Planning for climate change workshop

Final report

Planning for climate change workshop: final report

Presidenta de l'Agència de Salut Pública i Comissionada de Salut de l'Ajuntament de Barcelona
Gemma Tarafa i Orpinell

Gerenta de l'Agència de Salut Pública de Barcelona
Carme Borrell i Thió

Report coordinators
Marí M, Sheehan M, Villalbí JR

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Index

Introduction

Public health surveillance is the ongoing, systematic collection, analysis interpretation and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health. Its data may be used for action, program planning and evaluation, and research. A public health surveillance system (PHSS) should ensure an effective and efficient monitoring. Thus it usually involves a balanced integration of the attributes of simplicity, flexibility, data quality, acceptability, sensitivity, predictive value, representativeness, timeliness, and stability. The ASPB already manages a diverse set of health data and information related to its priorities and programs. The analyses and objectives included in the 2018 Barcelona Climate Plan and the work done since 2015 in the ASPB climate change working group lay the foundations for this purpose.

 In this workshop they were reviewed, and intense discussions in small groups and in plenary led to an agreed perspective for a surveillance system, as well as to a preliminary list of topics to cover with specific indicators.

This is the final report of the Planning for climate change workshop (312.557.98), held on November 13th 2019 as part of the Fall Institute in Barcelona, in the Ciutadella Campus of the Universitat Pompeu Fabra. Marc Marí, Mary Sheehan and Joan R Villalbí were the workshop coordinators and were responsible for the text of the report. The Fall Institute is organised jointly by the Agència de Salut Pública de Barcelona, the Johns Hopkins University Bloomberg School of Public Health, and the Universitat Pompeu Fabra.

Objectives of the surveillance system

The objectives of a surveillance system for climate change and public health in the city are to monitor changes in the climate and its potential effects on both the health of the city and its major climate-influenced determinants to anticipate emerging risks, guide interventions, and evaluate them.

Components

It was agreed that a public health surveillance system for climate change (PHSS-CC) serving a city as Barcelona should include at least four categories of components i) climate data (mainly related to heat and precipitation), and ii) aspects related to the health impacts of climate change and their determinants, thus involving data related to air quality, data related to drinking water availability and quality, data related to vector-transmitted diseases potentially favored by climate change and to the involved vectors, and data on heat related morbidity and mortality.

Also, as the main drivers of global warming are greenhouse gas emissions, the system may take into consideration iii) the city contributions to mitigation, specifically in those areas with major co-benefits for health. These may include efforts for energy efficiency in buildings and homes and reducing energy poverty, transport policy, including both active and public transport, food consumption favoring diets with less meat, greening the city, and electricity generation with low carbon technologies.

Finally, the issue of vulnerable populations during extreme climate events should be addressed specifically. This means that iv) action to reduce the vulnerability of specific areas (neighborhoods with more vulnerable population and more prone to higher temperatures during heat waves) and to assure the resilience to extreme climate events of specific health and social facilities (including hospitals and nursing homes) should be monitored.

Box 1. Proposed categories and components for a Public Health Surveillance System for Climate Change (PHSS-CC) in the city of Barcelona.

Categories	Components
Climate	Climate (heat, precipitation…)
Health impacts and their determinants	Morbidity and mortality related to heat
	Vector-borne diseases and vectors
	Air quality
	Drinking water availability and quality
Mitigation strategies with major co-benefits for health	Energy efficient buildings and homes and domestic energy poverty
	Mobility policies
	Food consumption
	Greening
	Energy generation with low carbon technologies
Vulnerability in extreme climate events	Vulnerable neighborhoods
	Resilient residential health and social facilities

Some of these components need a city-wide perspective, while for others a more detailed vision by smaller territorial units (such as neighborhoods) may be explored. Many of these components are included in health information systems currently in place, while others do not, although data is available or is being collected as part of the current provision of services by either the ASPB or other public organizations. Further, the potential for their use beyond the city should also be taken into consideration.

