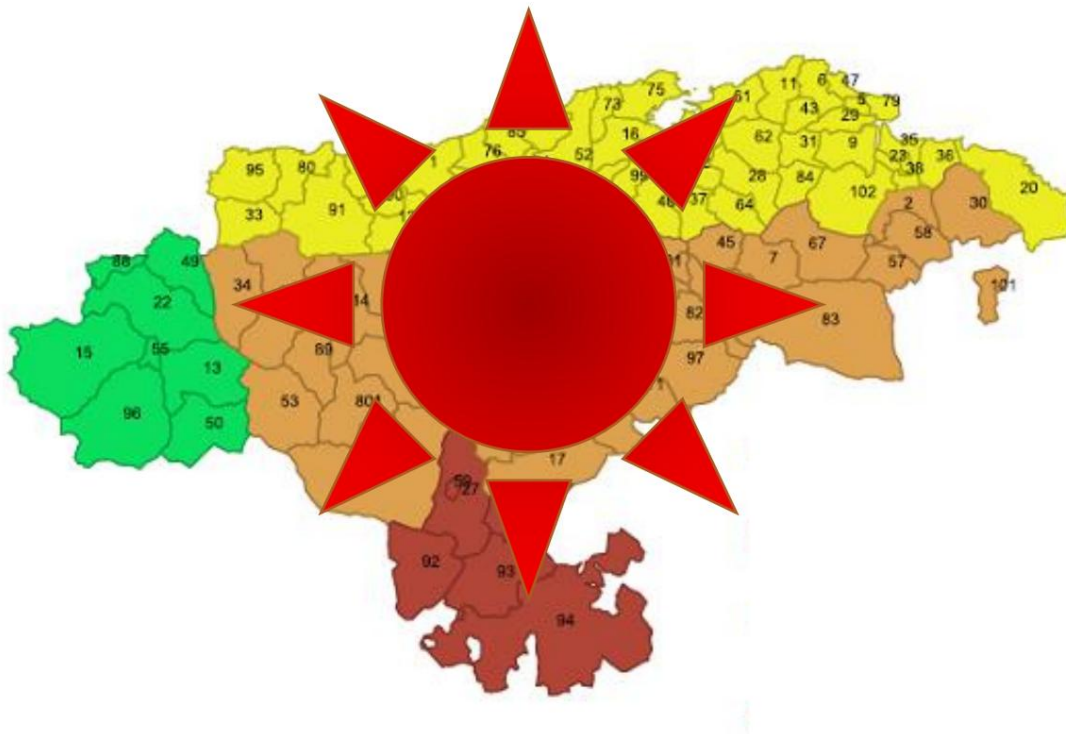


PLAN OF PREVENTIVE ACTIONS FOR THE EFFECTS OF EXCESS TEMPERATURES ON HEALTH CANTABRIA 2022



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1. PRESENTATION

This document is the update of the content of the previous Plan and its adaptation to the National Plan of Preventive Actions for the Effects of Excess Temperatures on Health, approved by the Commission Interministerial at its meeting on April 26, 2022.

Its application is fulfilling its main objective: the prevention of health damage caused by excess of heat.

The operation of the Interministerial Commission created by Order of the Ministry of the Presidency, Order PRE/1518/2004, is being very effective and has made it possible to coordinate the activities of the administrations involved.

In general, the Plan is activated from June 1 to September 15 of each year. You introduce a flexibility criterion that allows activation outside this period, through monitoring during the fifteen last days of the month before (May 15) and a month after (October 15) the activation period.

The design and development of meteorological and mortality information systems has been a key piece of the success of the Plan.

In general terms, the population has been informed about how to protect themselves and care for people. risk and problems have been avoided for the most unprotected groups.

From a health perspective, exposure to excessive temperatures especially affects children, people older people and patients with underlying chronic pathologies. From a social point of view, marginalization, isolation, dependency, disability, living conditions of people with less resources, add risk factors that make groups even more vulnerable who, precisely because of their socio-economic conditions, they should be more supported.

The Plan establishes the necessary measures to reduce the effects associated with excessive temperatures and coordinate the institutions of our Community involved.

Describes the magnitude of the problem, the scientific knowledge of the effects of excessive temperatures on health and associated risk factors. The actions planned for the prevention and control, structured in several levels of action according to the level reached by the temperatures.

The criteria for an information system that allows active surveillance of associated risks are established. to exposure to excessive temperatures. Likewise, it proposes the collection of predictive information on

environmental temperature, information on variations in care demand and daily information on quantitative changes in mortality.

An essential aspect of this Plan is the involvement of Social Services, since older people are the most unprotected and vulnerable. The participation of the administration (central, regional and local), of the social organizations, and above all awareness and support for the most sensitive groups, are necessary to avoid possible damage to the population.

Another essential element is information to citizens, the most at-risk groups and professionals. health and social services.

In March 2015, the analysis of the implementation of the National Plan from its beginning in 2004 to 2014. This work has made it possible to synthesize the lessons learned, systematize results and identify those aspects in need of further study, as well as areas for improvement to ensure compliance of its public health objectives. That is why, in the 2015 campaign, the entire Plan introduced Some modifications compared to previous editions. (1)

The Interministerial Commission, at its annual meeting held in May 2015, agreed to begin work necessary aimed at improving information and communication to the population, through convergence in the risk levels due to excess temperatures considered by the institutions that make up the Commission and throughout the Spanish territory. Along the same lines, and in order to adjust exposure to heat as much as possible natural in excess and the warning indications for the population to the geo-climatological characteristics nationals, at the meeting held on May 11, 2017, it was agreed to start this gradually.

2. EXCESSIVE TEMPERATURES

During the last decades, interest in the effects of "Climate Change" has increased. materialized in the United Nations Framework Convention, in the Kyoto Protocol and more recently in the agreement reached at the Paris summit (COP21, December 2015).

The conclusions of the Fifth Assessment Report (AR5) of the Intergovernmental Group of Experts on the Climate Change (IPCC), published between September 2013 and March 2014, showed that the observed global warming due to climate change is unequivocal, that the impacts of climate change are already negatively influencing many physical and biological systems and that these effects will gradually increase. Continued global warming caused by increased greenhouse gas emissions greenhouse to the atmosphere will have a broad and significant impact on the economy, environment and health.

The projected effects due to climate change are very varied, affecting a wide spectrum of ecological systems and socioeconomic sectors and are unequally distributed across the different territories and different regions. The Mediterranean region has been identified as one of the most vulnerable to climate change.

In order to improve and strengthen the capacity of the health sector to address the fight against climate change, the Ministry of Health and the Ministry for the Ecological Transition and the Demographic Challenge, have come developing instruments for analysis, diagnosis, evaluation, adaptation and monitoring of the impacts of the climate change in health and in the National Health System, evaluating scenarios and models, to help to decision making, prioritize problems and propose adaptation and mitigation actions.

According to current scientific knowledge, forecasts point to an increase in the frequency and intensity of episodes of intense heat. Although there is currently no internationally agreed definition of these episodes, it is normally accepted that this phenomenon is associated with maximum temperatures and abnormally high minimums with respect to the period considered, and their persistence over time.

In EU Member States it is estimated that mortality increases between 1-4% for each increase of a degree in temperature. The WHO has estimated that in people over 65 years of age, 13,528 could be added additional deaths in 2030 and 27,266 by 2050, due to the increase in the frequency of heat waves (without adaptation measures) in Europe. (2)

The Spanish territory presents an important geographical variability that must be taken into account when to propose and apply health control and protection measures. Setting temperatures thresholds and the assignment of levels are the basic elements for the characterization of the phenomenon of excessive temperatures, and both elements have been established jointly and flexibly, by the Ministry of Health and the State Meteorological Agency (Ministry for the Ecological Transition and the Challenge Demographic), taking into account the contributions made by the Autonomous Communities. The mechanisms of adaptation of the population to excessive temperatures to which the latest studies point make it necessary to periodically review these thresholds.

According to the projections of the sixth evaluation report of the Intergovernmental Group of Experts on the Climate Change (IPCC) throughout the 21st century there will be changes in the climate, among which it is worth highlighting, at European regional level:

- Temperatures will continue to increase at a faster rate than the global one.
- Extreme warm events will increase in frequency, unlike extreme cold events.

- Sea level will continue to rise at a rate similar to the global one.

And specifically in the Mediterranean subregion (which includes all of Spain except the Canary Islands):

- An increase in aridity and forest fires is expected.
- An increase in extreme temperatures, a decrease in precipitation and a decrease in the snow coverage.

The latest scientific evidence reinforces the idea that prevention plans have a real effect on the decrease in mortality associated with excess temperatures, which together with the possibility of excessively hot summers repeat in our country, justifies in itself the continuity of the Plan.

2.1 Health effects

Human exposure to elevated ambient temperatures can cause an insufficient response of the thermoregulatory system. Excessive heat can alter our vital functions if the human body is not capable of compensating for variations in body temperature.

A very high temperature produces loss of water and electrolytes that are necessary for normal functioning of the different organs.

In some people with certain chronic diseases, undergoing certain medical treatments and with disabilities that limit their autonomy, these thermoregulation mechanisms can be seen decompensated.

Exposure to excessive temperatures can cause health problems such as cramps, dehydration, sunstroke, heat stroke (with multi-organ problems that may include symptoms such as instability gait, seizures and even coma). The only category identified as a direct cause of mortality due to excess environmental temperature in the International Classification of Diseases and Causes of Death, 10th review, is "X 30: Exposure to excessive natural heat"

The impact of exposure to excessive heat is influenced by physiological aging and disease underlying. Normally healthy people tolerate a variation in their internal temperature of approximately 3°C without their physical and mental conditions altering significantly. From 37°C a physiological defense reaction occurs.

