HEAT MEASURES-TOOLBOX 2021

A catalogue of measures to protect human health from heat

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1. The heat measures toolbox in brief

Individual hot days, tropical nights and heat waves are a burden on human health. Longer heat periods can also pose a problem for the healthcare system. Due to increasing heat stress, preventing heat impacts on the population is important.

The heat measures toolbox is aimed at specialists and authorities who are responsible for protecting the want to help protect the population from heat. The heat measures toolbox shows options for action to prevent heat-related health problems, contains many concrete tips and makes visible what other actors (mainly in the health sector) have already implemented. The short, medium and long-term measures can be implemented individually - but their impact is greater when combined.

2. Interesting facts about the connection between heat and health

Heat is a health risk and worsens existing illnesses.

High temperatures are a burden on health. Heat can cause exhaustion and heat stroke, as well as aggravate existing illnesses such as cardiovascular, respiratory, kidney or mental illnesses. High temperatures also impair well-being, performance, productivity and the ability to concentrate in the workplace.

High temperatures affect the health of many people. The elderly, the sick, pregnant women and small children are particularly at risk.

High temperatures are particularly dangerous for the health of older people, those in need of care, people with chronic illnesses, pregnant women and small children. They need special protection on hot days. People who spend time outdoors for work and are therefore exposed to heat are also more vulnerable to heat. In Switzerland, people aged 75 and over (especially those living alone) are among the highest risk groups.

Significant increase in risk from 30°C and delayed effects

The risk of temperature-related negative health effects in Switzerland is particularly significant when the maximum daily temperature is 30°C or higher. The risk of heat-related death increases sharply with each degree above 30°C and is therefore high in the upper temperature range. The risk of death is greatest on the hot day itself. But there is also a significantly increased risk of death in the two to four days afterward, so that the effects accumulate in a heat wave lasting several days. Tropical nights (temperatures do not drop below 20°C at night) are an additional health risk, as nighttime recovery is impaired by the lack of cooling [1].

Periods of prolonged heat stress are of particular health concern.

Heat waves caused an increase in emergency hospital admissions and deaths in Switzerland. The most common causes of heat-related deaths are cardiovascular disorders, respiratory diseases and kidney failure [2]. According to a study of emergency hospital admissions in Swiss hospitals in summer 2015, infectious diseases, pneumonia, diseases of the urogenital system (affecting the kidneys, urinary tract and genital organs) and diseases of the digestive system are among the most common causes of

heat-related emergency hospital admissions. The faster spread of viruses and bacteria at high temperatures appears to have an important influence on hospital admissions [3].

More people than usual died during the four hot summers of 2003, 2015, 2018 and 2019 **(Table** 1). The majority of these additional deaths would not have occurred without a heat event. It is often shown that the earlier a heat wave occurs in the summer, the greater the impact it has on health [4, 5].

Table 1: Heat-associated excess mortality during the hot summer so far (June to August) in of Switzerland.

Summer	°C above normal 1981-2010	Additional deaths (Number)	Excess mortality (%)
2003	+3.6	975	6.9
2015	+2.4	804	5.4
2018	+2.0	185a	1.2a
2019	+2.3	521	3.5

a not statistically significant. In 2018, excess mortality was limited to the month of August (+3.4%).
Source: Ragettli & Röösli 2021 [4].

Prevention measures help protect health.

Various studies in Switzerland and abroad indicate that measures to prevent negative heat-related health effects have contributed to a reduction in the risk of heat-related deaths. In Switzerland, heat-related excess mortality in 2018 and 2019 increased compared to the summers of 2003 and 2015.

turned out to be significantly lower. This indicates successful measures by the authorities and raising public awareness of heat-related health risks. The decline was most noticeable in French-speaking Switzerland and Ticino, where prevention is regulated through cantonal heat action plans [4].

Heat waves are becoming more frequent and extreme.

