

# 2016

EUROPEAN COMMISSION  
Humanitarian Aid & Civil Protection

ECHO/SUB/2014/695561



## DELIVERABLE DE.3

[DE.3 Guidelines.]

	NAME	PARTNER
<b>Authors:</b>	Ms. Dolores Ordoñez Ms. Tayrne Butler	AnySolution S.L.
<b>Authorized by:</b>	Dr. Iphigenia Keramitsoglou	National Observatory of Athens (NOA)

Date: 7/12/2016

### TREASURE project

Thermal Risk rEDuction Actions and Tools for SecURE cities

Coordinating  
Beneficiary



National Technical University of Athens (EL)

Associated  
Beneficiaries



National Observatory of Athens (EL)



National and Kapodistrian University of Athens (EL)



AnySolution (ES)

[This page intentionally left blank]

## ABSTRACT

This report, which has been prepared in the context of TREASURE project (ECHO/SUB/2014/695561), presents the Guidelines for Heatwave plans.

**Palma,  
December 7, 2016**

# TABLE OF CONTENTS

PRESENTATION..... 5

WHAT IS A HEATWAVE..... 7

CONTROL AND PREVENTION PLANS.....15

COMMUNICATION STRATEGY AND WARNING METHODS.....22

REFERENCES.....32

[This page intentionally left blank]

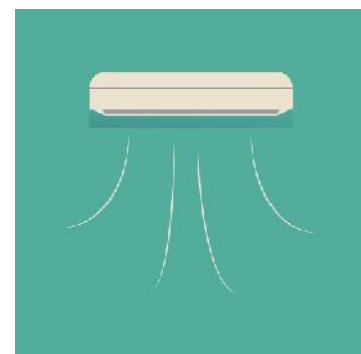


## PRESENTATION

A heatwave (HW) plan aims to protect the population from heat-related harm to health, by raising public awareness and ensuring that health and social care organizations are prepared and able to deal with severe heat (as in Public Health England 2013). An integral part of such a plan is a series of guidelines that recommend actions and provide advice for the authorities and the general public. The success of a HW plan depends largely on public awareness about how to prepare and respond to such events. Therefore, communicating these guidelines to the general public is very important. In the context of TREASURE, we have prepared a handbook which main purpose is:

- ) to inform the public about Heatwaves and the related effects on health, and
- ) to present a series of actions and advice about preparing, responding and recovering from a HW event both for individual and local authorities/organizations/professionals, since the official HW plan usually follows a broader framework and needs to be tailored to their local needs.

This textbook will try to familiarize the general public with the guidelines recommended in the HW plan prepared by the authorities, the heat alert system, the actions that will be taken by the authorities (e.g. National Health System) during the event, and the official sources of information on the HW.



Regarding the local authorities/organizations/professionals, this textbook will provide information about the official HW plan and legislation. It will also provide advice and practices about how to identify the local characteristics in order to tailor the HW plan to their needs, and where to acquire the appropriate data and expertise to do so. Moreover, it will address issues such as how to address and organize the public, what are the anticipated impacts, how to micro-manage the HW event, and how to gather data for evaluating and improving the HW plan.

The guidelines will provide information on TREASURE services for Authorities and Citizens.

It is highly important for different organisations responsible for emergencies to work together, but it is also important for them to work together with other disciplines, similar to what has been done in the TREASURE project (epidemiologists, climatologists, Earth

Observation Scientist and IT developers). In this sense, National meteorological services and health ministries should have joint responsibility for implementing heat health warning systems, supported by local and regional authorities since they are the ones who know the area and its peculiarities better. This will ensure a rapid flow of information and it will combine the competencies of the meteorological and health staff involved in the warning system. It is necessary for the meteorological agency and health ministry to coordinate with each other appropriately. This will fulfill the Heat health warning system's goal of speaking with "one voice". This necessary coordination among the different organizations at local and national level must be formalized in a structure that makes sure that all agencies involved receive funding, with regular meetings between agencies to retain interest in the issue. The loss of funding for one of the involved agencies poses the danger of a loss of knowledge and an interruption in the information flow if the agency has to leave the heat health warning system.

The information flow and intervention measures must be adapted to local needs and the available infrastructure. However, having some standardization across systems to facilitate comparison and knowledge transfer would be beneficial. Regional coherence is required so that warnings are consistent from one town to the next. Communication among different players is critical.

Another key question is when to issue a warning, early warning and decision making is critical to ensure the success of the steps to be taken.



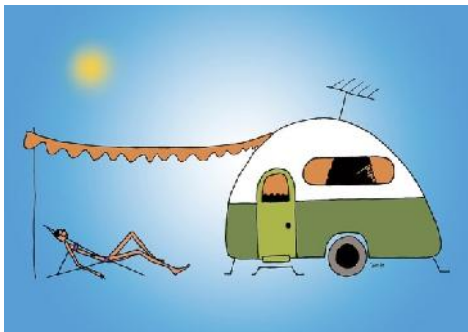
# 1

## WHAT IS A HEATWAVE



A Heatwave is an episode that lasts for a prescribed duration (in most cases, at least three consecutive days but in certain areas they can be as short as a single day) during which, at least 10% of the weather stations in a certain region register maximum temperatures that register at above the 95% percentile of their series of daily maximum temperatures during.

Heatwaves seriously affect life, especially human life and have a great influence on a community's normal activity. Heatwaves also increase the risk of everyday activities such as traffic, situations on beaches, etc.



Humans are very vulnerable to extreme heatwaves and their effects.

The parameters of what is normal regarding temperature are different in most regions and this depends on the local environment and its surroundings.

The continuity of extremely high temperatures are the first factor to consider there being a heatwave, but factors such as humidity, wind, pollution demographics, urban or rural design issues, the rate of solar radiation and acclimatisation mean that similar temperatures might have a different impact in different environments and on different communities.

Heatwaves can be predicted, warnings are issued, but the way they are broadcast and disseminated may also vary from region to region. And the way people react to their effects is also very different from one person to the other.

Heatwaves frequently have a negative effect on people with illnesses and can increase the number of deaths.



