PHASE
2nd Annual Meeting-PARIS
14-15th May, 2013

WP1: State of the art and Project Update (P. Michelozzi-DEP)

(See presentation **"WP1 introduction-Michelozzi"**)

P. Michelozzi gave an overview of Progress of each WP, the Expected outcomes and stressed the need to Focus on Public health key messages as outputs of PHASE project. Furthermore the coordinator proposed to develop a PHASE web-based platform targetted to public health users which wil be the deliverbale for each WP originally described as " Framework of tools". The PHASE web-based public health platform with include information on:

- Health effects for each EWE (from reviews)
- Case studies on health effect estimates
- Overview of prevention plans (warning systems, prevention plans, specifc measures, surveillance measures) for each EWE
- Case studies and examples of best-practise measures
- Interview of participants and other experts, and short videos about EWE episods in Europe

Presentation of Second Year Results\Progress in each WP

WP4: Prevention of the health effects of heat waves and cold spells (F. de'Donato and M. Leone- DEP)

See presentations **"WP4 Meteorological dataset and exposure definition-de'Donato"** and **"WP4 Results of the effects of heath and cold-Leone"**

After the first year meeting WP4 has been working on the definition of the most appropriate temperature index for the estimation of health effects in summer and winter taking into account temperature (min, mean and max) as well as thermal discomfort index like apparent temperature (min, mean, max). These were tested in each city considering total mortality as outcome variable. To define the variable that gave the best model performance three Goodness of Fit measures (QAIC, QBIC, GCV) were considered.

On the basis of the analysis the following exposure variables were selected :

- Summer: tmean, tappmax (comparison previous studies)
- Winter: no unique indicator for exposure to cold so a visual inspection of the curves was carried out and Tmean wa selected (comparison with summer), Tappmin (comparison previous studies), Tmax (performed better in coolest cities tmax/tappmax during potential exposure in hottest hours of the day)

Secondly, different definitions of extreme events (heat waves and cold spells) were presented and discussed. Similarly as done for heat and cold above these will be tested. The issue here was to see if there was a temporal variation in number of heat waves and if this was influenced by different definitions used.

The objective of the analysis in WP4 were:

1. to estimate the effect of heat/cold and extreme events on health outcomes (mortality/hospital admissions)

2. to evaluate the temporal variation of the effect (change in exposure, introduction adaptation/mitigation measures)

In the second year meeting the following results were presented:

- Definition of model to estimate effects of heat/cold on mortality
- Results of the effect of heat/cold on mortality by age groups and causes in 8 cities
- Analysis of temporal variation of the effect of heat\cold in two periods (before and after 2003)

The analysis was conducted by season and the model selected is a Distributed Lag non-linear model (DLNM) model, characteristics of the model in terms of lag, confounders, smoother terms and trend were illustrated and discussed in the group.

The shape of the relationship for summer (nonlinear) and winter (linear) and the temporal variation in the curves were described.

Estimates for winter and summer represented expressed as:

- effect calculated from 75^{th} to 99^{th} of mean Temperature
- effect calculated for 1°C decrease in mean Temperature

- Temporal variation tested with Relative effect modification (REM) index
  - P-value <0.05 give presence of effect modification
  - (REM) index was calculated as the ratio between the RR of the two period (reference category period 1)

Summer Results showed:

Non-linear j-shaped curves. Strongest effects in Athens, Rome, Barcelona and Budapest. Lowest effects in Stockholm, Helsinki. Greatest effects in the elderly. Cardiovascular effects similar to total mortality effects, while highest effect on respiratory outcomes.

Winter Results showed:

Linear relationship. Strongest effect in Athens and Valencia, Lowest effects in cold cities (Stockholm, Helsinki) greatest effect in the elderly.

Temporal variations for heat (before and after 2003):

1. After 2003 reduction of the effect in Athens, Rome and Paris; in Barcelona increased threshold. (Effect of Adaptation?)
2. Reduction in the harvesting effect. (Changes in the pool of susceptible by age groups?)