Older people and very young children are more sensitive to these temperature changes. The former have a reduced sensation of heat and therefore the ability to protect themselves, there being a

parallelism between decreased perception of thirst and perception of heat, especially when suffer from neurodegenerative diseases. Added to this is the reduced thermolysis of the elderly (many sweat glands are fibrosed and the capacity for capillary vasodilation is diminished). The capacity of Minor thermolysis also occurs in diabetes and neurovegetative diseases.

Minors who have chronic health problems or those who take certain medications may be, like adults, more susceptible to heat-related illnesses. But also in childhood give specific physiological characteristics, mostly related to the composition of body water, the sweat pattern and metabolic heat production, which put children at a thermoregulatory disadvantage in compared to adults, especially when they exercise or are very physically active in environments hot or humid. On the other hand, minors - and even up to adolescence - cannot or do not take the necessary measures to prevent or replace fluid loss, and are exposed to the sun until exhaustion directly if they are not supervised by an adult. Minors who are overweight or who wear too many clothes, especially if they do not breathe, they are also more susceptible.

2.2 Impact on mortality

Excess mortality has been associated with periods of 3 or more consecutive days of high temperatures and not usual, and its effects can be observed during these periods or with a delay of up to three days.

2.3 Risk factors

The main risk factors associated with exposure to heat waves are:

Personal factors

- People over 65 years of age.
- Infants and children under 4 years of age.
- Cardiovascular, respiratory and mental diseases (dementia, Parkinson's, Alzheimer's...).
- Chronic diseases (diabetes mellitus, morbid obesity...).
- Certain medical treatments (diuretics, neuroleptics, anticholinergics and tranquilizers).

- Memory disorders, comprehension or orientation difficulties or little autonomy in life everyday.
- Difficulties in adapting to heat.
- Acute illnesses during episodes of excessive temperatures.
- Consumption of alcohol and other drugs.

Environmental, labor or social factors:

- People who live alone, on the streets and/or in disadvantaged social and economic conditions.
- Absence of air conditioning and homes that are difficult to cool.
- Excessive exposure to heat for work reasons (manual work outdoors or that requires high contact with hot environments), sports (sports of great physical intensity) or leisure.
- Environmental pollution
- Very urbanized environment
- Continuous exposure for several days to high temperatures that persist at night.

Local factors:

Although the previous mechanisms act in a general way, local factors play a decisive role, since that determine the comfort temperature, the threshold temperatures to be considered and the temperature-temperature association. mortality, that is, the magnitude of the impact.

The main local factors are:

- Demography, which determines the composition of the population pyramid, and therefore, the importance of susceptible groups.
- Climatology, to the extent that people adapt to the local climate. This explains that the effect of thermal extremes does not depend on absolute values, but rather on whether or not we are within the normal range of temperatures in a certain place.

3. PREVENTION AND CONTROL PLAN. ACTIVITIES

The objective of this *Plan* is to reduce the impact on the health of the population as a consequence of excess Of temperature.

The strategy is based on the following actions:

- Development of the Environmental Information System that includes temperature prediction
- Information to the population about the effects of excessive heat and about protection measures and prevention.
- Development of the Mortality Information System.
- Information to health and social services professionals.
- Coordination with social services to identify risk groups, especially both children and very elderly people.
- Coordination with the competent administrations and entities.

3.1 Coordination of administrations: *Coordination Commission*

In order to guarantee the effective application of the Plan, a “**Coordination Commission for the Prevention and Control of the effects of thermal excesses.**”

The Commission will be chaired by the General Director of Public Health of the Ministry of Health or person in charge. who delegates and will be made up of a representative of the following institutions:

- Cantabrian Institute of Social Services.
- Civil Protection of Cantabria.
- Cantabrian Health Service.
- Spanish Red Cross in Cantabria.

The functions of this Commission are the following:

1. Following the guidelines set by the Interministerial Commission, established in the State Plan, establish and update a Plan adapted to Cantabria.
2. Establish preventive and control strategies that are considered appropriate in light of the new evidences.

3. Activate the levels of intervention at the regional level in coordination with the Interministerial Commission and taking into account the competency frameworks.
4. Propose the organizational, structural and preventive measures necessary to avoid or reduce the impact of thermal extremes on health.
5. Prepare risk assessment, management and communication plans

The Commission will have the support of the technicians of the Public Health service and may request the advice from Scientific Societies and public and private entities that it considers most appropriate for the performance of their functions.

3.2 Environmental information system, morbidity surveillance and mortality monitoring

Current health surveillance systems have adequate information systems to know anticipate the risk of temperature increases with acceptable reliability as well as the impact that These temperatures have on the health of the population measured in terms of mortality. These systems have significantly improved since the 2004 Plan. Information systems on the evolution of the Morbidity will be measured through emergencies and hospital admissions.

System Objectives:

- Know in advance the risk of excessive temperatures that may affect a population certain resident in a specific geographical area.
- Identify the increase in demand for healthcare and the need to reinforce resources available.
- Know the real impact on the health of the population.

Characteristics:

In the institutional framework it is a cooperative system of different areas of the Administration, health and non-health. sanitary. (State Meteorological Agency, Ministry of Health, Social Services and Equality, IMSERSO, Ministry of Justice, CC.AA. etc.).

Different levels of information are established, depending on the risk, according to the background and characteristics of each territory, to the available time series and to the existing temperature predictions in each moment.

Environmental information system

Components:

1. Meteorological variables: The meteorological variables that are taken into account are: temperatures maximum and minimum temperatures expected for five days, the maximum and minimum temperatures recorded the day before the date of the prediction and the maximum and minimum threshold temperatures, established based on the series temporary.

This information, together with the levels of excessive temperatures prepared with the criteria suggested by the Ministry of Health, Social Services and Equality, is provided disaggregated by provinces, daily and by electronically, by the State Meteorological Agency to the General Directorate of Public Health of the Ministry of Health, Social Services and Equality, from where it is sent, also electronically, to the Directorates General Public Health of the Autonomous Communities. Although the information allows greater disaggregation, initially the communication of daily temperatures will be by provincial capitals.

Furthermore, since 2009 the Cantabria delegation of the State Meteorological Agency has sent daily to the General Directorate of Public Health of the Ministry of Health, the temperatures of the day and the forecast for the following five from four areas of our Community (Litoral, Interior Valleys, Liébana and Campoo-Los Valles) making effective the surveillance by areas proposed at the meeting of the responsible Cantabrian Commission of the monitoring of the Plan in 2008; this information allows control by climatic zones to increase the sensitivity of the epidemiological control model.

2. Healthcare demand: Healthcare demand information must be based on the same data as

It usually registers the autonomous health administration, which is also the one that will have to adapt, if necessary, the corresponding assistance services.

Thus, in Cantabria, the monitoring of health indicators by level is as follows:

Level 0

At this level, health indicators that are considered sensitive will be monitored to evaluate the situation. if it is considered appropriate. A record of care demand is made agreed upon by the organizations involved: Cantabrian Health Service and General Directorate of Public Health in accordance with feasibility criteria, effectiveness and usefulness in this phase.

Health indicators will be monitored from: accounting for the total number of emergencies attended per day and number of urgent admissions from health areas, as well as hospital deaths. The shipment must be made to Fax: nº: 942/206985 of the General Directorate of Public Health.

Information from Out-of-Hospital Emergencies and Home Emergency Services, Emergencies Hospital and Specialized (hospital admissions derived from emergencies) and hospital deaths, referring to the total number per day, will be coordinated by the Cantabrian Health Service, which will be in charge of transmit it to the Community Public Health service via fax, weekly.

With this information, we obtain the care demand per week and do a simple follow-up of the evolution of it. From this we can deduce actions in alert situations 1, 2 and 3.

Levels 1, 2 and 3

Cases of Out-of-Hospital Emergencies, referred to Primary Care and Home Emergency Services counting the total number of emergencies attended per day and Hospital Emergencies, referred to total number of emergencies attended per day and number of urgent admissions, as well as hospital deaths, should be urgently notified (within 24 hours), by the doctor or service where it was diagnosed, both from the public and private sectors via fax, on the same day of detection, to the Public Health service of the Community by the means determined (through the coordinating body of the Cantabrian Health Service).

In this phase, situation reports will be prepared in relation to the alert.

3. Mortality monitoring: Within the framework of this Plan, daily mortality monitoring is complementary to the meteorological information system. Allows you to evaluate health risk situations, assess the impact of excess temperatures and prevention and control measures, and identify excesses of mortality associated with progressive increases in temperature even before they exceed the established risk thresholds.

The daily mortality monitoring system analyzes the information from the Civil Registries of the Ministry of Justice, distributed among all the Autonomous Communities and which includes the 52 capitals of province. This information is related to the deaths computerized in the databases of said records. In the specific case of the Community of Cantabria, the expected daily mortality is calculated using models based on observed mortality from January 1, 2007 to December 31, 2012.

At the national level, the objective of mortality monitoring systems is to improve prevention and response capacity. For this, “MoMo” and “Kairós Index” are used, two surveillance systems of the daily mortality associated with temperature excesses, developed in the Mortality Surveillance Unit daily (MoMo) of the National Epidemiology Center (CNE) of the Carlos III Health Institute, which contributes to the **Plan**. Kairos Index, implemented in summer 2021, provides mortality alerts associated with excess temperatures and MoMo has been using a new model since April 2022 that, in addition to the excess mortality from all causes, estimates the impact of excess temperatures on mortality of the population, giving estimates of excess mortality attributable to temperature. The CNE of the Institute of Health Carlos III will inform the Ministry of Health daily of the warning signs detected, according to the criteria defined in the models^{2,3}.