With climate change, average and extreme temperatures are increasing. Heat waves and hot days and nights are becoming more frequent and extreme. The Swiss climate scenarios CH2018 assume that by the middle of this century the annual maximum temperatures in Switzerland will be up to 5.5°C warmer than today if no global climate protection measures are taken. According to the national risk analysis *Disasters and Emergencies Switzerland 2020,* the heat wave scenario represents the fourth greatest risk for Switzerland [6]. The majority of cantons also take heat waves (or heat and drought) into account in their cantonal risk analysis [7]. Even with a rapid and comprehensive reduction in global greenhouse gas emissions, additional warming must be expected. A significant increase in the number of hot days (>30°C) can be expected, especially in densely populated urban areas at low altitudes **(Figure** 1).

But the danger from heat will also increase in other regions [8].

In view of the observed health effects of heat and the expected increase in heat stress – with or without climate protection – it is important to protect health from heat stress and to strengthen the ability to adapt to unfavourable developments.

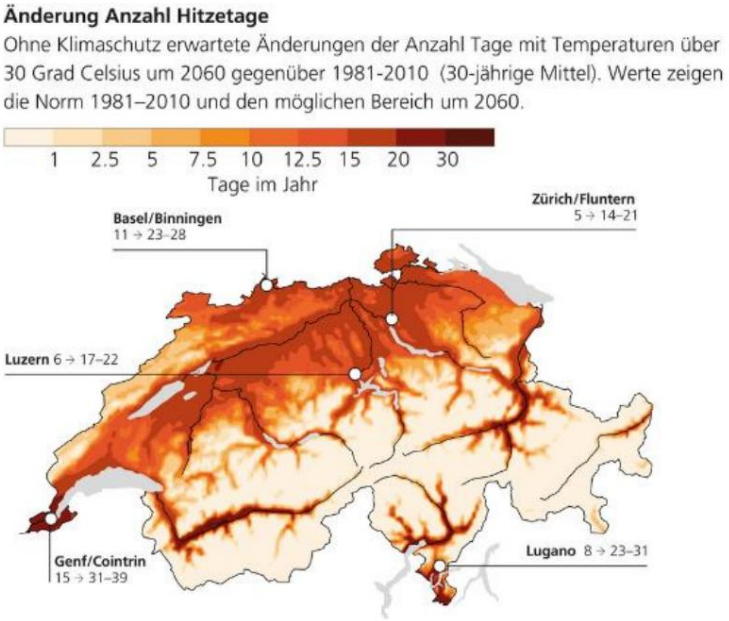


Figure 1: Number of hot days in 2060 for one Greenhouse gas emissions Scenario without global Climate protection measures (RCP8.5). Source: NCCS 2018 [8].

3. Action is needed on three levels

Short, medium and long term measures

Good and well thought out adaptive measures can help to largely prevent the harmful effects of heat, especially in vulnerable population groups. This requires measures at three levels: information for the population and specialists about the health risks of heat (level A), specific timely measures during an acute heat wave (level B) and long-term adaptation measures to the increasing heat stress (level C) (Table 2).

Prevention

Table 2: Levels of measures to protect health from heat.

Level A Education and information	B Special Measures during heatwaves (Management extreme event)	C Long-term Adjustment
Goal	Vulnerable population groups as well as specialists and authorities who contribute to protecting the population from heat are informed about health risks and effective adaptation measures (seasonal awareness raising).	Early warnings and timely measures Prevention of heat related morbidity and mortality.	Promote long-term adaptation to increasing heat stress.
That is why it is important	Individual population groups are considered to be particularly at risk in hot weather. Taking certain medications (e.g. diuretics) can also be dangerous in high heat	Heat waves (periods of extreme heat stress) are extreme events. Short-term interventions are needed to minimize health consequences. These require a	Urban planning measures and improvements to an energy-efficient Heat protection of buildings can lead to a Reduction of heat

	pose an additional health risk. It is important to inform and train people at risk, their relatives, carers and employers (e.g. construction industry) as well as nursing staff and doctors at an early stage and in a targeted manner about prevention and how to deal with possible health effects.	early planning. People at risk need special protection.	exposure and at the same time increase the multifunctionality of open spaces (cooling, air circulation, greening, recreation). This requires close cooperation between the spatial planning, architecture, health and energy sectors.