Although the whole community in general is at risk during a heatwave, there are especially vulnerable population groups this natural phenomenon affects more than others:

- Senior citizens (65 years and older), consequently nursing homes
- Babies and children under five years old, consequently kindergartens and schools
- Pregnant or nursing mothers
- People with a pre-existing medical conditions
- People with conditions that impair their bodys' abilities to regulate its own temperature like Multiple Sclerosis
- Those living alone with little social contact
- People taking certain medications, such as those for depression or insomnia
- People with a disability
- People in hospitals

And it can also greatly affect people in the following circumstances:



Heatwaves do not only affect people, but also:



- ) Animals, especially cattle and threatened protected species
- ) The Environment in genera
- ) Strategic resources such as energy systems, communication networks, transport services, supplies, etc.

The warning threshold values for natural phenomena are:

GREEN	YELLOW	ORANGE	RED
There is no weather risk	There is no weather risk for the community in general, although there is a risk for certain activities	There is a significant weather risk	The weather risk is extreme

In some cases when the authorities and civil protection services activate their warning systems, the Healthcare systems are not capable of flexibly adapting to these hazardous situations.

The evolution of the weather makes it necessary for us to be prepared when faced with adverse phenomena such as heatwaves and these situations are becoming more and more common in the world today and this means it is important to implement standardised measures that communities are familiar with in the event of an emergency.

The TREASURE project is of great importance because it is helping to change plans and protocols, adapting to the needs of resident communities and also visitors.

Activities that are subject to civil protection measures but that can continue to be carried out if prevention measures are put into place are:

- ) public and private transport services
- ) land and boat trips that do not entail very much outside activity
- ) Concerts or shows where there are a great number of people, etc



Activities that are subject to civil protection measures but that can continue to be carried out if correction measures are implemented are:



- ) sporting events
- ) outdoor trips,
- ) mountaineering
- ) going to the beach
- ) doing sports, etc.

Activities that are NOT recommended at all are:

- ) repeated exposure to the sun, or during more than one hour in the case of sensitive people,
- ) extreme sports
- ) long mountain trips, etc.



# 2

## WHAT ARE HEAT-RELATED ILLNESSES AND THEIR SYMPTOMS



Humans present different mechanisms to regulate their body temperature, but when temperatures are extreme these mechanisms are not always enough and different signs and symptoms appear mostly in children, senior citizens and people with prior illnesses, etc.

Heat-related illnesses can range from mild conditions to very serious conditions.

**Mild Conditions (heat exhaustion) include:**

- ) Cramps: muscle pains or spasms usually in the abdomen, arms or legs
- ) Fatigue
- ) Syncope: this symptom means there is an insufficient supply of blood, oxygen or glucose to the brain. It causes a feeling of dizziness, with blurred vision and a wobbling feeling. The fainting episode does not usually last for long and recovery is fast. As soon as the patient is placed in a horizontal position, their system starts to return to its normal state. If the heat caused by exercise and/or the weather is not eliminated, then it can lead to the patient suffering a heat stroke.
- ) Rash ...

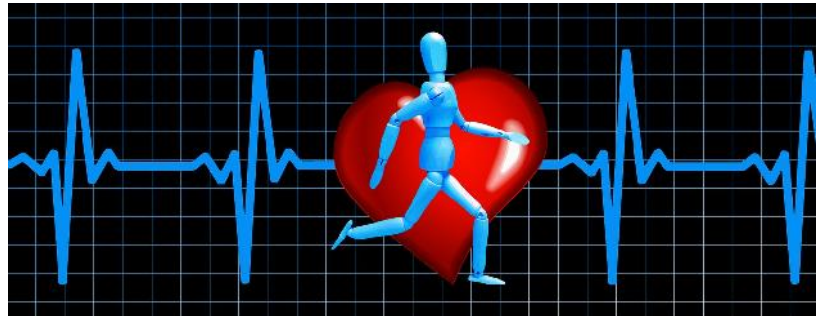
What to look out for in people who may be suffering from **heat exhaustion**:

- ) Pale appearance
- ) Sweating
- ) Rapid heart rate
- ) Muscle cramps
- ) Weakness
- ) Dizziness
- ) Headache
- ) Nausea
- ) Vomiting
- ) Fainting



**Serious Conditions (heat stroke)** appear because the body cannot prevent its temperature from rising rapidly; they are similar to those of heat exhaustion but:

- ) Skin may be dry without any sweating
- ) Hot skin
- ) The person's mental condition worsens
- ) They may stagger
- ) Appear confused
- ) Convulsions
- ) Have a fit
- ) Collapse
- ) Tachycardia
- ) Become unconscious



**Complications that may appear:**

- ) Adult respiratory distress syndrome
- ) Kidney failure
- ) Hepatic failure
- ) disseminated intravascular coagulation

Heat strokes appear when the organism loses the control over its body temperature that rises above 40.5°C. The mortality rate is very high. Heat strokes may or may not be related to doing exercise; they are frequent in young healthy adults when these do exercise when the temperature and humidity level in the environment is higher than usual.

**Recommendations:**

- ) It is necessary to correct the unbalance between the intake and elimination of liquids to prevent dehydration that will lead to the appearance of other negative effects. It is important to increase the intake of liquids and if necessary even drink isotonic drinks to standardise the levels of salt and water.
- ) When doing sport, do not wait until you are thirsty to have a drink. It is convenient to drink water before, during and after doing physical activity.
- ) Excessive alcohol consumption should be avoided because it impairs and worsens the body's temperature control conditions.

) If taking medicine such as diuretics, beta blockers, anticholinergics, digitalis and barbiturates, these may cause other effects such as volume depletion so it is advisable to extreme precautions and talk to a specialist.

) Some illnesses can cause dehydration meaning that acute diseases such as diarrhoea, infections and skin burns; chronic diseases such as hypertension, mental illnesses and obesity will call for special precautions when preventing heat strokes.



## 3

## CONTROL AND PREVENTION PLANS



Control and prevention plans should be set-up with the intention of reducing the impact heatwaves have on health.