The daily information and reports generated by this model during the **Plan** activation period are available to the members of the Interministerial Commission.

Methodology

MoMo and the Kairos Index use three data sources:

- Daily deaths for the last ten years, not including those in 2020. This series is obtained both from the consolidated data of the National Institute of Statistics (INE), as well as from the most recent deaths provided by the Ministry of Justice on deaths for all the causes notified in civil registries of the computerized municipalities (which corresponds approximately 93% of the population).
- The temperatures, according to the AEMET at the provincial level, in the same period of time, and including the current year.
- The population by age group and province, extracted from the INE.

The analysis is carried out both for the overall population and by age groups. The age groups used are: 0-14, 15-44, 45-65, 65-74, 75-84, plus 85 years.

As a warning system, the Kairós Index establishes warnings for each day that define different levels of mortality risk. There are three levels of the Kairos Index: Level 1, 2 and 3 that define small or null, moderate and high, respectively. Always for the current day and the following four days, as well as by population level (national, Autonomous Communities (CCAA) and provincial) and by age group (all ages, 0-14, 15-44, 45-65, 65-74, 75-84, over 85 years).

This model detects situations of excess mortality due to excess temperature. To do this, measure the probability that there will be (or have been) an increase in the number of deaths attributable to the excess temperature of 10% or higher. In this way, the Kairós index is constructed:

- **Kairós 1:** if the probability of excess is less than 40%. Indicates the absence of mortality warnings attributable to excess temperature.
- **Kairós 2:** if the probability of excess is between 40% and 60%. Indicates a mortality warning attributable to excess mid-level temperature.
- **Kairós 3:** if the probability of excess is above 60%. Indicates a mortality warning attributable to excess high level temperature.

As a system for estimating the impact of heat on population mortality, MoMo offers daily estimates of the number of deaths from all causes associated with excess temperature for the day in course for each population area and age group mentioned. The Kairós index will be published daily, national level, CCAA and province, which indicates the probability of excess mortality occurring attributable to excess temperature, on the website of the Carlos III Health Institute⁴.

The Kairós and MoMo Index uses a GAM (generalized additive model) Poisson model, which is adjusted by province, level for which daily temperature information is available, and by age groups: 0-14, 15-44, 45-65, 65-74, 75-84, plus 85. The models include a term for trend, seasonality and for the ATO (accumulated thermal overcharge) variables, defined as the number of degrees that the temperature maximum is above the mortality trigger threshold (3), multiplied by the number of days and FATO defined as the number of degrees that the minimum temperature is below the trip threshold of the mortality (4), multiplied by the number of days.

Information collection

The General Directorate of Public Health will establish the necessary mechanisms for the provision and implementation of a computerized program for the collection and descriptive analysis of daily information from

of the Ministry of Health, Social Services and Equality, containing daily climate data and the information on healthcare demand generated by the different services belonging to the Cantabrian Service of health. The evolution of temperature thresholds and demand will be analyzed periodically. assistance. When the alert level situation requires it, reports will be issued on it.

Assistance demand notification circuit

The notification will be made on the healthcare indicators:

- Out-of-hospital emergencies, referred to Primary Care and Home Emergency Services.
- Hospital Emergencies, referring to the total number of emergencies attended per day and number of urgent admissions.
- Hospital deaths.

The Cantabrian Health Service will coordinate the necessary actions to centralize all notifications coming from Primary, Emergency and Specialized Care doctors in relation to care demand foreseen in the Plan. The information collected should be based on the same data that is usually recorded by the Health Administration. If possible, the circuits of partial information currently existing within the Cantabrian Health Service and the General Directorate of Public Health, through previously established models.

The information from Primary Care and Out-of-hospital Emergencies, Hospital Emergencies and Specialized Care must be coordinated by the Cantabrian Health Service with the periodicity established. determine based on the alert level, which will transmit it to the Public Health service of the General Directorate of Community Public Health.

System operation period:

June 1 to September 15 of each year.

A flexibility criterion is introduced that allows activation outside this period, through monitoring during the last fifteen days of the previous month and one month after the activation period of the National Plan aforementioned

Territorial disaggregation scope:

Capital of the Autonomous Community and since 2009, four areas of our Community (Litoral, Valles interiors, Liébana and Campoo-Los Valles).

3.3 Communication and information to the population, higher risk groups and health professionals and social services

Information will be provided to the media to provide useful advice and measures practices to prevent the effects of exposure to elevated temperatures. These awareness activities will aim to increase the individual prevention capacity to face the heat by applying measures that are easy and accessible.

An essential objective is the forecasting and anticipation of risks. This aims to promote solidarity and the prevention capacity of the family, neighborhood and community environment, especially to attend to the sicker and socio-economically needier people.

Measures already established at the national level in the area of social services will be strengthened so that people at risk, their families, neighbors, etc. can communicate emergency situations or receive information and mobilization of help if necessary.

3.4 Care of the most vulnerable people

Through the network of municipal social services, responsible for the management of services such as help home, telecare and social centers, work will be done to identify the target population, since that the first two services are aimed at the groups indicated in the previous section.

The distribution of informative materials through this network will attempt to reach the majority of the population. susceptible. With this objective, collaboration agreements may be established with the Federation of Municipalities. and Provinces to reach the City Councils.

The activation of the rest of specialized resources (day centers, residences, housing, occupational centers, etc.), will be coordinated in our Community.

The identification and care of the most vulnerable people will be carried out through the channels available on the networks. health and social care.

3.5 Coordination with competent public and private entities

(state level)

At the level of the General Administration of the State there is the Interministerial Commission, as the body responsible for coordination with public and private entities with the necessary powers for the execution of this Plan.

In this sense, coordination mechanisms will be established to guarantee the application of the Plan with the following entities:

- Ministries of Health and Social Services of the Autonomous Communities.
- Ministries of the Interior (General Directorate of Civil Protection and Emergencies), Agriculture and Fisheries, Food, and Environment (AEMET) and Justice (Civil Registry).
- Public and private media.

4 LEVELS OF EXCESSIVE TEMPERATURES

On a daily basis, the State Meteorological Agency will provide the expected temperatures for that day and the predictions for the next five, highs and lows. These temperatures will be provided disaggregated by Autonomous Community and provincial capital. Daily temperatures are also provided daily. and the forecast for the next five of four areas of our Community (Coastal, Inland Valleys, Liébana and Campoo-Los Valles)

The Interministerial Commission, based on the time series of temperatures available, will assess the thresholds from which the affected Autonomous Community will be contacted to put into effect carries out jointly with them the measures planned at the corresponding level.

In order to plan preventive actions to alleviate or mitigate the socio-sanitary risks of excessive temperatures on health, and based on meteorological temperature predictions, the agreed upon threshold temperatures, and considering the persistence of the risk, four levels of risk due to excessive temperatures using the following criteria:

4.1 Criteria for assigning maximum and minimum temperature reference thresholds

The maximum and minimum temperatures have been modified, previously based mainly on the p95 of the historical series for maximum and minimum temperatures during the summer. The current criterion is based on

the maximum and minimum mortality “trigger” temperatures for each of the 52 provincial capitals

Spanish. The assignment of these temperatures has been based on time series of maximum temperature and minimum corresponding to the Meteorological Observatory located in each provincial capital and provided by the AEMET and in series of mortality from organic causes (ICD10: A00-R99) in municipalities with more than 10,000 inhabitants of the National Institute of Statistics.

A table is attached with the **threshold temperatures** considered in **Annex I**.

In some provincial capitals, maximum or minimum trigger temperatures of the mortality. In these cases, the temperature corresponding to p95 of the most recent time series is maintained. maximum and minimum temperatures during the summer.

The thresholds established in the National Plan for **Santander** are

Maximum T. 32°C and Minimum T. 20°C (simultaneously)

4.2 Criteria for assigning excessive temperature levels

The criterion for assigning risk levels in situations of excess temperatures is based on exceeding simultaneous monitoring of the established maximum and minimum threshold temperatures, and in the persistence over time of said situation.

The assignment of risk levels (Table 1) is carried out using the following criteria:

- A. Yes, the number of days in which the predicted maximum and minimum temperature simultaneously exceed the respective reference threshold values is **zero**, the index is “0”, the assigned level is called **“LEVEL 0” or absence of risk**, and is represented by the **color green**.
- B. If the number of days is **one or two**, the indices are respectively “1” and “2”, the assigned level is **It is called “LEVEL 1” or low risk**, and is represented by the **color yellow**.
- C. If the number of days is **three or four**, the indices are respectively “3” and “4”, the assigned level is **It is called “LEVEL 2” or medium risk**, and is represented by the **color orange**.

D. If the number of days is **five**, the index is “5”, the assigned level is called “**LEVEL 3**” or **high risk**, and is represented with the **color red**.

The information provided daily by the State Meteorological Agency to the Ministry of Health,
Social Services and Equality, **from May 15 to October 15**, will be as follows:

- Data on maximum and minimum temperatures observed, the previous day, in all the capitals of province and in Ceuta and Melilla.
- Matrix of objective predictions of maximum and minimum temperatures of all capitals, between D+1 and D+5.
- Map of assignment of risk levels by provincial capitals based on established criteria in the National Plan.
- Map of assignment of risk levels based on the criteria established by the State Agency of Meteorology.