Note on the effect of measures

The risk of adverse health effects from heat increases sharply as temperatures increase. The potential for effectiveness of prevention and adaptation measures is therefore great on very hot days. Although the management of heat waves (periods of extreme heat stress) is important and is often the main motivation for implementing measures, it should be emphasized that additional negative health effects occur even on moderately hot days. On such days the individual health risk is lower than on very hot days. However, since such conditions occur much more frequently than heat waves in Switzerland throughout the year, the most damage to health occurs during moderately hot days throughout the year. Such days will also become more common in the future. Prevention measures should therefore also take into account the less hot days. Measures for education and information (level A) and long-term adaptation to increasing heat stress (level C) are aimed in this direction.

Measures must address all population groups (equal health opportunities).

In order to ensure equal health opportunities for everyone, measures to protect health from heat must reach all population groups, regardless of language, origin, social status, level of education and disabilities. In general, information about heat and health should be prepared for the target group and communicated via appropriate channels.
It is recommended that information materials be made available in multiple languages and in simple language. This is to ensure that the foreign-speaking population can also benefit from them as much as possible, regardless of language and origin. It is particularly important to note that the least privileged sections of the population are more affected by heat-related effects than others. This is because this population group often lives in neighbourhoods with fewer green spaces and their homes are less well insulated against heat. In addition, less privileged people are more likely to work in jobs that are more affected by heat (e.g. in the construction industry).

Where possible, cooperation should be sought with organizations that have direct access to less privileged sections of the population [9-12].

4. Using the toolbox & tips

Catalog of measures. The toolbox is a collection of measures to prevent heat-related mortality and morbidity. The compiled measures and information for successful implementation are based on recommendations from the

World Health Organization (WHO) and international studies. Reference is made to existing aid materials from the federal government and other organizations. The catalog of measures was developed based on existing measures at home and abroad.
Data on the effectiveness of individual measures are lacking. According to studies, various measures from all three levels of action are necessary to achieve a sustainable reduction in the health risk of heat [9].

Application. The catalogue of measures supports the development and further development of cantonal heat action plans with many concrete tips and makes visible what other actors have already implemented. The toolbox can be used as a "recipe book" and aims to reduce the effort required by interested actors when planning measures.

Cantonal heat action plans. At cantonal level, it is recommended to introduce a heat action plan to take local circumstances into account (e.g. climatic conditions). Heat action plans are suitable for efficiently communicating the health consequences of extreme heat within a canton, achieving behavioral adjustments within the health sector and among the population, and coordinating preventive measures. A heat action plan formulates the need for action and specifies which institutions will implement which measures. According to the WHO recommendation, a heat action plan includes measures from all three levels [9, 13]. In Switzerland, the cantons of Geneva, Vaud, Friborg, Neuchâtel, Valais and Ticino have implemented heat action plans that take measures relating to levels A and B into account. Since the summer of 2019, the canton of Zurich has also been implementing new activities to protect the population from heat as part of the new action plan to adapt to climate change.

Studies in Switzerland and abroad show that (cantonal) heat action plans have made a significant contribution to the prevention of heat-related deaths during heat events [1, 4, 5, 14, 15].

Collaboration between actors. For the efficient implementation of the measures, close cooperation between various actors at all levels (local, cantonal, regional, national) is essential. Potential institutions that can implement measures to prevent heat-related illnesses and deaths (and are therefore possible partners in a cantonal heat action plan) are listed in **Table 3 .** The introduction and evaluation of measures requires the assessment of the heat-related health effects (e.g. heat-related mortality) as well as the health risks, taking into account current and future developments in the target area. Synergies with other measures in the healthcare system and other areas (e.g. civil protection) should be used and promoted. An inventory of measures that have already been implemented can identify gaps and promote collaboration. The creation of a central coordination point is recommended to coordinate the measures. In western Switzerland cantons with heat action plans and in Ticino, the cantonal medical office is currently taking on this function. Regular evaluation and updating is recommended.

