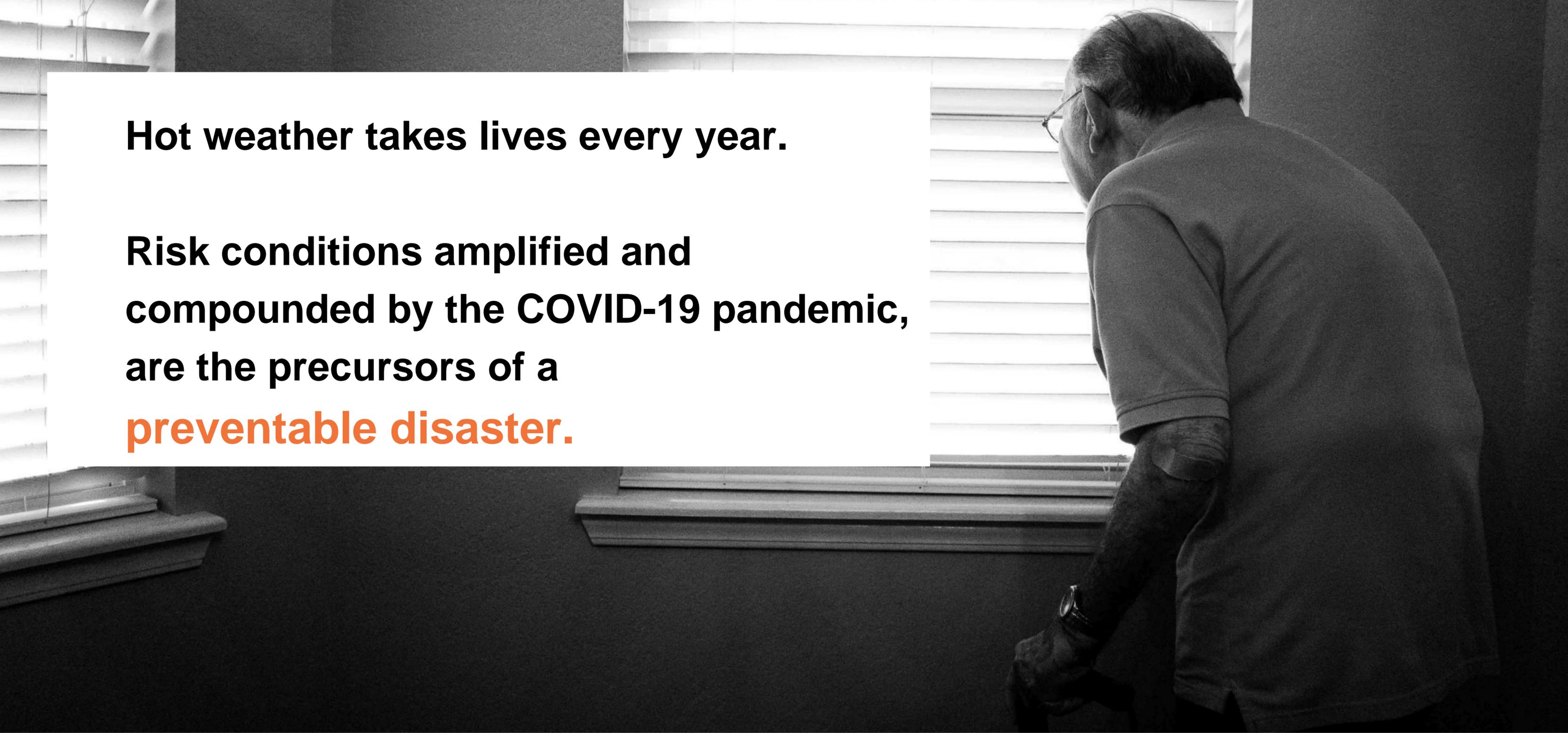


Risk Management of Extreme Heat ...during the COVID19 Pandemic





Hot weather takes lives every year.