Table 1. Risk levels according to days of exceeding threshold temperatures

Risk Level	Denomination	Number of days in which the maximum temperature and minimum planned exceed simultaneously the thresholds	Index
0	No risk	zero	0
1	Low risk	one or two	1 and 2
2	Medium risk	three or four	3 and 4
3	High risk	five	5

5. PREVENTIVE ACTIONS AGAINST THE EFFECTS OF EXCESS TEMPERATURE ON THE HEALTH

They are collected in **Annex II**.

6. MORTALITY MONITORING (MoMo). WARNING SIGNS

One of the priorities of the **NATIONAL PLAN** will be the rapid obtaining of data on general mortality and the identification of warning signs that indicate excess mortality that may be associated with high temperatures (severe excess mortality).

The objective will be to improve the prevention and response capacity and to do so, the National Center for Epidemiology of the Carlos III Health Institute, responsible for the daily mortality monitoring system, will report daily to the Ministry of Health, Social Services and Equality of the alert signs detected, according to the defined criteria.

6.1 Methodology

Two complementary analyzes will be carried out:

- o Comparison of recorded daily mortality with expected mortality, and
- o Control of short-term daily mortality trend variations.

The analyzes will be carried out to:

- o The total number of computerized municipalities
- o Each autonomous community
- o Each provincial capital
- o Zones of homogeneous maximum and minimum temperatures in summer determined by the AEMET.

Each analysis will be stratified by age group (<65 years, 65-74 years, >74 years), sex, and age group and sex.

6.2 Warning signs

Based on the data obtained from the global analysis of mortality from previous seasons, the Center National Epidemiology of the Carlos III Health Institute, establishes three types of warning signs:

- **Continuous Punctual Excess:** The alert signal for **continued punctual excess** is determined when the Observed mortality exceeds at least two days the upper limit of the CI (99%) for expected daily mortality in the last four days.

· **Excess Continuous Mortality:** The warning signal for **excess continued mortality** is determined

from the moment in which the CUSUM1 threshold is exceeded in the 90th percentile of consecutive days and in which the observed mortality accumulated in that period exceeds the mortality by more than three standard deviations expected.

· **Severe Excess Mortality:** The warning signal for **severe excess mortality** is determined when the continued excess mortality is accompanied by, at least, a punctual excess or the upper limit of the 95% of the sum of expected mortality during that same period. In this situation there is a high probability that the observed excess mortality is associated with heat.

1 **CUSUM:** Short-term trend analysis. Measures the number of consecutive days in which mortality observed remains above the expected daily mortality.

6.3 Actions

When an alert signal for Severe Excess Mortality occurs, the Authorities will be notified. Health of the Autonomous Communities through the CCAES.

7. PROPOSAL OF ACTIVITIES TO BE DEVELOPED FOR THE 2022 CAMPAIGN

7.1 Define and establish thresholds for isothermal zones

During the 2022 season, work will begin to define and establish thresholds throughout the national territory according to the latest series of data available, with the aim that the 2023 season All autonomous communities have updated isothermal zoning.

7.2 Update of thresholds in provincial capitals

In order to take into consideration more recent temperature data, as well as possible trends due to climate change, it is considered necessary to adjust the thresholds in the provincial capitals with a most current temperature series, in which the aforementioned aspects are taken into consideration. This setting is because the current threshold temperatures are based on a series of daily temperatures for the years 2000 to 2009, which may have undergone modifications since then.

7.3 Decision algorithm for issuing alerts for excess temperatures

During the 2022 season, work will begin to update the issuance decision algorithm.

alerts for excess temperatures based on current scientific evidence. For this, a report will be prepared, which will be presented to the working group, in which the different aspects to be taken into account in regarding the update of the decision algorithm for issuing alerts due to excess temperatures.

8. REFERENCE DOCUMENTATION

(1) Recommendations to be introduced in the National Plan of Preventive Actions against excesses of temperature on health for 2015.

(2) World health Organization (WHO). Quantitative risk assessments of the effects of climate change on selected cause of death, 2030s and 2050s <http://who.int/globalchange/publications/quantitative-riskassessment/en/>.accessed 13.March 2015).

(3) Díaz Jiménez, J., et al. 2015. Trigger threshold temperatures for mortality attributable to heat in Spain in the period 2000-2009. Carlos III Health Institute, National School of Health. Available in:

<http://gesdoc.isciii.es/gesdoccontroller?action=download&id=24/07/2015-fe69310aba>

(4) Carmona Alférez, R., et al. 2016. Trigger threshold temperatures for mortality attributable to cold in Spain in the period 2000-2009. Comparison with mortality attributable to heat. Carlos III Health Institute, National School of Health. Available in:

<http://gesdoc.isciii.es/gesdoccontroller?action=download&id=10/03/2016-db8fa07be3>

ANNEX I

THRESHOLD TEMPERATURES

MAXIMA AND MINIMA

EXHIBIT. Maximum and Minimum Threshold Temperatures

Capital of Province	Temperatures maxims	Temperatures minimal	Capital of Province	Temperatures maxims	Temperatures minimal
Albacete	36	twenty	Iugo	3. 4	18
Almeria	36	26	Malaga	40	26
Avila	32	22	Melilla	33 (*)	23.8 (*)
Badajoz	38	twenty	Murcia	3. 4	23 (*)
Barcelona	32	24	Ourense	36	18.4 (*)
Bilbao/Bilbo	30	twenty	Oviedo	30	18
Burgos	3. 4	16	Palencia	33.9 (*)	16.4 (*)
Caceres	38	22	palm of Majorca	36	22
Cadiz	32	24	palms of Great Canary Islands, Las	32	24
Castellón de la Flat	32	22.6 (*)	Pamplona-Iruna	36	18
Ceuta	3. 4 (*)	23.2 (*)	Pontevedra	30	18
Real city	38	26	Salamanca	3. 4	16
Cordova	40	22	Holy Cross of Tenerife	32	24
Coruña, A	26	twenty	Santander	32	twenty
Basin	3. 4	18.6 (*)	Segovia	3. 4	22

Donostia-San Sebastian	30	twenty	Seville	40	24
Girona	36	twenty	Soria	3. 4	15.8 (*)
Grenade	36	18.8 (*)	Tarragona	36	22 (*)
Guadalajara	38	16	Teruel (1)	36	14
Huelva	36	22	Toledo	38	24
Huesca (1)	3. 4	twenty	Valencia	3. 4	24
Jaen	36	22	Valladolid	36	18
Lion	32	16	Vitoria-Gasteiz	3. 4	16.6 (*)
Lleida	36	twenty	Zamora	36	16
Logrono	36	18	Zaragoza (1)	36	twenty

(*) Temperatures that would correspond to the 95th percentiles of the series of maximum temperatures and highest summer minimums (Source AEMET)

Source: Temperatures approved by the Interministerial Commission for the effective application of the National Plan of Preventive Actions of the effects of excess temperatures on health (2015).

(1) Isoclimatic zones of Aragon: Cinco Villas de Zaragoza; Iberian Zaragozana; Ribera del Ebro

Saragossa; Huesca Pyrenees; Center of Huesca; South of Huesca; Albarracín and Jiloca; Gúdar and Maestrazgo and Bajo Aragon of Teruel

ANNEX II

PREVENTIVE ACTIONS AGAINST THE EFFECTS OF EXCESS TEMPERATURE ON HEALTH

ACTIONS AT LEVEL 0 (GREEN): ABSENCE OF RISK

<i>To do?</i>	<i>Data to register</i>	<i>Who does it?</i>	<i>How is it done?</i>
0.1. Monitor the indicators of alert	<ul style="list-style-type: none"> - Meteorological - Assistance demand: <ul style="list-style-type: none"> - Urg. Hospitable - Urg. Out-of-hospital - Mortality 	<ul style="list-style-type: none"> - Institute National of Meteorology - Network established for Surveillance Epidemiological - Ministry of Justice 	<ul style="list-style-type: none"> - Daily reading of maximums and minimum for each capital of province - Checking the threshold temperature - Reading of the temps. planned 5 days in advance - Increases in demand for urgent healthcare with compared to previous times - Increased mortality compared to the estimate according to trend from previous years
With the information received, the top managers of the Plan will give the alert if appropriate, and then the will proceed to apply the established action protocols.			
<i>To do?</i>	<i>To whom?</i>	<i>Who does it?</i>	<i>How is it done?</i>
0.2. Identify the population Diana	<ul style="list-style-type: none"> - People greater, especially over 65 years - Children under 4 years old - Passersby and people without home - Dementia sufferers and cognitive disorders - Sick of heart disease - Sick of bronchopathies 	<ul style="list-style-type: none"> - Basic Action Units Social - Social Work Units - Social Workers of the Primary Care Teams - Health Professionals Primary Care 	<ul style="list-style-type: none"> - In each geographical area or administrative, professional of Social Services of the Municipality or Commonwealth (in the social area) and the Coordinator of the Center Health (in the health area) They will be in charge of set the number of people belonging to each risk group, and will coordinate the rest of the activities

	<ul style="list-style-type: none"> - Large obese - Patients with diabetes mellitus - Disabled physical and mental - People in treatment with diuretics or psychotropics - People with disorders addictive - People with exposure excessive heat reasons labor, sports or leisure 	<ul style="list-style-type: none"> - Others professionals of Social Organizations - Occupational Health Services - Administration that informs the authorization (camps) and Town halls (camping) 	<ul style="list-style-type: none"> - The rest of the professionals Social or Health Services - They will give you the maximum collaboration - Information will be reviewed available from customers Social Services and/or Health workers (known case) - An active search will be done of those suspected cases or strangers who are not known has information (case suspicious)
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This activity is the most difficult and complicated of the entire protocol, but it is essential to be able to carry out information at Level 0, as well as for information or intervention actions at Levels 1 or 2.

