

HEALTH CONTINGENCY PLAN SEASONAL – SUMMER MODULE

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TECHNICAL SHEET

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Index

1. INTRODUCTION	5
2. PURPOSE	7
3. AXES AND MEASUREMENTS OF THE PLANE	8
3.1. INFORMATION	8
3.1.1. Sources of information	8
3.1.2. Risk identification, assessment and communication	9
3.2. Prevention and Control	10
3.2.1. Public Health Measures	10
3.2.2. Provision of health care	11
3.3. Communication	12
3.4. COVID-19	13
4. MONITORING AND EVALUATION	15
4.1. Monitoring and monitoring	15
4.2 Plan Assessment	15
5. GOVERNANCE MODEL	16
5.1. National level	16
5.1.1. General Directorate of Health	16
5.1.2. Operating Group	16
5.1.3. Crisis Group	16
5.2. Regional Level	17
5.2.1. Regional Health Administrations	17
5.2.2. Regional Operating Groups (GOR)	17
6. ATTACHMENTS	19
Annex I - Plan monitoring and evaluation indicators	19
Annex II - Communication recommendations	21

List of abbreviations and acronyms

ACES	Group of Health Centers
ACSS	Central Administration of the Health System, IP
ANEPC	National Emergency and Civil Protection Authority
ARS	Regional Health Administration, IP
CH	hospital Center
CSP	Primary Health Care
DGS	Directorate-General for Health
DSIA	Information and Analysis Services Department
DSP	Department of Public Health
DSPDPS	Directorate of Disease Prevention and Health Promotion Services European Center
ECDC	for Disease Prevention and Control
ERPI	Residential Structures for Elderly People
eVM	Mortality Surveillance (<i>E-Mortality Surveillance</i>)
FEPONS	Portuguese Federation of Lifeguards
GOR	Regional Operating Group
INEM	National Institute of Medical Emergency, IP
IPMA	Portuguese Institute of the Sea and Atmosphere, IP
ISS	Social Security Institute, IP
LAT	Temporary Shelter Locations
WHO	World Health Organization
PMEPC	Municipal Civil Protection Emergency Plan
PPI	Prior Intervention Plans
RNCCI	National Integrated Continuing Care Network
SIARS	Information System of Regional Health Administrations
SICO	Death Certificate Information System
SNS	National Health Service
SNS 24	SNS 24 Call Center
SPMS	Shared Services of the Ministry of Health, EPE
UH	Hospital Emergency
ULS	Local Health Unit
USP	Public Health Unit
VDM	Daily Mortality Surveillance

1. INTRODUCTION

Portugal is one of the European countries vulnerable to climate change and extreme weather phenomena, taking into account its geographical location. There is data suggesting that in Portugal there is a trend towards an increase in the global average temperature as well as an increase in the number of days per year with high temperatures¹

In spring/summer, very high (extreme) temperatures often occur, not just occasionally, but over continuous periods of time, which can cause serious effects on health, including dehydration and decompensation of chronic diseases. Due to the potential effects on the health of populations, drownings, food poisoning, the increase in the population of vectors, namely mosquitoes and ticks, and fires are also relevant. The potential increase in morbidity may lead to an increase in demand for

health.

At this time of year, some regions of the country, such as the Algarve and other areas, increase their population due to seasonal movements linked to tourism and/or the occurrence of regular or sporadic mass events.

DGS has been promoting the implementation, since 2004, of Contingency Plans with the aim of minimizing the potential effects of intense heat on the population's health.

Since 2017, a model has been adopted based on the effects of environmental factors on health (indicators of demand for services, morbidity and mortality), currently available in real time.

The Seasonal Health Contingency Plan (winter and summer modules) is framed by legal regulations², reinforcing the need for all services and establishments of the National Health Service (SNS) to implement Contingency Plans at local and regional level.

The Summer and Winter Modules are part of the Seasonal Health Contingency Plan, valuing continuous intervention, communication and monitoring throughout the year, adapting them to seasonality and its specificities.

