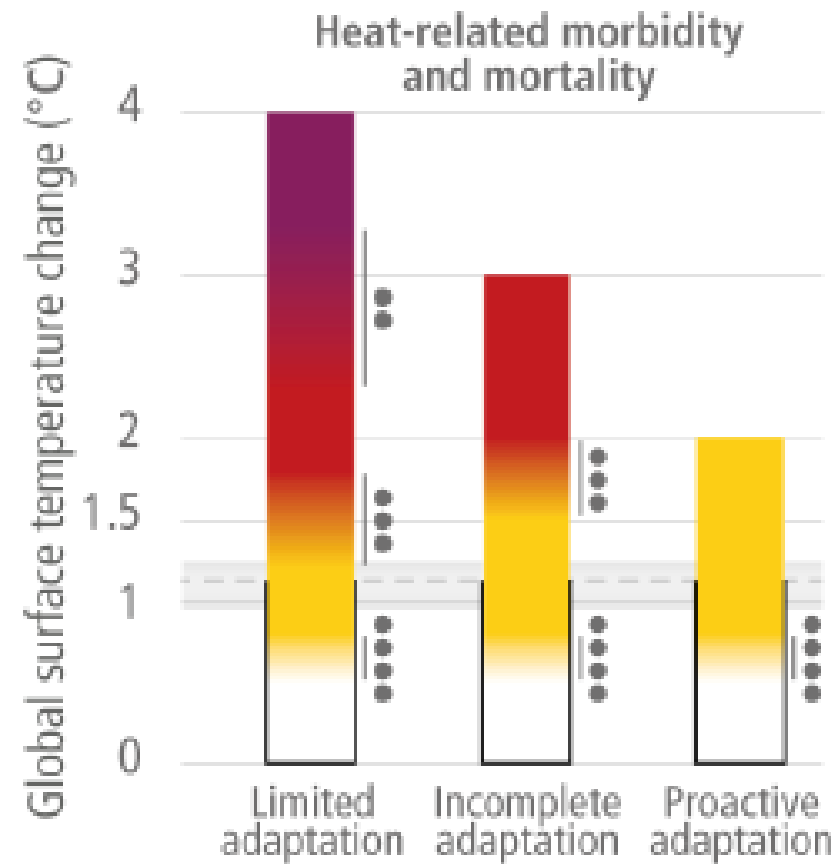
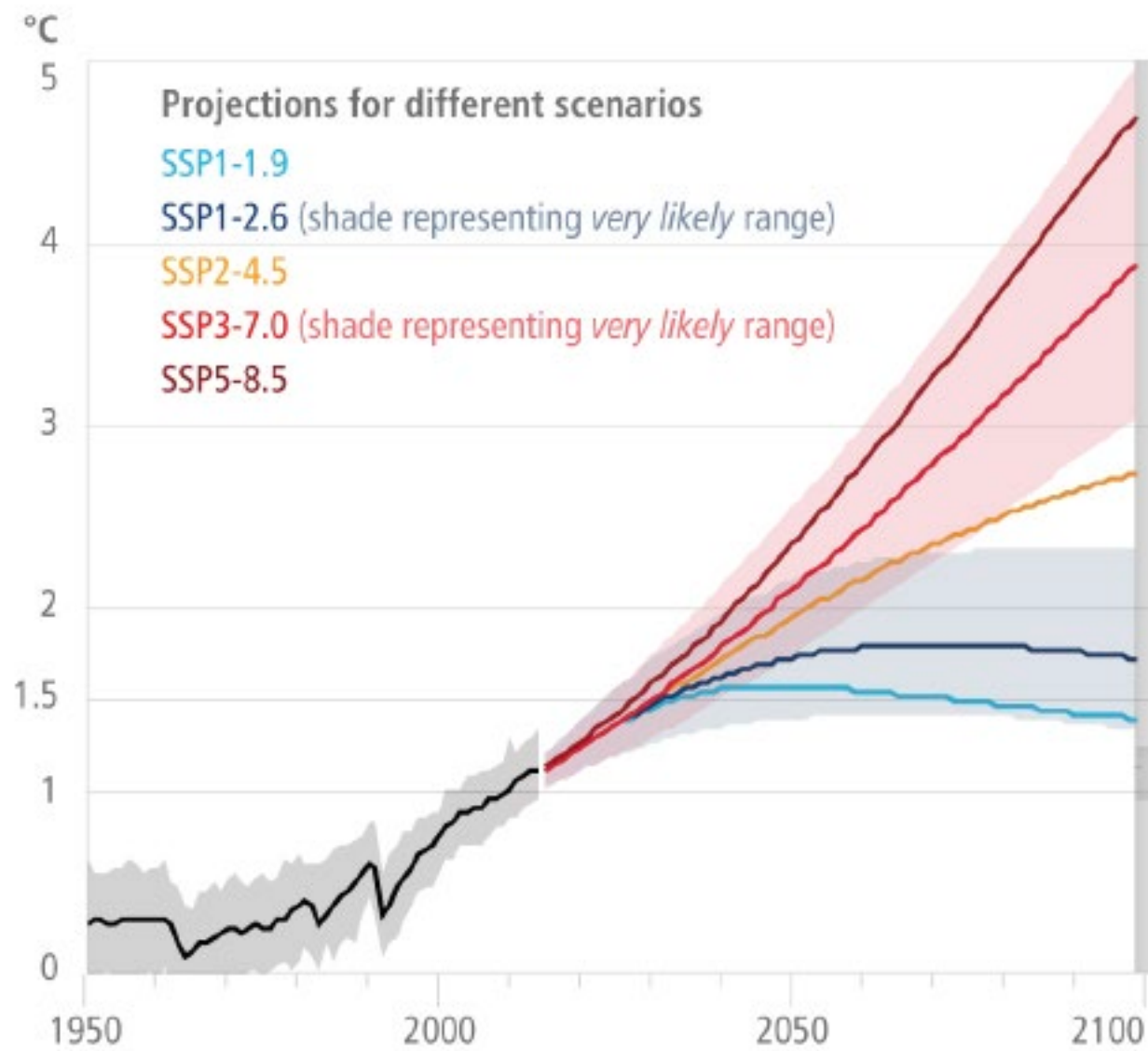
# Projected changes in crop yields as a function of current annual temperature