<i>To do?</i>	<i>Who is informed?</i>	<i>Who does it?</i>	<i>How is it done?</i>
0.3. Inform the professionals	<ul style="list-style-type: none"> - To social services: - From health centers - From municipal centers - Of centers or services social care - Health Services - From Town Councils - Red Cross (optional) - Civil Protection 	<ul style="list-style-type: none"> - She responsible responsible persons designated by the General Directorate of Services Social, General Directorate of Public Health, Cantabrian Service of Health, Red Cross (optional), Civil protection 	<ul style="list-style-type: none"> - Oral information will be provided and written, as detailed as possible of the Plan, together with the action protocols for each professional group. - A number of telephone or several, fax and Email address to allow communication fast and bidirectional.

The current existing communications system at the level of Health Services and the Cantabrian Health Service will be used. Health.

In the case of Social Care Centers or Services, the information channel will be established by the General Directorate of Social Services.

<i>To do?</i>	<i>To whom?</i>	<i>To whom?</i>	<i>How is it done?</i>
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<p>0.4. Inform the population Diana</p>	<p>A) <u>Easily accessible</u> <u>organized:</u></p> <ul style="list-style-type: none"> - Clubs and associations elderly people or/and disabled - Day centers for elderly people and/or disabled - Help Services Home - Services of Telecare - Residences for elderly people and/or disabled - Centers and services Red Cross (optional) <p>B) <u>Difficult to access or</u> <u>scattered:</u></p> <ul style="list-style-type: none"> - Passersby and people homeless - People who live alone, elderly and/or disabled - Immigrants 	<p>- For group A), they will be responsible for each Center or Social Service who responsible for protecting the dependents in accordance with the guidelines of the Plan and corresponding protocol</p> <p>- For group B), it will be necessary resort to active search. The General Directorate of Services Social will seek collaboration of Social Organizations and Volunteering (Home of the Passerby, Cheap Cuisine, Red Cross*, Caritas, Cantabria Hosts, Unions, Service Civil Protection, etc.)</p> <p>*optionally</p>	<p>- For group A), they will be used all contacts with people from this group, either individual level or in groups, to send them messages self-care against consequences of excess heat</p> <p>- Your care will be influenced personal and about habitual residence (room, housing, means of transportation, recreation places, etc.)</p> <p>- The information will be provided, fundamentally through oral messages (advice and questions), through written information, using documentation provided or making another similar one adjusted to the characteristics of each person or group</p> <p>- For group B), they will be used messages printed, predominating information iconographic on the support literary</p> <p>- In all cases, the information must be educational nature, avoiding alarmist messages</p>
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			<p>- Messages in the media communication will avoid, in their content, create social alarm, being informative and reassuring</p>
<p>We must keep in mind that most of the members of this group will present physical and mental deficiencies. sensory, they will have reading difficulties or they do not have a reading habit.</p> <p>We can find illiteracy or difficulties understanding Spanish.</p>			
<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
0.5. Inform the population	<ul style="list-style-type: none"> - General public - Social Organizations and of Volunteering 	<p><u>Group A</u>) Through the media:</p> <ul style="list-style-type: none"> - Health Administration - Service administration Social <p><u>Group B</u>) Direct to the person:</p> <ul style="list-style-type: none"> - Health Centers and Clinics - Emergency Services. - Civil protection - Services and establishments social services 	<p>- In group A): It will be spread, by the media (press conference, report, interview, etc.), the existence of the Plan, with special emphasis in the strictly aspects preventive evasion citation aspects related to symptoms</p> <p>- In group B): Information, generally printed, will spread in cascade, from the Responsible administrations, to the different entities and organizations so that they use your usual networks performance</p> <p>- An attempt will be made to make a call for solidarity local</p>

<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
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6. Raise awareness and increase the volunteering	<ul style="list-style-type: none"> - Red Cross. (optional) - Smileys - Economic Kitchen - Home of the Passerby - Cantabria Welcomes - Centers and Establishments host - Union Organizations - Associations and Groups - Neighbors 	<ul style="list-style-type: none"> - Health Administration - Service administration - Social 	<ul style="list-style-type: none"> - Information will be transmitted about the plan - The importance will be emphasized that these groups and organizations have for location of people belonging to the groups unorganized - The General Directorate of Services Social them will request that they increase their active search for people at risk of suffering climate consequences
To do?	Who is it done to?	Who does it?	How is it done?
0.7. Elaborate material informative	<ul style="list-style-type: none"> - Brochures - Audiovisual material 	<ul style="list-style-type: none"> - Health authorities - Social Security Authorities 	<ul style="list-style-type: none"> - Audiovisual information is will do at the national level
To do?	Who is it done to?	Who does it?	How is it done?
0.8. Establish mechanisms of coordination with the Organizations and Organizations affected	<ul style="list-style-type: none"> - Ministry of Interior: Civil protection - Spanish Red Cross (optional) - Smileys - Pharmacy Offices - Media public and private 	<ul style="list-style-type: none"> - Commission in charge of the Plan 	
<p>Coordination at the state level is planned.</p> <p>At the regional level, it will be necessary to adapt the coordination to the characteristics of Cantabria.</p>			
To do?	Who is it done to?	Who does it?	How is it done?

0.9. Establish protocols performance	<ul style="list-style-type: none">- For Social Services- For Services Health Care	<ul style="list-style-type: none">- Health and safety authorities Social Services, with the stake of the affected professionals	
These protocols will be provided by the National Commission, having been agreed upon by professionals in the field. world of health and social services, with the participation of scientific societies.			
<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
0.10. Analysis of process			<ul style="list-style-type: none">- Prepare memory; record of activities and incidents
TO DETERMINATE			

ACTIONS AT LEVEL 1 (YELLOW): LOW RISK

The risk situation will be activated due to the detection of temperatures that can be classified as a heat wave.

<i>To do?</i>	<i>Who is informed?</i>	<i>Who does it?</i>	<i>How is it done?</i>
1.1. Inform the professionals	<ul style="list-style-type: none"> - Health Services - Social services - Responsible for the Social Care Centers 	<ul style="list-style-type: none"> - The Commission 	<ul style="list-style-type: none"> - By telephone and/or fax and/or e-mail.
<i>To do?</i>	<i>Who is informed?</i>	<i>Who does it?</i>	<i>How is it done?</i>
1.2. Inform the population:	<ul style="list-style-type: none"> - General population affected 	<ul style="list-style-type: none"> - Health Authorities of the Autonomous Administration 	<ul style="list-style-type: none"> - Information to the population about the alert situation insisting on measures preventive and the manifestations of the effects of heat on health - The telephone number will be provided information and help
<p>The media will be used, preferably local.</p> <p>It will also be transported through the Health and Social Services of the area, using the help networks and existing social collaboration.</p>			
<i>To do?</i>	<i>Who is informed?</i>	<i>Who does it?</i>	<i>How is it done?</i>
1.3. Service The people of risk	<p>A) Easily accessible organized:</p> <ul style="list-style-type: none"> - Clubs and associations elderly people and/or disabled - Day centers for elderly people and/or disabled 	<ul style="list-style-type: none"> - Groups included in the group ____ To, those in charge of your assistance or attention, under the direction of those responsible for each center - For group B, they will be responsible of Services 	<ul style="list-style-type: none"> - Measures will be tightened care and information about preventive measures - An active search will be done of each case for your assessment, information and treatment, if necessary

	<ul style="list-style-type: none">- Help Services Home- Telecare Services- Residences for people elderly and/or disabled- Cruz centers and services Red (optional) <p>B) Difficult to access or scattered:</p> <ul style="list-style-type: none">- Passersby and people without home- People who live alone (greater I disabled)- Immigrants	<p>Social and Health Care of the affected area</p> <p>- In both groups it will be of great value of having the network volunteering and NGO</p>	<p>- A number of information telephone and first attention</p>
There may be cases in which the health conditions of the person and the environment in which they live represent a obvious risk to the maintenance of life. In this case, temporary measures will have to be arbitrated for its care in suitable environment.			
To do?	Who is informed?	Who does it?	How is it done?
1.4. Foresee resources assistance sanitary and social	<ul style="list-style-type: none">- People who live alone or homeless- Residents in homes that, due to its characteristics architectural, do not allow some climatic conditions minimal	<ul style="list-style-type: none">- Center Managers Social Care- Center Managers Health Care- Reception Centers	<ul style="list-style-type: none">- Expansion of services and social club hours- Assistance to Centers Day Care- The room qualification

			temporary in 24 Centers hours
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Forecasts will be made for possible increases in each service, without real intervention.			
To do?	Who is informed?	Who does it?	How is it done?
1.5. Elaborate reports on the impact of the heat wave	<ul style="list-style-type: none">- Population included in the risk groups- General population	<ul style="list-style-type: none">- Network established for Epidemiological surveillance	<ul style="list-style-type: none">- Morbidity study- Mortality study
To do?	Who is informed?	Who does it?	How is it done?
1.6. Analysis of the Process			<ul style="list-style-type: none">- Prepare memory; record of activities and incidents
TO DETERMINATE			

