Conferência sobre o Impacto das Mudanças Climáticas na Saúde

Managing heat risks: overview

Sari Kovats

London School of Hygiene and Tropical Medicine

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INSTITUTO NACIONAL DE SAÚDE MOÇAMBIQUE

OBSERVATÓRIO NACIONAL DE SAÚDE

CHAMNHA
CLIMATE, HEAT AND MATERNAL AND NEONATAL HEALTH IN AFRICA

Heat outcomes

- Heat stroke, Heat injury
- Heat related mortality
  - **Deaths from other causes that can be attributed to heat**
- Health events
  - **Stroke, heart attack**
  - **Emergency hospital admissions**
- Birth outcomes
  - **Preterm birth, still birth, LBW**
- Wellbeing
  - **Cognition**
  - **Thermal comfort**
  - **Anxiety, lack of sleep**

ESTABLISHED 1844

SUN TAKES TOLL OF HUMAN LIFE

Heat Kills Many in the Larger Cities.

WATERBURY GETS OFF EASY

No Deaths and No Prostrations, but Plenty of Perspiration—Thunder Storms and Other Coolers Are Promised—Chicago's Hottest Since Its Famous 104 Day of Nine Years Ago.

Chicago Sun-Times

HEAT TOLL COULD HIT 300

116 Die; Few Using City Cooling Centers

County Morgue Trying to Cope

Ford's New Spin On the Taurus

US heatwave Western states face drought, smog and scorching temperatures

