

# Chapter 2. Agreement on a lead body: governance of public health responses to heat

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## Summary

The question of how best to organize and govern public health responses to heat events gained particular relevance in the WHO European Region in the aftermath of the 2003 summer heat-waves. The need to define and implement appropriate and agreed-upon public health responses to heat has since become increasingly pressing, with the latest occurrence of extreme and deadly heat-waves in the summer of 2019. Yet little evidence is available on what constitutes good practice in the governance of such responses.

A recent survey undertaken by the WHO Regional Office for Europe shows an increasing role for national and federal authorities in developing and issuing guidance for subnational actors, although the roles and responsibilities of such actors are only infrequently specified. Moreover, HHAPs are usually not formally linked to crucial related policies, such as disaster risk reduction or national environmental planning. Multilevel governance of heat–health action could capitalize on the comparative strengths of local and non-state actors, thereby contributing to better integration of HHAPs with closely related policy areas.

## Key messages

- The published scientific literature and operational evidence do not provide sufficient information to identify the most effective governance design for HHAPs.
- Despite the generally high rate of benefits per costs invested, HHAPs in Europe are not adequately resourced in terms of funding or human resources.
- Most HHAPs specify roles and responsibilities at the national level, but lose specificity at the subnational, local and non-state actor level.
- HHAPs are well integrated with national climate change policies, but less so with national health, disaster/emergency response and environmental policies.
- Further involvement of local government and non-state actors can increase the reach and effectiveness of HHAPs; such involvement could be promoted through well tested strategies from other policy areas.
- The integration of HHAPs with other early warning systems, health adaptation and climate-resilient health systems strengthening could result in synergies and efficiency gains.

## 2.1 Good governance of public health responses to heat

### 2.1.1 Governance in the WHO Regional Office for Europe's 2008 guidance

The question of how to best organize and govern public health responses to heat gained particular relevance in the WHO European Region in the aftermath of the 2003 summer heat-waves. Their high death toll (Robine et al. (2007) estimated it at 70 000 excess deaths) showed the general inadequacy of preparedness and plans, even in the few countries where formal heat preparedness and response plans existed. Soon thereafter, national and subnational health authorities throughout the Region started planning and implementing prevention activities to protect populations from the adverse effects of high temperatures. The scope of these activities varied widely, both geographically and in terms of target populations and health outcomes.

Based on these initial experiences, the WHO Regional Office for Europe identified the core elements that such prevention activities should ideally encompass, and proposed to incorporate them into comprehensive HHAPs (Matthies et al., 2008). This framework was subsequently adopted as a blueprint for prevention by various countries and subnational authorities. Implicit within the 2008 WHO guidance on core elements and flows of information is a governance framework, understood as a way to organize actors and resources to make decisions and take action.

Wherever governance is addressed explicitly in the 2008 WHO guidance (for instance, when describing the roles and responsibilities of the “lead body”) it is done generically and not prescriptively. The key governance elements in the guidance can be categorized along these lines:

- using existing systems and arrangements for emergency preparedness and response;
- working intersectorally, with coordination arrangements such as working groups;
- defining roles and responsibilities formally and in advance;
- identifying a lead agency – normally a health authority;
- applying multilevel governance involving national, regional and local authorities;
- ensuring bidirectional information flows as close to real time as possible;
- securing stakeholder engagement as crucial to well functioning protection;
- ensuring every actor has enough information and resources to take action;
- designing action to cover the short, medium and long term;
- re-evaluating HHAP governance based on monitoring and evaluation principles.

In practice, these principles are translated by countries into answers to key questions with operational relevance. For instance: What roles and responsibilities are typically best addressed by national authorities or by subnational ones? What are the most operationally efficient institutional arrangements for heat–health action planning? Does every actor have the necessary information and resources to play their roles, and how can this be established?

While answers to such questions are highly context-dependent, the accumulation of experience in the Region and beyond can provide some insights. The peer-reviewed literature contains valuable information for public health planners seeking to design or review their efforts to reduce the health impacts of heat. The operational experience of various HHAPs throughout the Region can provide valuable inputs for peer learning and the eventual

development of agreed-upon good practices. This chapter provides a succinct overview of the most operationally relevant evidence from literature and from a survey of heat–health action planning undertaken by the WHO Regional Office for Europe in 2019.

### 2.1.2 Governance in the scientific and technical literature

Most HHAPs and health-relevant adaptation strategies in the WHO European Region are designed for the national level (Boeckmann & Zeeb, 2014; WHO Regional Office for Europe, 2018a). They are typically managed at the national level and implemented by national and regional agencies, following distributions of competences across health systems. A number of studies have analysed the organization of HHAPs (Matthies & Menne, 2009; Lowe, Ebi & Forsberg, 2011; Bittner et al., 2014; Austin et al., 2016), finding some basic patterns.

