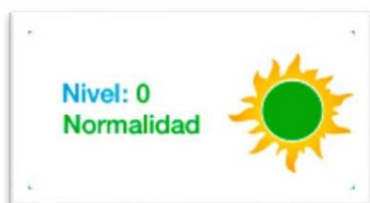


Surveillance and Control of Effects of Heat Waves 2022

Plan de Respuesta ante los riesgos



Comunidad
de Madrid

Dirección General de Salud Pública
CONSEJERÍA DE SANIDAD

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Antecedentes

1

Numerous epidemiological studies indicated, even before 2003, an increase significant mortality above a certain thermal threshold. However, the most European countries did not have specific prevention and warning systems to deal with the effects of high temperatures before that year.

The intense heat wave that affected Western Europe in the summer of 2003 marked a turning point in the social and political perception of the potential health impact of extreme heat. Although France was the most affected country, with an excess mortality of approximately 15,000 deaths, many other countries, including Spain, suffered the lethal effects of very high temperatures that lasted for weeks. Some studies, such as that of Robine JM et al. (2008), came to estimate 70,000 deaths excess mortality in Europe. For Spain, a study by the National Center for Epidemiology amounted to around 6,500 deaths more than expected, the mortality that was recorded throughout of those three summer months.

Given the alarm raised, and to avoid the repetition of such a dramatic episode, the greatest Some European countries urgently designed surveillance plans and systems intended to prevent the effects of thermal extremes on the health of the population. In Spain, the Ministry of Health and the Health Departments of many autonomous communities, including the Community of Madrid, develop prevention and control campaigns. of the effects of heat waves since the summer of 2004.

Climate change is causing an apparent increase in weather events extremes including heat waves. The trend is very clear. According to the report of the World Meteorological Organization on the state of the global climate in 2021, confirmed that the last seven years have been the warmest on record. Fits It should be noted that 2021 was "only" one of the seven warmest years due to the reduction transient temperature attributable to the La Niña episodes that occurred at the beginning and at the end of the year. However, this temporary cooling effect did not reverse the trend general increase in temperatures. In 2021, the global average temperature exceeded

approximately 1.11 ± 0.13 °C above pre-industrial levels. The last seven years (2015-2021) have been the seven warmest years on record.

Recent heat waves in Europe have caused an increase in related mortality, But it is also true that the adverse effects of heat waves can be largely prevented. Prevention requires a portfolio of actions at different levels, including early weather warning systems, recommendations to the population, timely medical advice, improved housing and urban planning, as well as ensuring that social and economic systems health professionals are prepared to act. This is, in essence, what the action plans against heat waves pursue.

According to AEMET, in Spain, summer 2021 (period between June 1 and June 31) August 2021) has been normal, with an average temperature over Spain peninsular of 22.1 °C, a value that is 0.3 °C above the average for this station (reference period 1981-2010). It was the 19th warmest summer since 1961 and the fourteenth warmest of the 21st century.

In the Community of Madrid, the summer of 2021 provided new evidence at the local level, in the Community of Madrid, of the reality of climate change. In this sense, it should be noted that the most notable thing about the 2021 Heat Wave Environmental Monitoring Campaign was the 42.0°C maximum temperature recorded on August 12, being the highest maximum temperature since the Environmental Monitoring Plan began. of the Heat Waves in 2004.

The heat wave alert was activated three times during the summer of 2021. The first heat wave, from July 6 to 23, led to 18 consecutive days on alert, of which 6 were level 2 (high risk). In the second heat wave, from August 7 to 17, there were 11 days followed on alert, of which 9 were at level 2 (high risk). The third heat wave episode occurred on August 24, lasting only 1 day, activated a posteriori due to an error in the weather forecasts and because the delayed effects of heat are relevant for the most vulnerable population.

Forecasts point to an increase in the Earth's average temperature of two degrees in the next 100 years. For the Community of Madrid the projections made by AEMET indicate for the end of the 21st century, in the worst scenario, a possible increase of up to 6°C in maximum annual temperatures compared to the period 1961-2000, around 40% of the days of the year with a maximum temperature recorded above 36, 5°C and a duration of heat waves around 20 days.

Furthermore, we must take into account a fact of great importance: the majority of mortality caused by high temperatures occurs in a collective that increases uninterrupted: that of people who reach advanced ages, who often live alone and present health problems (cardiac, respiratory, etc.) that in themselves could explain the death, but which are aggravated by the dehydration and overload that It means heat for an aged and sick organism.

The most serious effect of high temperatures, heat stroke, is also more difficult to detect in older people as they are at greater risk of dehydration, especially those who suffer from cognitive problems, suffer from chronic illnesses or They are polymedicated with drugs that promote dehydration. If it is not about form Adequate treatment can lead to shock with multiple organ failure.

