

ASPHER Climate and Health Competencies for Public Health Professionals in Europe

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The need for climate and health education in Europe

An increase in global warming leads to negative impacts on health and wellbeing. Directly, global warming impacts on health through damage to ecosystems on land and sea causing food shortages, starvation and drought. Infectious disease patterns are affected, deforestation leads to interactions between species and exposure to new novel infections and pandemic risks. There is the growing risk of health effects due to extreme weather events, floods, mudslides and forest fires. Indirect consequences of climate change include migration, conflicts, and political instability (World Health Organization, 2018). Human-induced climate change is putting the achievement of all Sustainable Development Goals (SDGs) at risk. In 2017, the European Union attributed to 7.78% of global greenhouse gas emissions, which is the driver of human-induced climate change (Climate Watch Data Explorer, 2020). With vulnerable groups (e.g., minority groups, homeless people, migrants, and people with a disability) at risk, there are widening health inequalities in the region which further deepen social vulnerability and exposure to adverse health impacts (European Environment Agency, 2019). This can for example be seen in extreme weather events and natural disasters, risks to their homes and livelihoods, loss of their personal resources and exposure to rising food prices.

By setting out the European Green Deal in December 2019, the European Commission (2019) aims for a reduction of 50% by 2030. The European Union is committed to a climate-neutral Europe by 2050. To reach these goals, an upsurge of climate actions is needed across all sectors, both local and global (World Health Organization, 2018; Law, Saunders, Middleton & McCoy, 2018). In the 'State and Outlook 2020' report, the European Environment Agency states that the link between climate change and health is complex (European Environment Agency, 2019). The gaps and uncertainties in evidence make it arguable whether negative health impacts can be reduced by current policies (World Health Organization, 2018). An improvement of the collective understanding of climate and health, and more evidence-based and efficient communication regarding the health risks, efficient solutions and strategies, their costs, and effective implementation are needed to develop and implement proper mitigation and adaptation policies (World Health Organization, 2018; Shaman & Knowlton, 2018).

Due to the complexity of climate change, it is essential that future generations of public health professionals have the knowledge to be able to work on and address the uncertainties faced currently. With the European Green Deal, the Commission commits to preparing a European competence framework for schools, training institutions, and universities to be able to develop and assess attitudes, skills, and knowledge on climate change and sustainable development. The Ostrava Declaration of the WHO Regional Office

for Europe (2017) specifies that health aspects of climate change should be included in education curricula, non-formal education, and workforce continuing professional education.

Considering the need for Health in All Policies, public health professionals need to engage with various stakeholders in the debate on the intricate pathways of direct and indirect adverse effects of climate change on health. Public health graduates who have had training in climate change and health can also influence educational institutions from within (Krasna et al., 2020) and reduce the risks and impacts of climate change for European citizens' health and well-being, by bringing skills and knowledge to the public health workforce. It would mean that universities can contribute to achieving the Union's 2030 and 2050 goals by including climate and health education in public health curricula.

In previous years, Civil Society Organisations (CSOs) initiatives to include climate change and health in public health curricula have arisen. The Global Consortium on Climate Change and Health (GCCHE; 2018) proposed "Core Climate & Health Competencies for Health Professionals" in 2018. In the same year, the Association of Schools of Public Health in the European Region (ASPHER; 2018) listed three competencies related to climate change in the subsection on "Population Health and Its Material—Physical, Radiological, Chemical and Biological—Environmental Determinants" in the 5th edition of European List of Core Competences for the Public Health Professional. In 2016, the Council of Academic Public Health Institutions Australia (CAPIA; 2016) listed two competencies related to climate change in their Foundation Competencies for Public Health Graduates in Australia. The most recent addition to CSO-led initiatives is the WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region, which states one competency on climate change: "Knows and correctly identifies the main features of the climate change process, along with its implications for public health, and understands the public health responsibility for the natural environment" (WHO Regional Office for Europe, 2020).