- Whether the HHAP is managed at the national or local/regional level largely mirrors the overall decentralization of competences in the country.
- The development of an adaptation plan or HHAP is typically led by either the ministry of health or the ministry of the environment, whereas subnational response coordination is most often led by departments of health.
- Warnings are based on information provided by weather services, while actions can be triggered by individual agencies or via coordinated action.
- National and/or subnational health services are usually informed about heat events and often disseminate this information and take action.

Collaboration between sectors is one common good practice outlined in the existing literature (Austin et al., 2016; Bittner et al., 2014). Taking into account the scarcity of evidence on good governance practices for HHAPs, experiences from outside the Region can provide useful information. Akompab et al. (2013) analysed stakeholder involvement processes for HHAP

development and implementation in Adelaide, Australia. They found that interagency discussions, meetings and workshops, as well as invitations to key stakeholders to offer feedback on the HHAP draft, ensured a transparent approach. Leadership support was perceived as essential. The public was mainly informed rather than actively involved in the process; the stakeholders were all government agencies. The interagency cooperation in Adelaide might have benefited from its state's involvement in the Health in All Policies approach, which facilitates intersectoral responses to health challenges (Kickbusch, Williams & Lawless, 2014). In a study from India (Knowlton et al., 2014), the entire development of the HHAP and its implementation were conducted as part of an international–local consortium. Community organizations were involved with workshops and public consultations.

In Japan (Martinez, Imai & Masumo, 2011) and selected examples from the United States (White-Newsome et al., 2014), volunteering played an important role in ensuring the safety of vulnerable groups. The extent to which volunteers received support from the authorities in designing their approaches and their roles in the development of HHAP were, however, unspecified in these studies. In European peer-reviewed studies, examples of stakeholder involvement are also unspecific. While different government organizations were always involved to some degree, the public or communities were perceived as recipients of advice and warnings and as vulnerable groups, rather than as active stakeholders (Lowe, Ebi & Forsberg, 2011; Hansen et al., 2014). Interagency cooperation, however, was stressed as an important component of an HHAP (Austin et al., 2016).

Overall, the evidence base is limited in the peer-reviewed scientific literature, as few articles explicitly examine the organization of HHAPs and no conclusions can be drawn from these studies about whether a specific approach is better. More operational research into the governance of HHAPs would be useful to illustrate the advantages and disadvantages of different organizational

arrangements and governance modes. Some areas of improvement are, however, suggested in the published literature, including:

- provision of adequate financial and human resources (Boeckmann, 2016; Van Loenhout, Rodriguez-Llanes & Guha-Sapir, 2016);
- multilevel governance arrangements favouring local involvement in implementation (Van

Loenhout, Rodriguez-Llanes & Guha-Sapir, 2016), including better stakeholder engagement and more effective outreach to vulnerable groups (Sampson et al., 2013; Hansen et al., 2014);

- better integration of HHAPs with other relevant regulations and heat–health governance elements (Mees, Driessen & Runhaar, 2015; Wistow, Curtis & Bone, 2016).

## 2.2 Survey responses: status of HHAP governance

The governance of HHAPs can be examined further by comparing national and regional approaches and published examples of current practice. One such comparison was undertaken in a survey conducted by the WHO Regional Office for Europe in 2019, which looked into governance and institutional arrangements for HHAPs. This survey of HHAP administrators, national and local focal points and experts is the most comprehensive effort to date by WHO to assess the status of public health preparedness for high temperatures in the Region.

The survey featured several sets of questions to mine information on HHAPs established at each national, subnational or local level. The definition used for the existence of an HHAP was that (i) the document title stated that it specifically addressed heat-wave response; and (ii) it was approved as a formal document. Of a total of 35 countries participating in the survey:

- 16 indicated the existence of a national HHAP (Austria, Belgium, Croatia, France, Germany, Hungary, Italy, Malta, the Netherlands, North Macedonia, Portugal, Slovenia, Spain, Sweden, Switzerland and the United Kingdom);
- 10 indicated, explicitly, that they did not have a national HHAP in place (Denmark, Cyprus, Estonia, Finland, Israel, Montenegro, Norway, Poland, Serbia and Turkmenistan);
- 6 indicated the existence of subnational HHAPs (Belarus, Belgium, Czechia, Italy, Spain and Switzerland);

- 10 indicated the existence of local HHAPs (Albania, Belgium, Bulgaria, Germany, Greece, Kazakhstan, Lithuania, the Netherlands, the Russian Federation and Ukraine).