Table 3. Possible actors and institutions for the development and implementation of measures.

Actors / Institutions
National, cantonal and municipal authorities
ÿ Health department (cantonal, municipal, municipal) ÿ Cantonal medical office (recommended for coordination of cantonal heat action plans) ÿ Municipalities/Municipal Association
ÿ Civil protection, civil protection
ÿ Environmental Agency, responsible for climate adaptation strategies
ÿ Energy departments of the cantons ÿ Employment office ÿ Social welfare office ÿ MeteoSwiss (national level, planning heat early warning system)
Professional associations, organizations and professional societies
ÿ Association of retirement and nursing homes
ÿ Association of mobile nursing services, Spitex
ÿ Specialist and service organizations for old age (Pro Senectute)
ÿ Cantonal Doctors Association, general practitioners
ÿ Cantonal Pharmacists Association, Cantonal Pharmacist
ÿ Trade unions, professional associations in the construction industry
ÿ Real Estate Association, Building Owners
ÿ social organizations (Red Cross)
Institutions involved in the health and social care of population are active
ÿ Kindergartens, schools, day care centres
ÿ Hospitals
ÿ Emergency services, rescue services
ÿ Nursing facilities, nursing services ÿ social networks and neighbourhood assistance
Other
ÿ Research institutes (advice, help with data analysis)

Embedding in climate adaptation strategies. Heat action plans should be embedded in regional climate adaptation strategies. This ensures long-term health protection and supports actions at level C (long-term adaptation). This level is becoming increasingly important due to increasing heat stress. Long-term measures also protect the population from moderately hot temperatures, which are also becoming more common. Embedding it in climate adaptation strategies (e.g. collaboration with actors involved in climate adaptation) also supports the issue of health being taken into account in other sectors such as urban planning, construction and transport planning.

Cross-sectoral cooperation is particularly important for long-term heat protection in urban areas and in buildings [9].

Core elements for successful planning, implementation and evaluation of heat action plans. The WHO identifies eight key elements for effective heat action plans [13].
These are shown in Table 4 with (additional) recommendations for action.

Table 4. Success factors and core elements of heat action plans.

Organization and preparation
1. Central coordination and interdisciplinary cooperation ÿ Establishment of a central coordination point ÿ Close cooperation between authorities and institutions at local, cantonal and national level with a clear distribution of tasks ÿ Coordination with existing national, cantonal, regional and local Action plans (e.g. cantonal civil protection preparedness plans, climate adaptation plans, emergency plans for health facilities) ÿ Adaptation to existing structures and options
2. Preparation of the health and social systems ÿ Raising awareness and training (training, further education and training) ÿ Personnel planning in health facilities ÿ Action plans in retirement and nursing homes, hospitals, schools, daycare centers, certain workplaces
3. Information and communication plan: who communicates what, when, to whom and how? ÿ Target group-oriented communication and information with behavioral recommendations ÿ Seasonal awareness-raising (Must take place every year, as awareness and interest in the issue decreases during the cooler season. If heat waves do not occur, there is a risk that the measures will no longer be present among those involved.) ÿ Establish communication channels shortly before and during extreme events about heat-related health risks ÿ Particularly encourage behavioral advice immediately before the first heat wave of the year
implementation
4. Use of a heat warning system ÿ Measures and heat action plans based on the MeteoSwiss heat warning system working out
5. Special protective measures for risk groups ÿ Promoting social networks and social solidarity (e.g neighborhood help) ÿ Consider delayed effects of hot days (in the 2 to 4 days after one The health risk remains on a hot day)
6. Information/measures to reduce heat exposure in buildings ÿ Short-term strategies: Instructions on how to keep indoor spaces cool ÿ Medium-term strategies: Building-related cooling measures (e.g. installation of fixed or movable shading, structural measures to improve insulation, improvement of the microclimate through greenery)
7. Long-term adaptation to reduce heat stress and strengthen health system resilience ÿ Embedding heat action plans in regional climate adaptation strategies ÿ Long-term urban planning and construction ÿ Promoting climate adaptation (dealing with heat) in social and care systems ÿ Acting in the spirit of an overall health-promoting policy: cooperation between the health, urban planning, construction, transport, energy sector sectors **Evaluation**
8. Monitoring and evaluation of measures ÿ Monitoring: timely evaluation of health data, for example through (real-time) Monitoring/evaluation of morbidity and mortality ÿ Evaluation of the measures taken to ensure and improve the health protection of the population