Activities should be based on:

- ) Predicting when heatwaves may take place by using information provided by organisations, institutes, etc that have competence in these issues (State Weather Agencies, etc). Currently, national agencies can forecast maximum and minimum temperatures with five days notice.
- ) Identifying the risks
- ) Determining consequences
- ) Establishing the level of risk
- ) Identifying vulnerable groups
- ) Warning the community of the effects heatwaves may have
- ) The preparation and setting-up of an Information and health watch plan
- ) Health care and social service professionals being given all the necessary information
- ) Coordination procedures with social services and the health care system to identify risk groups: children, senior citizens, people with illnesses, etc.
- ) A system to warn first aid and hospital care centres
- ) Efficient and effective coordination between the authorities, public organisations and private entities competent in these matters and also these sharing and exchanging information
- ) Analysing what can happen?
- ) Analysing how can it happen?





Heatwave plans must be developed under a project management approach. Therefore, to guarantee an efficient implementation of a Heatwave Plan a recommended process would be<sup>1</sup>:



<sup>1</sup> Administrative competences and responsibilities in different countries will lead to this organizational chart being different in each of them. There are great differences between centralized and decentralized countries in matters concerning the management of competences and responsibilities when it comes to emergencies and this is an important factor to take into account.

This Commission should be responsible for:

- ) elaborating the guidelines to be followed at Sate level
- ) establishing appropriate prevention and control strategies
- ) activating the different levels of intervention in coordination with regions and provinces
- ) proposing organisational, structural and preventive measures necessary to avoid or reduce the impact of extreme weather condition on health
- ) develop evaluation, management and risk communication plans

This Commission's should ask for advice from Scientific Communities (including TREASURE) that develop their activities in the field on this matter, as well as from other private and public organisations they consider may be relevant.

When pre-planning for a heatwave, it is important for local councils, regional ministries, etc (authorities competent in this issue) to appoint a person who will be in charge of leading the planning process, then they must appoint a steering committee group containing experienced professionals from the competent authorities to oversee the planning process.

#### Steering committee group members could include:

- ) an elected member of the council, regional ministry, etc
- ) the manager of the Community Care Services
- ) the manager of the Emergency Response Service
- ) the manager of Primary Care Services
- ) the officer in charge of the local/regional Ambulance Service
- ) a representative from the private Ambulance service
- ) the office in charge of the local Police service
- ) managers of relevant community organisations
- ) managers of the main hospitals in the regions
- ) head of the Fire Department
- ) a representative from the 112 telephone line service
- ) a representative from the main resource supply company: water, electricity, etc



Another step to take is the elaboration of a list of potential stakeholders who could help in planning what to do in the event of heatwaves and then get them involved. These could include:

- ) community organisations and service providers
- ) private sector businesses
- ) government departments
- ) government agencies and utility providers
- ) neighbouring local councils
- ) relevant community members



So as to be able to react appropriately when faced with an event such as heatwaves, it is important to have an easy and flexible information system that will consequently make it easier to take the pertinent decisions. This means that it is important to:

- ) know the risk a heatwave may have on a certain community in a specific geographical environment, before it happens
- ) identify and monitor the need for health care services and know where to strengthen available resources
- ) know the real impact on the health of the community once the heatwave has started.



It will be essential to also establish different levels of intervention and from analysing a number of different heatwave plans in Europe we believe the following tables (*source: 'THE HEATWAVE PLAN FOR ENGLAND 2015', adapted by AnySolution at general level*) are very useful in this guidebook:

Figure 1: Commissioners of health and social care (all settings) and local authority Directors of Public Health

Source: 'THE HEATWAVE PLAN FOR ENGLAND 2015', adapted by AnySolution at general level

Level 0	Level 1	Level 2	Level 3	Level 4
<p><b>Long-term planning</b> All year round</p>	<p><b>Heatwave and summer preparedness programme</b> Each region/country should decide what period/months are relevant (summer/hottest months from around June 1 to September 15)</p>	<p><b>Heatwave is forecast – alert and readiness</b> 60% risk of heatwave in the next 2 to 3 days</p>	<p><b>Heatwave action</b> Temperature reached in one or more Met Office National Severe Weather Warning Service regions??</p>	<p><b>Major Incident – Emergency response</b> State Government should declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health</p>
<p>Working with partner agencies. Long term plans to prepare for, and mitigate, the impact of heatwaves, including:</p> <ul style="list-style-type: none"> <li>• how to identify and improve the resilience of those individuals and communities most at risk</li> <li>• ensuring that a local, joined-up programme is in place covering:                             <ul style="list-style-type: none"> <li>• housing (inc loft and wall insulation and other plans to reduce internal energy use and heat production)</li> <li>• environmental action: (eg increase trees and green spaces; external shading; reflective paint; water features)</li> <li>• other infrastructure changes (eg porous pavements)</li> <li>• engaging the community and voluntary sector to support development of local community emergency plans</li> <li>• making progress on relevant Public Health Outcomes Framework indicators</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• work with partner agencies, providers and businesses to coordinate heatwave plans, ensuring vulnerable and marginalised groups are appropriately supported</li> <li>• work with partners and staff on risk reduction awareness (recommendations during HVs), using a variety of methods to maximise dissemination</li> <li>• ensure care homes and hospitals are aware of the heatwave plan and are engaged in preparing for heatwaves</li> <li>• continue to engage the community and voluntary sector to support communities to help those most at risk</li> <li>• ensure other institutional establishments (eg prisons, schools) are aware of heatwave guidance</li> <li>• ensure organisers of large events take account of possible heat risks</li> </ul>	<ul style="list-style-type: none"> <li>• communicate public media messages – especially to 'hard to reach' vulnerable groups</li> <li>• communicate alerts to staff and make sure that they are aware of heatwave plans</li> <li>• implement business continuity</li> <li>• increase advice to health and social care workers working in community, care homes and hospitals</li> </ul>	<ul style="list-style-type: none"> <li>• media alerts about keeping cool</li> <li>• support organisations to reduce unnecessary travel</li> <li>• review safety of public events</li> <li>• mobilise community and voluntary support</li> </ul>	<p><b>National emergency</b> Continue actions as per Level 3 unless advised to the contrary</p> <p><b>State government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health and if requiring coordinated multi-agency</b></p>
<p><b>High-risk groups</b>  <b>Community:</b> Over 65, people living on their own and isolated, severe physical or mental illness; urban areas, high level flat; alcohol and/or drug dependency, homeless, babies and young children, multiple medications and over-exertion  <b>Care home or hospital:</b> over 65, female, frail, severe physical or mental illness; multiple medications; babies and young children (hospitals).</p>				
<p>*Because Level 2 is based on a prediction, there may be jumps between levels. Following Level 3, wait until temperatures cool to Level 1 before stopping Level 3 actions.                  ** Level 4: A decision to issue a Level 4 alert at national level will be taken in light of a cross-government assessment of the weather conditions.</p>				