This report presents an analysis of the 16 responses from countries with national HHAPs in terms of implementation of the elements recommended by the framework of the 2008 WHO guidance (Matthies et al., 2008).

While management practices at one location or setting may not be applicable elsewhere due to the range of different health systems and their organization across the Region, the findings of the survey provide valuable insights. Longer-term evaluations of a number of governance approaches are needed to show whether the examples in place are indeed best practices.

### 2.2.1 Economic and human resources

Several HHAPs in the Region are not adequately resourced. Among the 16 countries that reported the existence of a national HHAP, only 37% of the survey respondents thought that their HHAPs were supported by the necessary financial and human resources, whereas 56% said those resources were insufficient. Areas where respondents felt that most resources were needed included training for staff in hospitals, nursing homes and care centres for homeless people; helping vulnerable people at home; adapting schools to heat; locating the

most isolated people; and conducting research on epidemiology and prevention.

Most national HHAPs (almost 90%) were funded through internal allocation of resources from the lead agency's own budget; only 10% received earmarked funding from parent organizations or external budgets (such as those for climate change adaptation) for operation of the HHAP. The idea that more resources were needed to reduce risk in domestic and care settings was a recurrent one, as was (in cases where resources were deemed insufficient) that idea the lack of resources could even threaten the continuity of the HHAPs themselves.

Yet investing in public health is demonstrably good business. Interventions that address the environmental and social determinants of health, build resilience and promote healthy behaviours are shown to be particularly cost-effective (WHO Regional Office for Europe, 2015). HHAPs are a good example of this, yielding high economic benefits compared to their costs. In a recent assessment, cost–benefit ratios for existing heat-wave warning systems in Europe were estimated at 11 times the amount invested for London, United Kingdom, 308 times for Prague, Czechia, and 913 times for Madrid, Spain; those ratios increased extensively in the near future under all climate scenarios (Hunt et al., 2017). Indeed, human health costs from climate change – and specifically those from increased heat – constitute a large proportion of the calculated economic impacts from climate change in Europe (Ciscar et al., 2014).

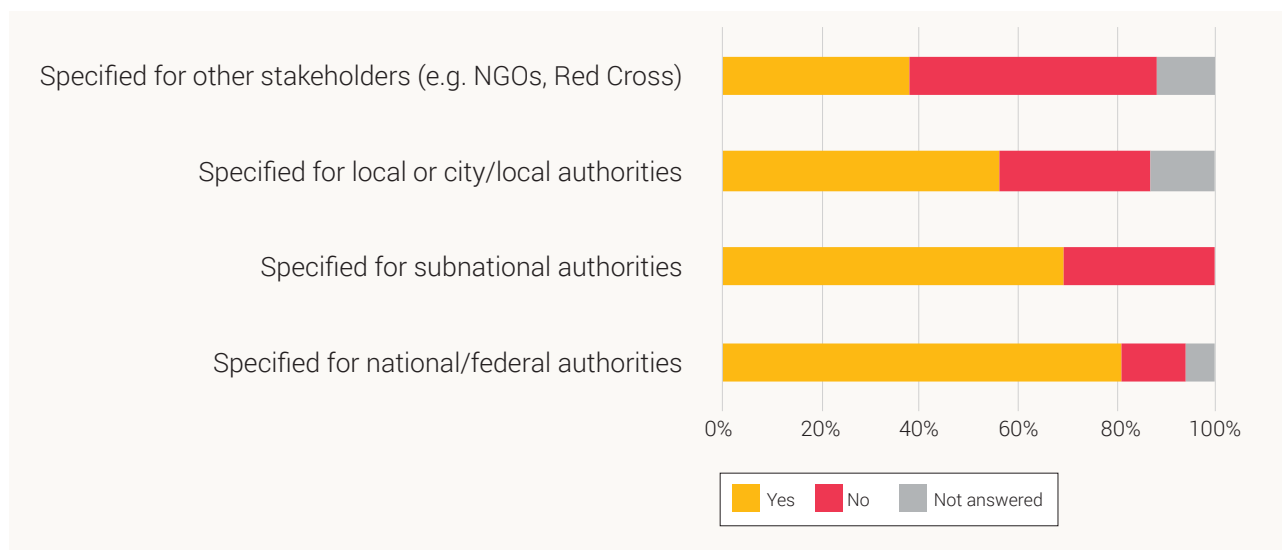
### 2.2.2 Actors, roles and responsibilities

Asked about the status of implementation of the core elements of their national HHAPs, almost 100% of the survey respondents assessed their designation of a “lead agency” as fully or partly implemented. Those who assessed implementation as partial were mostly countries that have devolved HHAP implementation to subnational authorities (provinces, *Länders*, cities, municipalities or cantons in Austria, Belgium, Germany, Malta, Slovenia,

Sweden and Switzerland), and thus do not have designated lead response agencies at the national or federal level. Most also listed multiple subnational activities or systems for heat–health prevention at the subnational level, with which they coordinated.