This Contingency Plan presents strategic guidelines and references that allow communicating the risk and its management to the population and partners in the health sector, as well as,

¹ Santos, F., Miranda, P. Climate Change in Portugal. Scenarios, Impacts and Adaptation Measures – SIAM II Project. Gradiva. Lisbon. 2006.

² Order No. 2483/2017 of March 23.

SEASONAL HEALTH CONTINGENCY PLAN – SUMMER MODULE | REFERENCES

empowering citizens for their individual protection (literacy) and the readiness of health services to respond to increased demand or demand that is different from that expected.

The national Seasonal Health Contingency Plan is a guiding document, with which the Regional Health Administrations (ARS) must be aligned, and for its operationalization they will define the most specific objectives, methodologies, measures and activities, as well as information/communication circuits, which they consider most appropriate at regional and local level, benefiting from the experience accumulated since 2004.

The availability of timely information on weather forecasts and demand for health services at the level of primary and hospital health care in each region allows Regional Health Administrations (ARS) and each Health Unit to adequate preparation of your response.

The Summer Module is activated in mainland Portugal, between May 1st and September 30th and, possibly, at other times depending on weather conditions.

The institutions of the Ministry of Health, at national level, namely the Central Administration of the Health System (ACSS), the National Medicines Authority (INFARMED, IP), the National Institute of Medical Emergency (INEM), the National Institute of Health Doctor Ricardo Jorge, IP (INSA) and Shared Services of the Ministry of Health, EPE (SPMS), are partners in this Plan, and, within the scope of their competences, each of these institutions defines its own action plan.

This Plan must also be coordinated, where applicable, with the Social Security Institute (ISS) and the National Emergency and Civil Protection Authority (ANEPC). At a national level, coordination with the ISS and ANEPC is carried out by the DGS.

The Plan must also be articulated with other Plans in force, namely with the National Plan for the Prevention and Control of Vector-Borne Diseases³ and the response measures to COVID-19 in force.

³ Law No. 4/2016 of February 29th.

2. PURPOSE

The Contingency Plan aims to prevent and minimize the negative effects of extreme heat on the health of the population in general and vulnerable groups in particular.

At regional and/or local level, using the indicators provided for in this Plan or others as a reference, the respective objectives will be defined.

Vulnerable groups include: the elderly, children, pregnant women, people with chronic illnesses and people who carry out outdoor activities.

The aim is also to minimize the occurrence of other events with an impact on health, the frequency of which may increase in summer, such as drownings and food poisoning.

The Plan aims to promote at all levels of the Health System:

- Risk assessment
- Risk management
- Risk communication.

3. AXES AND PLANE MEASUREMENTS

Plan Axes:

- Information;
- Prevention and Control:
 - o Public Health Measures; o
 - Provision of health care;
- Communication.

3.1. INFORMATION

3.1.1. Information sources

The risk assessment of the negative effects of heat on health is based on data obtained from various sources of information, namely:

- the Portuguese Institute of the Sea and Atmosphere (IPMA): provides the DGS with observed and predicted daily temperatures; Ultraviolet Index Forecast and Warning Scale
- Hot Weather Meteorological (DGS reserved area); the National Institute of Health Doutor Ricardo Jorge: Alerta Ícaro Index and Daily Surveillance of Mortality (MDV);
- o Portuguese Environment Agency (APA): Ambient Air Quality;
- o National Emergency and Civil Protection Authority (ANEPC): Active fires or other relevant occurrences;
- o Directorate-General for Health: Demand for health services (SIM@SNS); Surveillance of Mortality (eVM);
- the National Institute of Medical Emergency, IP (INEM), occurrences and activations; o SNS 24, “heat contact” data.

The description of information sources and indicators can be found in Annex I.

Some of the information can be georeferenced and integrate “basal activity zones” and endemic corridors, which allow comparison between what is expected and what is observed.

IPMA provides DGS with:

- o Maximum and minimum temperatures observed from the previous day and temperature forecast maximum and minimum for the day itself and the following day, in stations included in or assigned to ACES.