According to the latest 2020 population projections from the INE for the whole of Spain, the percentage of population aged 65 and over, which currently stands at 19.6% of the total population, would reach a maximum of 31.4% around 2050. From then on it would begin to descend The centenarian population (those who are 100 years old or older) would go from 12,551 people currently to 217,344 at the end of the projected period (2070). The United Nations places Spain as the oldest country in the world by 2050.

According to the data from the registry as of January 1, 2021, in the Community of Madrid, there are 366,375 people aged 80 or over, who represent 5.4% of the population, of which Approximately a third live alone, most of them women.

This demographic reality and the compelling scientific evidence available about the The health impact of high temperatures, especially in this group of people, requires work for continuous improvement of surveillance and control plans for the effects of heat waves that minimize the consequences of an increasingly relevant problem of public health.

Introducción

2

The Community of Madrid launched its Surveillance and Control Plan for the effects of the heat waves in the summer of 2004. Since then it has developed every year, between June and September, with the involvement of numerous institutions from both the health network and social services, city councils and other departments that are coordinated through a Technical Commission for the Coordination of the Plan chaired by the General Directorate of Public Health.

Operationally, the Plan establishes a Surveillance and Information System that takes into consideration the temperature that may pose a health risk in the geographical area of the Community of Madrid. Based on the existing scientific literature, it was established

a maximum of 36.5°C as the threshold above which a significant increase in mortality occurs and, therefore, it is necessary to activate health protection measures. Since 1

From June to September 15, it is reported daily (except weekends and holidays) of the level of risk/alert for heat, both to the general population and to health professionals, social organizations and institutions responsible for the socio-health care of the groups vulnerable. In this way it is possible to be prepared several days in advance before the eventual arrival of a heat wave and reinforce intervention mechanisms.

A fundamental part of the Plan is the surveillance of morbidity and mortality that are going recording during the campaign in order to compare the observed data with the expected ones and thus be able to early detect an unusual increase in these variables.

There is no doubt that, since its entry into force in 2004, the Surveillance and Control Plan of The Effects of Heat Waves in the Community of Madrid has been gaining importance every year.

increasingly as an instrument to prevent the effects of high temperatures. As every summer, the objective in this nineteenth campaign is to deliver information and preventive messages to a growing number of people with the help of development permanent dissemination systems and improve intervention on the vulnerable population through the coordination of all the institutions involved in the plan.



The General Objective of the Plan is aimed at reducing morbidity and especially mortality associated with unusual increases in temperature (heat waves).

The Specific Objectives are:

- Improve information aimed at the general population: advice and measures specific preventive measures.
- Increase information aimed at health professionals and socio-sanitary.
- Reduce serious morbidity associated with heat waves.
- Reduce mortality associated with heat waves.

Criterios de Intervención Niveles de Riesgo

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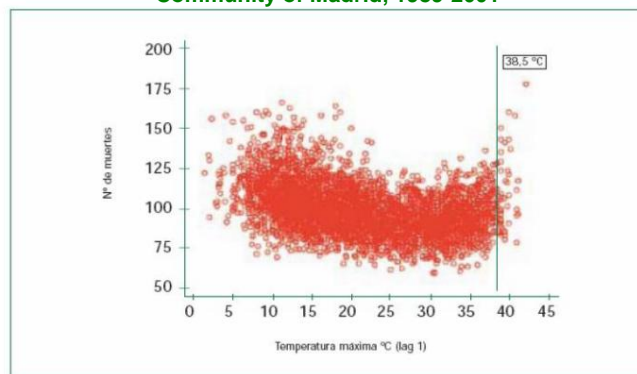
The criteria for intervention in the Community of Madrid are based on the analysis of time series of temperature and mortality. The functional relationship between maximum temperature and mortality has been studied, controlling the possible effect of confusion and modification. effect of other environmental variables such as relative humidity and atmospheric pollution. It has not been observed that the relationship between temperature and mortality has changed. change due to these two variables.

Three components associated with excess mortality due to high temperatures have been detected:

- Temperature intensity.
- Accumulation of days with high temperatures.
- Time of the summer period in which the exhibition occurs.

Of them, **intensity** is the component that has the most influence, especially when extreme values are reached. When temperatures exceed 38.5°C, as can be seen in the graph, there is a very significant increase in mortality, more than 20% compared to summer days in which the temperature is below 30°C.

Functional relationship between maximum temperature and daily mortality
Community of Madrid, 1989-2001



Source: Prepared by the Epidemiology Service. Ministry of Health. Madrid's community.

