



# ***INRICH Review on the Unequal Impact of Climate Change on Children's Health***

## **Authors:**

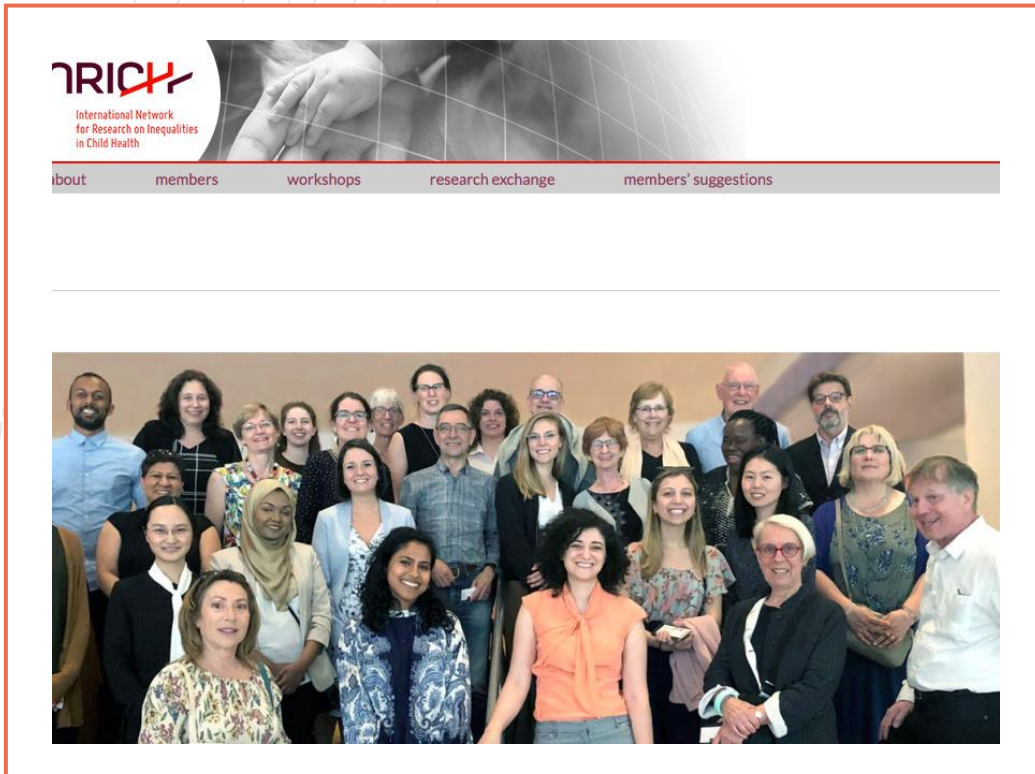
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Spencer