Most HHAPs specify roles and responsibilities for national and federal authorities (exceptions are made for fully decentralized systems). Meteorological agencies are generally in charge of issuing heat warnings and informing the agency leading the health response (usually a national public health agency or ministry of health; sometimes a subnational health agency). Almost 70% of national HHAPs also specify roles and responsibilities for subnational authorities, but the level of such specification decreases as implementation gets closer to the target populations, with 56% for local or city authorities and 38% for other stakeholders (including nongovernmental organizations (NGOs) such as the Red Cross/Red Crescent) – see Fig. 4.

The low degree of specification of roles and responsibilities of non-state actors does not mean that they do not participate in planning and response. Among the 16 countries that reported the existence of a national HHAP, half involve NGOs such as the Red Cross/Red Crescent in their response, whereas the involvement of businesses or the private sector is infrequent (in about 20% of the plans). Other types of institution involved in communicating the advice include associations of pharmacists, the media, academia and public transport authorities. Beyond the coordination that may happen ad hoc or regularly with NGOs and volunteer-based organizations during the response phase, a more formalized engagement of non-state actors has been observed to boost the reach of public health responses to heat (Martinez, Imai & Masumo, 2011). This engagement may take diverse forms, ranging from participation of local NGOs or volunteer-based organizations for outreach to vulnerable groups, to the allowance or facilitation of use of facilities as cooling centres (such as shopping malls).

**Fig. 4. Specification of roles and responsibilities in national HHAPs**

The specification of roles and responsibilities refers in this report to legally binding duties and tasks of institutions and actors within an HHAP. In some cases, national plans provide detailed guidance or examples of possible roles and responsibilities that other levels of administration could play. Although these are not legally binding, the guidance itself can contribute to enabling action in a relatively standardized way. Even in cases where roles and responsibilities are not formally allocated, the plan frequently contains clear recommendations or guidance for regional authorities, municipalities or both (as in the German HHAP (BMU, 2017)).

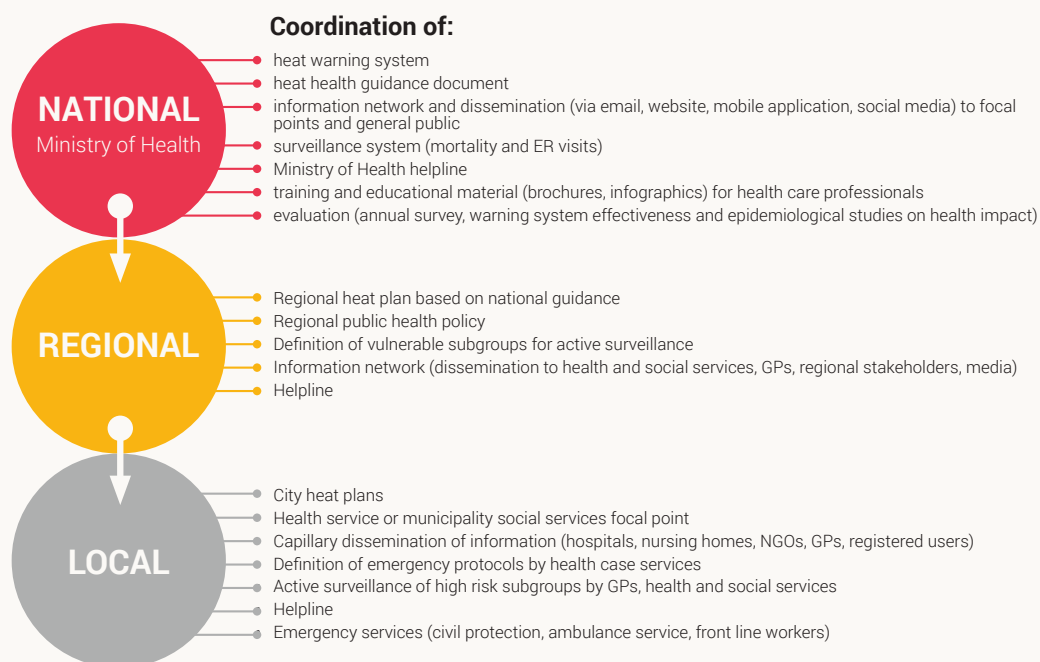
Beyond these institutions, the backbone of HHAP implementation relies on direct stakeholders and actors on the ground, for whom specific advice and instructions are provided. The responses to the survey specified the following categories as providers of advice: health care practitioners (including doctors, nurses and pharmacists – in over 80% of the HHAPs), nursing homes (in 75%), health care administrators (such as hospital managers – in about 70%), social workers (in 44%) and schools (in under 20%). Box 2 describes the multilevel coordination within the national HHAP of Italy.