ACTIONS AT LEVEL 2 (ORANGE): MEDIUM RISK

<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
2.1. Inform to the professionals	<ul style="list-style-type: none"> - Health Services - Social services - Responsible for the Social Care Centers 	<ul style="list-style-type: none"> - The Commission 	
Information: By telephone and fax and/or e-mail. Heat wave forecast communication.			
<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
2.2. Inform to the population	<ul style="list-style-type: none"> - Population general allegedly affected 	<ul style="list-style-type: none"> - Health Authorities of the Autonomous Administration 	<ul style="list-style-type: none"> - The means of communication, preferably local - It will also be transported by through the Services Health and Social area, using the networks of help and social collaboration existing
Information: The population will be informed about the alert situation, insisting on preventive measures and the manifestations of the effects of heat on health. The information and help telephone number will be provided.			
<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
23. Attend at people from risk	The groups established in point 0.4.	<ul style="list-style-type: none"> - Groups included in the group____ To, those in charge of your assistance or attention, under the direction of those responsible for each center 	<ul style="list-style-type: none"> - Measures will be tightened care and information on preventive measures. - An active search will be done of each case for your

		<ul style="list-style-type: none"> - For group B, they will be responsible of Services Social and Health Care of the affected area - In both groups it will be of great value of having the network volunteering and NGO 	<p>assessment, information and treatment, if necessary.</p> <ul style="list-style-type: none"> - A number of information telephone and first attention
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There may be cases in which the health conditions of the person and the environment in which they live represent a obvious risk to the maintenance of life. In this case, temporary measures will have to be arbitrated for its care in suitable environment.

<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
2.4. Foresee resources assistance sanitary and social	<ul style="list-style-type: none"> - People who live alone or homeless - Residents in homes that, due to its characteristics architectural, do not allow some climatic conditions minimal 	<ul style="list-style-type: none"> - Center Managers Social Care - Center Managers Health Care - Reception Centers 	<ul style="list-style-type: none"> - Expansion of services and social club hours - Assistance to Centers Day Care - The room qualification temporary in 24 Centers hours

Forecasts will be made for possible increases in each service, without real intervention.

<i>To do?</i>	<i>Who is it done to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
2.5. Enable resources	<ul style="list-style-type: none"> - Centers and Establishments of Social Care - Centers and Establishments of Health Care 	<ul style="list-style-type: none"> - Center Managers and Care Establishments Social - Center Managers and Care Establishments Sanitary 	<ul style="list-style-type: none"> - Expand hours and services of social clubs - Expand hours and places in Day Care Centers - Enable stays temporary in centers 24 hour attention - Enable stays in hospitality establishments

The maximum collaboration of non-governmental organizations (Caritas, Red Cross*, etc.) will be sought, as well as volunteering and informal care networks. *optionally			
To do?	Who is it done to?	Who does it?	How is it done?
2.6. Elaborate reports about him impact of the heat wave	<ul style="list-style-type: none">- Population included in the risk groups- General population- Health officials	<ul style="list-style-type: none">- Network established for Epidemiological surveillance	<ul style="list-style-type: none">- Morbidity study- Mortality study
To do?	Who is it done to?	Who does it?	How is it done?
2.7. Analysis of process			<ul style="list-style-type: none">- Prepare memory; register of activities and incidents
TO DETERMINATE			

ACTIONS AT LEVEL 3 (RED): HIGH RISK

<i>To do?</i>	<i>Who is it addressed to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
3.1. Inform the professionals	<ul style="list-style-type: none"> - Health Services - Social services - Responsible for the Social Care Centers 	- The Commission	- Telephone, Fax, e-mail
Specific instructions for action will be given, depending on the severity and duration of the heat wave.			
<i>To do?</i>	<i>Who is it addressed to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
3.2. To coordinate the performances	<ul style="list-style-type: none"> - Service Centers Sanitary - Service Units Social - Centers and Establishments of Health Care - Centers and Establishments of Social Care 	- The Commission	- According to established protocol
<i>To do?</i>	<i>Who is it addressed to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
3.3. Enable resources	<ul style="list-style-type: none"> - Centers and Establishments of Social Care - Centers and Establishments of Health Care 	<ul style="list-style-type: none"> - Center Managers and Care Establishments Social - Center Managers and Care Establishments Sanitary 	<ul style="list-style-type: none"> - Expand hours and services social clubs - Expand hours and places in Day Care Centers - Enable stays temporary in centers 24 hour attention

			- Enable stays in hospitality establishments
The maximum collaboration of non-governmental organizations (Caritas, Red Cross*, etc.) will be sought, as well such as volunteering and informal care networks. *optionally			
<i>To do?</i>	<i>Who is it addressed to?</i>	<i>Who does it?</i>	<i>How is it done?</i>
3.4. Analysis of the process			- Prepare memory; record of activities and incidents
TO DETERMINATE			

ANNEX III

PROTOCOL OF SPECIFIC ACTIONS FOR EACH OF THE PHASES DEFINED IN THE PREVENTIVE ACTION PLAN AGAINST THE EFFECTS OF EXCESS TEMPERATURE ABOUT HEALTH

Introduction

This Protocol is designed in order to have a tool that is easy to apply as a complement and realization of the generic or global activities indicated in the Preventive Action Plan against the effects of excess temperatures on health. Throughout this document, the specific and concrete each of the actions that must be carried out to comply with said Plan. Likewise, the different organizations and institutions involved in these actions are listed, with the Differentiated participation for each of them and the moments and scope that the actions must have. specified.

Goals

The general objective of this Protocol is none other than that of the Plan itself from which it emanates, that is, prevention and reduction of potential damage to Health that could occur due to exceptional situations of excess Of temperature.

The Protocol also, specifically, aims

- Concretely define the institutional and administrative responsibility for each of the activities of control.
- Indicate the start-up time and scope of said activities.
- Improve the coordination of existing resources in Cantabria to deal with emergency situations. excess temperature.

Protocol Structure

This Protocol is established on 3 constituent elements that must be perfectly defined:

- a) Those responsible for the actions
- b) Target population
- c) Control Activities

Responsible for the actions

The responsibility corresponds directly to those participating organizations and institutions and represented within the Plan Coordination Commission. These must launch the actions of each one or coordinate them, where appropriate, to be undertaken by other organizations and institutions dependent on them. The members of the Commission are:

1. General Directorate of Public Health. Within which, in addition to the Management itself that assumes the coordination of the Plan and its actions are differentiated intervening actors in some Sections of the Public Health Service
 - 1.1. Health Promotion Section
 - 1.2. Epidemiological Surveillance Section
 - 1.3. Occupational Health Section
 - 1.4. Environmental Health Section
2. General Directorate of Social Services
3. General Directorate of Services and Civil Protection
4. Cantabrian Health Service
5. Red Cross (optional)
6. Federation of Municipalities of Cantabria

Target population

A series of especially exposed or vulnerable people are defined in whom, due to their characteristics social and/or health, the effects of excessive heat may be more relevant and even have some gravity. Depending on the specific vulnerability, different actions will have to be carried out or the scope of them.

- Patients with chronic risk pathologies (cardiovascular, respiratory, metabolic, undergoing certain treatments) living alone or with alterations in their autonomy or without adequate control and support from their family environment.
- Same type of patients with social problems (inadequacy of housing or other situations that determine a certain degree of social exclusion such as scarcity of resources, mental illness, habits toxic, etc.).
- Children with serious chronic pathologies, especially those under 4 years of age.
- People especially exposed for work, sports or leisure activities.

Control activities

3 activity models are defined to be developed that will be applied according to the needs that are detected.

1. Surveillance: Collect information on the meteorological situation and the health status of the population. It will allow you to activate and deactivate the alerts as well as evaluate the effects of heat and measures implemented
2. Information: Promote Health Protection and Promotion advice through communication to know how to act against excessive heat. The information must be adapted to each moment of the alert and to the recipients who could generically be:

General population

Vulnerable population (target)

Professionals who carry out the interventions

3. Intervention: Contact the target population and individually monitor the situations referring those who may need it to health or social centers early.

GENERAL DIRECTORATE OF PUBLIC HEALTH

PREPARATORY PHASE

- Reception of the annual National Plan, updating of the Cantabria Plan and dissemination.
- Establishment of guidelines for the start of the activity.
- Review of specific information, surveillance and intervention protocols.
- Notification and Ordinary Annual Meeting of the Commission.
- Preparation of the information campaign.
- Preparation and updating of Surveillance of the effects of excessive temperatures.

• Identification of risk groups and updating censuses of individuals belonging to groups vulnerable in terms of Occupational Health and for leisure reasons (camps).

LEVEL 0

- Official communication of the start and end of the Plan activation period (May 15) by from the General Director to the members of the Commission, other Health and Social Administrations, etc and to the general population through the relevant established channels.
- Review compliance with the Campaign Protocol.
- Implementation of the specifically designed Health Information and Education Campaign for the season.
- Continuous Epidemiological Surveillance of temperature and demand alert indicators assistance.
- Process analysis: Global evaluation of actions at the end of the Campaign (Campaign Report).

LEVEL 1

- **Official Activation of the Alert** based on the information collected and analyzed by the security systems. Surveillance. This activation corresponds to the General Director who will be the one to communicate the situation to the members of the Commission, other Health and Social Administrations, etc. and to the general population through the relevant established channels.
- Intensification of the Health Information and Education Campaign specific to the population general.
- Review of the frequency of sending health care demand alert indicators
- **Official Deactivation of the Alert** based on the information collected and analyzed by the security systems. Monitoring by the General Director and pertinent notification.
- Process analysis: Evaluation of the alert continuously and after its deactivation.