**Presenting author: Emmanuelle Arpin**

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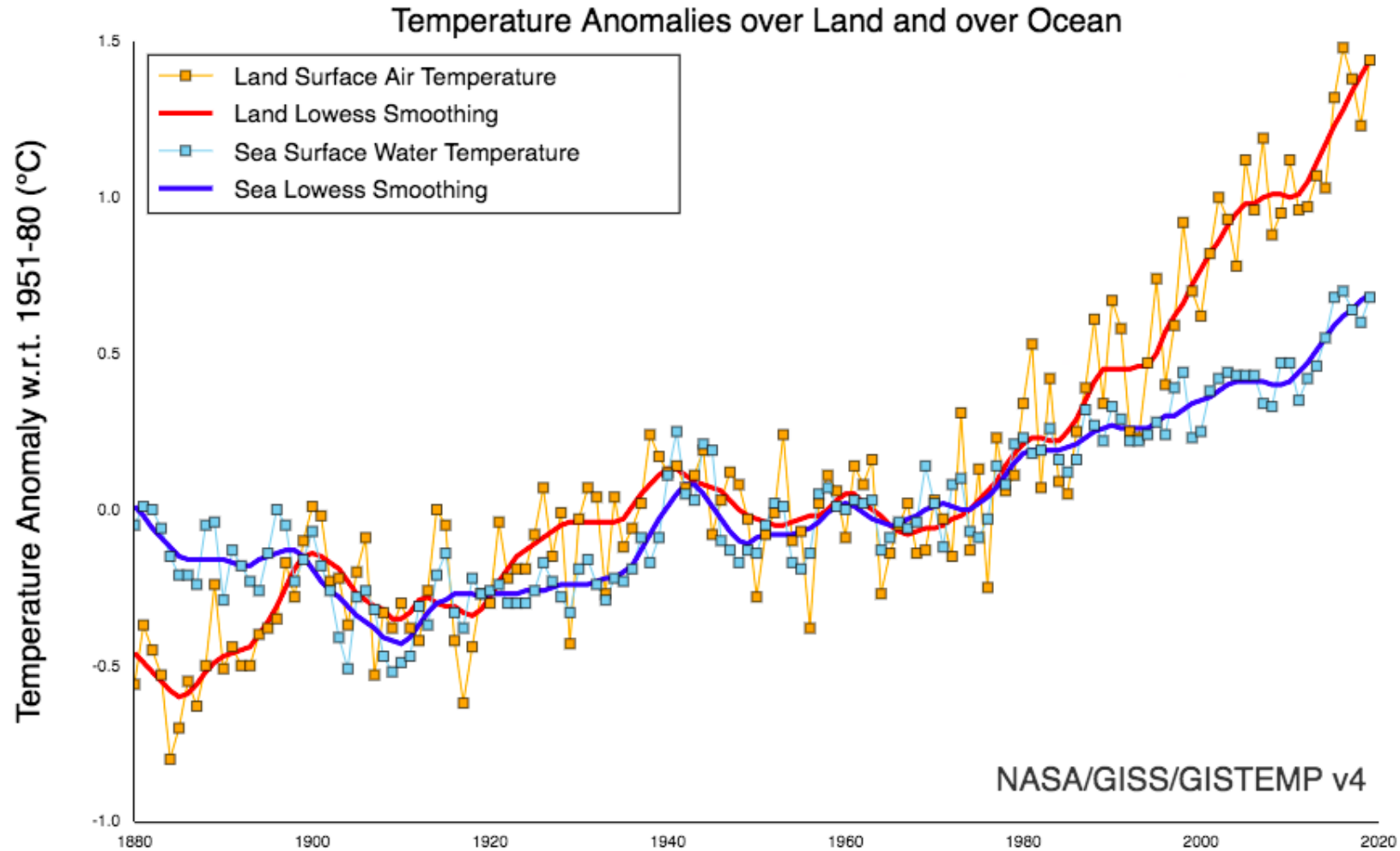
The unequal impact of climate change on children's health | INRICH

# INRICH



- International Network for Research on Inequalities in Child Health (INRICH)
- Leading researchers in the area of **child health inequalities** from Canada, the United States, Europe, South America, Australia and China have joined the network.
- Meeting in 2019, determined the urgency to better understand the impact of climate change on children. Climate change as a theme for the 2020/21 conference and focus of collaborative review (Brazil, Canada, Spain, Sweden, UK).