Source: adapted from [9, 13, 16]

Combination of events. It should be noted that when events occur more or less simultaneously (e.g. heat wave combined with a pandemic, an earthquake or a flood), their health effects can increase. For example, implementing heat protection measures during an outbreak of coronavirus disease (COVID-19) is a particular challenge. Preventing heat-related health effects must include following COVID-19 protection recommendations. Older people and people with previous illnesses (asthma, diabetes and heart disease) in particular should avoid COVID-19 during a hot period.

Pay particular attention to your health during the outbreak. They are considered particularly vulnerable to both the effects of heat and severe COVID-19 courses. In addition, physical distancing measures to contain the spread of the coronavirus (or possibly another pathogen) as well as restrictions on the use of space could limit the implementation of heat protection measures and thus increase the vulnerability of the population to extreme temperatures. Various information and recommendations are available to protect health from heat waves during a COVID-10 outbreak (see literature list in Chapter 6). These were developed for summer 2020 during the COVID-19 pandemic.

5. Catalog of measures

Overview of measures

Comments on the individual measures: The information on the cantons in which the measures have already been implemented is based, among other things, on surveys in 2016 and 2019 [17-19]. There is no claim to completeness. The validity of the internet links is not guaranteed. The following time periods were defined to assess the duration of effectiveness of the measures: short-term (a few days and weeks), medium-term (several weeks and months), long-term (several years).

Level A: Education and information

Level A: Education and information

1 A1: Distribution of information material: raising awareness Health system, social system and population

Description

Every year, selected population groups, the medical profession and nursing staff are reminded of the basic rules in hot weather. The main aim is to raise awareness of the health risks caused by heat among particularly vulnerable population groups, their carers and those involved in the health and social system. The medical profession (especially family doctors and pediatricians) is made aware of their role in prevention. By providing those affected with targeted information, they can cope better with heat. This reduces heat-related health problems.

Flyers and posters provide target group-oriented and practical information about important preventive measures at home or in retirement homes and hospitals, list the symptoms of heat effects and provide instructions for action in crisis situations.

Distribution of information material to actors in the health and social system: Can be carried out by the cantonal medical office or by potential partner institutions of heat action plans (e.g. cantonal pharmacy association, hospital centers, community association, cantonal employment office, etc.). The communication content and communication channels should be agreed upon. It is recommended that the cantonal medical office inform its partners of the cantonal heat action plan in a letter (email) or, if such a plan does not exist, other relevant institutions (e.g. municipalities, old people's and nursing homes) in May about existing information materials (flyers and posters), Specific information from the Federal Office of Public Health (BAG) on dealing with heat waves (www.wärmewellen.ch) and informed about cantonal measures. It is also possible to submit a text article in the magazine/e-newsletter of the cantonal medical association. This information can also be sent to members annually within professional associations and other networks.