Second, **the accumulation of days with high temperatures** seems to be a relevant component regardless of intensity, increasing mortality when exceed 36.5°C for 4 consecutive days. This component was decisive in the effects of the 2003 heat wave, when only one day in the first half of August (the period in which excess mortality was concentrated) recorded a temperature above 38.5°C, almost all of the effect being due to the accumulation of high temperatures, although not will become extreme.

Finally, **the time of summer** in which heat waves occur is also important, although to a lesser extent . The risk is higher in the first part of the period than in the second. This circumstance is related to the exhaustion of the susceptible population and the greater acclimatization that occurs in the second part of summer.

However, based on the experience of the 2003 heat wave, which occurred fundamentally during the first fortnight of August, it has not been considered appropriate to have take this component into account when setting the criteria to establish the levels of intervention. It is worth noting, however, that the non-inclusion of this criterion may lead to an increase in the number of false positives, in exchange for the possibility of detecting excess mortality due to late heat waves.

Therefore, based on the first two components mentioned, the different levels of risk that are the key indicators to determine the type of intervention. Although the reliability of temperature prediction decreases after 72 hours, it has been deemed convenient to take into consideration the prediction until the 5th day to guarantee maximum health protection even if this implies, occasionally, failures in risk allocation, that is, the sensitivity of the system is enhanced at the cost of less specificity.

4.1. Risk Level 0, Normal

It is considered that there is no increased risk when the maximum predicted temperature for the current day and the following four days it does not exceed 36.5°C. This situation expresses the “normality” of summer temperatures in the Community of Madrid.

4.2. Risk Level 1, Caution

It is estimated that there is a moderate level of risk with a low intervention profile when the expected temperature for the current day or one of the four following days is higher than 36.5°C without exceeding 38.5°C, with a duration not exceeding greater than 3 consecutive days.

4.3. Risk Level 2, High risk

A high level of risk with a high intervention profile is considered to exist when the expected maximum temperature for the current day or the following four days is higher than 38.5°C for at least one day, or when temperatures above 36.5°C are expected for at least for 4 consecutive days.

4.4. Activation and deactivation of the Public Health Alert

Based on the criteria established to assign risk levels and depending on the real temperature and the alert level of the previous day, the activation and deactivation of the alert will be carried out in Public Health.

The alert must be generated with sufficient time to allow the implementation of the different levels of intervention and, in accordance with the Institutions responsible for it (Healthcare Network, Social Services, City Councils and other Departments), power carry out the functions of information and direct intervention on vulnerable population.

Alert Activation

The activation of the alert will be based on the risk level for that day. The risk level is determined daily based on the maximum temperature expected for that day and the four following days, taking into account that the maximum reliability of the forecasts reaches until seventy-two hours, decreasing from that moment on. As indicated previously, in this way three risk levels are established: 0, 1 and 2. The alert is activated when the risk level is 1 or 2.

Disabling the alert

The deactivation of the alert will be based on the risk level calculated for the day on course and the actual temperature observed the previous day. To deactivate the alert always It is necessary to take into account, in addition to the two previous variables, the alert level of the day former.



Características de la Intervención

5

The interventions, in which the different institutions participate in a coordinated manner involved, are organized based on the different levels of risk, establishing, therefore, the three levels of intervention described below.

5.1. Actions with Risk Level 0

At this level, the usual summer temperatures in the Community of Madrid are considered, which could be considered a normal situation, without a special risk.

The relevant action in this case will consist solely of **keeping the general population informed** of the health risks posed by high temperatures and exposure to solar radiation, as well as the general protection measures that they should be adopted for the summer.

The Ministry of Health will be responsible for delivering the messages to the population, using the most appropriate means of communication for this purpose.

At this level **it is not necessary to activate any type of** specific alert, neither to the population nor to the different institutions responsible for the intervention (Health Care Network, Social services, City Councils and other Departments).

The website of the Ministry of Health of the Community of Madrid [Calor y Salud](#) reports daily the expected Risk/Alert Level, including the expected evolution of maximum temperatures for the current day and the following 4 days.

5.2. Actions with Risk Level 1

Yellow Alert Activation: Alert 1 or Caution

This level of risk means that the predicted temperatures lead to an increase in mortality, which makes it advisable to expand the actions.

At this level it is indicated **to alert the Health Care Network and the different Institutions responsible for the intervention** (Social Services, City Councils and others Counseling).

The population will be informed of the appropriate measures to protect health against heat. general and risk groups. But, in addition, and in a more detailed way, to the people directly involved in the care of the vulnerable population:

- Health professionals.
- Social Services Professionals.
- Responsible for Nursing Homes and Day Centers.
- Heads of sports institutions.
- Civil protection.