In the workshop these components were discussed, to identify the key variables and potential indicators to monitor them, and to assess their availability and reliability, as well as their timeliness. The discussions led to the proposal of a preliminary list of topics to include in a public health surveillance system for climate change in the city of Barcelona, which may also be of use for Catalonia and for other large cities. The process was also reviewed by some expert advisors who could not be present in the day of the workshop. The product of this process follows.

Indicators

Indicators for climate data

Temperature
- Minimum daily temperature (may be used for the city as a whole, but also by neighborhood)
- Maximum daily temperature (may be used for the city as a whole, but also by neighborhood)
- Mean daily temperature (may be used for the city as a whole, but also by neighborhood)

Precipitation
- Amount of precipitation (daily, monthly, and annual)
- Number of rainy days

Heat
- Number of forecasted heat waves
- Actual number of heat waves
- Duration of heat waves (days involved)

Saharan dust intrusion
- Number of days with Saharan dust intrusion

Indicators for health impacts of climate change and their determinants

Heat related morbidity and mortality
- Heat stroke cases and heat stroke deaths
- Daily deaths during heat waves (extracted from funeral services)
- Daily deaths during heat waves (extracted from the mortality registry)
- Daily births, premature births and low birth weight births during heat waves
- Mortality attributable to heat waves (total and cause specific mortality)
- Morbidity attributable to heat waves (hospital discharge/ emergencies/ primary health care)
- Suicide deaths and death rates
- Homicide deaths and death rates
- All these indicators are to be obtained by sex and major age groups, and whenever numbers allow it also by social strata or small area (neighborhood).

Vector-borne diseases and vectors
- Number of imported and autochthonous cases of dengue, chikungunya, zika, malaria, and leishmania among residents.
- Aedes albopictus activity period (annual number of weeks with vector activity)
- Number of viremic cases of dengue, chikungunya and zika during periods of vector activity
- Number and proportion of viremic cases for which Aedes albopictus activity was detected in its vicinity
- Number of pools of Aedes albopictus captured in the vicinity of a viremic case which were positive for dengue, chikungunya, and zika virus.
- Detection of new competent vectors (Aedes aegypti...)

Air quality
- Annual mean concentration and number of days exceeding standards for NO_2, $PM10$, $PM2.5$ and O_3
- Proportion of population exposed to air pollution (stratified by area and by sex and age groups)
- Mortality and morbidity attributable to air pollution

- Pollen counts
- Asthma morbidity

Water quality and water related diseases
- Number of outbreaks related to drinking water, recreational water, and food
- Number of cases reported by Laboratories of Salmonella, Campylobacter and ETEC
- THMs and other physicochemical parameters in drinking water that may be influenced by droughts and heavy rain
- Microbiological parameters in drinking water that may be influenced by droughts and heavy rain

Indicators on contributions to mitigation with co-benefits for health

Energy system contextual indicators
- Proportion of energy obtained from renewable sources in the city
- Proportion of electricity obtained from sources other than fossil fuel (Catalan mix)

Energy poverty
- Proportion of residents reporting energy poverty (obtained from interview surveys)
- Proportion of buildings with higher energy efficiency (obtained from certification registries)
- Proportion of homes with air conditioning
- Proportion of homes with heating

Sustainable mobility
- Proportion of trips based in active mobility
- Traffic injuries by status of the victim (pedestrian, bicyclist, motor vehicle occupant…)

Greening
- Green surface/ population (city, district, neighborhood)
- Number of trees (in parks, in streets, in the Collserola hills, total)
- Proportion of people living within 300 meters of a park
- Density of green/ population

Food system
- Proportion of persons/schoolchildren with high fruit and vegetable consumption
- Proportion of persons/schoolchildren with moderate or low meat consumption
- Prevalence of obesity and prevalence of obesity and overweight
- Indicators of short food supply chains (farmer markets, urban vegetable gardens…)

Indicators about vulnerable populations during extreme climate events

Vulnerable neighborhoods
- Proportion of elderly
- Proportion of elderly living alone
- Proportion of single parent households with children
- Available family income

Resilient facilities (health care, social services)
- Inventory of health and social facilities
- Proportion of facilities with plans to cope with extreme events

Future steps

Over the discussions, there was wide agreement on the need to keep equity and inequalities in perspective within the PHSS-CC. For many indicators, data should be collected and presented by strata. Sex is a basic variable, and the diverse socioeconomic categories are too.