## Box 2. Coordination of national, regional and local heat–health action in Italy

The Italian HHAP focuses on urban areas and is structured around the core components of the 2008 WHO guidance. The Ministry of Health (2019) provides a national guidance document, which is the basis for definition of heat prevention plans at the local level. This is updated regularly to include new aspects and evidence, and to reflect lessons from implementation so far. Some core elements are coordinated at the national level, such as the heat warning system and dissemination of warning information via email, the Ministry of Health website and social media accounts (Twitter, Facebook) and the mobile application “Caldo e Salute [Heat and Health]” (Ministry of Health, 2018); the near real-time surveillance system (mortality and ER visits) for monitoring health impacts during heat-waves and changes over time; provision of training and educational materials for health care professionals; evaluation of the HHAP; and the national helpline. Finally, every year a survey is carried out to collect information on prevention measures put in place regionally and in each city to promote sharing of experiences between local authorities and to help dissemination of information, as well as to evaluate the components of the HHAPs.

According to the guidance, prevention measures have to be modulated according to warning levels and targeted to vulnerable population subgroups. Italian health services are managed at the regional level, so heat prevention actions and specific response measures are defined locally by each region, municipality and local health authority, based on the Ministry of Health’s national guidance document (Fig. 5). Specifically, regional and local plans identify vulnerable subgroups to whom active surveillance should be addressed by health or social services; define emergency response protocols; and manage local helplines and the dissemination of warnings and heat advice. A key element of local prevention plans is the active surveillance of high-risk subjects by general practitioners (GPs), health services and social services during heat-waves. Hospitals and nursing homes define their own emergency protocols, including measures such as postponing non-urgent surgery and discharging patients during high-risk periods (ensuring continuity of care from the hospital unit to home); staff rotation restrictions; mobilization of at-risk patients to air-conditioned rooms/wards; and increasing bed availability during the summer.

**Fig. 5. Heat–health prevention at the national, regional and local levels**



## 2.3 Links of HHAPs with broader policies

### 2.3.1 Links to other national/federal policies

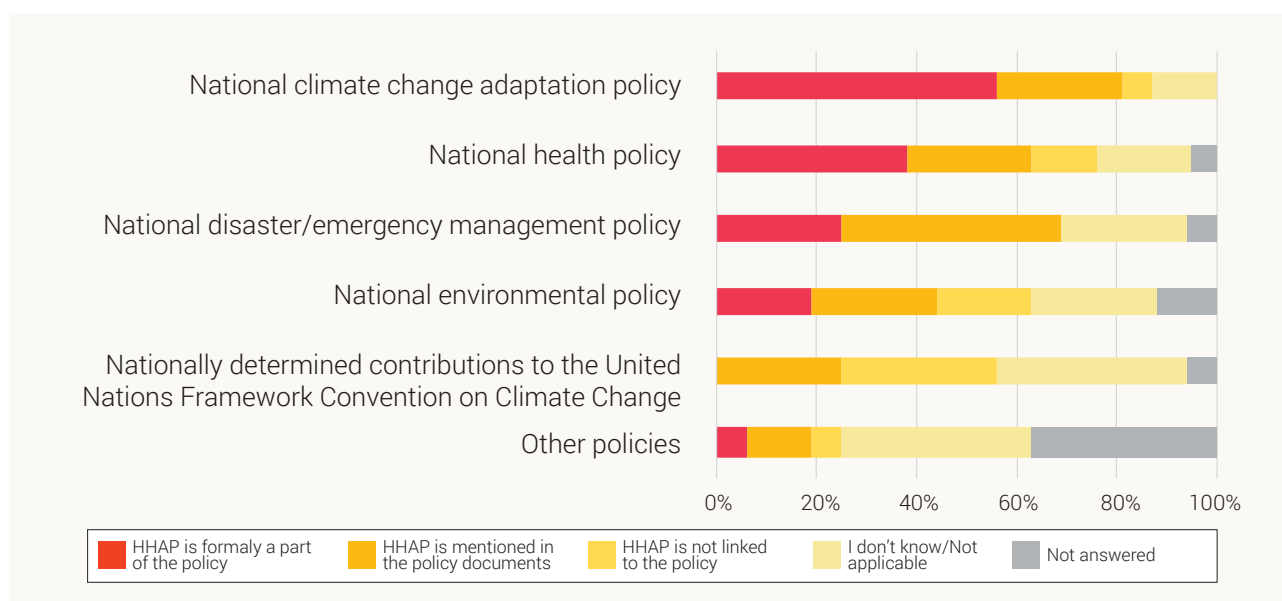
In terms of links with other policies, WHO's 2019 survey of heat–health action planning shows that national HHAPs are most often related to national climate change policies (81%) – either as a formal element (56%) or mentioned in these (25%). They are less frequently related to national health policies (63%), and are often not a formal element of these (38% are a formal element; 25% are mentioned in them). HHAPs are rarely a formal element in national disaster/emergency management policies (25%), although they are frequently mentioned (44%), despite the fact that heat is the deadliest weather extreme in the Region. HHAPs are infrequently a formal element of national environmental policies (19%), or mentioned in them (25%), and they are not formally part of countries' nationally determined contribution priorities, although they are occasionally mentioned in them (25%) (Fig. 6).