The Ministry of Health will be responsible for sending the messages.

5.3. Actions with Risk Level 2

Red Alert Activation: Alert 2 or High Risk

This level of risk involves temperatures with potential serious health effects, with a manifest increase in mortality in vulnerable population.




The Health Assistance Network and the different Institutions with jurisdiction in Social Services.

At this level the information is the same and is directed to the same recipients as in the case of Risk level 1, but in this case **direct intervention on the vulnerable population** is also added .

The Ministry of Health will be responsible for sending the messages.

In relation to direct intervention on the vulnerable population: they will be the specific intervention plans developed by the Health Care Network and other responsible Institutions (Services social, City Councils and other Departments)

Scheme that interrelates the level of Risk with the intervention

Risk classification	Definition	Intervention	Responsible institutions
Level 0 Normal 	Maximum temperature expected for the current day and the following four days not exceeding 36.5°C.	<ul style="list-style-type: none"> • There is no Alert. • Normal situation. • General population information. 	<ul style="list-style-type: none"> • DG Public Health.
Level 1 Caution 	Maximum temperature expected for the current day or one of the following four days higher than 36.5°C and not higher than 38.5°C, with a maximum of three consecutive days.	<ul style="list-style-type: none"> • Alert Communication 1. • Information aimed at caregivers and specific risk groups. 	<ul style="list-style-type: none"> • DG Public Health. • Institutions of Social services. • Health Assistance Network.
Level 2 High risk 	Maximum temperature expected for the current day or one of the following four days higher than 38.5°C, or four consecutive days with a temperature higher than 36.5°C.	<ul style="list-style-type: none"> • Alert Communication 2. • Information aimed at caregivers and specific risk groups. • Direct intervention on vulnerable population in the home, institutional, health or social environment. 	<ul style="list-style-type: none"> • DG Public Health. • Social Services Institutions. • Health Assistance Network.

Población diana para la Intervención Población vulnerable

6

The target population of this intervention is identified based on its characteristics demographic, health and social, as well as their residence in a territory.

The consideration of “**frail elderly**” takes into account the use of scales that consider both medical-health and socio-demographic risk.

The target population of this intervention is the **frail elderly**, that is, people over 80 years old, and especially those who:

- They live alone, or with a very old or sick spouse, or with little support socio-familial.
- Have dementia or cognitive problems.
- They suffer from a serious illness or disability.
- They are being treated with life-saving medications.
- Have recently been discharged from the hospital.
- They live on the top floors of homes without an elevator and without air conditioning.
- With low socio-economic level.

Very important in the case of the city of Madrid, where more than three million people live. people and where around 65% of the population aged 80 or over of the entire population is concentrated. Community of Madrid, it is the so-called “**heat island**” **effect**: large buildings and asphalt They accumulate heat from the streets during the day and release it when night comes; the result is an increase in temperatures in the city center, both day and night, with respect to peripheral or rural areas where there is less built surface and greater ventilation.

For all these reasons, it is considered that there is an additional risk in the elderly who reside in the city of Madrid, especially in the Central and Southern districts*.

** The geographical area with excess mortality risk in the elderly population during the weeks of the 2003 heat wave covered the central and southern districts of Madrid capital (Centro, Retiro, Arganzuela, Villaverde, Carabanchel, Usera, Vallecas and part of Latina, San Blas and Moratalaz) and probably part of the municipalities of the south/southeast crown (especially Alcorcón, Leganés and Getafe).*

Population aged 80 or over in the municipalities of the Community of Madrid
absolute numbers

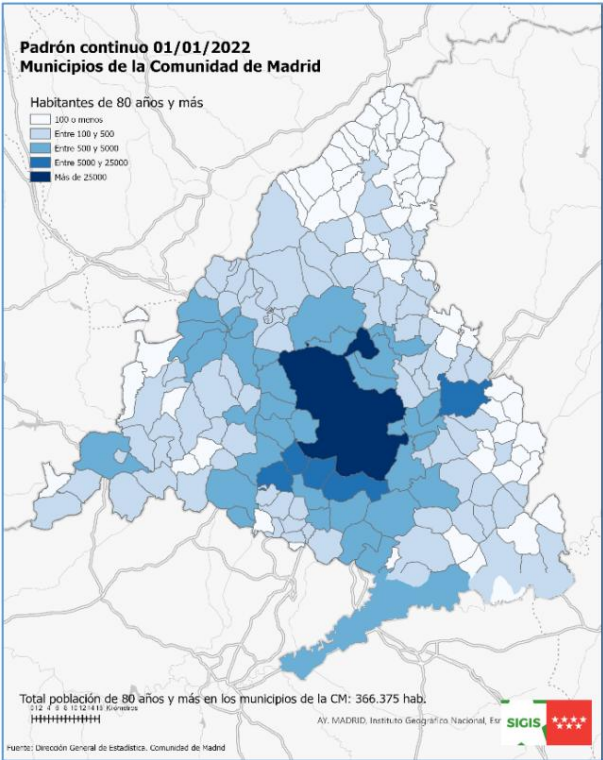


Figure 1. Own elaboration. General Subdirectorate of Food Safety and Environmental Health. SIGIS