Dissemination and distribution of information material to the population: Can be carried out by the individual actors in the health and social system (e.g. putting up information posters in nursing homes, placing flyers in waiting rooms and pharmacies). Another option is to deliver the information directly to households in risk groups (see measure 2)

Primary recipients of information material (information on existing measures, flyers and Poster):

ÿ Retirement and nursing homes ÿ Hospitals
ÿ Mobile nursing services (Spitex Association)
ÿ Doctors' associations, cantonal medical societies
ÿ Family doctors
ÿ Pediatricians
ÿ Pharmacies
ÿ Emergency services
ÿ Municipalities / community association
ÿ Care facilities for small children (schools, kindergartens, crèches, parent advice centers)
ÿ Midwives Association
ÿ Persons aged 75 and over (living at home, not cared for by a mobile nursing service)
ÿ Social institutions (Red Cross, cantonal social welfare office)
ÿ Other associations whose members are involved in the care of risk groups

Secondary addressees:

ÿ Public swimming pools (poster)
ÿ Real estate management (poster for entrance to apartment buildings)
ÿ Sports clubs, youth associations
ÿ Professional groups that work outside (e.g. master builders' association)

Note: Recommendations for behavioral protection against heat can be combined with information on other health risks associated with heat (e.g. protection against UV rays, ozone pollution, food hygiene)

actors

Department of Health/Cantonal Medical Office

Health and social care institutions

Planning (time of year)

Distribution of information material will take place before summer (end of May).

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

- Wide dissemination of information possible with relatively little effort

Disadvantages

- Danger of “information flood”: There is no guarantee that information will be perceived and read.
- Implementation of the behavioral recommendations is not guaranteed.
- People with insufficient knowledge of a national language are often disadvantaged.

Cantons with this Measure in force

AI
FR
ENG
YU
OW
TI
VD
VS
ZH
City of Berne

Material availability and further information

Information materials from the Federal Office of Public Health

Since 2005, the Federal Office of Public Health (FOPH) and the Federal Office for the Environment (FOEN)
Information and behavioral recommendations to sensitize people at risk, relatives, nursing staff and doctors as well as other stakeholders: www.wärmewelle.ch.

The following documents are available:

- **Protection during a heat wave - Three golden rules for hot days (Flyer, 2016)**
  3 golden rules for hot days, protection during heat waves - for older people and People in need of care
- **Protection during heatwaves - Three golden rules for hot days (Poster, 2016)**
  3 golden rules for hot days, protection during heat waves - for older people and those in need of care
- **Protection during heat waves - recommendations and information for professionals (Flyer, 2016)**
  Heat wave protection, recommendations and information for nursing staff
- **Hot tips for hot days - The most important points for working in heat and ozone (Flyer, 2010)**
- **Heatwaves and children’s health (fact sheet)**
- **Working outdoors in hot weather... be careful! (SECO, revised in 2021)**
- **Office work in the heat - information for employers and employees (SECO, 2020)**
- **Stay cool – thermal insulation of office and commercial premises (BFE 2019)**

Further behavioral recommendations on various federal websites:

MeteoSwiss: Recommendations for behaviour during heat waves
www.meteoschweiz.admin.ch/home/wetter/gefahren/verhaltensempfehlungen/hitzewelle.html

Natural hazards portal: www.naturfähren.ch /home/umgang-mit-naturfähren/wärme/waehrend-wärme.html

Alertswiss: https://www.alert.swiss

Further information materials (cantons)

General population

Canton of Vaud: Canicule Rester au Frais (2014) https://www.vd.ch/fileadmin/user_upload/themes/sante/Prevention/Canicule/Conseils_canicule_Affiche.pdf

Canton of Ticino: Materiale informativo https://www4.ti.ch/dss/dsp/gosa/canicola/materiale- informativo/#c556147

Calura without fear! Be simple rules for the summer season (2020) https://www4.ti.ch/fileadmin/DSS/DSP/canicola/files/GOSA_Calura_senza_paura_2020_A4.pdf

Canicola: be quick! (2020) https://www4.ti.ch/fileadmin/DSS/DSP/canicola/files/GOSA_Essere_pronti_2020.pdf