Katharine Gammon

alamy

High risk groups

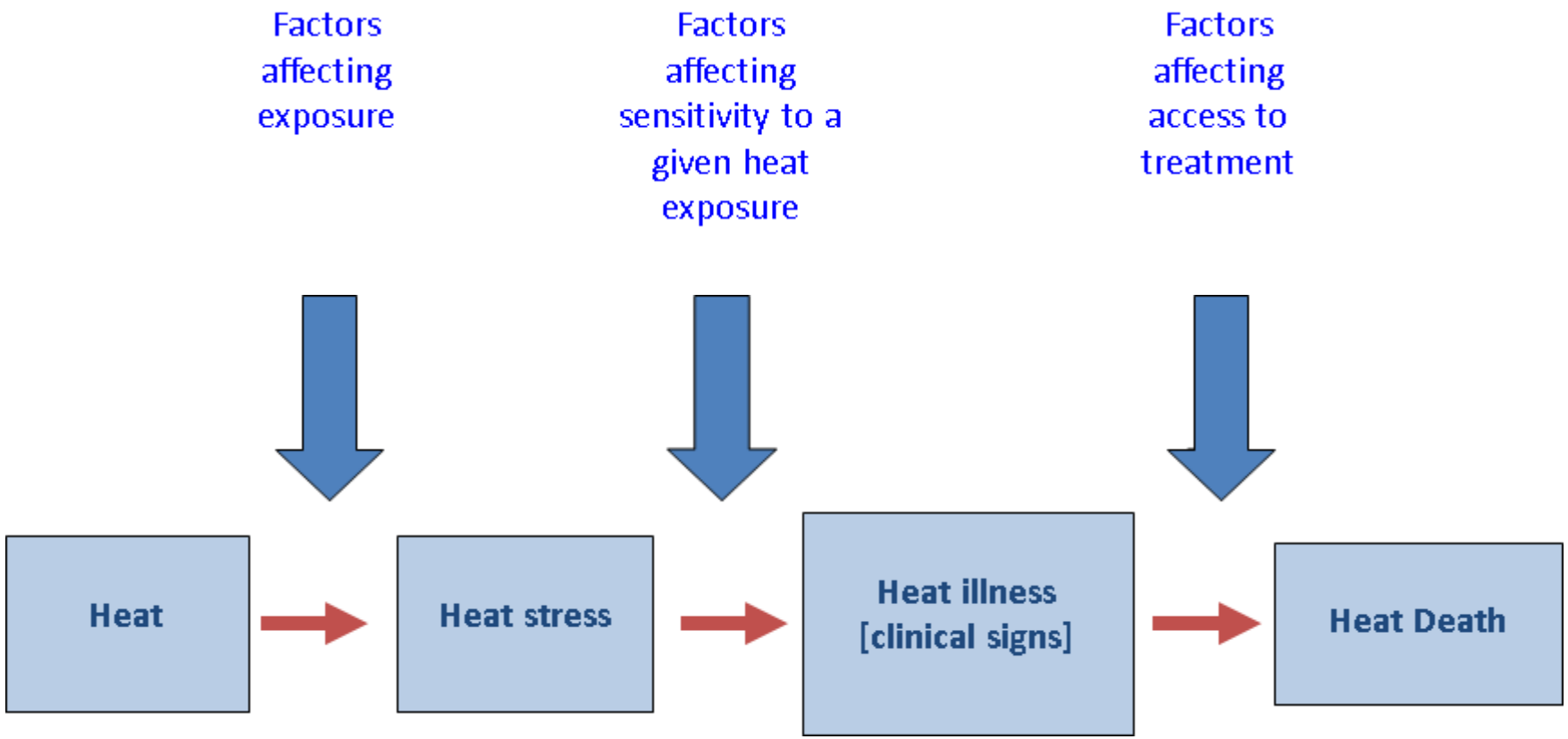
Epidemiology/Population studies

- **Analyses of routine data (death registration,**
- Older person [age, cardiovascular fitness, chronic disease]
- Children
- **Persons with chronic disease**
- **Gender- ?women**
- **Income/deprivation**

Physiological studies

- **Evidence mostly from young health men**
- **Age (over about 75 years)**
- **Body mass protective**
- Some drugs impair thermoregulations
- NOT pregnancy (1 and 2 trimester) and NOT children (over 11 years).
- Men more likely to die from heat stroke (occupational)

Causes of heat inequity



Heat effects on maternal and newborn health..

High temperatures increase risk of

- congenital abnormalities (heat is teratogenic)

- pre-term birth
- stillbirth
- hypertension/ pre-eclampsia
- ?gestational diabetes

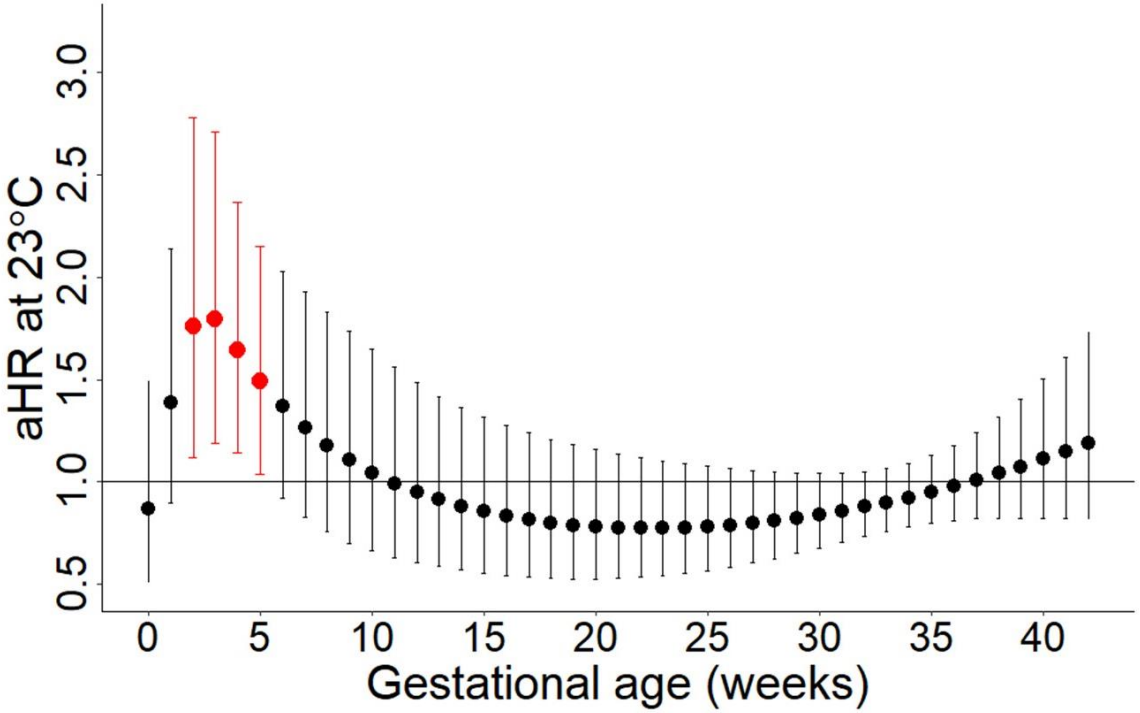
Heat effects on health-related behaviours

- Reduced time breastfeeding
- More likely to supplement breastfeeding
- Less likely to access antenatal care
- Less likely to use to bednets
- More anxiety (esp with reduced access to water for hygiene)