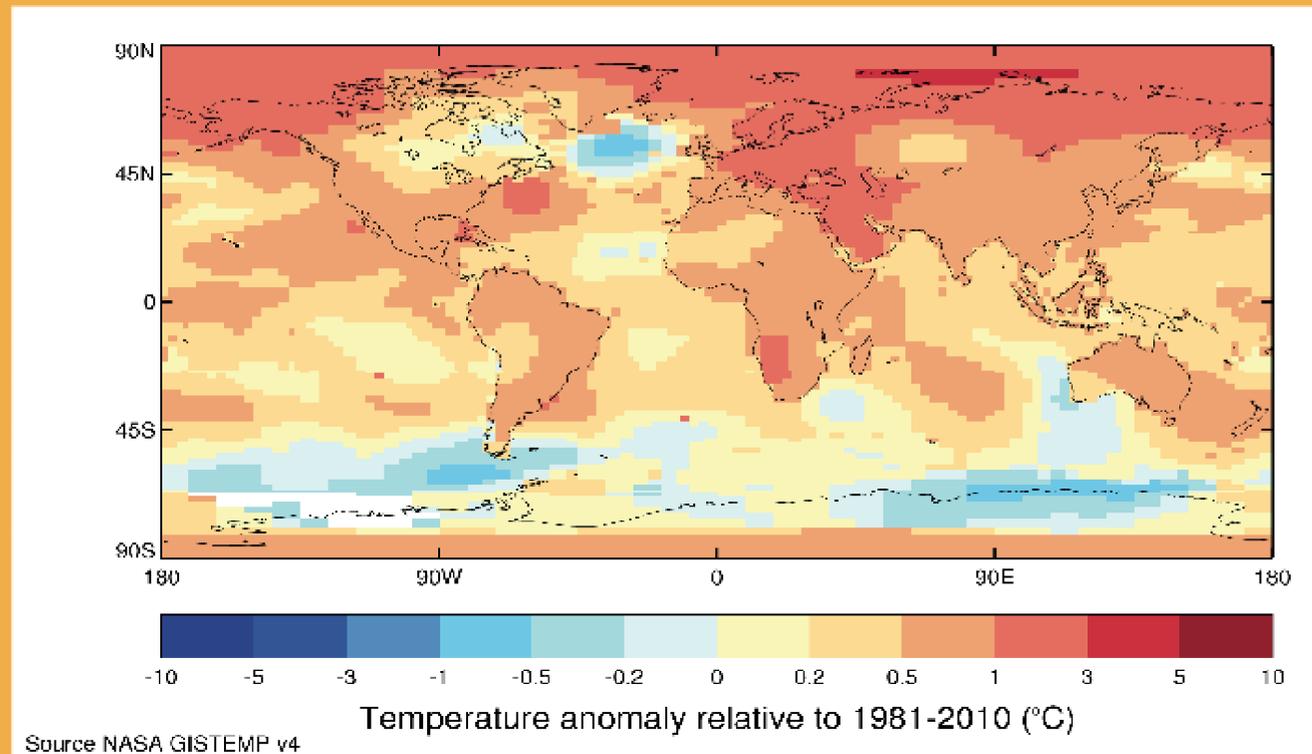
Risk conditions amplified and compounded by the COVID-19 pandemic, are the precursors of a preventable disaster.