We recognise that not every public health professional needs to become an expert in climatology and ecology, but we argue that all graduates need to understand the basics, be able to communicate knowledgeably, and form partnerships and alliances in multidisciplinary settings with experts in these areas (Middleton, 2016). Interprofessional, interdisciplinary, and transformational educational activities, which require not only problem-solving skills but also system thinking, change and implementation strategies should be included in modern curricula addressing climate change. These competencies are recommended in the frameworks and competencies lists as proposed by the GCCHE, ASPHER, CAPIA, and WHO-ASPHER Framework for the Public Health Workforce in the European Region and Krasna et al. (2020) echo that the skills that are required in job postings are in alignment with these competencies. Building on the previous lists of competencies, specifically the GCCHE's Core Climate & Health Competencies for Health Professionals, we propose a set of climate and health competencies for public health professionals in the European Region.

The state of climate and health education in public health schools

Through the ASPHER survey, investigating 45 member schools, we have obtained a view on the implementation of climate and health education in European public health schools (Orhan, Middleton, Krafft & Czabanowska, 2021). It demonstrates that climate and health education is currently unable to meet the actual needs of the public health field. In a number of cases, offerings are dependent on individual teachers and students. 29 out of 45 schools have provided climate and health education over an average period of 8 years. Most of these schools, however, offer a climate-health session as an integrated component of a course rather than a stand-alone course. These provisions insufficiently respond to the growing demand for public health graduates with training in climate change and health (Krasna et al., 2020).

Our findings resonate with the future demands, as most of the schools surveyed consider (additional) climate and health educational content and/or courses. Stand-alone compulsory courses and new master programmes dedicated to climate and health are considered by some schools. We found that doctoral programs and postdoctoral positions are neither offered nor considered by public health schools. At the same time, Krasna et al. (2020) show that 21.4% of job listings in the field of climate change and health are offered by university/academia. The absence of offerings of these programs and positions might therefore need to be reconsidered by schools.

Although the majority of the schools consider climate and health education, our results show that lack of staff, funding, and time needed for developing curricula are the biggest challenges in realising it. There is also a lack of didactical materials and experienced staff for developing such educational programmes. At the same time, students and faculty proved to be helpful in instituting or developing climate and health curricula in schools that offer climate and health education. ASPHER will continue working on an implementation strategy for public health schools, hereby taking into account their barriers and facilitators.

ASPHER Climate and Health Competencies for Public Health Professionals in Europe

Domain 1: Knowledge and Analytical Skills

1.1 Knows and identifies the drivers of climate change (both natural and human-induced).

- 1.1.1 Describes the evidence base of climate drivers and understands how they are measured.
- 1.1.2 Distinguishes between “climate” and “weather”, and between “climate change” and “climate variability”.
- 1.1.3 Understands the general mechanism of the greenhouse effect.
- 1.1.4 Knows the social dimensions of climate drivers, including population growth and economic growth.

1.2 Identifies the health impacts of climate change and effective responses on the part of specific health services.

- 1.2.1 Describes major health outcomes associated with climate events, including both direct and indirect impacts, and their mechanisms. Impacts include:
 - asthma and cardiovascular disease from air pollution from increasing levels of CO₂;
 - spread of viruses and infectious diseases;
 - increases in respiratory allergies and asthma due to increasing allergens;
 - water quality impacts;
 - impacts to water and food supplies;
 - environmental degradation (forced migration; exacerbation of socioeconomic, demographic, political, cultural or conflict-related threats to health security; heightening of existing health and economic inequities and their effects on the delivery of health care; consequences for mental health);
 - impacts of extreme heat including heat-related illness and death, and cardiovascular failure;
 - and injuries, death, and mental health impacts from severe weather.

1.2.2 Explains how the health impacts of climate variability/change will vary within and among different communities and regions in Europe and provides examples of how climate change may interact with other environmental changes, such as land degradation and biodiversity shifts, to affect health.

1.2.3 Identifies resources to guide action in response to the health impacts of climate change.

1.3 Understands the connection between habitat and biodiversity loss and infectious diseases.

1.3.1 Provides examples and describes the links between habitat loss, impacts on species, and potential for zoonotic transmission.