Population aged 80 or over in the neighborhoods of the municipality of Madrid
absolute numbers

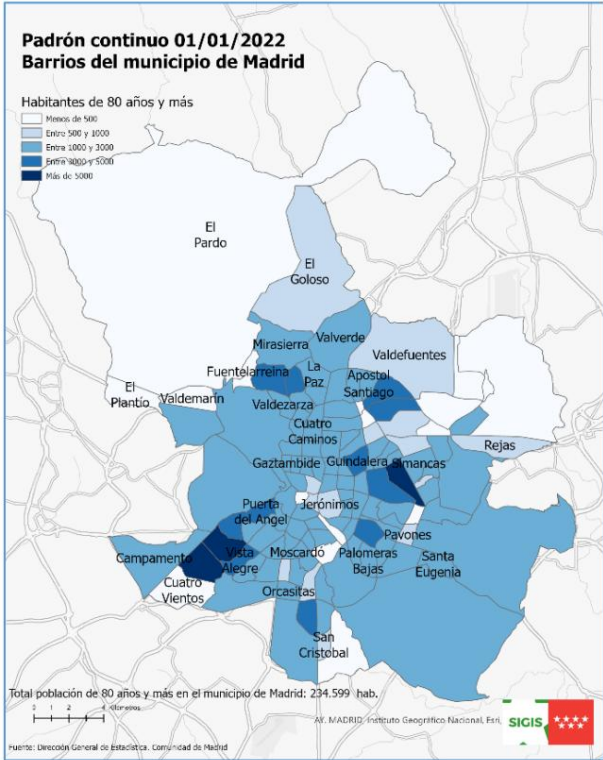


Figure 2. Own elaboration. General Subdirectorate of Food Safety and Environmental Health. SIGIS

Proportion of aging by municipalities of the Community of Madrid.
Number of people aged 80 and over/Total population

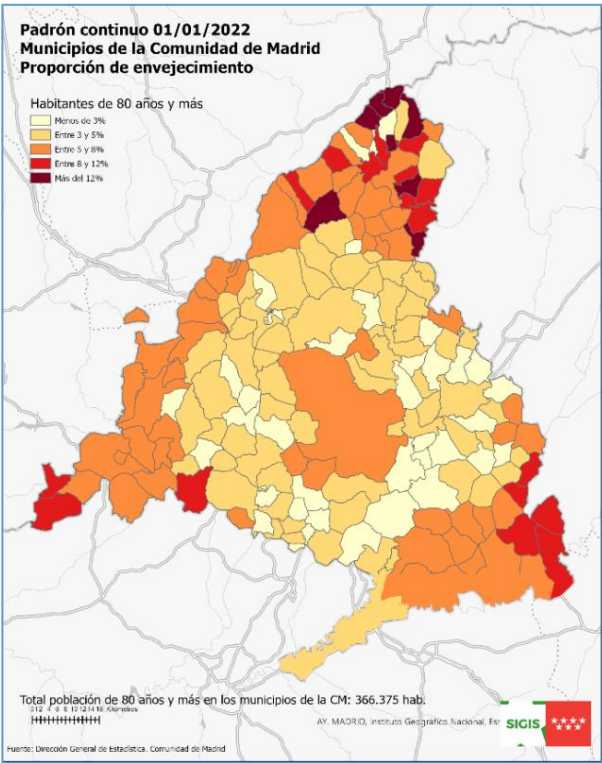


Figure 3. Own elaboration. General Subdirectorate of Food Safety and Environmental Health. SIGIS

Proportion of aging in the neighborhoods of the municipality of Madrid:
Number of people aged 80 and over/Total population