It's hot! Do you want a bathroom? (2019) https://www4.ti.ch/fileadmin/DSS/DSP/canicola/files/In_acqua_senza_problemi_2019_A4.pdf

City of Bern: 10 tips for dealing with the summer heat https://www.bern.ch/themen/gesundheit-alter-und-soziales/gesundheit-und-hitze/ftw-simplelayout-filelistingblock/flyer-a4-sommerhitze-10-tipps.pdf/download

Older people

Canton of Basel-Stadt: How to keep a cool head (2020): https://www.bs.ch/dam/jcr:430413dc- 862a-4cdf-a259-c2781a2ad6dc/Flyer%20Hitzepraevention.pdf

Canton of Zurich (Health Department and Pharmacists Association): Summer heat (2019) https://www.gesundheitsfoerderung-zh.ch/themen/weitere-themen/uebersicht/hitzewelle

Inpatient care (for employees in retirement homes)

LMU Klinikum München: Good through the summer heat in inpatient care. The most important tips at a glance (2020): http://www.klinikum.uni-muenchen.de/Bildungsmodule- Aerzte/download/de/Klima3/Massnahmeplan/Gut_durch_die_Sommerwärme.pdf

Information about medication

Canton of Vaud: Medicines and canine diseases (2020) https://www.vd.ch/fileadmin/user_upload/themes/sante/Prevention/Canicule/Medicaments_Canicule_Synthese_2020.pdf

Protecting children's health

Canton of Friborg: heat wave. Protection for our little ones (2010) https://www.fr.ch/sites/default/files/contens/smc/_www/files/pdf85/sani_cani10_flyer_enfant_de_fr.pdf

Canton of Vaud: Canicule Protects Children (2014) https://www.vd.ch/fileadmin/user_upload/themes/sante/Prevention/Canicule/Conseils_canicule_enfants.pdf

Canton of Ticino: Proteggere la salute dei Bambini in caso di canicola (2020) https://www4.ti.ch/fileadmin/DSS/DSP/canicola/files/Canicola_Bambini_strutture_accoglienza_extrafamiliare.pdf

City of Zurich, School Medical Service: Information sheet for schools, day-care centers and parents. Stay fit despite hot summer days (2017) https://www.stadt-zuerich.ch/content/dam/stzh/gud/Deutsch/SGD/Dokumente/Hitze/Infoblatt_Hitzetage_Publikation_WAI_202/02/2017.pdf

City of Bern: Temperatures around 30 degrees: Protect small children well https://www.bern.ch/themen/gesundheit-alter-und-soziales/gesundheit-und-wärme/schutz-von-kleinkindern/ftw-simplelayout-filelistingblock/flyer -a4-sommerwärme-schutz-kleinkinder.pdf/download

Pilot project (2019-2021) A.09 "Schools defy the heat" (municipalities of Montreux and Locarno) https://www.nccs.admin.ch/nccs/de/home/massnahmen/pak/projektephase2/pilotprojekte-zur-anpassung-an-den-klimawandel--cluster--umgang-/a-09-schulen-trotzen-der-hitze.html

World Health Organization (WHO) Europe

#KeepCool campaign 2021: Four videos on dealing with heat (Body, at home, outside, during COVID-19)

Further information from EngergieSchweiz on the topic of indoor climate: Better living in summer: Tips and tricks for more comfort at home (2020): https://www.energieschweiz.ch/stories/sommertipps- 2020/

Level A: Education and information

2 A2: Distribution of information material directly to households: Heat campaigns for people aged 75+

Description

In order to raise awareness directly and in line with the target group among people aged 75 and over (the largest risk group in Switzerland), information materials are sent directly to households with people in this age group. Information contains tips on how to behave as well as information about existing offers of help during hot days (e.g. telephone helpline, see measure 13). In order to reach people at risk, it is recommended to involve communities or specialist and service organizations for old age (e.g. Pro Senectute) and to coordinate information on prevention efforts for this age group. Municipalities can help identify people at risk (people aged 75 and over, living at home, not seeking help from care services) using the data available to them.