Meteorological warnings for hot weather/high temperatures at district level, available on the IPMA website, are prepared and evaluated globally by the meteorologist.

Hot weather warnings for each ACES will be issued based on a four-level scale (green, yellow, orange and red) defined by MeteoAlarm/Europe, according to climatological thresholds, within the scope of the European meteorological warnings project. These warnings take into account climatological information on a scale smaller than the district, based on the climatology of meteorological stations included in or allocated to ACES.

The DGS prepares the map of mainland Portugal, by ACES, with the IPMA hot weather warning scale, which is based on the maximum temperatures recorded at reference meteorological stations. This map is available in the reserved area of the DGS website.

The ARS, ULS, Hospitals and ACES use the indicators they consider relevant to monitor the situation, in accordance with the methodology agreed at regional and local level.

3.1.2. Risk identification, assessment and communication

Risk assessment for the purposes of internal warning and/or for the population, in each ARS, is carried out by the Public Health Departments (DSP) and/or Public Health Units (USP) based on the meteorological warning scale for hot weather of IPMA, in the information described in point 3.1.1. (Sources of information) and in Annex I.

The DSP/USP disclose, whenever justified, to the functional units, hospitals, partners (IPSS and others) the hot weather warning level defined by the IPMA, as well as other relevant factors that may have an impact on the health of the population and the demand for services:

- o Icarus Alert Index;
- o Minimum temperature $\geq 24^{\circ}\text{C}$, for at least 5 days;
- o Heatwave 4 Forecast (IPMA) or other phenomena such as dust clouds/excess suspended particles;
- o Relevant Civil Protection information;
- o Exceeding ozone levels;
- o Ultraviolet Index Forecast;
- o Local occurrences: mass events, fires, others;
- o Daily evolution of DMV and eVM mortality;
- o Demand for health services (CSP and hospitals);
- the *Universal Thermal Climate Index* -UTCI (IPMA);
- o “Capture” of information through informal sources - *epidemic intelligence*⁵ ;
- o Access to international alert platforms.

4 A heat wave is considered to occur when, in an interval of at least 6 consecutive days, the maximum daily temperature is 5°C higher than the average daily value in the reference period (World Meteorological Organization)

5 <http://www.dgs.pt/upload/member.id/ficheiros/i010835.pdf> (see page 103)

3.2. Prevention and Control

SNS institutions and establishments prepare their specific Contingency Plan, in accordance with the local reality and the provisions of the legal regulations in force. Specific Contingency Plans must be sent to the corresponding ARS.

Depending on the risk assessment, the DSP and USP inform their respective administrations to implement the measures considered appropriate, in conjunction with partners, in accordance with their specific Contingency Plans.

DGS must be informed whenever the risk assessment justifies the recommendation and adoption of exceptional measures (saudesazonal@dgs.min-saude.pt).

3.2.1. Public Health Measures

- o Communicate to health professionals, citizens, and the media, the start of the Summer Module of the Seasonal Health Contingency Plan (May 1st to September 30th, a period that can be brought forward or extended if conditions justify it);
- o Promote the SNS 24 line (808 24 24 24) as the first contact with the health system;
- o **Promote health literacy (see Communication): disseminate and reinforce recommendations for the population, and vulnerable groups in particular**, on preventive measures against the effects of heat on health, as well as other events whose frequency may increase in summer (sunburn and heat strokes⁶, drownings⁷, food poisoning, increase in the population of disease-transmitting vectors);
- o Coordinate with the Social Security Institute (ISS) and the National Emergency and Civil Protection Authority (ANEPC). At a national level, coordination with the ISS and ANEPC is carried out by the DGS;
- o Identify "temporary shelter locations (LAT)" (defined in the Municipal Plans of Civil Protection Emergency – (PMEPC) and Prior Intervention Plans (PPI));
- o Information on activation of "temporary shelter locations (LAT)", in accordance with the defined in the (PMEPC and PPI) existing for this purpose;
- o Promote meetings, in partnership with the District Social Security Centers, to recommend specific prevention measures for Residential Structures to Elderly People (ERPI) and other care institutions;
- o Promote meetings to recommend specific prevention measures for the Network National Integrated Continuing Care (RNCCI).