2020 will be a hot year

GLOBAL TEMPERATURE RISE



Source NASA GISTEMP v4

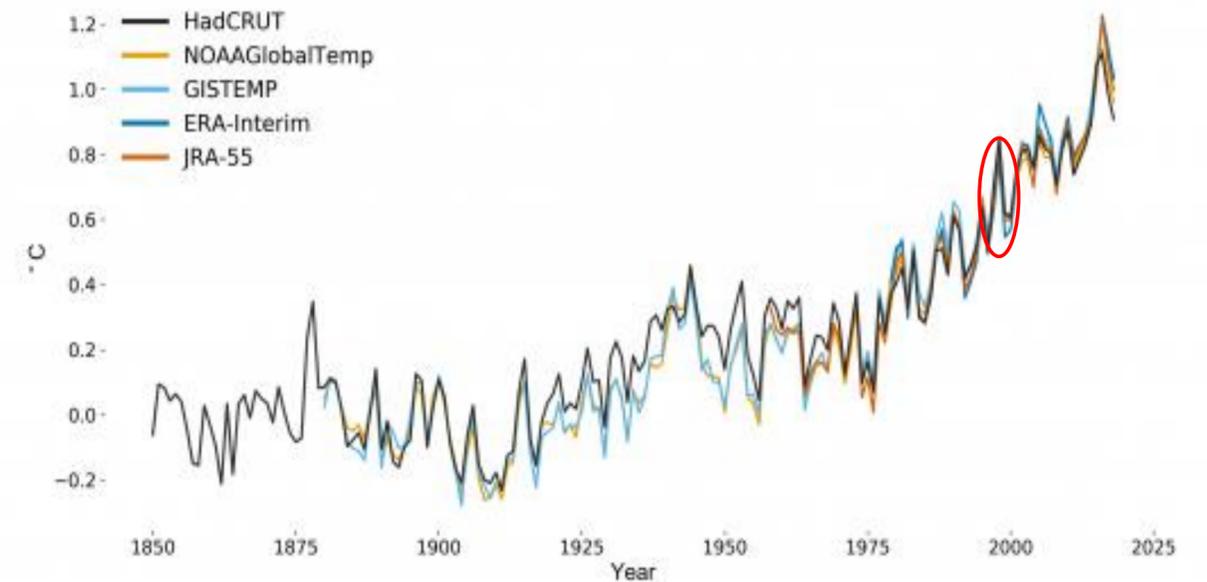
Global five-year average temperature anomalies (relative to 1981–2010) for 2015–2019. Data are from NASA GISTEMP v4. Data for 2019 to June 2019.

2015–2019

- Warmest five-year period

Met Office

Global mean temperature difference from 1850-1900 (°C)