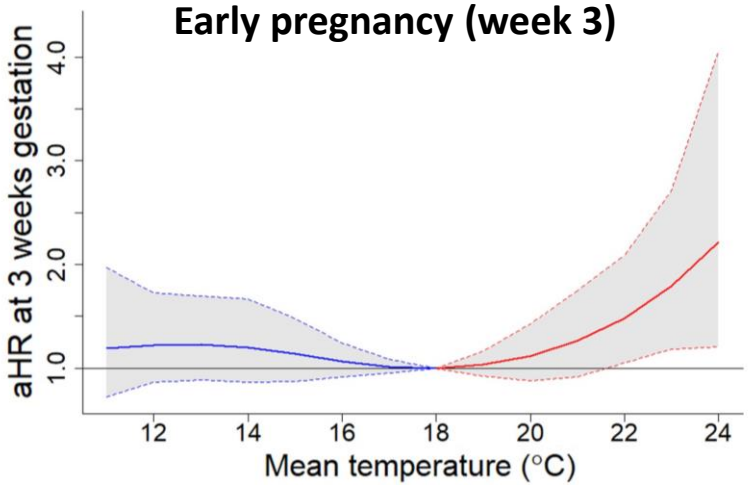
Mgamboni Dispensary, Kilifi, Kenya

Maternal hypertension

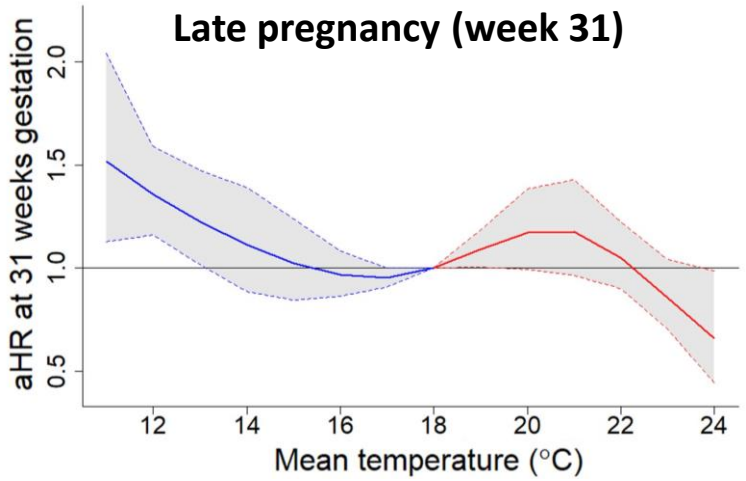
Mean temperature of 23°C (vs 18°C) in early pregnancy associated with increased risk of developing a severe hypertensive disorder.