1.4 Knows the different levels of prevention, climate mitigation and adaptation, and health co-benefits of actions.

1.4.1 Distinguishes between climate mitigation and adaptation.

1.4.2 Distinguishes between primary, secondary and tertiary prevention levels.

1.4.3 Describes the near-term health co-benefits (e.g. improved air quality) that arise because of climate mitigation at the individual, local, and global scales.

1.4.4 Provides examples of sectoral policies at the European and national level that can reduce greenhouse gas emissions and improve health.

1.5 Understands social and environmental determinants of health.

1.5.1 Describes the concepts of public health, population health, health security, climate-health vulnerability, and climate resilience.

1.5.2 Identifies social and environmental determinants of health that make individuals and communities more vulnerable to climate-related health threats.

1.5.3 Describes the concept of environmental justice.

1.6 Understands emergency planning/preparedness.

1.6.1 Identifies the risks and vulnerabilities to critical health infrastructure from extreme weather events and other climate impacts.

1.6.2 Applies emergency planning skills to plan for and respond to climate-related extreme weather events and disasters, including workforce surge needs, and distinguishes the roles of and interactions between agencies involved in emergency care.

1.7 Knows how to access and interpret relevant local, national, European and global information and accurate science about climate change effects on health.

1.8 Applies climate and health knowledge to improve decisions about public health services and adapt and improve population health.

- 1.8.1 Identifies measures that can be taken to provide health security and foster climate resilience at the individual, local, European or global scales.
- 1.8.2 Provides examples of how climate-health impacts in one location can affect public health, including through contagion, economic repercussions and psychosocial well-being, in another, considering impacts across regions and scales.
- 1.8.3 Uses information on regional impacts to analyse the relationship between climate and public health data, deliver and improve local health services, and support public health impact assessment and political engagement.

1.9 Knows how to develop strategies for reducing the carbon footprint of health care delivery, from the hospital setting to the outpatient setting, based on “green health care” principles.

1.10 Knows the ethical, professional and legal obligations relevant to climate and health.

- 1.10.1 Identifies and uses theories of collective ethics, transgenerational ethics and ethical obligations in more individual-oriented, present-oriented and human-centred frameworks of climate and health ethics.
- 1.10.2 Critically analyses professional and legal obligations of public health professionals related to climate and health.

Domain 2: Communication and advocacy

2.1 Demonstrates effective communication with stakeholders about climate and health topics by defining the target audience, listening and developing audience-appropriate messaging.

- 2.1.1 Communicates and shares information and responsibility effectively at different organisational levels to gain political commitment, policy support and social acceptance for climate action.
- 2.1.2 Communicates climate and health messages (including health co-benefits) effectively (both in writing and verbally) through a range of modern media and social marketing to lay, professional, academic and political audiences.
- 2.1.3 Identifies challenges to climate communication (e.g., climate scepticism and special interest lobbying).

2.1.4 Identifies lessons derived from European or local climate change threats and disasters that can serve as opportunities for communication about climate change.

2.2 Understands the role of public health professionals in climate-health activism and policy engagement.

2.2.1 Identifies ways to act on climate and health policy solutions, including health co-benefits.

2.2.2 Knows how public health professionals can partner with relevant stakeholders to reduce greenhouse gas footprint from the public health sector.

Domain 3: Collaboration and partnerships

3.1 Works collaboratively and across sectors in local, national and European organisational structures on climate and health issues.

3.1.1 Identifies, connects and manages relationships with stakeholders in interdisciplinary and intersectoral projects on climate and health issues.

3.1.2 Evaluates partnerships and addresses barriers to successful collaboration to improve climate and health.

3.1.3 Describes best practices in interprofessional collaboration: information-sharing, collegial cooperation, and collective action.

3.1.4 Builds, maintains and effectively uses strategic alliances, coalitions, professional networks and partnerships to plan, generate evidence and implement programmes and services in climate and health.

Domain 4: Policy

4.1 Understands the role of national, European and global policy frameworks and governance structures to address health risks associated with climate change.

4.1.1 Knows the role of current frameworks for understanding and responding to climate-health challenges, such as the United Nations Sustainable Development Goals, the Paris Agreement and the European Green Deal.

4.1.2 Describes the role of governance as it relates to health policy and climate change.

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