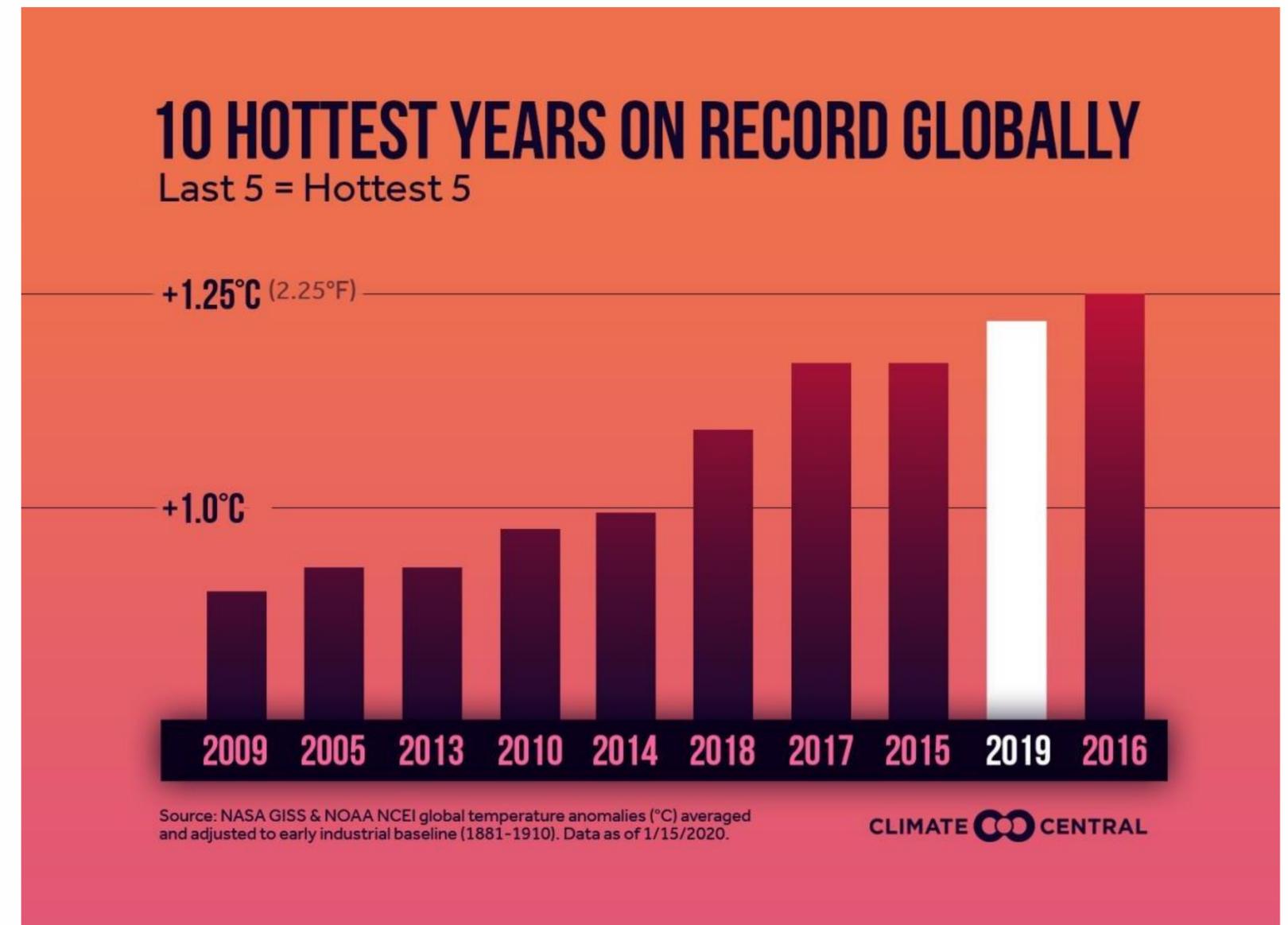


© Crown Copyright. Source: Met Office



There will be heatwaves in areas affected by COVID-19

- Heat season starts earlier and lasts longer.
- Heatwaves are hotter, last longer, more frequent.
- May 2020 - Eastern Mediterranean experiencing earliest heatwave in over 150 years.





Those at risk to hot weather are NOW even more vulnerable

- Overlapping vulnerable populations
- Socio-economic impacts of COVID-19
- Social isolation and physical distancing
- Concentrated at risk locations: Urban heat islands, informal settlements
- Risk perceptions reduce health seeking behaviour

Populations vulnerable to both heat stress and COVID-19

- Older people (>65 years and especially >85years).
- People with underlying health conditions:
 - Cardiovascular disease
 - Pulmonary disease
 - Kidney disease
 - Diabetes / obesity
- Mental health issues (psychiatric disorders, depression)
- Essential workers who work outdoors during the hottest times of the day or who work in places that are not temperature controlled.
- Health workers and auxiliaries wearing personal protective equipment
- Pregnant women
- People living in nursing homes or long-term care facilities, especially without adequate cooling and ventilation.
- People who are marginalized and isolated (experiencing homelessness, migrants with language barriers, old people living alone) and those with low income or inadequate housing, including informal settlements.
- People on medication: some medication for the diseases listed above impair thermoregulation. The impact of treatment for COVID-19 is currently unknown but should be monitored to assess any additional vulnerability.
- People who are currently managing COVID-19 at home (i.e. febrile), or who have been recently discharged from hospital for treatment with COVID-19, which can be associated with acute kidney injury.





Public health toolkit for heat action is restricted due to the pandemic

Heat action plans need modifications

Interventions may be:

- more difficult to implement
- potentially more expensive
- potentially less effective

This includes:

- Cooling centers
- social outreach / door-to-door
- heat advisories and messaging
- fans and cooling



© Robin Hilberink



Health systems resilience is limited – and vulnerable to shocks

- Financial and human resources focused on COVID (and limited)
- Ambulatory service capacity
- Reduced volunteer pool
- PPEs increase heat stress for essential workers





Local ad-hoc decisions / lack of coordination to manage both COVID19 and extreme heat

Local creativity and innovative solutions are paramount – but...