Figure 2: Providers – health and social care staff in all settings (community, hospitals and care homes)

Source: 'THE HEATWAVE PLAN FOR ENGLAND 2015', adapted by AnySolution at general level

Level 0	Level 1	Level 2	Level 3	Level 4
<p><b>Long-term planning</b> All year round</p>	<p><b>Heatwave and summer preparedness programme</b> Each region/country should decide what period/months are relevant (summer/hottest months from around June 1 to September 15)</p>	<p><b>Heatwave is forecast – alert and readiness</b> 60% risk of heatwave in the next 2 to 3 days</p>	<p><b>Heatwave action</b> Temperature reached in one or more Met Office National Severe Weather Warning Service regions??</p>	<p><b>Major Incident – Emergency response</b> State Government should declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health</p>
<p><b>Professional staff (all settings):</b></p> <ul style="list-style-type: none"> <li>develop systems to identify and improve resilience of high-risk individuals</li> <li>request an *HHSRS assessment from the competent source for clients at particular risk                             <ul style="list-style-type: none"> <li>encourage cycling/walking where possible to reduce heat levels and poor air quality in urban areas</li> </ul> </li> </ul> <p><b>Care homes and hospitals:</b></p> <ul style="list-style-type: none"> <li>work with commissioners to develop longer term plans to prepare for heatwaves</li> <li>make environmental improvements to provide a safe environment for clients in the event of a heatwave</li> <li>prepare business continuity plans to cover the event of a heatwave (eg storage of medicines, computer resilience, etc)</li> <li>work with partners and staff to raise awareness of the impacts of severe heat and on risk reduction awareness (key public health messages – recommendations during HVs),</li> </ul>	<p><b>Professional staff (all settings):</b></p> <ul style="list-style-type: none"> <li>identify high-risk individuals on their caseload and raise awareness of heat illnesses and their prevention among clients and carers (recommendations during HVs)</li> <li>include risk in care records and consider whether changes might be necessary to care plans in the event of a heatwave (eg initiating daily visits by formal or informal care givers for those living alone)</li> </ul> <p><b>Care homes and hospitals:</b></p> <ul style="list-style-type: none"> <li>ensure business continuity plans are in place and implement as required; ensure appropriate contact details are provided to LA/Health Services emergency planning officers to facilitate transfer of emergency information</li> <li>identify or create cool rooms/areas (able to be maintained below 26°C)</li> <li>install thermometers where vulnerable individuals spend substantial time</li> </ul>	<p><b>Professional staff (all settings):</b></p> <ul style="list-style-type: none"> <li>check high-risk people have visitor/ phone call arrangements in place</li> <li>reconfirm key public health messages to clients</li> <li>check client’s room temperature if visiting</li> </ul> <p><b>Care homes and hospitals:</b></p> <ul style="list-style-type: none"> <li>check indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside</li> <li>ensure cool areas are below 26°C</li> <li>review and prioritise high-risk people</li> <li>ensure sufficient cold water and ice</li> <li>consider weighing clients regularly to identify dehydration and rescheduling physio to cooler hours</li> <li>communicate alerts to staff and make sure that they are aware of heatwave plans</li> <li>ensure sufficient staffing</li> <li>implement business continuity</li> </ul>	<p><b>Professional staff (all settings):</b></p> <ul style="list-style-type: none"> <li>visit/phone high-risk people</li> <li>reconfirm key public health messages to clients</li> <li>advise carers to contact GP if concerns re health</li> </ul> <p><b>Care homes and hospitals:</b></p> <ul style="list-style-type: none"> <li>activate plans to maintain business continuity – including a possible surge in demand</li> <li>check indoor temperatures are recorded regularly during the hottest periods for all areas where patients reside</li> <li>ensure staff can help and advise clients including access to cool rooms, close monitoring of vulnerable individuals, reducing internal temperatures through shading, turning off unnecessary lights/equipment, cooling building at night, ensuring discharge planning takes home temperatures and support into account</li> </ul>	<p><b>National emergency</b></p> <p>Continue actions as per Level 3 unless advised to the contrary</p> <p><b>State government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health and if requiring coordinated multi-agency responses</b></p>

**High-risk groups**  
**Community:** Over 65, people living on their own and isolated, severe physical or mental illness; urban areas, high level flat; alcohol and/or drug dependency, homeless, babies and young children, multiple medications and over-exertion  
**Care home or hospital:** over 65, female, frail, severe physical or mental illness; multiple medications; babies and young children (hospitals).  
 \*HHSRS housing health and safety rating system; LA Local Authorities

\*Because Level 2 is based on a prediction, there may be jumps between levels. Following Level 3, wait until temperatures cool to Level 1 before stopping Level 3 actions.  
 \*\* Level 4: A decision to issue a Level 4 alert at national level will be taken in light of a cross-government assessment of the weather conditions.