3. Increased effect in the coldest cities (Stockholm and Helsinki)

Temporal variations for cold (before and after 2003):

1. For total mortality: not a clear trend in the cities, except an increased effect in Paris
2. A decreased effect on respiratory mortality in Athens , Barcelona and Budapest

(see presentations **"WP4 Results of the effects of heath and cold-Leone"** and **"WP4 Key points for public health actions-Michelozzi" 15th May**)

WP4 – Protocol for the analysis of the effects of heat/cold on children (C. Iñiguez- CSISP, P. Schifano-DEP)

In the second year among WP4 it was also decided to carry out specific analysis on health effects on respiratory disease among children that this would be carried out by CSISP in collaboration with WP4 (see presentation **"WP4 Heat and respiratory health in children-Ballester, Iñiguez"**). Within this topic P. Schifano presented results carried out in Rome for mortality and hospital admissions as example for the discussion on what should be done. (see presentation **"WP4 health effects of heat on children-Schifano"**)

Protocol for the definition of indicators to monitor the health effects of extreme weather events (A. Paldy NIEH)

See presentation **"WP4 heat wave indicators-Paldy"**

Anna Paldy presented protocol for the definition of heat wave indicators to monitor the effects on health and results from Budapest and Helsinki were presented. Calculations on how to estimate excess mortality were also shown and will be included in we portal. These will be carried out for all cities in WP4 and heat wave definition developed by WP4 will be used as comparison and as uniform methodology of exposure.

WP5 – Prevention Strategies for health effects of flooding (A. Bone, C. Stanke, O. Landeg HPA/PHE)

See presentation **"WP5 Prevention Strategies for Health Effects of Flooding-Bone, Stanke"** and presentation **"WP5 Adaptation tools-Bone, Stanke".**

Progress within WP5 was illustrated.

Literature Review of Health Impacts of Flooding
- Collaboration with World Health Organization
- 2004-2010 period completed and awaiting publication
- Supplementary Literature Review (2010-2012) underway; forthcoming peer review and publication.
- Additional literature review on flooding and infectious disease submitted for publication.

Overview the existing tools for flood response and health resilience

Several platforms of flood response and health resilience measures in the UK have been identified. Projects currently underway include:

1) A study on the effectiveness of PHE Health Advice
Aim: To improve community resilience to flood events by evaluating the effectiveness and usefulness of PHE flood guidance materials.
• Series of focus group discussions across England in cities recently affected by flooding
• Sample populations include members of the public and frontline flood responders

Next Steps
• Revision of fact sheets & forthcoming publication
• Wider dissemination within the UK
• Dissemination with PHASE partners via Phase portal
• Link with Phase partners to share Public health materials

Surveillance methodologies to monitor the impact of floods on health were described in terms of passive and active surveillance were described and discussed.

An overview the existing tools for flood response and health resilience will also be carried out and the descriptive study example for England using GIS and assessing Flood Risk was shown.
The aim of this work was to ascertain the benefits of applying a GIS approach to assessing preparedness and response to the impact of floods in an English region.
• Pre-existing partnership with EA, PHE and Department of Health.
• Adaptation of Strategic Health Asset Planning and Evaluation (SHAPE) tool.
• Incorporation of flood hazard maps produced by Environment Agency.
• Development of effective proxies to assess vulnerability and exposure.
• Identifies risk within both the general public and healthcare assets.
• Enables the strategic assessment of flood risk and the delivery of safe Healthcare

A survey on the flood preparedness and response cycles of PHASE partner countries will also be carried out and results summarized in the PHASE web portal. Again information from the WHO factsheets will be integrated to have a more comprehensive overview. An overview of health effects of floods will be included in the PHASE portal as well as guidance on how to plan for the next event as well as key emergency response measures will be included. Case studies were described as examples. (see presentation **"WP5 Adaptation tools-Bone, Stanke"**)

WP8 – Effects of heat and cold on Cohorts of Susceptibles (D. Åström, B. Forsberg-UMU)

Daniel Oudin Åström presented progress in WP8 so far and in particular results from the analysis of cohorts of patients with pre-existing chronic disease and the effects of heat for Stockholm and Rome.
(See presentation **"WP8 Identification of vulnerable subgroups-Åström"**)

WP8 – Effects of temperature and air pollutants on preterm births (P. Schifano – Dep, X. Basagana – CREAL, A. Vicedo-CSISP, D. Olsson– UMU)

Results on the effects of heat/cold and air pollutants on pre-term births in Rome, Barcelona, Valencia, Stockholm were presented.