⁶ <https://www.dgs.pt/saude-aaz.aspx?v=8e00381f-52ce-45fb-b5a0-35fe84fa926a#saude-de-aaz/calor/perguntas-e-answers>

⁷ <https://www.dgs.pt/saude-aaz.aspx?v=8e00381f-52ce-45fb-b5a0-35fe84fa926a#saude-de-aaz/ferias/afogamento>

3.2.2. Health care provision

Based on the information available at national, regional and local level, the ARS and SNS institutions under their jurisdiction must organize themselves, at each moment, anticipating the needs to respond to demand (increase in demand or demand different from expected) with the aim of minimizing the effects of intense heat on health and services.

SNS institutions and services in outpatient and inpatient settings, according to their type, must:

- o Implement the respective Plan;
- o Promote the SNS 24 Contact Center (808 24 24 24) as the first contact with the health system;
- o Ensure interinstitutional coordination within and outside the health sector;
- o Identify in advance and manage needs in structures, equipment and resources human, with special attention to vacation periods;
- o Ensure the existence of air-conditioned rooms;
- o Check the suitability of air conditioning equipment and its operation;
- o **Identify the most vulnerable people (age, social isolation, comorbidities, housing conditions), and provide for the adaptation of your medication, when applicable;**
- o Ensure adequacy of care, including hydration (may be provided for provision of water supply points in waiting rooms);
- o **Inform health professionals, community agents (eg Firefighters; GNR; lifeguards; religious leaders and local associations) and the population, especially vulnerable groups, about preventive measures:**
 - o **To avoid the effect of heat on health;**
 - o **To avoid other events whose frequency increases in summer (drowning, food poisoning, accidents, presence of vectors, among others);**
- o Adapt the offer of consultations and resources:
 - o Adjust open consultation or appeal times;
 - o Adjust the number of consultations for orders on the same day;
 - o Adequate emergency service capacity;
 - o Possible dedicated service depending on demand (tourist consultation/posts Beach);
 - o Promote the air conditioning of consultation spaces and waiting rooms.
- o Inpatient care:
 - o Adequate installed capacity;
 - o Check medication stocks;
 - o Anticipate the need to expand the hospitalization area;

- o Adequate the installed intensive care capacity (when applicable and if necessary);
- o Promote the air conditioning of hospitalization spaces;
- o Ensure adequacy of care, including patient hydration.

Each SNS institution and service must ensure the widest dissemination of the measures to be implemented and promote their compliance.

The recommended measures are activated when necessary and appropriately, depending on the risk assessment, by decision of the ARS and the respective ULS, ACES, Hospital Centers/Hospitals and Inpatient Units of the National Integrated Continuous Care Network (RNCCI).

3.3. Communication

DGS and ARS must ensure that there are adequate communication circuits between services, for the effective and timely dissemination of information, risk communication and adoption of measures.

To communicate with professionals and the population, all available means must be used, namely:

- o Institutional pages (DGS8 , SNS Portal, User Portal, ARS and other health institutions);
- o SNS 24 (808 24 24 24);
- o Social communication/regional and local media;
- o Social networks and other communication supports.
- o Networks of micro-influencers and agents close to the population (eg Firemen; GNR; life guards; religious leaders and local associations).

Communication with the population must include:

- o Recommendations on:
 - o Potential effects of heat on the health of the population;
 - o SNS 24 (808 24 24 24): promote its use as the first contact with the health system, highlighting:
 - Accessibility and speed of contact with a health service;
 - Counseling and possible referral to a health service.