Figure 3: Community and voluntary sector and individuals

Source: 'THE HEATWAVE PLAN FOR ENGLAND 2015', adapted by AnySolution at general level

Level 0	Level 1	Level 2	Level 3	Level 4
<b>Long-term planning</b> All year round	<b>Heatwave and summer preparedness programme</b> Each region/country should decide what period/months are relevant (summer/hottest months from around June 1 to September 15)	<b>Heatwave is forecast – alert and readiness</b> 60% risk of heatwave in the next 2 to 3 days	<b>Heatwave action</b> Temperature reached in one or more Met Office National Severe Weather Warning Service regions??	<b>Major Incident – Emergency response</b> State Government should declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health
<b>Community groups:</b> <ul style="list-style-type: none"> <li>develop a community emergency plan to identify and support vulnerable neighbours in event of a heatwave</li> <li>assess the impact a heatwave might have on the provision and use of usual community venues</li> <li>support those at-risk to make sure they are receiving the benefits they are entitled to</li> </ul> <b>Individuals:</b> <ul style="list-style-type: none"> <li>make environmental improvements inside and outside the house which reduce internal energy and heat</li> <li>install loft and wall insulation</li> <li>identify cool areas in the house to use in the event of a heatwave</li> <li>if on medications, ensure that these can be stored at safe levels in a heatwave</li> </ul>	<b>Community groups:</b> <ul style="list-style-type: none"> <li>further develop community emergency plan</li> <li>support the provision of good information about health risks especially with those vulnerable groups and individuals (recommendations during HVs)</li> </ul> <b>Individuals:</b> <ul style="list-style-type: none"> <li>find good information about health risks and key public health messages to stay healthy during spells of severe heat (recommendations during HVs)</li> <li>look out for vulnerable neighbours</li> </ul>	<b>Community groups:</b> <ul style="list-style-type: none"> <li>keep an eye on people you know to be at risk</li> <li>stay tuned into the weather forecast and keep stocked with food and medications</li> <li>check ambient room temperatures</li> </ul> <b>Individuals:</b> <ul style="list-style-type: none"> <li>stay tuned into the weather forecast</li> <li>check ambient room temperatures – especially those rooms where disabled or high risk individuals spend most of their time</li> <li>keep an eye on people you know to be at risk – ensure they have access to plenty of cool liquids</li> <li>look out for vulnerable neighbours</li> </ul>	<b>Community groups:</b> <ul style="list-style-type: none"> <li>activate community emergency plan</li> <li>check those you know are at risk</li> </ul> <b>Individuals</b> <ul style="list-style-type: none"> <li>follow key public health messages</li> <li>check those you know are at risk</li> </ul>	<b>National emergency</b> Continue actions as per Level 3 unless advised to the contrary  <b>Central government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health and if requiring coordinated multi-agency response</b>
<b>High-risk groups</b> <b>Community:</b> Over 65, people living on their own and isolated, severe physical or mental illness; urban areas, high level flat; alcohol and/or drug dependency, homeless, babies and young children, multiple medications and over-exertion <b>Care home or hospital:</b> over 65, female, frail, severe physical or mental illness; multiple medications; babies and young children (hospitals). *HHSRS housing health and safety rating system; LA Local Authorities				
*Because Level 2 is based on a prediction, there may be jumps between levels. Following Level 3, wait until temperatures cool to Level 1 before stopping Level 3 actions. ** Level 4: A decision to issue a Level 4 alert at national level will be taken in light of a cross-government assessment of the weather conditions.				

**In Long Term Planning and for summer preparedness (levels 0 and 1),** it would be a good idea to include Information and Surveillance that should be carried out particularly from mid spring to mid autumn (depending on the areas and the average temperatures during these months). During this time, competent authorities should monitor health and weather indicators considered to be more sensitive and therefore assess the situation.

The Commission mentioned above should be in close coordination with the competent authorities in every region.

Preventive information campaigns should be developed for the community, especially focusing on vulnerable groups and health care professionals from the public healthcare system, hospitals, primary assistance and social services and when necessary provide them with relevant protocols.



It is essential to identify the most vulnerable risk groups to facilitate interventions if and when necessary.



## 4

## COMMUNICATION STRATEGY AND WARNING METHODS



In the event of any natural hazardous event it is essential to have planned for a flexible and easy communication strategy. This strategy should identify the target groups needing information, the key messages that need to be disseminated and the communication timeframes and tools.

### 1. COMMUNICATION WITH THE COMMUNITY

Recommended communication measures that can be implemented to raise awareness of the community, warn them and get them involved are:



- )] information campaigns in the press offering useful advice and practical measures to prevent the effect of being exposed to high temperatures
- )] design and print information leaflets for the community
- )] design and print information protocols for professionals
- )] disseminate information through newspaper articles
- )] promotion and encouragement of voluntary work to help increase networks such as the Red Cross and different charities.
- )] development of communication material including recommendations and explaining the symptoms of heat exhaustion and heat strokes: posters, leaflets, etc
- )] campaigns and notification on and through social media: Facebook, twitter, etc.
- )] The use of communication tools such as Whatsapp to alert and warn the community
- )] The organisation of visits from service providers to meet with senior citizens
- )] preparation and giving away heatwave packs that include for example relative information, water, a neck cloth, a fan etc.
- )] broadcasting of information in local radio stations and television channels
- )] asking doctors to talk to their patients about this issue
- )] sending letters to schools, nurseries, old-age pensioner associations, etc.

For communication to be effective, messages must target the whole community but with special emphasis on the most vulnerable groups and these must be:

- ) in plain and simple language, it must be clear and not require interpretation; and in countries where English is not the official language, it is recommended that these messages be translated into at least English as well as in the region/country's own language.
- ) specific
- ) regular
- ) consistent
- ) targeted and segmented
- ) available in a variety of formats
- ) able to be remembered and acted on
- ) achievable by the public.

