Recommendations for the partnerships and suggestions for future research

First, **there is a significant difference in the perception of different stakeholders, on the importance of heat as a public health priority**. Stakeholders who have heat as one of their major objectives in their work perceive heat as a bigger priority than stakeholders who deal with heat only as a minor issue (e.g. representatives from elderly care, home care and the hospital). However, as they are the health care institutes who generally have the closest contact with populations at risk, this creates a dilemma. Based on these outcomes, **awareness of the impact of heat health among stakeholders working in these types of institutes should be urgently addressed**.

Second, there is a discrepancy between the intended stakeholders involved in the heat plans and the actual stakeholders. Even though elderly care institutes, hospitals and home care organisations are listed in the heat plans of both countries, representatives from elderly care, home care and the hospital were not aware of the existence of the heat plan, and are not informed during a hot period. This can either be due to the fact that they do not see heat as a public health priority (as discussed in the item above) or due to the fact that the current system is not able to include a good representation of the intended stakeholders. **We recommend that more research is needed to assess to what extent e.g. general practitioners undertake actions after receiving a heat warning**. The fact that we never received a reply from the circle of general practitioners in Amsterdam also indicates that they do not see this topic as a priority.

Third, there is some overlapping in the strengths and weaknesses that are perceived by the different stakeholders. Most stakeholders agree on the fact that it is useful that there is a heat plan, in which roles and responsibilities of the different stakeholders are described. However, weaknesses are that not everyone is familiar with the existence of the heat plan, and that the roles and responsibilities are not clearly described: stakeholders can decide not to undertake any actions, since none of the intended actions are obligatory and everything is voluntary. It is a conscious decision to organise the heat plan in this way, but there is no consensus between the stakeholders that this is the best approach. **We recommend that for a next version of both heat plans, a meeting is organised for which representatives from all involved stakeholder organisations are invited, so that they can discuss their views and challenges before the next version of the heat plan is finalised**. The fact that such an event was lacking was also mentioned as a weakness by one of the stakeholders in the Netherlands.

Fourth, **communication with the general public is considered rather passive, and this should be changed**. A more active approach (e.g. radio, television, press releases) could help in enticing the population in undertaking appropriate actions. In addition, more attention should be given to reaching out lonely individuals (especially elderly), since they are a group particularly at risk for negative effects due to heat.

Finally, **governments can undertake specific actions that help in reducing the risks due to heat**. They could provide shelter and water in certain places in the city during extreme heat, so that vulnerable individuals have an escape when their homes would become unbearable. Similarly, 'cold spots' could be organised during events, such as concerts.

"Stakeholder partnerships, and roles they can offer as a tool to increase health resilience, are a neglected area of both disaster studies and public health research."

Suggestions for future research

We identified also areas for future research to address these gaps, based on the key informant interviews.

First, **there is no clarity in how messages from the heat plan are perceived by professionals and service providers**. This is important information, since it could mean that the current messages are not successful in obtaining the desired actions (e.g. whether general practitioners undertake actions for patients in their practice). To be able to evaluate this, a detailed quantifiable survey of a large sample of persons providing care to risk groups, such as general practitioners, elderly care workers and hospital personnel, would be required. This would provide a concrete and detailed overview on what the main challenges are for service provision. In addition, a check should be done to find out how complete the mailing list of recipients is.

Second, the key informant interviews show that **most stakeholders are not fully aware of the expected increase in frequency and intensity of heatwaves due to climate change**. Furthermore, climate change and its impact are not on the agenda of any of the stakeholders when it comes to heat preparation. Within the ENHANCE project, we have undertaken a study to assess the impact of heat on general practitioner consultations and emergency room admissions in Belgium and the Netherlands, respectively. When these results are combined with temperature predictions due to climate change, this could be new and valuable information for all stakeholders in question.

Photo by C. Jimenez/dreamstime.