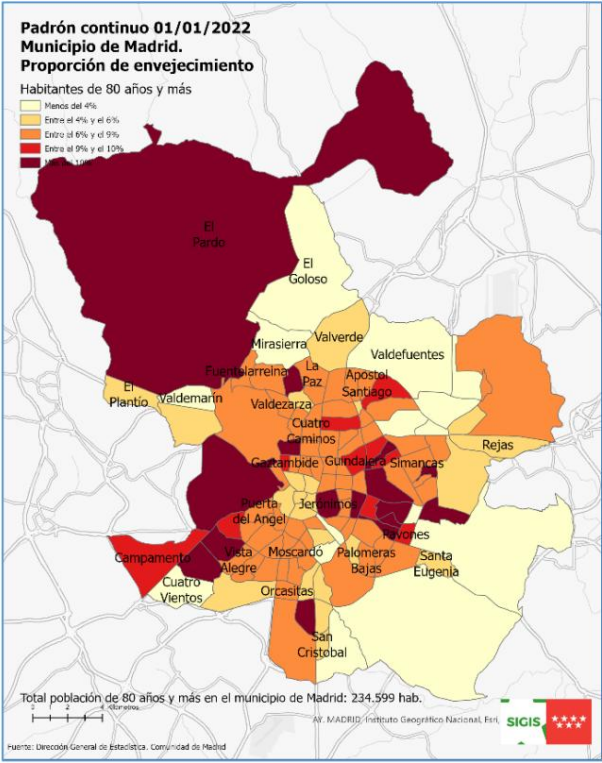


Figure 4. Own elaboration. General Subdirectorate of Food Safety and Environmental Health. SIGIS

In the previous maps, people over 80 years of age are reflected by municipalities. in our region and by neighborhoods of Madrid in absolute numbers (Figures 1 and 2), as well as Aging ratio, calculated as the number of people aged 80 and over with respect to the total population (Figures 3 and 4). This index provides a more precise vision of the areas with the most aging population in the Community of Madrid. In addition to older people, **children**, especially the **very small ones**, are enormously sensitive to the effects of high temperatures and require special monitoring.

Regardless of age, other population groups at risk are those that present the following features:

- Pre-existing diseases: cardiovascular, chronic respiratory, kidneys, diabetes, hyperthyroidism, morbid obesity, disease mental.
- Use of certain drugs* : anticholinergics, barbiturates, diuretics, antidepressants, antiarrhythmics, etc.
- Situations of dependency or disability.
- Alcoholism.
- Begging.
- Athletes and outdoor workers** are especially exposed at high temperatures.

*The Spanish Agency for Medicines and Health Products, dependent on the Ministry of Health, Social Services and Equality, updates each year the informative document on the [proper use of medicines in the event of a heat wave](#), which is aimed at health professionals.

**The National Institute for Occupational Safety and Health states in the document "[Working in the heat](#)" some preventive measures to follow to reduce risks.

Sistema de Información y Vigilancia

7

The Community of Madrid currently has adequate mechanisms that allow know in advance the increase in temperatures and its effects on the health of the population.

The objectives of the information and surveillance system are:

- Inform in advance about the different levels of risk.
- Detect changes in healthcare demand and mortality.
- Know the effects of different levels of risk on the health of the population (mortality and morbidity).
- Evaluate the appropriateness of risk levels based on health effects of the population and propose modifications if necessary.
- Deepen the knowledge of the effects of “heat waves” on health of the population.

The different surveillance systems will be activated from June 1 to September 15.

The surveillance system integrates data from two subsystems: environmental information and that of mortality and morbidity surveillance.

7.1. Environmental Information

The base information is the prediction of maximum temperatures for the current day and the four following as well as the temperature observed the previous day provided each morning by the State Meteorological Agency (AEMET). The reliability of the prediction is high for the current day and the next two and lesser for the fourth and fifth days.

The “**Information Bulletin. Heat Waves**” of the Risk Surveillance System Environmental will be prepared daily (except weekends and holidays) from the temperatures sent by the AEMET. Based on these temperatures and in accordance with the current protocol, the risk or alert level for that day will be established using a

different color (sun green, yellow or red). Risk level 0 corresponds to situation of normality and risk levels 1 and 2 correspond to alerts 1 and 2 respectively.

- Green sun: Risk Level 0, Normality.
- Yellow sun: Risk Level 1, Alert type 1, Caution.
- Red sun: Risk Level 2, Alert type 2, High Risk.

7.2. Mortality surveillance

Data from the Ministry of Justice will be used to monitor mortality.

based on computerized civil registries, data provided by the Carlos Health Institute

III. For the Community of Madrid, this source covers 82.4% of the population, 21 municipalities.

After modeling of the series and from June 1 to September 15, it will be reported weekly, or where appropriate daily, of the daily variations in mortality, for the total number of deaths and by 4 age groups, comparing the daily evolution of mortality with the historical series, to detect the appearance of unusual days in mortality and assess the possible relation to temperature variations.