These raising awareness activities should:

- ) intend to increase the capacity of individuals when faced with heatwaves by giving them information on easy and accessible measures that can be implemented
- ) make people aware of those who are at more of a risk and promote solidarity

Crucial recommendations to reduce the impact on health during heatwaves:

- ) keep cool
- ) stay in cool places
- ) don't go out into the sun
- ) find sheltered areas
- ) keep hydrated
- ) warn others
- ) make sure children and senior citizens also follow recommendations
- ) what to do when others are feeling unwell
- ) help other
- ) what to do if you are feeling ill
- ) what to do if you have a health problem



## RECOMMENDATIONS TO BE INCLUDED IN COMMUNICATION CAMPAIGNS/STRATEGIES

1. When heat related disorder symptoms appear, contact a physician
2. Plan the stock of water, food and medicines
3. Drink a lot of water or liquids frequently even if you aren't thirsty
4. Have fruit occasionally
5. Avoid drinking alcohol
6. Avoid drinking coffee, tea, cola and drinks with a lot of sugar and or caffeine
7. Avoid direct exposure to the sun during the hottest hours of the day (between 11am and 6pm)
8. Stay in cool places, in the shade
9. Stay in the coolest room in the house during the hottest hours of the day
10. Know what places are air-conditioned in your neighbourhood and if possible go somewhere that has air-conditioning for at least 2 hours
11. Avoid particularly busy areas and also parks and green areas where ozone values are high, especially children, the elderly, people with asthma and other respiratory diseases, dependent persons and convalescent
12. When using air conditioning at home, its maintenance is essential so that it is used properly
13. Take cool showers or baths
14. Take cool BUT NOT COLD showers or baths
15. Lower shutters-blinds to stop direct sunlight
16. Raise the blinds after the sun has set to help the flow of air
17. Do not open windows when outside temperatures are at their highest

## RECOMMENDATIONS TO BE INCLUDED IN COMMUNICATION CAMPAIGNS/STRATEGIES

18. Open windows that are on the shady part of the house if this helps to create a draft
19. In the evening open windows and shutters when the sun goes down and outside temperatures have dropped
20. At night time leave windows and shutters opened whenever possible
21. Avoid using devices and equipment that create heat during the hottest hours of the day
22. If temperatures are over 35°C fans only move the air, they do not cool the environment
23. Use fans (battery or electric)
24. Spray fans and do so as much as necessary
25. Spray your body – Use water misters
26. Use all possible traditional measures
27. Eat light meals that help to reproduce lost salt because of sweat (salad, fruit, vegetables, gazpachos or juices)
28. Eat raw and fresh fruit and vegetables and cold dishes
29. Eat pasta and fish instead of meat
30. Avoid processed and spicy foods
31. Eat enough
32. Pay attention to the proper storage of perishable foods (dairy products, meat, etc) as high temperatures favour the proliferation of germs that can cause gastrointestinal illnesses
33. If you need to cook, do so when it is cooler so as not to be in contact with unnecessary sources of heat
34. Avoid outside activities during the hottest hours of the day

## RECOMMENDATIONS TO BE INCLUDED IN COMMUNICATION CAMPAIGNS/STRATEGIES

35. Avoid physical efforts (sport, gardening, DIY)

36. If you have to do anything physical – NEVER do it in the sun

37. If you have to be outside, try to stay in the shade

38. If you have to be outside, wear light clothing and not dark colours

39. Wear natural fibres (cotton, linen, etc) and baggy clothing

40. If you have to be outside, protect yourself from the sun

41. If you have to be outside, wear a hat

42. If you have to be outside, use cool and comfortable shoes that transpire

43. Wear sunglasses

44. Protect your skin from sunburn with a high SPF sunscreen cream

45. If you are old, take medication or have a chronic disease or illness ask your doctor about any other measures you should take. Continue to take your medication. Do not self-medicate

46. Pay attention to the proper storage of medication, keep them away from heat sources and direct sunlight and refrigerate those that need to be stored at temperatures under 25-30 ° C

47. Help those more fragile around you - Helps relatives and friends, especially those who could not ask for help in time

48. Make sure that people who are ill or bedridden are not covered up too much

## RECOMMENDATIONS TO BE INCLUDED IN COMMUNICATION CAMPAIGNS/STRATEGIES

49. The elderly living on their own or mentally disabled people must be visited or monitored at least once a day (twice is better)
50. Children between the ages of 0 and 4 must drink a lot of liquid, wear light clothing and never be left alone in cars in the sun or with the windows closed
51. Never leave children, the elderly or dependent people in the car parked in the sun
52. Respect nap times whenever possible, when temperatures are at their highest try to stay in cool places
53. Wet your T-shirt and cap before putting them on and let them dry on the skin – repeat the process
54. Notify and get news from friends and relatives
55. If your car does not have air-conditioning avoid travelling during the hottest hours of the day – Do not forget to take along enough water
56. Call friends and neighbours, do not be alone
57. Ask neighbours for help
58. Act quickly in case of warning signs (yourself and others)
59. Make sure your home has thermal insulation in ceilings, walls and windows and if not have a back-up plan with family and friends
60. Set-up a system to hang damp cloths up against windows (with wire and clothes pegs for example)
61. Place a block or bag of ice where there is a draft (or in front of a fan)
62. Pour buckets of water over terraces, balconies or window sills in the evening once the sun as gone down

## 2. INTERNAL COMMUNICATION

Ministries, regional government departments and local councils should develop internal communication strategies that will be used to:

- ) advise public staff about heatwave-related protocols, actions and communications
- ) warn public staff about impending heatwaves – these then have to disseminate the information to all relevant areas and departments
- ) notify public staff of when the heatwave has finished or is no longer imminent

Information should be documented and agreed upon by those involved.

## 3. COMMUNICATION WITH STAKEHOLDERS

The first thing that needs to be done is to identify relevant stakeholders and then engage and involve them. It will be important to decide how they will be engaged and what will be expected from them.

# 5

## EVALUATING AND IMPROVING HEATWAVE PLANS

Evaluation processes should start once the heatwave plan has been implemented at least once (probably at the end of the summer season) and the best way to evaluate a plan and subsequently improve it is to get as many relevant stakeholders as possible involved by evaluating and monitoring it. Heatwave plans should preferably be evaluated after every heatwave event, especially after major events.