Part et al, 2022



Strong evidence of increased risk with temperature >22°C in early pregnancy



Tendency towards a reduced risk with high temperature in late pregnancy

Heat affects breastfeeding behaviour

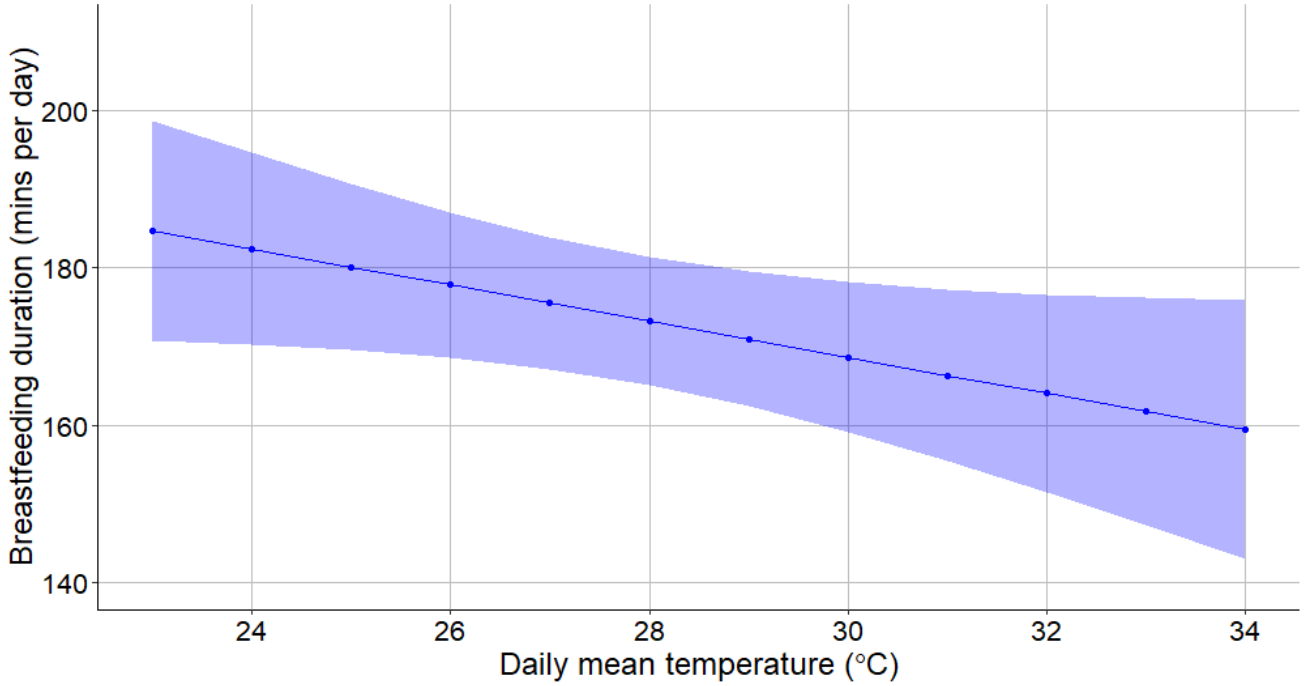


Fig 1. Estimated effects of temperature on time spent breastfeeding (mins per typical day)

Breastfeeding decreased by 2.3 mins per day

(-4.6 to 0.04, p = 0.05)

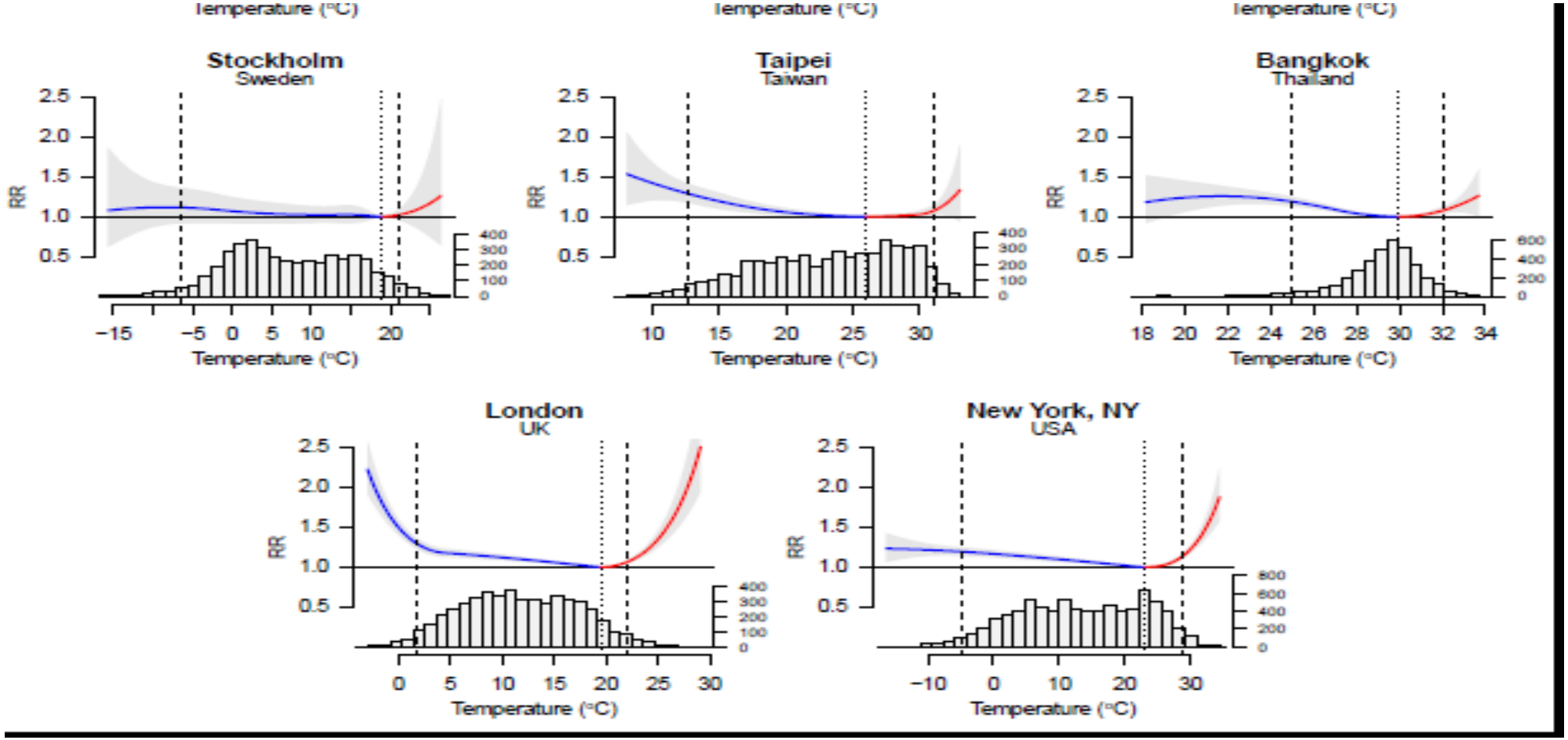
per 1℃ increase in mean temperature.