In a complementary way, the use of the new mortality application will be explored, the registry of Funeral Services of the Community of Madrid "SAMO" (Mortuary Health). This weekly record collects a series of basic variables of the burials and is generated by funeral companies active in the Community of Madrid. Will be informed on a daily basis of the variations in mortality and the daily evolution of the mortality with the historical series, to detect the appearance of unusual days in mortality and assess the possible relationship with temperature variations.

7.3. Morbidity surveillance

The emergency registry of the Gregorio Marañón General University Hospital will be used to monitor morbidity.

Daily changes in healthcare demand will be reported on a weekly basis.

emergencies. A comparison will be made with the daily historical series, to detect the appearance of unusual days in the care demand and assess their possible interrelation with the variations in the temperature.

Planes Sectoriales

8

The Ministry of Health has strengthened coordination with all the institutions involved in the development of the specific intervention actions contemplated in the Plan, both the health network as well as social services, City Councils and other Departments, through the constitution of a **Technical Commission for the Coordination of the Surveillance Plan and Control of the Effects of Heat Waves in the Community of Madrid**. It is chaired by the General Directorate of Public Health of the Ministry of Health and made up of professionals from the following institutions:

- Primary Care Care Management. Ministry of Health.
- Hospital Care Management. Ministry of Health.
- General Directorate of Public Health. Ministry of Health.
- Madrid Social Care Agency. Ministry of Family, Youth and Politics Social.
- General Directorate of Care for the Elderly and Dependency. Ministry of Family, Youth and Social Policy.
- General Directorate of Sports. Ministry of Culture, Tourism and Sports.
- Civil Protection of the Community of Madrid. General Directorate of Security, Civil Protection and Training. Ministry of the Presidency, Justice and Interior.
- Madrid Health Institute of Public Health. City of Madrid.

Its objective is to promote and monitor intervention programs, especially for people most vulnerable to the effects of heat, that institutions have implemented.
represented:

8.1. Healthcare network. Primary Care and Hospitals

Primary Care

- The designated person in charge of the health center will receive daily information about the anticipated risk level. In case of activation of alert 1 or 2, this situation is will communicate to the rest of the health center professionals.
- Activities will be reinforced to prevent the effects of Heat Waves, especially those aimed at the most vulnerable population groups. They will be distributed informative documents with preventive advice.

Hospitals

- The person in charge designated by the hospital will receive information on the expected risk/alert level daily. In case of activation of alert 1 or 2, this situation must be known at least by those responsible for emergency care and management of nursing.
- Specific actions will be carried out aimed at vulnerable groups, especially in medium and long stay centers.

8.2. Social services

- The architectural and structural conditioning of the facilities will be sought, as well as such as the installation of air conditioners, so that groups vulnerable to those served can enjoy a comfortable temperature.
- Once the activation of the heat wave alert has been received, the situation will be notified to all devices of General and Specialized Social Services (Residences of Elderly People, Day Centers and Senior Centers and Care Centers People with Intellectual Disabilities).
- A Campaign will be carried out specifically aimed at raising awareness about the importance of adequate hydration during the summer season.

From the social services that care for the elderly and other vulnerable populations, they must reinforce activities aimed at all users and workers of the centers to prevent the effects of Heat Waves, especially in the event of activation of the alert yellow or red.

8.3. Sports institutions

- Once the heat wave alert is activated, the alert level will be communicated to all its levels: Madrid sports federations and their Training Centers Technicalization, General Subdirectorate of Physical Activity and Sports Programs, General Subdirectorate of Sports Facilities (and its dependent centers), as well as as dependent centers of the Ministry of Education for school centers open in the summer period.
- A campaign will be carried out to disseminate recommendations for safe practice of sporting activity during the summer season.

8.4. Civil Protection

- After receiving the activation of the heat wave alert, the situation will be reported to 112, to all city councils in the Community of Madrid, municipal civil protection services and Civil Protection Volunteers.
- Preventive measures against heat will be disclosed.
- If necessary, the Territorial Civil Protection Plan of the Community could be activated. Community of Madrid (PLATERCAM).

8.5. Madrid City Council

- In the event of an alert situation, it will communicate the situation to all its Attention devices: Municipal Health Centers, SAMUR 112, Social Services, SAMUR SOCIAL, Municipal Sports Centers.
- At its own municipal level, the Madrid City Council will disseminate preventive measures among the population to protect themselves from high temperatures.