That HHAPs would often be part of national/federal climate change policies seems reasonable. Geared towards the minimization of health

impacts of current and future climate variability, HHAPs constitute a prime example of health adaptation. Moreover, once the relationship between temperature and population morbidity and mortality has been ascertained locally, the effect of future climate change on those outcomes in the absence of adaptation can be modelled with certainty. This provides a clear monitoring and evaluation framework in a policy area (climate change adaptation) fraught with uncertainties and dynamic discourses over metrics.

The low levels of formal inclusion of HHAPs in national/federal health policies are also not surprising, although this lack of ownership by health systems is not restricted to HHAPs. Rather, this is a common occurrence in most environmental health early warning systems and/or prevention plans – in part related to low institutional attention to and spending on health prevention (which stands at around 3% of total health expenditure in OECD economies) (Gmeinder, Morgan & Mueller, 2017). This adds to the well known barriers to intersectoral action for health, for both the health and environmental sectors (Ndumbe-Eyoh & Moffatt, 2013; Rantala, Bortz & Armada, 2014).

**Fig. 6. Links of national HHAPs to other national/federal policies**





### 2.3.2 Links to local governments and non-state actors

Although consensus is lacking on whether decentralization by itself contributes to better health system performance, there is increasing evidence that involvement of local governments in public health interventions is important for their effectiveness (Tomm-Bonde et al., 2013). Local authorities are well positioned to make HHAPs and other public health interventions more effective through a number of factors (Department of Health, 2011):

- direct accountability of results to local communities;
- ability to tailor services to local needs;
- ability to act on social determinants of health and health inequalities.

These strengths are particularly useful for prevention strategies requiring stakeholder engagement and effective outreach to target groups. The involvement of local governments in HHAPs, as well as more generally in health adaptation, however, may be hindered by a lack of awareness of and political commitment to the need to address climate change drivers and impacts, inadequate governance structures, a scarcity of data or a lack of specialist knowledge (EU, 2013).

From a pragmatic perspective, many actions at the local scale are directed or constrained by higher levels. Since most policies (national or otherwise) tend ultimately to be implemented locally, the local authority has a crucial role as implementer or facilitator. In countries such as Italy, the Netherlands and various Scandinavian countries, local governments hold general competence to undertake any actions in the perceived interest of their citizens, within the limits of the law. In contrast, local governments in several other countries only have the right to fulfil their statutory aims (Keskitalo, 2010).

The competences of local governments in Europe over either health or climate change adaptation (the

two policy areas most closely related to HHAPs) are wide ranging, from almost complete to virtually non-existent. Climate change adaptation has so far largely been regulated through planning systems, thus giving pre-eminence to the level with the planning power (Newman & Thornley, 2002). Local authorities with ample planning powers therefore have ample competence over local adaptation, although they may lack many other enabling factors (such as funding or specialist personnel) (Lorenz et al., 2017). Similarly, while local authorities in some European countries may hold almost all competences in health systems – from health care provision to financing – others may only hold them over basic public health activities, following the inherent complexities of health systems governance (Pyone, Smith & van den Broek, 2017). Most local governments with enough capacity have some degree of competence over public health activities, however. It is on this minimum common denominator that the debate over health adaptation should take place.

In the case of HHAPs, local governments hold both agency and often competence to address elements in most core elements of prevention. On account of resources and economies of scale, a municipality may not be well suited to be a lead agency in an HHAP, or to lead efforts in epidemiological surveillance and evaluation. Otherwise, its participation would add value in all elements: being an active part of the health information plan, providing and coordinating resources for reductions in heat exposure, ensuring care for vulnerable groups, coordinating with the local health and social care systems, and integrating heat and climate into long-term urban planning efforts.