Ad-hoc and misalignment in decision-making can lose public trust and create confusion about what is safe and what to do

Can happen when decentralized decision-making + limited technical guidance



Extreme Heat and COVID-19 Information Series



Technical Brief

15 Q&As

- Cross-cutting issues
- Issues for health workers and facilities
- Issues for city authorities and heat action planners
- **Checklists**
 - Heat Action Planners
 - Family Doctors (soon)
- Examples of good practice

37 Contributing Authors / 31 Reviewers / 25 Countries

Contributing authors

Joy Shumake-Guillemot (Dr.PH), World Health Organization - World Meteorological Organization Joint Office for Climate and Health
Sulfiqar Amir (PhD), Nanyang Technological University (Singapore)
Nausheen Anwar (Prof), Institute of Business Administration (Pakistan)
Julie Arrighi (MA), Red Cross Red Crescent Climate Centre
Stephan Böse-O'Reilly (M.D., MPH), Ludwig Maximilians University
Matt Brearley (PhD), National Critical Care and Trauma Response Centre and Thermal Hyperformance Pty Ltd, Australia
Jamie Cross (PhD), University of Edinburgh
Hein Daanen (PhD), Vrije Universiteit Amsterdam
Francesca de' Donato (PhD), Department of Epidemiology Lazio Regional Health Service
Bernd Eggen (PhD)
Andreas Flouris (PhD), University of Thessaly and University of Ottawa
Nicola Gerrett (PhD), Vrije Universiteit Amsterdam
Werner Hagens (PhD), Dutch National Institute of Public Health and the Environment (RIVM)
Dr. Alina Herrmann (Dr.Med), Universitätsklinikum Heidelberg
Maud Huynen (PhD) Maastricht Sustainability Institute (MSI).
Hunter Jones (MES), National Oceanic and Atmospheric Administration

Ladd Keith (PhD), University of Arizona
Aalok Khandekar (PhD), Indian Institute of Technology Hyderabad
Jason Lee (PhD, FACS), National University of Singapore
Rachel Lowe (PhD), London School of Hygiene & Tropical Medicine
Franziska Matthies-Wiesler (PhD), Helmholtz Centre Munich
Marie Morelle (Prof), University Paris 1 Panthéon Sorbonne
Nathan Morris (PhD), University of Copenhagen
Claudia Di Napoli (PhD), University of Reading
Anindrya Nastiti (PhD), Institut Teknologi Bandung, Indonesia.
Ian Norton (MD), Respond Global Health
Lars Nybo (PhD), University of Copenhagen
Elsbeth Oppermann (PhD), Ludwig Maximilians University
Roop Singh (MA), Red Cross Red Crescent Climate Centre
Lesliam Quirós-Alcalá (PhD), Johns Hopkins Bloomberg School of Public Health and University of Maryland
Anouk Roeling (MSc), City of The Hague
Ana M. Rule (PhD) Johns Hopkins Bloomberg School of Public Health
Gerardo Sanchez Martinez, (PhD), University of Denmark
Joris van Loenhout (PhD), UCLouvain
Peter Van den Hazel (MD, PhD), environmental health physician
Kirsten Vanderplanken (PhD), UCLouvain
Benjamin Zaitchik (PhD) Johns Hopkins University

Reviewers

Jonathan Abrahams, World Health Organization
John Balbus, US National Institute of Environmental Health Sciences
Hamed Bakir, World Health Organization
Greg Carmichael, Global Atmosphere Watch, University of Iowa
Amy Davison, City of Cape Town
Shawn Donaldson, Carleton University
Kristie Ebi, University of Washington
Sally Edwards, Pan American Health Organization
Julia Golkhe, Virginia Tech University
Brenda Jacklitch, US Centers for Disease Control and Prevention
Ollie Jay, University of Sydney
Eddie Jjemba, Red Cross Red Crescent Climate Centre
Qudsia Huda, World Health Organization
Aynur Kadihasanoglu, International Federation of the Red Cross
Vladimir Kendrovski, World Health Organization Regional Office for Europe
Pat Kinney, Boston University

Kim Knowlton, Natural Resources Defense Council
Vijay Limaye, Natural Resources Defense Council
Michaela Lindahl, Independent Consultant in Nursing Practice
Andreas Matzarakis, German Meteorological Service
Stephen Martin, US Centers for Disease Control and Prevention
Emer O'Connell, Public Health England
Jose Reis, City of London
Sirkka Rissanen, Finish Institute of Occupational Health
Jörn Rittweger, University of Cologne
Shubhayu Saha, US Centers for Disease Control and Prevention
Paul Schramm, US Centers for Disease Control and Prevention
Ross Thompson, Public Health England
Vidhya Venugopal, Sri Ramachandra University
Regina Vetter, C40 Cool Cities Network
Jon Williams, US Centers for Disease Control and Prevention
Benjamin Zaitchik (PhD), Johns Hopkins University