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Recomendaciones para prevenir los efectos del calor sobre la salud



In addition to decompensating and aggravating chronic diseases, especially circulatory and respiratory, exposure to high temperatures causes **direct** effects on the organism. From least to most serious, these are some of them:

- Heat stress, defined as the discomfort and psychological tension associated with the high temperatures.
- Heat syncope, a common condition, with a feeling of dizziness and fainting in people exposed to the sun and heat, especially if they are standing for long periods of time.
- Heat exhaustion, a situation in which dehydration due to loss of water and salts from sweat cause symptoms that include intense thirst, dizziness, weakness and headache.
- Heat stroke.

HEAT STROKE

What is it?

The most serious risk of prolonged exposure to heat is so-called “knockout.” heat”, which can cause death or significant sequelae if there is no immediate treatment. Some signs and/or symptoms that can help us recognize “heat stroke” are, among others, the following:

- Body temperature, which can be very high, up to 40° C.
- Hot, red, dry skin (no sweat).
- Headaches, nausea, drowsiness and intense thirst.
- Confusion, seizures and loss of consciousness.

To do?

- Keep the person lying down.
- Quickly cool the body, using wet towels, fans or any other another similar method.
- Call the emergency number **112** or contact the Health Service more nearby.

In less severe cases, such as heat exhaustion, it is necessary to stop all activity, drink fluids, and cool the body.

Also remember that athletes, manual workers exposed to heat, and infants They are very sensitive to heat strokes.



Excess heat can have harmful effects on people's health, especially if they are elderly, chronically ill or children. The following tips can help us be very useful:

Remember:

- The rooms of the house must have blinds or awnings on the windows or balconies.
- It is important that you know the refrigerated places closest to your home where can go if necessary, such as hypermarkets, department stores, cinemas, public centers (libraries, day centers...).
- In case of intense heat, older people who live alone must be accompanied and receive daily help from family and neighbors or, failing that, ask for help from social services of your City Council.

Protect yourself from heat

- As far as possible, try not to go outside during the hottest hours of the day.
- If you must go out, look for shady areas and cover your head with a hat or cap. Wear lightweight, light-colored clothing.
- Avoid physical exertion. If you are an athlete, schedule your sports activity first thing in the morning in the morning or at dusk.
- Close the blinds and draw awnings on facades exposed to the sun. Take advantage of the cooler hours of the day to ventilate the house.
- Never leave anyone, people or pets, in a vehicle exposed to the sun in summer.

cool down

- Use water to cool your body: from wet cloths, shower or bath to bathing in the pool, river or sea.
- If you don't have air conditioning, you can find relief from the heat in a center commercial, cinema, library, museum or any other refrigerated public place.

Stay well hydrated and take care of your diet

- **Essential: Drink and make people around you drink fluids frequently. care (children, elderly, chronically ill, disabled, etc.) to get good hydration.**
- Eat in moderation, avoiding excesses. The various types of vegetables, salads, gazpacho, etc., as well as summer fruit (watermelon, melon...) are very recommended for their high content of water and mineral salts.

Ask for information and help. Help.

- If you are taking any medication, consult your doctor or pharmacist. in case it is necessary to adjust the dose (some medications can cause reactions adverse with heat).
- Ask a relative, neighbor or call your health center for help if you feel unwell because of the heat. If symptoms worsen, contact 112.
- During an episode of extreme heat, pay attention to people in distress. vulnerability of the neighborhood, especially the elderly, or chronically ill, especially if they live alone. Help them personally or make sure social services do.

Protect yourself from solar radiation

During the summer and other periods of high solar radiation we must be very cautious with sun exposure to avoid its harmful effects such as aging, premature skin rash, burns, heat stroke, sun spots, cancerous lesions or waterfalls.

As in previous campaigns, the 2022 Response Plan comes into force on June 1 and lasts until September 15. Its fundamental objective is to reduce the impact on health derived from exposure to high summer temperatures through:

- Information aimed at the population and health and social health professionals about the preventive measures that should be adopted against temperatures extreme.
- Specific intervention measures for the groups they serve by each of the institutions represented in the Response Plan.

The Plan is aimed at the general population, but especially at the sectors most vulnerable to the effects of heat such as the elderly, the chronically ill, children, etc. and to the professionals of the healthcare system of the Community of Madrid.

A heat risk level is established daily based on the maximum temperature expected for five days and is disseminated through various channels to the general population and to health and social health institutions. There are three levels of risk: level 0, Normal; level 1, Caution; and level 2, High Risk. Levels 1 and 2 involve the activation of the corresponding alert (type I or type II), which involves the adoption of specific intervention measures.

In addition, surveillance of the morbidity and mortality observed during the period in which the Plan is developed is carried out, in order to evaluate and compare the data recorded with those expected, as well as to detect early an unusual increase in these variables.



Dirección General de Salud Pública
CONSEJERÍA DE SANIDAD