This equates to a 23-minute reduction in daily breastfeeding during the hottest, compared to coolest, times of the year.

* Population-representative cohort of childbearing women in Bobo-Dioulasso, Burkina Faso [866 women, aged 14-47 years). 7 months gestation - 3 months postpartum at recruitment
Original study: CRESSWELL J, DRABO S, FILIPPI V, et al. 2015. Productivity, family planning and reproductive health in Burkina Faso: the PopDev study. London, UK: London School of Hygiene & Tropical Medicine.
Behaviour/heat study. Part C, et al. Forthcoming

Temperature-mortality functions

Gasparrini et al. Lancet 2015



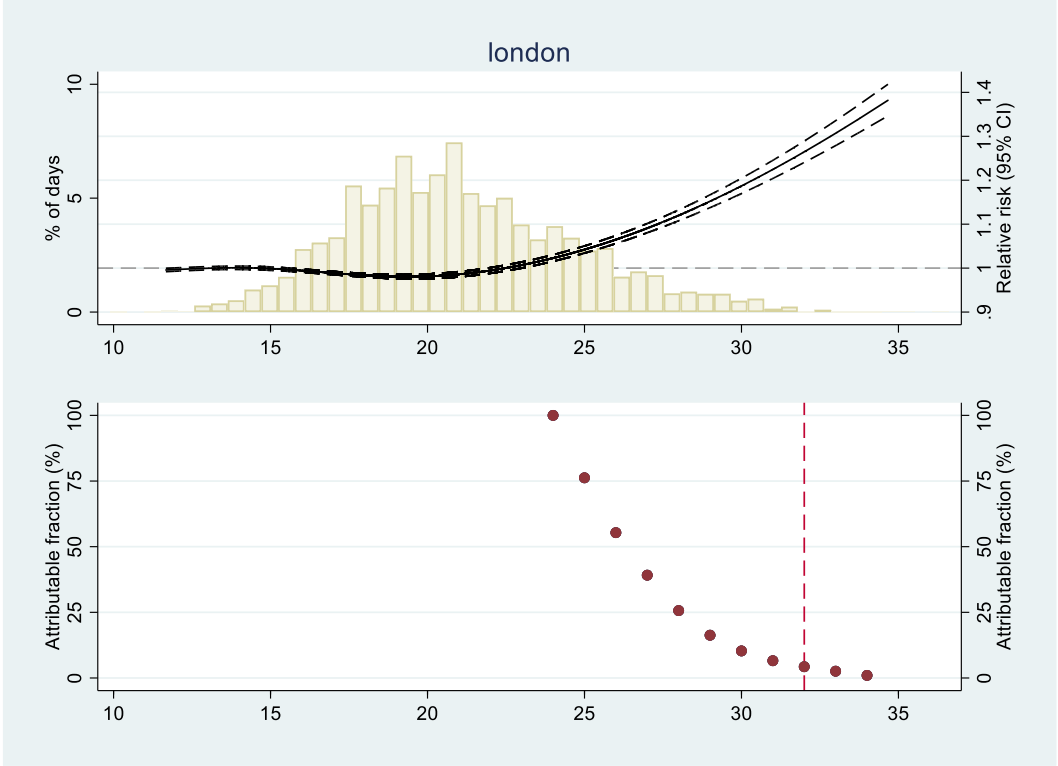
Burden of heat deaths

London (heatwaves)

The majority of heat related deaths occur below the “heat alert” threshold.