# Background (i)



# Background (ii)

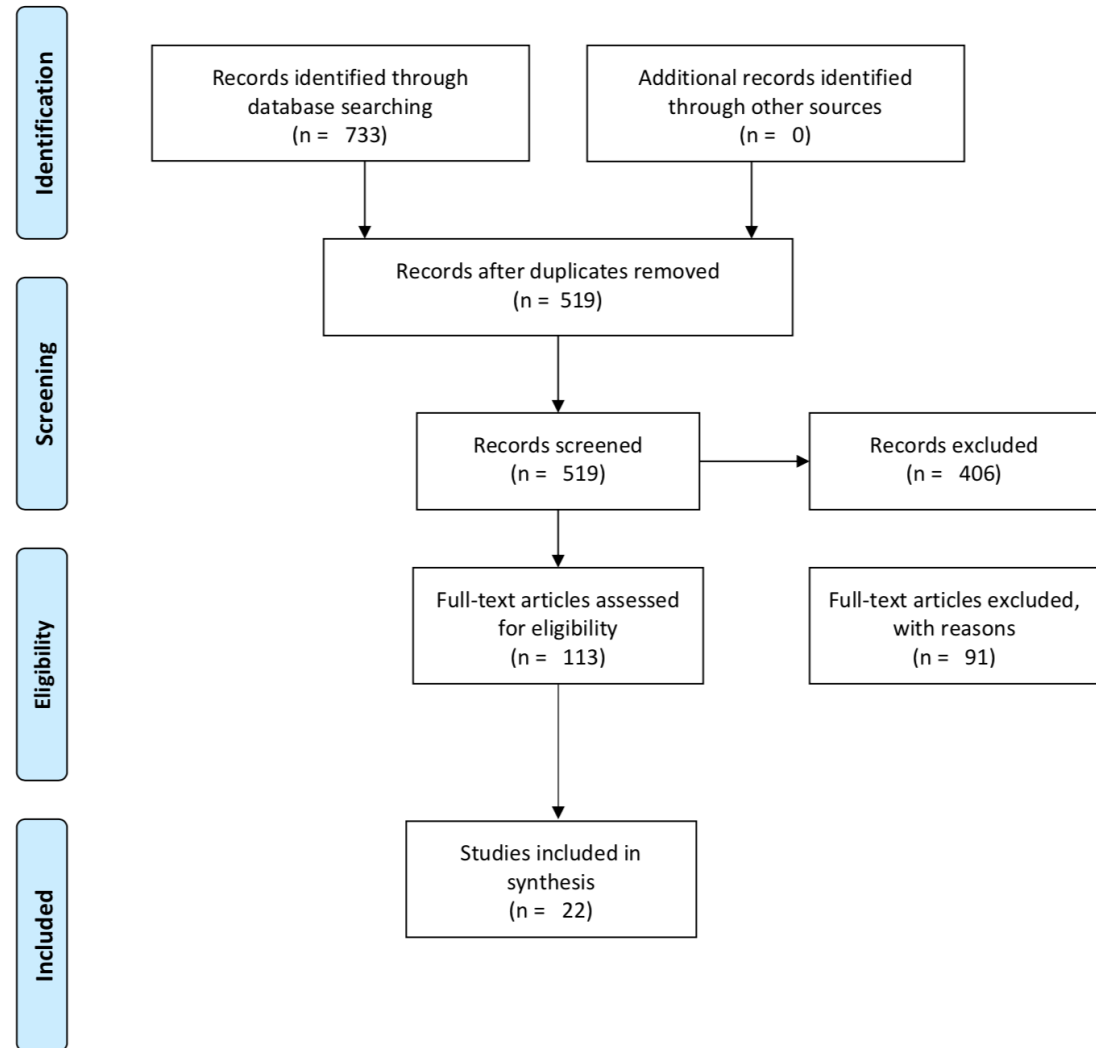
- “Climate change is the biggest global health threat of the 21st century.”  
*Lancet Climate Change Commission, 2009*
  - Most health impacts will be adverse and will occur via direct exposures (e.g., heat waves, extreme weather events)
  - Identifications of most “vulnerable” populations – elderly, children, underlying health conditions, low-income and LMIC countries
- **Research questions**
  - What is the impact of climate change on child health inequalities?
  - What are the lines of inequalities examined?

# Methodological approach – “review of reviews”

- In partnership with the Karolinska Institute (Sweden) – Jan. 2020 and Jan. 2021
- Extract peer-reviewed reviews indexed in five databases (Medline, Embase, Web of Science, PsycInfo, Sociological Abstracts).
- Inclusion criteria:
  1. Reviews that reported the effect of climate change and its consequences on one or more child health outcomes
  2. Reviews that were explicit about lines of inequalities (i.e., high vs low SES, high and/or low/middle income countries)
  3. Reviews that addressed the health of children and young people less than 18 years old (UN Convention of the Child)
  4. All types of reviews (e.g., systematic review, scoping, narrative)
  5. No language nor year limitations

# PRISMA Diagram

- 733 reviews; 519 after deduplication
- 113 reviews deemed eligible for full-text review after title and abstract review
- **22 for full review and analysis**



## i. Characteristics of studies

- **Type of reviews:** 4 systematic reviews; 3 technical and commissioned reports; 15 reviews undefined (e.g., narrative reviews, editorial with substantive literature review)
- **Regions:** 14 studies with global focus; 4 studies with a country focus (US, Canada, Cambodia, Uganda); 5 studies with focused world region (LMICs, developing countries, Sub-Saharan Africa, North America)
- Publication years from 2007-2020; all published in English.