⁸ <https://www.dgs.pt/paginas-de-sistema/saude-de-aaz/calor.aspx>

- o INFARMED recommendations on the use and conservation of medicines⁹ ;
- o Measures to be observed to avoid the direct and indirect effects of intense heat on vulnerable groups, namely, information on individual protection measures, such as:
 - Hydration;
 - Food;
 - Clothing;
 - Sun exposure;
 - Work activity and physical exercise outdoors;
 - Thermal comfort of homes and facilities.
- o Individual protection measures to prevent vector bites.
- o National communication campaigns (contextualization by DGS):
 - Bathing safety, including prevention of accidents and drowning;
 - Promotion of healthy eating, including drinking water, and prevention of food poisoning;
 - Prevention of addictive behaviors (prevention of drug consumption and promotion of responsible consumption of alcoholic beverages);
 - Prevention of vector-borne diseases;
 - Recommendations on travel care.

COVID-19 and extreme temperatures (see point 3.4)

In regions of the country, with seasonal population movements linked to tourism and/or the occurrence of mass events, specific communication campaigns at a local or regional level can be applied. In these cases, in addition to reinforcing the themes of the aforementioned campaigns, the effects of intense sun exposure, the consumption of illicit substances, as well as risky sexual behavior should be highlighted.

3.4. COVID-19

Although, during the summer, weather conditions (air temperatures) may have a limited role in the transmission of COVID-19, it is important to consider that:

- o High temperatures can worsen the impact of COVID-19 due to decompensation underlying chronic diseases;
- o Greater mobility and contact between people can increase the transmission of the virus;

⁹ http://www.infarmed.pt/portal/page/portal/INFARMED/MEDICAMENTOS_USO_HUMANO/PRESCRICAO_DISPENSA_E_UTILIZACAO/MEDICAMENTOS_E_CALOR

SEASONAL HEALTH CONTINGENCY PLAN – SUMMER MODULE | REFERENCES

- o The occupancy rate in bathing areas, the increase in demand for health care related to heat, associated with the increase in the number of COVID-19 cases may overload the SNS response in certain regions;
- o Protective measures against extreme temperatures must consider all measures to prevent and control SARS-CoV-2 and mitigate the transmission of COVID-19 ;
- o Extreme temperatures (heat wave) may increase the time spent in air-conditioned (cooler) closed spaces, potentially with reduced air exchange. The increase in air temperature can reduce compliance with the use of a face mask, due to greater discomfort, posing a greater risk of exposure and contagion by SARS-CoV-2 in these spaces.

SNS institutions and services in outpatient and inpatient settings, according to their type, must include a response in their Plans considering that:

- o In areas with a high incidence of COVID-19 cases, an extreme heat event/heat wave can have a significant impact on the health of vulnerable populations and increase the demand for care for reasons other than respiratory symptoms/clinical symptoms of COVID-19 infection. SARS-CoV-2.
- o Coordination with the social sector must be ensured, in case the conditions at home that allow isolation to be carried out;
- o

4. MONITORING AND EVALUATION

4.1. Tracking and monitoring

At national level, monitoring of the Plan is carried out by DGS, with the collaboration of:

- Portuguese Institute of the Sea and Atmosphere (IPMA);
- National Institute of Health Dr. Ricardo Jorge (INSA);
- Shared Services of the Ministry of Health (SPMS);
- Central Administration of the Health System (ACSS);
- Regional Health Administrations (ARS);
- ACES, ULS and Hospitals;
- Others.

National institutions coordinate, according to their competences, with international organizations, namely the World Health Organization (WHO) and the *European Center for Disease Prevention and Control* (ECDC).

The main indicators to monitor for monitoring the Plan (national and regional) are listed in Annex I. Most indicators are available in SIM@SNS and SIARS at national, regional and local level.

The information, including that relating to indicators actively collected from institutions/data sources (e.g. some hospital indicators, SNS Line 24, INEM), is aggregated by epidemiological week (Monday to Sunday), and daily, always that is justified.

National, regional and local levels can form a base sub-list of indicators that they consider most appropriate for weekly monitoring of the plan at their level. If considered relevant, other indicators may be included.

4.2 Plan Assessment

The concomitant evaluation of national, regional and local Contingency Plans is carried out according to their application.