The need to develop a detailed conceptual model was widely felt. Although there was a general agreement about the concepts underlying the PHSS-CC, as presented during the workshop, many participants felt the need to develop a comprehensive conceptual model, some even felt the need to develop a specific conceptual model for each component of the surveillance system.

The ASPB working group on climate change will work on the basis of this report to develop in the next weeks a more developed scheme towards the city PHSS-CC, based on an agreed conceptual model. Its outputs will be shared among workshop participants and other relevant stakeholders, and will be reported for public use if advisable.

Background documents

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Annex 1

Workshop participants and project advisors

Julius C Alejandre, DOH-NNC (Group 3)
Veva Barba, CMBDAH, CatSalut (Group 2)
Xavier Basagaña, IS Global (advisor)
Carme Borrell, ASPB (Group 1)
Sílvia Brugueras, ASPB (Group 3)
Irene Corbella, ASPCAT (Group 2)
Julio Díaz, IS Carlos III (advisor)
Lluís Espinosa, CSB (Group 1)
Laia Font-Ribera, ASPB (Group 2)
Alejo García-Rodríguez, ASPB (Group 3)
Anna Gomez, ASPB (Group 2)
Cristina Linares, IS Carlos III (advisor)
Marc Marí, ASPB (Workshop coordination)
Erica Martínez-Solanas, IS Global (Group 1)
Lilas Mercuriali, ASPB (Group 2)
Tomas Montalvo, ASPB (advisor)
Laura Oliveras, ASPB (Group 3)
Catherine Perez, ASPB (Group 3)
Glòria Pérez, ASPB (Group 1)
Cristina Portolés, ASPB (Group 2)
Andreu Queralt, ASPB (Group 2)
Jordi Remírez, Ajuntament de Barcelona (Group 3)
Isabelle Rossi, Canton de Vaud (Group 1)
Mary Sheehan, JHU-BSPH (Workshop coordination)
Tugce Schmitt, NASHID (Group 3)
Natalia Valero, ASPB (Group 2)
Irma Ventayol, Ajuntament de Barcelona (Group 3)
Joan R Villalbí, ASPB (Workshop coordination)
Diana Walther, Canton de Vaud (Group 1)

Annex 2

Workshop program

8.30h Welcome to participants and presentation round

9.00h Clarification of the objectives and methods of the workshop and its background (MS)
    Brief presentation: Concepts underlying the PHSS-CC (JRV)
    Brief presentation: What is a public health surveillance system (CB)

9.30h Existing data and indicators beyond current PH activities. Very brief presentations.
    Climate data and indicators in the city (EMS)
    Vector and vector-borne diseases (TM, LM)
    Heat-related morbidity and mortality (MM)
    Air quality and drinking water quality (AG)

10.00h Existing data and indicators related to mitigation strategies and co-benefits. Very brief presentations.
    Domestic energy efficiency and poverty (LO)
    Transport policies (CP)
    Food policies (SB)
    Sustainable energy generation (IV)

10.30h Coffee break

11.00h Other aspects, general comments, and consensus on the major components of the PHSS-CC (JRV, CB)

11.30h Introduction to working groups and to the methods to follow (MS)

11.45h Meetings in working groups: discussion on indicators for each category of components

13.00h Lunch break

14.00h Meetings in working groups: agreement on group reports

14.30h Plenary: working groups report

16.00h Coffee break

16.30h Consensus on the proposed indicators for each component

18.00h Closing remarks and future work (MS)