

## V – Health and Urban areas

### Parallel session C – Tuesday 11<sup>th</sup> March 11:00-12:30

**ID N°:** [283]

**Title: STIMULATING HEALTH-PROTECTIVE BEHAVIOUR DURING HEAT WAVES BY EFFECTIVE COMMUNICATION INSTRUMENTS**

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Due to climate change excessive heat is a growing public health threat, but how to communicate the risks and useful precautions to those who are particularly vulnerable like elderly or chronically-ill individuals and small children? Following a 'multiplier approach' we developed communication instruments for mobile health care nurses and kindergarten teachers in Austria, particularly in the city of Vienna. First, we conducted in depth half-standardized interviews with 30 nurses and 30 kindergarten teachers. The results indicated that the behaviour of the nurses to protect the elderly and chronically-ill and the behaviour of the teachers to protect the children from heat related risks was obviously driven by high responsibility beliefs, high self-efficacy beliefs, climate change perceptions, intensity of negative emotions connected to heat risks (e.g. fear), intensity of deliberation of heat related health risks, role models for protective behaviour and low levels of work stress.

Second, these results guided the development of target group specific communication instruments for mobile health care nurses and kindergarten teachers. For example, the results that negative heat related emotions and self-efficacy beliefs were related to protective behaviour led to the design of short animation videos that aimed at i) eliciting negative emotions (e.g. by communicating the number of 70.000 additional deaths in Europe during the heat wave in the summer of 2003) and ii) increasing self-efficacy beliefs (by stressing the various possibilities to prevent health risks during heat waves).

Third, the developed communication instruments (animations videos, brochures, flyer, training workshop concept for medical information on health risks and for persuasive communication techniques) were tested and evaluated in two focus group workshops for every target group (mobile health care nurses and kindergarten teachers). This test of the communication instruments differentiates this project from most of the projects that develop communication instruments for climate change and/or adaptation communication. The results indicated that most of the objectives of the communication instruments could be reached but that some modifications of the instruments are useful to further improve their effectiveness.

**Presenter**

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**ID N°:** [245]

**Title: DO ELDERLY KEEP A COOL HEAD? HEAT PERCEPTION AND BEHAVIOR STRATEGIES OF ELDERLY RESIDENTS IN URBAN AREAS**

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**Background:** Heat periods affect urban areas; particularly older people suffer from heat impacts. Several European studies have documented increasing morbidity and mortality rates among the elderly during and after heat periods; e.g. for Berlin (Gabriel & Endlicher, 2011), London (Hajat et al., 2002), Paris (Fouillet et al., 2008), Rome (Michelozzi et al., 2003). In 2003, the heat wave in Europe resulted in 70,000 deaths (Robine et al., 2008). In the future, this issue may become more important because of more frequent and intense heat waves, a larger elderly population with a high number of those living in poor housing conditions and more ill people at home.

**Objectives:** This study, called STOPHOT, aims to reduce the vulnerability of elderly people (> 65 years) living in cities against urban heat. The City of Vienna served as case study. The project specifically explored the heat risks awareness of the elderly, their perceptions of heat stress and adaptive behaviors avoiding heat impacts. STOPHOT identified gaps between the behavior of the elderly and recommended one. Based on these results an inter- and transdisciplinary team developed sustainable short- and long-term adaption measures and strategies (Allex et al., 2013). This project receives financial support from the Austrian Climate and Energy Fund and is carried out within the framework of the "ACRP" Program.

**Methods:** At the first survey (2011) elderly who live in four different urban study areas were interrogated via telephone interviews (n=400). In addition, face-to-face interviews with elderly residents in retirement homes (n=200) and in-depth interviews with stakeholders from city administration and planning, retirement and care homes, etc. were carried out. A second survey among the elderly living in urban heat islands in 2013 evaluated developed adaption measures using a latent class stated preference approach (n=200). This survey focussed on heat adaptation measures in the outdoors. The results were presented in two stakeholder workshops and sustainable adaption measures were developed and discussed.