In their answers to WHO's 2019 survey of heat–health action planning, among the 16 countries that reported the existence of a national HHAP, over 80% of respondents listed examples of ongoing heat–health activities at the subnational level, describing a vast ecosystem of heterogeneous subnational activities towards the prevention of health effects from heat in WHO European Region.

Obtaining an accurate list and taxonomy of such activities was beyond the scope of the survey, but the responses suggested that guidance issued by national authorities is an important enabler of subnational action on heat and health. On the other hand, the subnational authorities implementing their own plans were often in principal regions or cities (in other words, those more populated and wealthier); several capital cities had their own versions of an HHAP (including Athens and Moscow).

Various evaluations confirm that local stakeholders welcome and put to use guidance and resources from higher levels of governance (Van Loenhout, Rodriguez-Llanes & Guha-Sapir, 2016; PHE, 2020; Pascal, Laaidi & Beaudeau, 2019). Targeted efforts that could strengthen the implementation of heat-wave plans at a local government level include clearer directions from national and regional administrations; consistency in approaches; cross-sectoral and cross-agency collaboration; and the fostering of support from state government (Tomm-Bonde et al., 2013). If local implementation of heat-wave plans is strengthened, this will also improve the adaptive capacity of communities, meaning that they will be better able to respond to heat-waves and therefore reduce their health risks (Mimura et al., 2014). In addition, the benefits of strengthening community resilience to respond to the health impacts of heat-waves can improve responses to other extreme events (Berry & Richardson, 2016).

The involvement of local governments can be facilitated through provision of information and support to the local employees involved, and via integration of HHAP efforts into existing structures. Through such involvement, HHAPs could tap into the potential of local volunteering structures, community capacity and in-depth knowledge of local needs. Inviting these stakeholders to the table early on in the design of an HHAP and before implementation could highlight gaps or barriers to effective communication or outreach strategies. It is important to note that a number of these stakeholders have been successfully engaged in some settings – for instance, in Japan (Martinez, Imai & Masumo, 2011;

Boeckmann and Rohn, 2014; Boeckmann, 2016) – proving the value of these efforts.

The schematic flow of information or resources in an HHAP originally proposed by the 2008 WHO guidance suggested a relatively passive role of local governments, as recipients or channels of information only (Matthies et al., 2008). By contrast, the comparative strengths of local governments could make them multipliers, boosting the effectiveness of efforts. Municipalities could play an important role in mapping and organizing local stakeholders; this could make a great difference in the effectiveness and reach of heat-wave risk management strategies. The stakeholders include not only government bodies (such as health departments and police) but also health care providers, retirement home managers, landlords, business administrators, NGOs and others. As noted by Lass et al. (2011), these heterogeneous networks cannot be organized in a top-down manner; instead, cooperative forms of coordinated action are required. Building on that coordination, during the heat-wave response phase, involvement of municipalities could increase the effectiveness of short-term measures to reduce heat exposure, including advice on behaviour, access to cool spaces and allocation of mobile cooling technology.

In the medium and long term, local governments would be in a privileged position to enable or support:

- necessary retrofitting of building envelopes and insulation;
- efficient active cooling;
- shading and passive cooling technologies;
- supporting green and blue infrastructure projects;
- ultimately, adaptation of building regulations, urban planning and land use.

Non-state actors can also contribute to better governance of HHAPs by broadening the scope and reach of the system. Furthermore, environmental justice, climate justice and public health all

aspire to principles of inclusion and community action (Wilson et al., 2010; Breen & O'Connor, 2014; McDonald et al., 2015; Mendez, 2015); these necessitate further involvement of relevant stakeholders. A number of studies suggest that vulnerable populations do not feel spoken to during heat warnings (Abrahamson et al., 2009; Wolf et al., 2010; Alberini, Gans & Alhassan, 2011), or that culturally appropriate suggestions for adaptation are needed (Banwell et al., 2012; Hansen et al., 2014). Stakeholders who might be further involved also include other vulnerable people, such as homeless populations and those with unstable housing situations, migrants (particularly those

currently travelling or in unstable housing) and people with limited mobility who are not routinely included in HHAPs.

An extensive body of literature exists on strategies for increasing participation from communities through participatory research approaches and “urban lab” real world experiments in urban climate change mitigation and adaptation activities (Bulkeley & Castán Broto, 2013; Castán Broto & Bulkeley, 2013). These could be used to support stakeholder involvement in HHAP activities more efficiently.