## ii. Defining climate change

- ***Climate change vs discrete weather events***
- **Climate change broadly defined (14)**
  - Increase in planetary temperature
  - Expectation of increase in number and intensity of related weather events
- **Discrete weather events (8)**
  - Water (droughts, floods, typhoons, rainfall) (5)
  - Heat waves (2)
  - Hurricanes (1)
  - Air quality (pollution) (1)



### iii. Defining childhood

- Children as vulnerable population group
  - Physiological state of development – incomplete development both physical and cognitive
  - Dependence on parents/caregivers for basic needs
- Childhood
  - Young people less than 18 (14)
  - Fetal and maternal health during pregnancy (5)
  - Under 5 including infancy (3)

## iv. Defining child health

- **Physical health (19)**

- Respiratory illnesses (asthma, bronchitis, pneumonia); water-borne diseases (diarrhea, gastroenteritis); vector-borne (malaria, dengue, Lyme disease); under nutrition & stunting; neonatal problems (premature birth, low birth weight)

- **Mental health (3)**

- Socio-emotional development and anxiety/depression
- Cognitive development

- **Other (4)**

- Spiritual health (2)
- Childhood mortality (2)

# v. Child health inequalities

- **SES and income (13)**

- Adhoot & Pacheco [1] cite Unicef Report (Burgess 2013) stating that the world's poorest children are up to 10 times more likely to be affected by climate change
- Less resources to mitigate consequences
- Greater likelihood of immediate hardship and displacement in the wake of weather events

- **Geography (4):**

- Warmer climates, agriculture dependent economies, living near floodplains
- Rising temperatures in North America leads to increased spread of vector borne diseases

- **Intergenerational (temporal) (2):**

- Today's children face higher likelihood of experiencing severe effects of climate change over their lives (Ebi & Paulsen, 2007)

## vi. Inequalities between countries

- LMICs facing a “double burden” (13):
  - 1) higher exposure to extreme weather events due to geographical latitude (e.g., greater number and intensity of droughts, floods, rainfall)
  - 2) limited capacity to mitigate the negative effects of climate change due to scarce economic resources, weak welfare state, agriculture dependent economies and poor water sanitation infrastructure.

## vii. Mechanisms

- **‘Direct’ and ‘indirect’ risks of climate change (4):**
  - direct effects refer to the immediate impacts that climate change will have on children
  - E.g., harm, trauma, dehydration
  - Indirect effects are the impacts that climate change will have on important social determinants of health for children, implying downstream effects on child health
  - E.g., water supply shortage can impact the food supply which can lead to childhood starvation and stunting over time

# Discussion: action for policy and research

- Acknowledge that all child populations are increasingly being affected by climate change
- Further attention on youth and outcomes related to mental health – knowledge gap
- Consider “new” markers of inequality beyond SES and income – geography, intergenerational
- Focus on differences between countries (HIC v LMICs), but more attention needed on the exacerbated health inequalities from climate change within countries

# Thank you

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# Search terms

Climate change	Children	Inequality	Health outcomes
<ul style="list-style-type: none"> <li>- Climate change</li> <li>- Greenhouse effect</li> <li>- Hot temperature</li> <li>- Natural disaster</li> <li>- avalanche* or climate change* or cyclonic storm* or drought* or greenhouse effect* or extreme heat or heat wave* or hot temperature* or flood* or global warming or landslide* or natural disaster* or sea level rise* or tidal wave* or tornado* or weather or wildfire*</li> </ul>	<ul style="list-style-type: none"> <li>- Child</li> <li>- Infant</li> <li>- Adolescent</li> <li>- adolescen* or boy* or child* or girl* or infant* or juvenile* or minor* or neonatal* or newborn* or pediatric* or paediatric* or preschool* or toddler* or teen* or youth* or young*</li> </ul>	<ul style="list-style-type: none"> <li>- Health Status Disparities</li> <li>- Socioeconomic Factors</li> <li>- economic* or health or social* or socio*) (condition* or determinant* or disadvant* or disparit* or effect* or factor* or inequit* or inequalit* or status, poverty or underdevelop*</li> </ul>	<ul style="list-style-type: none"> <li>- Child health</li> <li>- Infant health</li> <li>- Adolescent health</li> <li>- Child welfare</li> <li>- Mental health</li> <li>- Anxiety</li> <li>- Depression</li> <li>- Adaption, Psychological</li> <li>- Stress, Psychological anxiety or coping or depression or emotional distress or mental health</li> </ul>