GHHIN is a voluntary network of experts from many disciplines and many countries - all concerned that we need to be increasing the capacity of our communities to be safe and healthy in a warmer future.

www.ghhin.org/heat-and-covid-19

Q&A Series: General Considerations and Evidence

- Vulnerable populations
- Seasonality and weather
- Ozone, heat and COVID-19

ASK OUR EXPERTS

Which people are the most vulnerable to both heat stress and COVID-19?

All people can potentially fall ill to both heat stress and COVID-19 if exposed. Especially vulnerable groups include people who:

- are over 65, or pregnant;
- have underlying health conditions;
- are on medications that impair thermoregulation;
- have or are recovering from COVID-19;
- work outdoors or in hot indoor spaces;
- have to wear personal protective equipment at work;
- live in nursing homes, long-term care facilities, or prison;
- have low incomes or are marginalized or isolated.

(updated 22 May 2020)

www.ghhin.org/heat-and-covid-19

Q&A Series: Issues for health workers and facilities

- PPE and heat stress
- Health workers and heat stress
- Fever vs. Heat stress

ASK OUR EXPERTS

How can health workers
and other responders
manage heat stress
while wearing personal
protective equipment?

There are three ways to reduce heat stress while wearing PPE:

1. start cool
2. reduce rises in body core temperature at work
3. improve thermal tolerance through acclimatization and fitness

(updated 22 May 2020)



www.ghhin.org
[@heathealth_info / info@ghhin.org](mailto:info@ghhin.org)

Q&A Series: Issues for city authorities and heat action planners

- Air conditioning and ventilation
- Low-tech cooling options
- Communications and outreach
- Outdoor cool spaces
- Informal settlements
- Social services
- Cooling centres

ASK OUR EXPERTS

How can people stay cool at home when they lack air conditioning?

- Close windows and blinds during the day
- Open windows at night
- Drink cool water before feeling thirsty
- wet clothing

(updated 22 May 2020)



GLOBAL HEAT HEALTH
INFORMATION NETWORK

www.ghhin.org

[@heathealth_info](https://twitter.com/heathealth_info) / info@ghhin.org

Heat Action Planning Checklist

Checklist for local and national authorities coordinating heatwave preparedness and response measures, including ideas for how to modify heat preparedness actions in the context of COVID-19.

- Vulnerable groups
- Coordination
- Household cooling options
- Public Communication
- Utilities
- Outdoor Public Spaces
- Cooling Centres
- Work force

GLOBAL HEAT HEALTH INFORMATION NETWORK 

PLANNING CHECKLIST

MANAGING HEAT RISK DURING THE COVID-19 PANDEMIC

This checklist is for local and national authorities coordinating heatwave preparedness and response measures.

It provides a list of measures to consider when adapting heatwave plans and interventions in the context of the COVID-19 outbreak.



Disclaimer: The suggestions in this checklist will not be applicable in all contexts. Please review these measures and use the context of your city or locality as a guide to which actions you should implement.

These suggestions focus mainly on heat action measures which may be affected by COVID-19, and may require adaptation to the local context. Interventions that are unlikely to be affected are not listed here. For general heat action guidance see additional resources listed at the end of this document. These ideas are based on existing guidance and peer-reviewed information, as well as expert opinion.

VULNERABLE GROUPS AND SOCIAL SERVICES

The people who are most vulnerable to hot weather and COVID-19 include older people (over age 65); those with pre-existing medical conditions such as heart disease, respiratory illness or diabetes; those taking certain medications; those who are overweight and obese; those who are marginalized and isolated, including those experiencing homelessness; pregnant women and people wearing personal protective equipment (PPE) in places that are not temperature controlled.

People infected with, or recovering from, COVID-19 are presumed more vulnerable to heat stress, including outdoor workers returning to the workplace.

Vulnerable populations may be in more precarious social and economic conditions due to COVID-19, including from lost wages, increased isolation, and strains or gaps in social networks. This can increase vulnerability to heat risk by limiting healthcare access, transport options, food security and utility access.