# Higher carbon dioxide concentrations alter the nutritional quality of C3 plants



# Risks increase with each level of warming



A vibrant, stylized illustration of a woman's profile in shades of blue and black. Her hair is dark with a purple streak. She has a circular earring. The background is a light blue sky with a rainbow and scattered black dots. The woman's body is composed of a colorful patchwork of squares, each containing a different icon: a house, a water drop, a bicycle, a heart with a pulse line, a pair of lungs, a person in a wheelchair, and a person holding hands. The overall style is artistic and celebratory.

# World Health Day 2022

7 April 2022

Our planet, our health



# 17<sup>th</sup> Somdejphrasangkhraj Hospital, Thailand



- **250-bed-hospital**
- **Services 1,000 patients/day**

## **GREEN:**

- G:** Garbage;
- R:** Rest room;
- E:** Energy;
- E:** Environment;
- N:** Nutrition

## **CLEAN:**

- C:** Communication;
- L:** Leader;
- E:** Effectiveness;
- A:** Activity;
- N:** Networking



# Dutch bike bus







- **Every bit of warming matters**
- **Every year counts**
- **Every choice matters**

**THANK YOU**

**UW Medicine**  
SCHOOL OF MEDICINE

**W**  
DEPARTMENT OF GLOBAL HEALTH  
UNIVERSITY *of* WASHINGTON

  
SCHOOL OF PUBLIC HEALTH  
UNIVERSITY *of* WASHINGTON

# Questions

Please raise your hand and a person with a roving microphone will come to you



Final remarks by

**Professor Rachael Gooberman-Hill**

Director of the Elizabeth Blackwell  
Institute for Health Research

# Thank you for coming

**Connect with us...**

Twitter: @EBIBristol

**Sign up to our Bulletin:**  
[www.bristol.ac.uk/blackwell](http://www.bristol.ac.uk/blackwell)



**Elizabeth Blackwell Annual Public Lecture**

# Climate Changes Health

**Professor Kristie Ebi**  
**University of Washington**



[bristol.ac.uk](http://bristol.ac.uk)



@EBIBristol  
#EBIPublicLecture2022