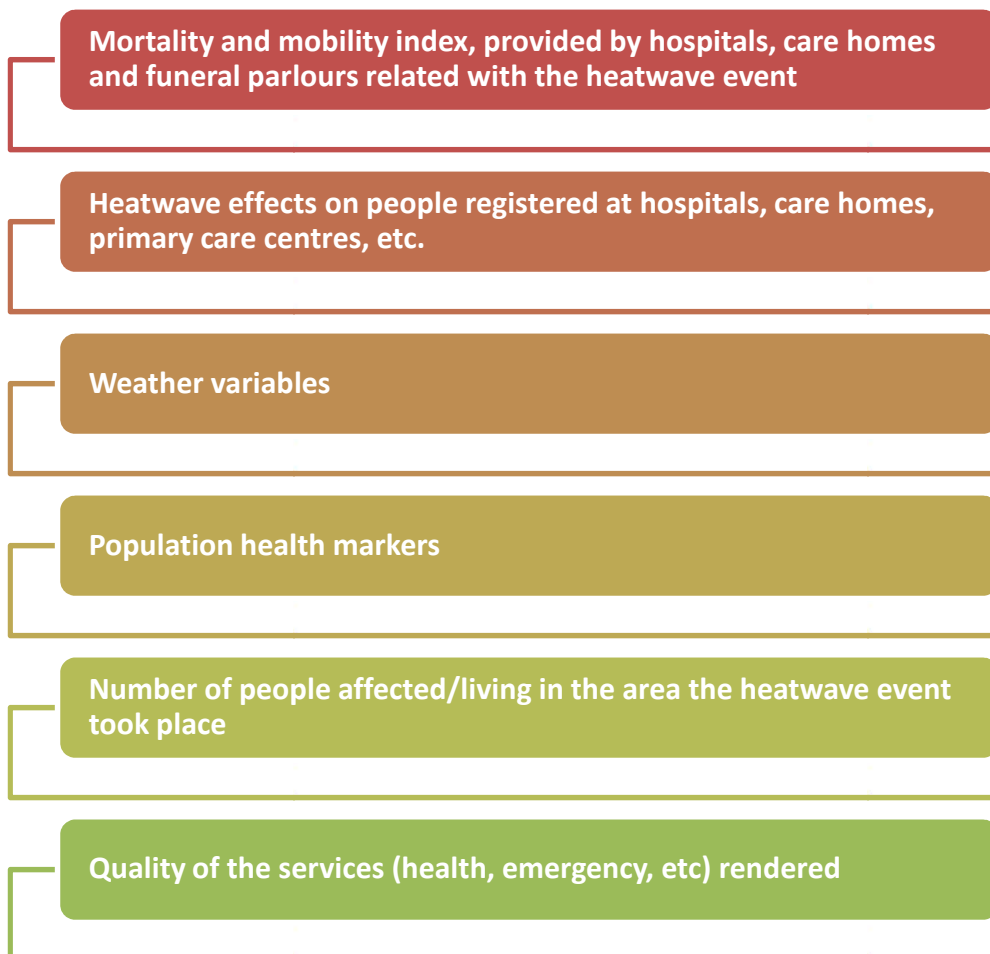
When evaluating and monitoring a heatwave plan it is essential to know whether the actions implemented were adopted within the appropriate timeframes and if they achieved the desired result; the end goals must be made clear.

To evaluate a heatwave plan, the following **steps** in its implementation must be checked:

- General management was organised
- Heatwave plans were featured in the appropriate and necessary state/regional and local planning frameworks and protocols
- The needs of vulnerable groups were assessed appropriately
- The correct internal and external stakeholders were involved and engaged
- Goals and strategies were clear
- Implementation was correct
- The plan is evaluated at the end of every summer season or if possible after any heatwave event.



To evaluate the **effects** of heatwaves, important data to gather and take into account is:



Once the evaluation and monitoring process has been carried out, the relevant authorities should prepare to undertake the steps necessary to address any issues raised during the evaluation and heatwave plans should be improved taking into consideration real case studies and events that have occurred.

To be able to really evaluate how a heatwave plan has really been implemented and its functionality, it is essential for procedures and activities to be documented. Authorities could design and make sure relevant stakeholders have standard forms to fill in that will subsequently help to see how the plan really worked.

To monitor a heatwave plan during its implementation, three basic issues should be controlled:



These measures should be controlled by using indicators that will be the starting point to identify possible corrections, modifications and updating the plans may need; they should also be used to measure the level of success of the strategy implemented.

Therefore two different types of indicators should be identified:

- ) Indicators to estimate the success of the event management during the event
- ) Indicators to estimate the plan's level of efficiency after the event / impact

It may be a good idea to prepare an Evaluation questionnaire to be filled in by stakeholders and players to therefore learn how things went and subsequently improve Heatwave Plans.

### Questions that could be included in the questionnaire:

	YES	NO	OBSERVATIONS
Was the person identified to manage the heatwave event suitable for this position?			
Were the stakeholders and leaders identified appropriately?			
Was the Steering Committee made up of relevant professionals?			
Did everybody in the Steering Committee fulfil their roles appropriately?			
Were available resources identified and allocated with specific roles or functions?			
Where the sources of information identified well?			
Where the timeframes for actions appropriate?			
Where the vulnerable population groups identified adequately and prioritised?			
How did the organisations working with vulnerable population groups act?			
Were the plan's priorities appropriate?			
Where financial resources put to good use?			
Other relevant inputs			
ETC			