The final assessment of regional Contingency Plans is carried out by October 31st (or one month after the end of the Plan's validity, if extended), the date on which each ARS will send a succinct report to the DGS, based on the indicators referred to in point 4.1, as well as other information considered relevant by the ARS.

The DGS issues the national report by November 30th (or one month after the end of the Plan's validity, if extended).

5. GOVERNANCE MODEL

5.1. National level

5.1.1. Directorate-General for Health

The Seasonal Health Contingency Plan and, specifically, the Summer Module is the reference for SNS services that prepare specific contingency plans suited to their reality, taking seasonality into account.

The DGS, in partnership with the National Civil Protection Emergency Authority (ANEPC) and the Portuguese Institute of the Sea and Atmosphere (IPMA), disseminates relevant information, issues guiding and normative documents and promotes interinstitutional coordination at national level.

5.1.2. Operational Group

Within the scope of the DGS, the Seasonal Health Operating Group brings together departments with complementary functions within the scope of this Plan, namely:

- o Directorate of Disease Prevention and Health Promotion Services (DSPDPS);
- o Directorate of Information and Analysis Services (DSIA);
- the Public Health Emergency Center; o
- Communications and Public Relations Division
- o Other internal and external experts.

5.1.3. Crisis Group

The National Health Authority may, when justified, activate and coordinate the Crisis Group, which is made up of:

- the Directorate-General for Health;
- o National Emergency and Civil Protection Authority;
- the Social Security Institute, IP;
- the National Institute of Health Doutor Ricardo Jorge, IP;
- o Central Administration of the Health System, IP;
- the National Institute of Medical Emergency, IP;
- the Portuguese Institute of the Sea and Atmosphere, IP;
- o Regional Health Administrations, IP

5.2. Regional Level

5.2.1. Regional Health Administrations

- o Ensure the existence of Plans at regional level and specific Plans at local level in the SNS establishments (ACES/ULS and hospitals);
- o Create, coordinated by the Public Health Departments, Operational Groups Regional (GOR);
- o Coordinate responses from different levels of care provision;
- o Promote a timely and appropriate response from health services and other entities competent;
- o Promote collaboration and permanent communication with the DGS and ISS, IP (services deconcentrated);
- o Determine the adequacy of opening hours and human resources in primary health care, depending on demand;
- o Promote the adequacy of the provision of health care in outpatient settings, including emergency services;
- o Promote the adequacy of the provision of inpatient health care;
- o Create conditions so that regional and local Public Health Services (Public Health Departments and Units), in collaboration with ACES, ULS and Hospitals, can monitor the local application of each Contingency Plan.

5.2.2 Regional Operative Groups (GOR)

The GOR, based in the Public Health Departments of the ARS, are coordinated by the Director of the Public Health Department, who coordinates with the coordinators of the Contingency Plans at local level (Coordinators of the Public Health Units of the ACES/ULS), Hospitals do not integrated into ULS, Hospital Centers and Regional Coordination Teams of the Integrated Continuing Care Network.

The GOR can also coordinate with the district civil protection and social security structures, as well as with other entities that they consider necessary for the adequate execution of the Plan (Private Social Solidarity Institutions (IPSS), parish councils, municipal chambers, firefighters, Red Cross, PSP, GNR, among others).

The Regional Contingency Plan may also provide for the activation of a Crisis Group at regional level, if necessary.

Special and multidisciplinary attention must be given to the most vulnerable groups due to their age, health condition or social status.

SEASONAL HEALTH CONTINGENCY PLAN – SUMMER MODULE | REFERENCES

In conclusion, managing the risk associated with heat and other characteristics of summer seasonality, namely population flows related to leisure, tourism and mass events, implies the mobilization of health structures and other entities with responsibility for protection of populations. The aim is, therefore, that summer is associated with leisure, but also

well-being and health.