(see presentations **"WP8 Effects on preterm births-Schifano"** and **"WP8 Preterm births and extreme temperatures-Vicedo"**)

Results found in both Rome, Barcelona and Valencia temperature during the warm season is the only significant exposure. While in Rome and Valencia no confounding by air pollution and no independent effect of air pollution was observed.

Furthermore In Rome:
Lower risk among older mothers
mothers with pathologies diagnosed during delivery hospitalization

Higher risk among mothers with:
chronic pathologies not reported in delivery hospitalization
very young
No effect of temperature and air pollutants during cold season
Effect of Heat Waves only during cooler months

In Stockholm:
(see presentations **"WP8 extreme temp and preterm births-Olsson"**
Although the effect was weak, high temperatures seemed to be protective, with a lower number of preterm births during hot days.

WP6 - Fire inventory and definition of forest fire emissions (C. Liousse , I. Annesi-Maesano, Y. Hasani UPMC)

(see presentations **"WP6 Biomass Burning Emissions-Liousse"**, **"WP6 Inventory fire emissions - Hassani"**)

The first presentation by C. Liousse gave an overview of methods to define exposure from biomass burning emissions. Three simulation results were shown.
1. including only wildfire emissions (with GFAS v1 inventory for the run presented here).
2. including only anthropogenic emissions (for the run presented here : MACCity inventory (ECCAD)).
3. including wildfire (GFAS) and anthropogenic emissions (MACCity) but also dust and sea salt.
Results only for years 2006-2009 were shown.

Work in progress:
- Case studies with PHASE emissions.
- 2000-2010 trends.
- Simulations included NOx, CO and VOC
- Exposure estimates

Youssouf Hassani presented the progress on health effects of wild fires. With an update of the literature review. The aim of WP6 is to create an inventory of wildfires in Europe (burnt areas, period, emissions, concentrations) and to investigate their impact on health.

An overview of wildfires in Europe by country was given with a focus on emission distribution (NO2, NO, OC, OCp, BC) results not provided by models. Satellite images and results from models on sources of PM2.5 from (fire, anthropogenic, dust) were shown for some specific events.
A brief comparison between PHASE and MEDPARTICLES was also carried out but methods are very different and this still has to be validated with observed data in collaboration with MED particles group.

Case studies from Greece, Italy and France were presented ad how to proceed with the analysis was discussed. The idea is to use both local sources of data on forest fires as well as modelled data from C. Liousse produced within WP6. Consensus still has to be reached on how to proceed. (see presentations **"WP6 Case study on the health effects of wildfires-AnnesiMaesano"; "WP6 Forest Fires-Analitis" ; "WP6 Case studies-de'Donato"**)

WP7 - Synergies between air pollution, EWEs and wild fires (A. Analitis, Klea Katsouyanni - NKUA)

(see presentations **"WP7 Synergies air pollution and Ewes-Analitis" 15th may**)
The analysis of the potential synergy between air pollution extreme temperatures and the impact on health outcomes was illustrated.
Methods for the synergy analysis were:

- Separate analysis for summer and winter
- Identification of turning point in temp-mortality
- association
- GEE Poisson models for city specific analysis
- Meta-analysis

Main results are:

- In the pooled results there is significant interaction between temperature and PM10 in total (15-64 age group) and CVD mortality (>75 and all ages)

- No significant interaction between temperature and O3, NO2 and SO2

- City-specific results show synergistic effects is several cities, which appear to be consistent
  - In Stockholm, in total and cvd mortality in those >75yrs there is significant temp-O3 interaction
  - In Athens and Paris there is significant temp-PM10 interaction in most age groups in total and cvd mortality
  - In Helsinki, there is significant temp-NO2 (andSO2) interaction in the younger (15-64) age-group in total and cvd mortality and in those>75 in respiratory mortality
  - Significant temp-NO2 interaction in also evident in Paris
  - Also in Budapest there is evidence for temp-SO2 interaction in the elderly in total and CVD mortality
  - There are several cases where negative interaction is evident

Preliminary results on the old dataset show evidence of synergy between fires and heat waves.