## REFERENCES

- GEOSALUD. URL: <http://www.geosalud.com/ambiente/calorsalud.htm>
- COMUNIDAD DE MADRID. CONSEJERÍA DE SANIDAD – DIRECCIÓN GENERAL DE SALUD PÚBLICA – SUBDIRECCIÓN GENERAL DE SANIDAD AMBIENTAL **Mayo 2016**: Vigilancia y Control de los Efectos de las Olas de Calor 2016. Plan de Respuesta ante los Riesgos
- INSTITUTO DE SALUD PÚBLICA DE NAVARRA: Plan de Prevención de los Efectos de la Ola de Calor Sobre la Salud. Boletín Informativo Nº34 Agosto de 2005
- PUBLIC HEALTH ENGLAND. **May 2015**: Heatwave Plan for England. Protecting Health and Reducing Harm from Severe Heat and Heatwaves. PHE publications gateway number: 2015049
- ENVIRONMENTAL HEALTH UNIT – RURAL AND REGIONAL HEALTH AND AGED CARE SERVICES DIVISION. VICTORIAL GOVERNMENT DEPARTMENT OF HUMAN SERVICES – MELBOURNE VICTORIA AUSTRALIA. **July 2009**: Heatwave Planning Guide – Development of Heatwave Plans in Local Councils in Victoria. ISBN 0 7311 63 32 X
- JUNTA DE ANDALUCÍA. CONSEJERÍA DE JUSTICIA E INTERIOR. CONSEJERÍA DE IGUALDAD, SALUD Y POLÍTICAS SOCIALES. Plan Andaluz para la Prevención de los Efectos de las Temperaturas Excesivas sobre la Salud 2014
- Plan de Acciones Preventivas Contra los Efectos del Exceso de Temperaturas Sobre la Salud
- AEMET. *Un verano extremadamente seco y cálido*. URL: [http://www.aemet.es/es/noticias2012/09/climatico\\_verano12](http://www.aemet.es/es/noticias2012/09/climatico_verano12) (Accessed: 6 April 2016).
- Baccini M., Kosatsky T., Analitis A., Anderson H.R., D’Ovidio M., Menne B. et al., **2011**. Impact of heat on mortality in 15 European cities: attributable deaths under different weather scenarios. *Journal of Epidemiology & Community Health*, 65: 64-70.
- Carson C., Hajat Sh., Armstrong B. and Wilkinson P., **2006**. Declining Vulnerability to Temperature related Mortality in London over the 20th Century. *Am J Epidemiol* 2006; 164:77–84.
- Davis R.E., Knappenberger P.C., Michaels P.J. et al., **2003**. Decadal changes in summer mortality in US cities. *International Journal of Biometeorology*, 47: 166-175.
- WHO Europe, **2004**. Health and Global environmental Change. Heatwaves: risks and responses. Technical Report WHO. URL: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/96965/E82629.pdf](http://www.euro.who.int/__data/assets/pdf_file/0008/96965/E82629.pdf) (Accessed: 6 April 2016).
- Laaidi, K.; Ung, A.; Wagner, V.; Beaudou, P.; Pascal, M., **2013**. The French Heat and Health Watch Warning System: Principles, Fundamentals and Assessment; Saint-Maurice.
- Lowe D., Ebi K.L., and Forsberg B., **2011**. Heatwave Early Warning Systems and Adaptation Advice to Reduce Human Health Consequences of Heatwaves. *International Journal of Environment Research and Public Health*, 8(12), 4623-4648.
- MAGRAMA. **2012**. Informe de la evaluación de la calidad del aire en España 2011. Technical Report Ministerio de Agricultura, Alimentación y Medio Ambiente (MAGRAMA) (In Spanish). URL: [http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/Situacion\\_de\\_la\\_calidad\\_del\\_aire\\_en\\_Espana\\_2011\\_tcm7-221280.pdf](http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/Situacion_de_la_calidad_del_aire_en_Espana_2011_tcm7-221280.pdf) (Accessed: 6 April 2016).
- Meehl, G. a; Tebaldi, C. More Intense, More Frequent, and Longer Lasting Heatwaves in the 21st Century. *Science*. 2004, 305 (5686), 994–997.
- Michelozzi P., DeSario M., Accetta G., et al, **2006**. Temperature and summer mortality: geographical and temporal variations in four Italian cities. *Journal of Epidemiology & Community Health*, 60:417-23.
- Ministero della Salute, Dipartimento della Sanità pubblica dell’innovazione. Direzione generale della prevenzione, **2014**. Piano operativo nazionale per la prevenzione degli effetti del caldo sulla salute. Programma di attività (In Italian).
- National Ministry of Health, Social Services and Equality, **2013**. Impacts on Health of Climate Change, Executive Summary. Technical Report Spanish National Ministry of Health, Social Services and Equality. URL: [http://www.msssi.gob.es/ciudadanos/saludAmbLaboral/docs/CCResumen\\_ENG.pdf](http://www.msssi.gob.es/ciudadanos/saludAmbLaboral/docs/CCResumen_ENG.pdf) (Accessed: 6 April 2016).
- Pascal, M.; Laaidi, K.; Ledrans, M.; Baffert, E.; Caserio-Schönemann, C.; Le Tertre, A.; Manach, J.; Medina, S.; Rudant, J.; Empereur-Bissonnet, P., **2006**. France’s Heat Health Watch Warning System. *Int. J. Biometeorol*: 50 (3), 144–153.
- Plan National Canicule, National Ministry of Social Affairs and Health, France 2015
- Schär, C.; Vidale, P. L.; Lüthi, D.; Frei, C.; Häberli, C.; Liniger, M. A.; Appenzeller, C., **2004**. The Role of Increasing Temperature Variability in European Summer Heatwaves. *Nature*: 427 (6972), 332–336.
- Ministerio de Sanidad y Consumo, **2004**. Protocolo de actuaciones de los Servicios Sanitarios ante una Ola de Calor. Technical Report Ministerio de Sanidad y Consumo (Spain). URL: [http://www.msssi.gob.es/ciudadanos/saludAmbLaboral/planAltasTemp/2015/docs/PROTOCOLO\\_ACTUACIONES\\_SERVICIOS\\_SANITARIOS\\_ANTE\\_UNA\\_OLA\\_DE\\_CALOR.pdf](http://www.msssi.gob.es/ciudadanos/saludAmbLaboral/planAltasTemp/2015/docs/PROTOCOLO_ACTUACIONES_SERVICIOS_SANITARIOS_ANTE_UNA_OLA_DE_CALOR.pdf) (Accessed: 6 April 2016).

Tanja Wolf and Bettina Menne, **2007**. Environment and health risks from climate change and variability in Italy. Technical report, WHO and the Italian Agency for Environmental Protection and Technical Services. URL: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0007/95920/E90707.pdf](http://www.euro.who.int/__data/assets/pdf_file/0007/95920/E90707.pdf) (Accessed: 6 April 2016).

**Pictures** downloaded from [www.pixabay.com](http://www.pixabay.com)

**Disclaimer:** This work has been compiled from a variety of sources including material generally available on the public record, reputable specialist sources and original material. Care has been taken to verify accuracy and reliability wherever possible. The TREASURE project does not give any warranty or accept any liability concerning the contents of this work.

- END OF DOCUMENT -