**Results:** Answers of the first survey suggested that elderly adjust their behavior during a heat wave mainly by wearing lighter clothes, sufficient drinking, shifting activities to the morning or the evening hours and drawing curtains/blinds (all answers over 80%). More than half of them stay at home when it is hot because they perceive their apartment to be cooler than the outdoors. However, most of them live in small apartments with bad insulation in disadvantaged neighborhoods with few attractive green spaces. But those who leave their home do less suffer from heat stress (Arnberger et al., 2013). In the second survey elderly assessed developed adaption measures against high temperatures. They ranked providing more shadow like shaded seats in public spaces as the most important measure. Providing more information about proper behaviour at heat waves was considered of little importance.

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**ID N°:** [22]

**Title:** **ASSESSING EUROPEAN VULNERABILITIES TO THE RISKS OF CLIMATE CHANGE ON INFECTIOUS DISEASE TRANSMISSION**

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**Background**

A wide range of infectious disease may change their geographic range, seasonality and incidence with climate and environmental change, and there is a burgeoning literature demonstrating this. There nonetheless remains limited research exploring *vulnerability* to climate change and what this means for public health preparedness. In order to identify and evaluate the utility of currently available indicators of vulnerability to the health effects of climate change, this study develops indicators of vulnerability to assess regional-level European vulnerabilities to infectious diseases under climate change scenarios.

**Methods**

Vulnerability indices were developed for 2035 and 2055 at the subnational (i.e. NUTS2) level of resolution. The first phase of the methodology was to assess various datasets for their inclusion in a conceptual framework of vulnerability. Climate change projections of European-wide monthly means for daily temperature (Tmin and Tmax in degrees C) and daily precipitation in mm for 2035 and 2055 were used to map possible changes in infectious disease risk. A composite adaptive capacity indicator was used to assess vulnerability.

**Results**

The index results for impact and vulnerability indices were plotted via ArcGIS™ to EU NUTS2 levels for 2035 and 2055 (to be presented as a series of maps). To assess the key factors driving the impact indices, a Spearman rank correlation test was run.

**Discussion**

It is essential to holistically understand vulnerabilities to health risks, such as infectious disease, to guide adaptation strategies and policy-making. The vulnerability indices presented here offer one of the first attempts to map pan-European vulnerabilities to the impacts of climate change on infectious disease. The indices developed are broad-brushed but provide public health planners with an overview of some European regions that may likely require additional attention to strengthen preparedness for the health impacts of climate change.

Methodological refinement should be pursued to advance work in this field. Currently, there are many uncertainties and limitations to modelling vulnerabilities. Socioeconomic projections lead to a multiplication of uncertainties, and need to be carefully addressed when vulnerability modelling. Meanwhile, as concerns the health sector, the importance of variables such as coping capacity and political will should be better accounted for. For example, regions with high adaptive capacity could still suffer disproportionately from climate change if political will does not exist. There is the need to systematically collect and analyse the interlinkages between the numerous and ever-expanding environmental, socioeconomic, demographic and epidemiologic datasets so as to promote the public health capacity to detect, forecast, and prepare for the health threats due to climate change.

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**ID N°:** [83]

**Title: 'COOL' GOVERNANCE OF A 'HOT' CLIMATE ISSUE: PUBLIC AND PRIVATE RESPONSIBILITIES FOR THE PROTECTION OF VULNERABLE CITIZENS AGAINST EXTREME HEAT**

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In cities in temperate climate zones the elderly, disabled and socially deprived are most vulnerable to extreme heat, as witnessed by increased morbidity and mortality rates during past heat waves in Europe and North America. Many cities, however, are lagging behind in the protection of vulnerable citizens against heat stress, an issue gaining significance in the face of climate change, ongoing urbanisation and an ageing population. This raises questions as to who could bear responsibility for the protection of these vulnerable citizens. Should they protect themselves, or is this a collective responsibility? Which public and private organisations should take on this responsibility? This study analyses the perceived responsibilities and their underlying considerations of public and private actors through two multi-stakeholder workshops and one focus group held in two Dutch cities. These perceived responsibilities and their considerations are mirrored against the actual responsibilities of public and private actors in 10 frontrunner cities, from which design principles for the division of responsibilities are derived. The research reveals that there is disagreement on who bears primary responsibility for the implementation of health care measures due to contradicting considerations. It suggests a complex balancing act in terms of allocating responsibilities to the multitude of public and private stakeholders. We conclude that 'cool' governance requires public responsibilities for the roles of problem analysis and policy making, and that policy implementation requires a differentiated approach of tailored networks for different vulnerable groups in which responsibilities are shared between the relevant public and private actors.

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