Years of life lost – difficult to estimate

Heat alerts need to be design with the users of the warnings..



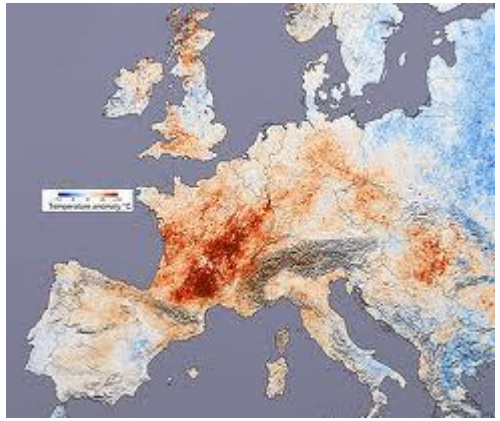
Occupational heat risks

- **Heat stroke, heat illness**
  - Construction, farming, truck drivers..
- **Slowing of work (need to work longer hours for same output)**
- **Risk of accidents**
- **Kidney injury, chronic kidney disease of unknown origin (CKDu)**
- Primarily affecting adult male agricultural workers, in particular sugarcane workers
- **Low cost Interventions – Rest, shade, drink.**

Extreme weather and multiple risks

- Deaths and injuries
  - (heat-attributable deaths in older adults, heatstroke in younger adults)
- Air pollution episode (Ozone, smog)
- Wild fires

- Critical services
  - Damage to road and rail transport systems.
  - IT failures/technology,
- Risk to nuclear power generation in France.
- Power outages
- Crop loss/grain harvest losses of 20%, livestock impacts
- Habitat species impacts
- Decline in water quality associated with low river flow/ low of water supply
- Increased chemical exposures-



Housing: heat equity

Urban climate mapping –

- Outdoor temperatures vary within a city
- Urban heat island (UHI) is difference between city and outside.

US health disparities: Heat stroke deaths in homeless, low income households

Informal settlements in India

Lack of greenspace, space cooling

Unreliable access to energy and water supplies

Informal workers have to work even if it's not too hot or loss of income

A house made of semi-permanent material

Agarwal, S.,et al. (2022). *Prioritising action on health and climate resilience for informal workers.* IIED, London

Resilience to extreme weather in informal settlements

Built environment

Improved housing and shelter

- acquisition of individual assets (e.g. shading, cool roofs).
- Building materials
- collective infrastructure
  - functional sewerage system
  - greenspace for cooling and recreation
  - trees.

- Diversified livelihoods: engaging in multiple activities to make earnings more stable. Difficult to work during a heatwave.
- Strong social networks: food security was often enhanced through relationships with producers (accessing food at lower cost) or through maintaining connections with relatives in rural areas.
- Access to entitlements: food subsidy cards, Employee State Insurance, and proof of address in Indore can lead to a range of social benefits.

Heat health action plans

Heat health action plans

= engagement across sectors (public health, emergency responders, urban planning, etc.)

= comprehensive plan, short term and long term actions

South Africa 2020 "National Heat Health Guidelines"

Guide to extreme heat planning in South Africa for the Human Health Sector.

UK 2023 Adverse Weather and Health Plan.

Epidemiological evidence to inform HHEWS

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- *What* is the <u>evidence</u> for heat effects on the population/groups?
- *When* are people most at risk? (time lags between exposure and outcome)

- *Who* is most at risk?
  - Targetted advice
  - Public engagement, co-design of messages
  - Social science, behaviour change scientists

- What is the role of humidity? Or other meteorological factors?
- Is there evidence of a heat threshold for specific outcomes?

Co-design is essential

General objective

To improve the knowledge of women and their entourages on good practices and strategies to mitigate the effects of extreme heat on pregnant women, mothers and children and to put them into practice.

Specific objective

Engage health professionals and community health workers **to integrate heat and dehydration messages into their routine work with** pregnant and postpartum women.

Ouagadougou implementers

Wemtenga Communuty

Challenges and lessons learned: CHAMNHA

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Lessons learned

- Mainstream heat messages within current health strategies
- Evidence based interventions
- Focus on mother to ensure she has adequate food, hydration, rest
- Importance of engagement with communities
- Importance of evaluation of messages around heat

Challenges

- Low awareness of heat risks (heat is normalised)
- Constraints on women's activities and responsibilities
- Need to demonstrate impact on health

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OBRIGADO

Sari Kovats

Sari.kovats@lshtm.ac.uk