- Identify your high risk communities by reviewing where local heat islands occur, and where this may overlap with high incidence or risk of COVID-19.
- Increase the use of [telephone outreach programmes](#) for regular check-ins with the most vulnerable during hot weather to reduce the need for face-to-face interactions due to COVID-19. Social service partners, general practitioners and local authorities can help with setting up a system. If there is a system already in place, consider advertising it to increase enrolment.
- Review plans for in-home safety checks. Ensure the health and safety of outreach staff and volunteers and the people they visit through training and the provision of PPE.
- Coordinate with formal and informal social service systems to identify vulnerable individuals and reach them more effectively with key messages and support.
- Review and expand social safety net programmes to support at-home cooling strategies for the most vulnerable people. For example, energy subsidies could be provided to at-risk households to ensure they can afford home cooling measures.

See Q&As on social services and vulnerable groups +

Global Heat Health Information Network, 2020 / www.ghhin.org / info@ghhin.org

Action Focus

Protecting health systems:
Keep avoidable cases out of health system. Protect health workers.

Protecting at-risk communities:
Special measures to communicate, and reach most vulnerable

Keep heat prevention available with creative and clear modifications for COVID-19 and heat safety

Updated 25 May 2020

 GLOBAL HEAT HEALTH INFORMATION NETWORK



TECHNICAL BRIEF

PROTECTING HEALTH FROM HOT WEATHER DURING THE COVID-19 PANDEMIC

COVID-19 amplifies the health risks of hot weather, presenting individuals and local decision-makers with new challenges on the optimal ways to stay safe from both hot weather and COVID-19. Communities around the world are facing unprecedented compound risks as the health and socio-economic impacts of the pandemic exacerbate already deadly heat risks.

The COVID-19 pandemic amplifies health risks for many people in hot weather. To reduce heat-related illness and loss of life authorities and communities should prepare for hot weather and heatwaves — in addition to managing COVID-19 — before extreme heat strikes.

The last five years (2015-2019) saw the hottest average temperatures ever recorded at a global scale, including more frequent, longer and hotter heatwaves on every inhabited continent. This year is also on track to be one of the hottest years on record and the same is true for the coming decade — consistent with climate change trends.

Authorities should expect and urgently prepare for hot weather and heatwaves, in addition to managing COVID-19. Common public health actions to reduce heat-related illness and death may need to be modified in locations where they are restricted, unavailable or in contradiction to public health measures to limit the transmission of COVID-19. These measures include: “leave hot apartments for public spaces”; “go to public air-conditioned locations such as cooling centers, shopping malls, and libraries”; “regularly check on vulnerable persons”; “use fans to cool rooms without air-conditioning”; and “seek urgent medical care if showing signs of heat stroke”.

Furthermore, hot weather conditions may complicate COVID-19 responses by increasing patient loads, and creating occupational health risks for health workers and responders.

This unprecedented situation highlights the need to clarify issues and decision-making options. This technical brief describes key considerations for decision-makers and practitioners on adapting existing plans, protocols and procedures for managing the risks of extreme heat during the COVID-19 pandemic. The accompanying Q&A series and checklists present further options, supporting evidence and resources to help all stakeholders and communities take informed action.

1

Registration opening soon

Heat Health Dialogues July 28-29

3 hour sessions including panel discussions on the state of the science, emerging issues with audience discussion and break out sessions.



28 July 2020

Heat in the City



29 July 2020

Heat in the Workplace

www.ghhin.org/learning-center/masterclasses

Heat Health Masterclasses

2 June 2020

Setting operational thresholds for Heat Early Warning Systems

16 June 2020

Innovating in urban planning and governance for heat health

30 June 2020

Economic valuation of heat-health impacts and interventions

21 July 2020

Developing an effective Heat Health Action Plan (HHAP)
for your city



Thank you

www.ghhin.org/heat-and-covid-19



Knowledge
Broker



Go-to
resource hub



Member-driven
forum



Not a funding
or grant-making
mechanism



GLOBAL HEAT HEALTH
INFORMATION NETWORK

