## Afterword: updating the 2008 WHO guidance on HHAPs

The accumulation of evidence related to the health impacts of heat and their prevention – as well as the physical, social and environmental modifiers of those relationships in the last decade – is significant enough to warrant a fresh look at how HHAPs should be designed and implemented. This evidence comes from a diversity of sources, including peer-reviewed scientific studies, monitoring and evaluation of existing HHAPs, national and international technical documents, and reports from regional task forces and working groups. Moreover, given the accelerated production of directly relevant knowledge, subsequent revisions or updates of the WHO guidance should probably happen within shorter time frames. As climate change, urbanization, ageing and technological progress modify the links between heat and health, so health authorities and organizations should address public health prevention proactively, rather than reactively.

Any revisions to proposed HHAPs design, development, implementation and core elements should actively integrate the notion of a changing climate and dynamic societies. Such integration would affect, for example, the structure of stakeholders in HHAP governance (which should actively include actors involved in overall adaptation). The thresholds within heat—health warning systems should become dynamic in nature. Climate change and heat response communications should become further intertwined. Interventions to reduce heat exposure should be considered with a long-term perspective, as should the planning of care for vulnerable groups. The preparedness of social and care systems for heat should be fully

integrated into overall health systems resilience, and the long-term modifications of the built environment should become a priority for intersectoral action for health. Overall, HHAPs should no longer be standalone systems, but should rather be integrated with broader policies such as sustainable and green development plans, "One health" initiatives and COVID-19 recovery strategies.

The list of proposed core elements and their sub-elements could also be revisited in the light of the updated evidence and the accumulated experience of functioning HHAPs. The scope of the core elements themselves could in some cases be significantly broadened. For example, from the basic prerequisite of designation of a lead agency, a broader governance structure could now be proposed, based on experience of existing HHAPs, involving local and subnational authorities and nonstate actors. Heat-health warning systems could now rely not only on national mechanisms but also on established supranational networks. Heat-health information systems, now almost universally reliant on web-based technologies, could be informed by empirical behavioural insights and Big Data, providing greater reach and effectiveness. The greatly increased availability of information, along with the advent of Big Data, provides unprecedented possibilities, both for targeting of life-saving public health prevention information and to complement traditional epidemiological surveillance, while protecting privacy and personal data.

The structure of the core elements themselves may be susceptible to revision. For example, given the body of scientific evidence generated on heatreducing modifications of the built environment during the last decade, this may merit its own core element status within revised WHO guidance on HHAPs. Moreover, the reduction of indoor heat exposure based on building-scale physical modifications could be merged with broader-scale urban planning and advocated jointly, while the behavioural elements could be integrated into expanded guidance for heat-health information plans.

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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The climate is warming quickly and dangerously in the WHO European Region, which is experiencing accelerated rates of temperature increase and an unprecedented frequency and intensity of heat-waves. Projections indicate that without adequate efforts for heat-health adaptation to climate change, heat-related exposures and the associated health impacts could increase substantially. Such projections, combined with long-term trends of ageing and urbanization, strongly warrant adoption of a long-term perspective to manage the health effects of temperature in the context of a changing climate.

This report collates and summarizes the most relevant evidence published since 2008, when the WHO Regional Office for Europe published guidance on heat—health action planning. It focuses on Member States in the WHO European Region and brings together the results of an in-depth review based on recent research and lessons learned from implementation in practice. The publication is primarily intended for practitioners, to support their own processes of establishing or revising national heat—health action plan elements or procedures.



## World Health Organization Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark

Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01

Email: eurocontact@who.int Website: www.euro.who.int