Next steps

1. Analyze heat waves/ cold spells
2. Evaluate data also before 2003

3. Investigate synergy with forest fires in updated data

Within WP7 the synergies between air pollutants, extreme temperatures and pollutants from forest fires will also be assessed. Wildfires related exposure data from local data sources of forest fires and in collaboration with Wp6 (emissions from biomass burning) will be used to analyze the synergy between heat waves and air pollution during forest fire events. Methods were presented in Forest Fires – Analitis)

15th May 2013

PHASE Platform for Public Health adaptation measures (f. de'Donato – DEP and C. Stanke HPA/PHE)

(see presentations **"WP1 PHASE Platform-de'Donato"** and **"PREZI Phase meeting"**
http://prezi.com/-gg1f5hxcsns/?utm_campaign=share&utm_medium=copy&rc=ex0share)
With regards to Dissemination of PHASE project results, great attention will be towards public health users\stakeholders. The web based platform/portal will include all results from PHASE which will enable users to define a se in the form of a prevention plan through tools included in each section of the portal in a user friendly accessible way. Giving evidence-based information as well as links and case study examples of what is already available at EU level. The idea is that the portal will serve as output format of PHASE results for public health users instead of a report. The material included in the portal will be provided as a document. The development of the portal will be done by DEPLAZIO and HPA/PHE.
(see presentation **"PREZI Phase meeting"**
http://prezi.com/-gg1f5hxcsns/?utm_campaign=share&utm_medium=copy&rc=ex0share)

The portal will include:
For each extreme event:
Description of exposure and risks for health
Summary of health effects of EWE

Prevention measures:
Warning systems,
Health prevention plan,
Methods for monitoring health effects of EWEs
Definition of susceptible subgroups

For each EWE there should be a section\page on:

- Description of extreme weather event
- Health effects (evidence-based)
- Warning systems
- Surveillance systems
- Susceptible subgroups
- Prevention measures
- PHASE case studies (primary studies, working examples of prevention activities, selection of susceptible subgroups, how to calculate excess deaths for monitoring health effects, develop warning system)

A graphic description of contents was given and there was a good discussion and positive feedback from all partners.

Next steps:

- DEP will develop the online version of the PHASE portal
- Create PREZI presentations

It was decided that the coordination group DEPLAZIO will circulate prototype of factsheets to all partners already compiled for heat and cold to revise and to use as example for the construction of other extreme events.
For each EWE\WP:
Identify person in charge of material collection, communication within WP and contacts with DEP
Each WP leader will circulate questionnaires and material among WP, collect information and case studies to be included
Finalize content for each section (text, questionnaires, images etc) and send to DEP to be incorporated on the website.

The portal will be managed by DEPLAZIO and constructed in collaboration with HPA/PHE.

Overall discussion on platform and public health adaptation measures WP4-8

Brief presentations with key messages for public health from each WP leader of WP4-8 were given to set the scene for what each EWE section will include in the portal. The idea is to keep sections as similar as possible where content is available.
(**see presentations WP4-8 public health key messages**)

Development of guidelines on public health management of extreme weather events: possibilities and challenges. (Gerardo Sanchez – WHO European Centre for Environment and Health)

(see presentation **"WHO guideline development for PHASE meeting-Sanchez"**)
Gerardo Sanchez from WHO gave an overview of contribution of WHO in PHASE in terms of guidance especially for dissemination of PHASE results from science to policy action. A description of the process to develop WHO guidelines was given to help create the PHASE tools and guidance documents. An example of the floods guideline document was shown.

WP2: Dissemination Plan (C. Stanke, A.Bone HPA/HE)

(see presentation **"WP2 Dissemination-Bone, Stanke"**)

An overview of progress in WP2 Dissemination was given.
Stakeholder analysis is underway and will ensure :

- Coordination of the dissemination of data and publications resulting from the project
- Identify key stakeholders
- Identify the needs of the stakeholders
- Provide targeted information sheets

Also refer to web portal presentations.

WP3: Evaluation (K. Katsouyanni-NKUA)

Klea Katsouyanni gave an overview on progress evaluation reports and outcome evaluation up to month 18. The next reports will be included in report as deadline is month 24.
(see presentation **"WP3 PHASE project evaluation-Penteli"**)

WP1 –financial reporting 2nd year (F. de'Donato -DEP)

Francesca de'Donato gave an overview of financial situation in view of the second year report, summarizing for each partner expenditures by category (spent up to YR1 and to be spent in YR2 and YR3).
(see presentation **"WP1 Financial second year-de'Donato"**)

Works were closed by PHASE project coordinator, Paola Michelozzi and our host Isabella Annesi-Maesano.