## 2.4 Strengthening synergies of HHAPs with other policy areas

WHO's 2019 survey of heat–health action planning revealed a certain degree of integration of HHAPs in broader policy, with stronger links to climate change adaptation and weaker links to other areas, including health, emergency management and the environment. There is, however, a clear need for stronger links between HHAPs and other existing plans and policies.

The most obvious way forward towards such integration is insisting on the pathway to intersectoral action for health. Interdisciplinary approaches are essential for identifying and implementing appropriate management strategies and collaborations across different fields. In a recent comprehensive summary, the WHO Regional Office for Europe (2018b) identified various elements to consider when promoting intersectoral action for health. Crucially, it requires triggers: both high-level political support from the ministers and ministries responsible and the introduction of data and evidence, particularly on cost–effectiveness and the economic benefits of the intended interventions. Successful cases typically take the form of longer-term initiatives with permanent coordinating structures rather than short-term projects. Facilitating factors include a clear mandate

to reach out beyond the health sector, sufficient resources, supporting data and evidence, sufficient capacity, and civil society and media engagement. By contrast, a lack of political will or commitment, lack of resources, lack of coordination mechanisms and entrenched siloed thinking are direct challenges to intersectoral action for health. The following sections set out some specific examples of links of particular importance for good heat–health governance.

### 2.4.1 Integration with other early warning systems

There is a clear case for integration of HHAPs with other early warning systems for health – particularly those with a climatic component. The Sendai Framework for Disaster Risk Reduction 2015–2030 (United Nations, 2015) highlights the need to increase availability of and access to multihazard early warning systems. Restricting the scope of analysis to early warning systems for climate-sensitive exposures (such as heat, air pollution, aeroallergens and vectors, to name but a few) shows that these plans are usually activated individually. Although they demonstrate good results from the point of view of minimizing health

impacts, as in the case of high temperature plans, they commonly fail to address the synergies across various climate-related or climate-aggravated exposures. Since a number of those exposures tend to occur concurrently, failure to integrate them into prevention efforts could affect the effectiveness and reach of such action. Thus, an integrative approach is needed for the multiple effects that climate change has on population health (Linares et al., 2020).

#### 2.4.2 HHAPs as adaptation to climate change

In line with the climate resilience of health systems, HHAPs are a prime example of health-protecting adaptation to climate change. Governance mechanisms for integrating climate action into health policy and planning seem well established – at least in the EU countries in the WHO European Region, most of which are considering implementing adaptation actions to address climate change-related health impacts. In a 2017 survey (WHO Regional Office for Europe, 2018a)<sup>1</sup>, all 20 respondent countries had a multisectoral body in place to deal with climate change and the health

sector; 65% had a designated climate change and health focal point within the health ministry with their activities specified in a programme of action, and 13 countries had developed national policies (strategies or plans) on health and climate change (Austria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Germany, Lithuania, Luxembourg, Malta, Spain and Sweden). Climate-related early warning systems, and among them HHAPs, constituted a large proportion of those policy efforts. This highlights an opportunity for HHAP administrators to communicate their importance clearly within their countries' and Europe's climate change adaptation efforts.

Heat–health governance can also be strengthened through further integration with other policy areas related to climate change adaptation. Occupational health is an important one; this is touched on in Chapter 6 of this report, and spans instruments from research to industry-specific standards and enforcement of regulatory compliance. Also important are the links between policy, governance and investment in infrastructure, housing and energy, and their modification effect on heat and health; these are addressed in Chapters 5 and 8.

## 2.5 Conclusions

Preparing and responding to heat extremes is an area of urgent priority for health policy and practice, given the current and projected increases in heat events – in both frequency and intensity. While it is a positive step that good governance elements and principles are outlined in international and national guidance, their translation into practice is highly context-dependent, with no generally agreed-upon best practice. WHO's 2019 survey of heat–health action planning revealed important patterns regarding HHAP governance at the national/federal level:

- most HHAPs lack adequate economic and human resources for implementation;
- most HHAPs specify roles and responsibilities at the national level, but are less specific when addressing the subnational and local levels, including non-state actors;
- HHAPs are relatively well integrated with national climate change policies, but less so with national health, disaster/emergency or environmental policies.

Strategies for further involvement of local governments and non-state actors in HHAPs can be

<sup>1</sup> This survey is different from the one whose results are featured in this chapter, and was undertaken earlier; it was conducted in collaboration with the European Commission, specifically to investigate health within climate change adaptation strategies in the EU.

borrowed from other disciplines, which might result in better reach and effectiveness. The integration of HHAPs with other climate-sensitive early warning systems, health adaptation and climate-resilient

health systems strengthening, as well as other areas of governance, could result in synergies and efficiency gains.

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