LEVEL 2

- **Official Activation of the Alert** based on the information collected and analyzed by the security systems. Surveillance. This activation corresponds to the General Director who will be the one to communicate the situation to the members of the Commission, other Health and Social Administrations, etc. and to the general population through the relevant established channels.

• Intensification of the Health Information and Education Campaign specific to the population
general.

• Review of the frequency of sending health care demand alert indicators

• **Official Deactivation of the Alert** based on the information collected and analyzed by the security systems.

Monitoring by the General Director and pertinent notification.

• Process analysis: Evaluation of the alert continuously and after its deactivation.

LEVEL 3

• **Official Activation of the Alert** based on the information collected and analyzed by the security systems.

Surveillance. This activation corresponds to the General Director who will be the one to communicate the situation to the members of the Commission, other Health and Social Administrations, etc. and to the general population through the relevant established channels.

• Intensification of the Health Information and Education Campaign specific to the population
general.

• Review of the frequency of sending health care demand alert indicators. Promote the use
of other alternative indicators of Health levels and other derived effects.

• **Official Deactivation of the Alert** based on the information collected and analyzed by the security systems.

Monitoring by the General Director and pertinent notification.

• Process analysis: Evaluation of the alert continuously and after its deactivation.

GENERAL DIRECTORATE OF SOCIAL SERVICES

PREPARATORY PHASE

• Identification of risk groups and updating censuses of individuals belonging to groups
vulnerable.

• Forecasting and cataloging the resources available specifically for alert situations.

• Dissemination of the Plan to the different administrative units involved in its implementation.

LEVEL 0

- Activation of specific resources to monitor particularly vulnerable populations
(telecare, residences, day centers, etc.).
- Collaboration in the dissemination of the Information Campaign within the specific scope of the Network of Social services.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign (final document).

LEVEL 1

- Specific information on the special risk situation (Alert level 1) to professionals and centers that could serve people of special vulnerability.
- **Individual review** of the situation of said population at the time the alert was notified.
- Increase in information and Health Education activities in the target population.
- Personalized individual intervention in specific cases of health risk due to the effect of heat.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 2

- Specific information on the special risk situation (Alert level 2) to professionals and centers that could serve people of special vulnerability.
- **Individual review** of the situation of said population and **monitoring** during the time stay alert.
- Personalized individual intervention in specific cases of health risk due to the effect of heat.
- Increase in information and Health Education activities in the target population.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 3

- Specific information on the special risk situation (Alert level 3) to professionals and centers that could serve people of special vulnerability.
- **Individual control** of vulnerable people, assessing -according to their condition- the frequency of individual monitoring by Social Services personnel, **until their placement** in enabled units for as long as the alert remains.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

CANTABRIAN HEALTH SERVICE

PREPARATORY PHASE

- Identification of risk groups and updating of censuses of patients belonging to groups vulnerable in each Health Center.
- Dissemination to professionals in the healthcare network in both Primary Care and Health Services.
Urgency of specific rules for declaration of pathology for the Monitoring of the effects on Health from excess temperature.
- Dissemination of the Plan to the different administrative units involved in its implementation.

LEVEL 0

- Collaboration in the dissemination of the Information Campaign within the specific scope of the network health care.
- Sending information of epidemiological interest to the Surveillance Services:
Assistance demand (weekly routine)
Incidental heat pathology (urgent declaration: <24 hours)
- Process analysis: Sectoral evaluation of actions at the end of the Campaign (final document).

LEVEL 1

- Specific information on the special risk situation (Alert level 1) to professionals and centers that could serve people of special vulnerability.
- **Individual review** of the situation of said population at the time the alert was notified.
- Increase in information and Health Education activities in the target population.
- Personalized **individual intervention** in specific cases of health risk due to the effect of heat.
- Continuation of sending epidemiological information to the Surveillance Services, reviewing, if necessary, precise, shipping frequency.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 2

- Specific information on the special risk situation (Alert level 2) to professionals and centers that could serve people of special vulnerability.
- **Individual review** of the situation of said population and monitoring during the time stay alert.
- **Personalized individual intervention** in specific cases of health risk due to the effect of heat.
- Increase in information and Health Education activities in the target population.
- Continuation of sending epidemiological information to the Surveillance Services, reviewing, if necessary, precise, shipping frequency.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 3

- Specific information on the special risk situation (Alert level 3) to professionals and centers that could serve people of special vulnerability.
- **Individual control** of vulnerable people, assessing -according to their status- from monitoring individual with a certain frequency by Primary Care personnel **until admission** to hospital centers or specially enabled units during the time the alert is maintained.
- Continuation of sending epidemiological information to the Surveillance Services, increasing the sending frequency and the possibility of incorporating other relevant Health information.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

CIVIL PROTECTION

PREPARATORY PHASE

- Identification of risk groups and activities present or planned in the specific territorial area of each operational unit (camping, sporting events, festivities or other gatherings important people).
- Forecasting and cataloging the resources available specifically for alert situations.
- Dissemination of the Plan to the different units involved in its implementation.

LEVEL 0

- Collaboration in the dissemination of the Information Campaign within its specific scope.
- **Ordinary surveillance** of groups and activities with present or foreseeable risk in the territorial area specific to each operational unit (camping, sporting events, festivities or other significant concentrations of people).
- Process analysis: Sectoral evaluation of actions at the end of the Campaign (final document).

LEVEL 1

- Information on the declared alert situation with indication of specific measures aimed at members of groups and activities present or foreseeable in the specific territorial scope of each operating unit (camping, sporting events, festivities or other major gatherings of people).
- **Review of the situation** of the populations indicated in the previous section at the time of notify the alert.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 2

- Information on the declared alert situation with indication of specific measures aimed at members of groups and activities present or foreseeable in the specific territorial scope of each operating unit (camping, sporting events, festivities or other major gatherings of people).
- **Control of compliance with the** indicated health promotion measures, by the populations indicated in the previous section during the development of the activities.
- **Specific interventions** (suppression of acts, transfer of groups, etc.) only if they exist problems to keep groups out of risk.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 3

- Information about the alert situation declared to the members of groups and activities present or foreseeable in the specific territorial scope of each operational unit (camping, sporting events, festivities or other important gatherings of people) with indication of specific measures For their development.
- **Direct supervision of compliance with said measures.**

• **Specific interventions** (suppression of acts, transfer of groups, etc.) whenever the situation could present problems in keeping groups out of risk due to non-compliance or impossibility of carrying out Health Protection measures.

• Process analysis: Sectoral evaluation of actions at the end of the Campaign.

RED CROSS (VOLUNTARY PARTICIPATION)

PREPARATORY PHASE

- Identification of risk groups and updating censuses of individuals belonging to groups vulnerable.
- Preparation of Campaign to Promote and Promote Volunteering.
- Forecasting and cataloging the resources available specifically for alert situations.
- Preparation of a specific information and support campaign for both the general population and the specifically vulnerable.

LEVEL 0

- Implementation of the information and collaboration activities in the dissemination of the Campaign of Information of the Directorate of Public Health within the specific scope of the population followed by the institution.
- **Activation of specific resources** to monitor especially vulnerable populations.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign (final document).

LEVEL 1

- Specific information on the special risk situation (Alert level 1) to workers and volunteers that could serve people of special vulnerability.
- **Individual review** of the situation of said population at the time the alert was notified.
- Increase in information and Health Education activities in the target population.
- Personalized **individual intervention** in specific cases of health risk due to the effect of heat.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 2

- Specific information on the special risk situation (Alert Level 2) to workers and volunteers that could serve people of special vulnerability.
- **Individual review** of the situation of said population and monitoring during the time stay alert.
- Personalized **individual intervention** in specific cases of health risk due to the effect of heat.
- Increase in information and Health Education activities in the target population.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 3

- Specific information on the special risk situation (Alert level 3) to workers and volunteers that could serve people of special vulnerability.
- **Individual control** of vulnerable people, assessing -according to their condition- the increase in frequency individual monitoring by Red Cross personnel, **until their internment** in units specifically enabled by Social Services or the Cantabrian Health Service during the time they are stay alert.
- Process analysis: Sectoral evaluation of actions at the end of the Campaign.

FEDERATION OF MUNICIPALITIES OF CANTABRIA

PREPARATORY PHASE

- Dissemination and advice to Local Entities for the implementation of the Plan.
- Communication to City Councils of the need to identify risk groups and update of censuses of individuals belonging to vulnerable groups.
- Forecasting and cataloging of available resources by the City Councils and their respective Social Action Units (Home Help Services and Telecare Services) specifically for alert situations.

LEVEL 0

- Collaboration in the dissemination of the Information Campaign aimed at both citizens and specifically to the Social Services of the City Councils.

• **Ordinary surveillance** of activities dependent on the City Councils that could increase the risks due to exposure to high temperatures (sports or artistic events, festivities or other significant concentrations of people).

• Process analysis: Sectoral evaluation of actions at the end of the Campaign (final document).

LEVEL 1

• Direct and promote generic information on the special risk situation to the City Councils.

(Alert level 1) to citizens as well as specifically to Social Services workers municipal Home Help and Telecare programs with an increase in information and Health Education in the target population.

• **Design and indication of specific measures** to be carried out regarding activities dependent on the City councils that could increase the risks due to exposure to high temperatures (events sporting or artistic events, festivities or other important gatherings of people).

• **Material and organizational support** to other groups involved (especially Civil Protection).

• Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 2

• Direct and promote generic information on the special risk situation to the City Councils.

(Alert level 2) to citizens as well as specifically to Social Services workers municipal Home Help and Telecare programs with an increase in information and Health Education in the target population.

• Control of compliance with the specific health promotion **measures** to be carried out regarding activities dependent on the City Councils that could increase the risks due to exposure to high temperatures (sporting or artistic events, festivities or other important gatherings of people).

• **Material and organizational support** to other groups involved (especially Civil Protection).

• Process analysis: Sectoral evaluation of actions at the end of the Campaign.

LEVEL 3

• Direct and promote generic information on the special risk situation to the City Councils.

(Alert level 3) to citizens as well as specifically to Social Services workers

municipal Home Help and Telecare with

increase in information activities and Health Education in the target population.

• **Direct supervision** of compliance with all measures to avoid health problems in

activities dependent on the City Councils that could increase the risks due to exposure to

high temperatures (sporting or artistic events, festivities or other important gatherings of

people), with specific interventions (suppression of acts, transfer of groups, etc.) whenever

the situation required it.

• **Material and organizational support** to other groups involved (especially Civil Protection).

• Process analysis: Sectoral evaluation of actions at the end of the Campaign.

ANNEX IV

CLIMATIC ZONING OF CANTABRIA FOR THE PLAN OF PREVENTIVE ACTIONS AGAINST THE EFFECTS OF EXCESS TEMPERATURES

The climate of Cantabria is defined, on the one hand, by its latitude, in the center of the temperate zone of the Northern Hemisphere, and, on the other, and decisively, by its position next to the sea and its relief.

Cantabria is located in the temperate zone of the Northern Hemisphere, where air masses converge tropical and those of polar and even arctic origin, which allows the region to receive these influences alternatively, opposing, which create a warm, although changing, environment, with rare thermometrically extreme values, but with a strong instability, which gives rise to the constant formation of disturbances.

In this way, storms circulate over the region continuously from October to May, leaving an almost constant although very changeable cloudiness, winds, quite cool temperatures and copious rainfall. Only in summer do Atlantic storms weaken and remain in latitudes higher, which allows Cantabria to be under the influence of the subtropical anticyclone of the Azores, with a more benign and less changeable weather.

In general, situations of influence of polar storms dominate in Cantabria, on the one hand, and also of influence of the Azores anticyclone, on the other. But this general scheme masks a variety of nuances in our region that a more detailed analysis allows us to differentiate, even, microclimates, imposed by factors local and there is also room for southerly wind situations, when polar low pressures are located to the northwest

of the Iberian Peninsula, giving rise to the famous “suradas” that, also decisively influenced by the relief, give rise to the well-known “Föhn effect”, with very different characteristics on either side of the Mountain range.

These warm, moisture-laden air masses from the tropical Atlantic travel across the peninsula from south to north until it meets the Cantabrian Mountains, before which it ascends and loses hygrometric capacity, that is, the ability to contain moisture when cooled, discharging that moisture into the south face of the Cordillera. Once this is overcome, and it is already dry, the air masses descend towards the sea quickly over the steep slope, acquiring greater speed and heating up at the same time, so that, when reaches the coast, with generally gusty winds, can drop the relative humidity to below 30% and that temperatures experience increases of a dozen degrees during the hours that the episode, which makes it possible to go above 30° C in winter, although in summer they are much less frequent.

In short, summer in Cantabria could be described, in general, as cool, not exempt from situations of heat wave (although also relative cold), but a zoning can be established based on characteristics and nuances that allow us to differentiate four large areas:

- **The coastal zone up to 5-10 km.** towards the interior, where the marine influence is more noticeable, with mild temperatures throughout the summer, generally not exceeding 28-30° C in the central hours of the day and with seasonal maximums of 33-35° C, although the nocturnal maximums Only exceptionally do they exceed 20° C.
- **The interior valleys**, from Nansa to Soba, with differences also between them depending of its breadth, although minimal for our interest, and also with nuances as gained in height. In these valleys the marine influence is also noticeable, so the temperatures Maximum temperatures in summer rarely exceed 30-32° C, while nighttime temperatures are even higher. cooler than on the coast, due to the effect of altitude.
- **Liébana.** Its closed character and isolated from the marine influence means that in the center of the valley, in the lowest parts, in summer it can frequently exceed 35° C during the day, while at night, depending on the dominant air masses at altitude, they can get trapped at the bottom of the valley warm masses, which is also more frequent than Minimum summer temperatures exceed 20° C.

- **The southern valleys.** Its distance from the sea and its altitude and breadth are what characterize the climate of this zone. Its opening to the south allows the penetration of warm air, bringing temperatures They can also easily exceed the daily maximum of 35° C. However, the altitude and that same opening causes the temperature to drop rapidly at night, with amplitudes daily thermal temperatures above 30° C, even giving slight frosts, and not exceeding, generally, 15°-16° C.

Therefore, daily temperatures of the day and forecast for the next 5 of these four areas from the automated weather stations of that of the areas of Santander, Torrelavega, Potes and Reinosa. This allows the General Directorate of Public Health determine and monitor their respective risk levels and, if intervention levels are reached in any of them, the Plan would be activated on a partial basis and restricted to the area in question.

Municipalities according to Climatic Zone

Coast	Inland valleys	Inland valleys	Liébana	Campoo
Alfoz de Lloredo	Ampuero	San Pedro del Romeral	Liébana Bighead	Campoo de En half
Argoños	Anievas	San Roque de Riomiera	Camaleño	Yuso Field
Arnuelo	Sands of Iguña	Saint Mary of Cayon	Cillorigo de Liébana	Herm. from Campoo suso
Shipyard (The)	Arredondo	Santiurde of Reinosa	Penarrubia	Reinosa
Bárcena de Cicero	Bárcena de Pie de Shell	Santiurde of Toranzo	Pesaguero	Rozas de Valdearrojo
Bareyo	Cabezón de la Sal	Saro	Valdeolea	
Camargo	Cabuerniga	Selaya	Tresviso	Valdeprado del Río
Castro-Urdiales	Cards	Soba	Vega de Liébana	Valderredible
Colindres	Castaneda	Solorzano		
Quotation marks	Cieza	Gorse (The)		
Escalante	Buelna Corrales)	Torrelavega		
Laredo	Toranzo Corvera	Tudanca		



Coast	Inland valleys	Inland valleys
reading	water trap	Vega de Pas
Cudeyo Marina	Guriezo	Villacarriedo
Meruelo	Basket Happenings	Villaescusa
Miengo	Blacksmiths	Villafufre
Noja	Lamason	Villaverde of
		Tricks
Piélagos	Liérganes	Vote
Polanco	clean	
Santillana del Mar	Risk Bridge	
Santoña	Branches of Victory	
Suances	Rasines	
Udias	Reocin	
Val de San Vicente	Ruente	
Valdáliga	Pray	
	San Felices de Buelna	
	San Miguel de Aguayo	



ANNEX V

COMMUNICATION MODELS FOR ACTIVATION/DEACTIVATION OF ALERTS OF THE PLAN CANTABRIA

**PLAN OF PREVENTIVE ACTIONS AGAINST THE EFFECTS
OF EXCESS TEMPERATURE ON HEALTH
CANTABRIA**

LEVEL 1

Based on the information collected and analyzed by the Surveillance systems and given the forecast that the maximum and minimum temperatures simultaneously exceed the respective reference thresholds for one or more two days, this General Directorate proceeds to activate the **Level 1 Alert (Yellow)** for the following areas:

COASTAL AREA	
INNER VALLEYS	
LIÉBANA	
REINOSA-VALDERREDIBLE	

The actions corresponding to the established protocols must be implemented.

ACTIVATION DATE:

DIRECTOR GENERAL OF PUBLIC HEALTH

* Please acknowledge receipt as soon as possible

*

**PLAN OF PREVENTIVE ACTIONS AGAINST THE EFFECTS
OF EXCESS TEMPERATURE ON HEALTH
CANTABRIA**

ALERT ACTIVATION COMMUNICATION

LEVEL 1

Based on the information collected and analyzed by the Surveillance systems and given the forecast that the maximum and minimum temperatures simultaneously exceed the respective reference thresholds for one or more two days, this General Directorate of Public Health proceeds to activate the **Level 1 Alert (Yellow)**. The pertinent actions must be implemented according to the established protocols.

ACTIVATION DATE:

DIRECTOR GENERAL OF PUBLIC HEALTH

* Please acknowledge receipt as soon as possible

*

**PLAN OF PREVENTIVE ACTIONS AGAINST THE EFFECTS
OF EXCESS TEMPERATURE ON HEALTH
CANTABRIA**

ALERT DEACTIVATION COMMUNICATION

Based on the information collected and analyzed by the Surveillance systems and the standardization of the meteorological forecasts that motivated it, this General Directorate of Public Health proceeds to the deactivation of the Level Alert..... dated.....

DEACTIVATION DATE:

DIRECTOR GENERAL OF PUBLIC HEALTH

**PLAN OF PREVENTIVE ACTIONS AGAINST THE EFFECTS
OF EXCESS TEMPERATURE ON HEALTH
CANTABRIA**

ALERT DEACTIVATION COMMUNICATION

Based on the information collected and analyzed by the Surveillance systems and the standardization of the meteorological forecasts that motivated it, this General Directorate of Public Health proceeds to the deactivation of the Level Alert..... dated.....

DEACTIVATION DATE:

DIRECTOR GENERAL OF PUBLIC HEALTH