6. ATTACHMENTS

Annex I - Plan monitoring and evaluation indicators

Indicator	Source of information
Criteria for risk assessment	
Index-Alert-Icarus (effect of heat on mortality)	INSA
Observed and predicted maximum and minimum temperatures	IPMA
Hot weather/heat wave weather warnings	IPMA
Number of exceptional events/occurrences (e.g.: large fires)	DGS/ANEPC / IPMA/ ARS
Search for SNS Health Services	
Primary health care (PHC) consultations	
Total number of queries in CSP	ACES/ULS/ARS (MIMUF/SIARS/Sim@SNS)
Total number of unscheduled consultations in CSP	
Total number of CSP consultations, by age group	
Percentage of PHC consultations for users aged ≥ 65 years	
Hospital emergency consultations (UH)	
Total number of consultations in UH	Hospitals/CH/ARS MIMUF/SIARS/SIM@SNS)
Number of consultations at UH, by age group	
Total number of consultations at UH with hospitalization	
% of consultations at UH with hospitalization	
Admissions to Intensive Care Units (ICU)	
Total number of admissions to ICU	Hospitals/CH/DGS
SNS 24	
Total number of SNS calls 24	SNS 24/DGS
Number of SNS 24 calls related to “heat”	
Number of SNS 24 calls by “sunburn” algorithm	
Number of SNS 24 calls by “sun exposure” algorithm	

SEASONAL HEALTH CONTINGENCY PLAN – SUMMER MODULE | REFERENCES

Number of SNS 24 calls by type of referral (emergency, hospital urgency, CSP, self-care) by heat	
% of SNS 24 calls related to "heat"	
Number of SNS 24 calls referred to INEM	
Medical emergency - INEM	
Total number of occurrences	INEM
Total number of activations	
Mortality	
Number of deaths	DGS (SICO) / Dr. Ricardo Jorge Institute (VDM)
Number of deaths due to drowning	DGS (SICO)/FEPONS
Excess mortality from all causes – DMV	INSA/DGS
Additional Information	
"Capture" of information through informal sources	DGS
Monitoring access to highlights/recommendations on the website DGS	DGS
Access to international alert platforms (restricted access)	DGS
Monitoring and evaluation of the Plan	
Number of weekly reports/bulletins prepared	DGS/ARS
Number of regional contingency plan reports received at DGS	ARS

Annex II - Communication recommendations

1. **Communicate the risk in a preferably non-numeric way** (with verbal labels - eg “Very high” - in infographic format) or **mixed** (numeric + textual/graphic), in order to facilitate understanding for people with low numeracy.
2. **Avoid using scientific jargon and language not usually used by the population** (eg heat stroke), seeking to use language close to that used by the population (identified from pre-tests of communication materials with the target population and/or their local representatives).
3. **Prevent risks with different causes, effects and measures from being perceived as similar:** Clearly separate information and recommendations for preventive behaviors associated with periods of extreme temperatures (eg dehydration) from those associated with the effect of sunlight/UVs (eg burns sunscreens), in order to avoid uncertainty regarding the measures to be implemented at each moment, as they are not perceived as distinct and may imply the application of measures that are not adjusted to the risk (eg the perception that sunscreen protects against extreme heat and consequent dehydration).
4. **Customize recommendations to the type of risk** identified and assessed as high at each moment: In addition to the more “routine” risk communication, in a crisis/extreme event situation, communicate specific recommendations associated with the highest type of risk at the moment (eg extreme temperature; high levels of UV rays and/or ozone...).
5. **Communicate uncertainty associated with the duration of extreme temperature events:** together with the risk level, also communicate in a transparent way, the uncertainty about the number of days the event will last, presenting the information in the format of intervals of days (eg duration estimated between 7 and 10 days).
6. **Customize communication to the region:** Regions of the country with a higher incidence and exposure to the risk of extreme temperatures may lead to greater underestimation of this risk due to familiarity/accustomization to these phenomena over time (eg Alentejo); Risk communication actions must therefore counteract the more positive/familiar perception that the risk may have in these regions compared to others that are less exposed.
7. **Communicate the risk together with concrete actions to mitigate it:** Eg inform at local level, about the protective places (eg shade) that citizens can use when outside their home, in extreme temperature situations.



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