This is done every year in the cantons of Vaud and Geneva. Such an information campaign was carried out in the canton of Basel-Stadt in 2020 together with Pro Senectute. In 2021, the same information was sent again to people who reached the age of 75.

The information material can be sent by the health department, the cantonal medical office or by municipalities. It is recommended that the information materials be made available in multiple languages. This is intended to ensure that the foreign-speaking population can also derive the greatest possible benefit from it, regardless of language, culture and individual experience. If possible, collaboration with organizations that have direct access to less privileged sections of the population should be sought.

actors

Health Department/Cantonal Medical Office

Communities

Specialist and service organizations for the elderly (e.g. Pro Senectute)

Organisations with access to less privileged populations

Planning (time of year)

Distribution of information material will take place before summer (end of May).

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

- Wide dissemination of information directly to risk groups.

Disadvantages

- Danger of an “information flood”: There is no guarantee that information will be perceived and read.
- Implementation of the behavioral recommendations is not guaranteed.
- Identification of households is possible associated with effort.

Cantons with this Measure in force

BS

ENG

VD

Material availability and further information

Information material: See Measure 1.

Heat campaign 2020 for seniors in the canton of Baselstadt: https://www.bs.ch/nm/2020-heat-campaign-for-seniors-gd.html

City of Geneva: Plan canicule pour les aîné-es: https://www.geneve.ch/fr/themes/social/politique-sociale-proximite/actions-sociales-proximite/plan-canicule-aine#

3 A3: Training and continuing education of employees in Healthcare

Description

Offer of training, further education and continuing education courses, online training courses and lectures for universities, health facilities and other interested institutions. The aim of the offer for (prospective) medical professionals (especially nursing professionals, doctors) is to develop and expand professional competence. The courses impart knowledge about the possible effects of heat on health, symptoms, treatment and adaptation options. The content can also be integrated into existing curricula and further training courses.

The offering can be expanded to include information on other health effects of climate change (increase in allergies, air pollution, infectious diseases, etc.).

For care facilities, it is recommended to hold training in late spring as a short training course for all employees. Heat training can also be integrated into the induction program for new employees.

actors

Health Department/Cantonal Medical Office

Universities

Universities of applied sciences with specializations Health

Providers of training in the nursing sector

Care facilities

Planning (time of year)

All year round

Late spring (for annual heat training in Care facilities)

implementation

Expense

small amount | medium | high

Cost

small amount | medium | high

realization

simply | complex

assessment

Frequency of application (national & international)

\+ | ++ | +++

Effect

short term | medium term | long-term

Advantages

- Possibility of integration into existing Further training and teaching programs
- Incentive through the possibility of certification

Disadvantages

- Demand is not guaranteed

Cantons with this Measure in force

ENG

VD

Material availability and further information

The “Climate Adaptation School” at the Berlin Charité (University Medicine Berlin) offers training and continuing education on the health effects of climate change for doctors and nurses: www.klimawandelundgesundheit.de

The Canton of Geneva (Service de l'inspection du travail OCIRT) provides online training modules on the topic of protecting health at work in extreme weather conditions on its website (2020): https://www.ge.ch/canicule-grand- froid/canicule

On the website www.klimawandelundbildung.de are provided by the University of Munich (LMU Klinikum) Educational modules made available for medical assistants and nursing staff.

A selection of current (international) e-learning and online courses on heat and health is available on the website of the Global *Heat Health Information Network :*
https://ghhin.org/elearning-courses/

Level A: Education and information

4 A4: Media release or background article in print media, Radio, television or social media

Description

Every year before summer, the population should be made aware of the negative health effects of heat. This promotes seasonal awareness. This includes information on behavioral recommendations during hot days and a call to pay more attention to people at risk during hot days.

Possible contributions:

- ÿ Background article (one page) on the topic of heat and health in the most read Cantonal newspapers
- ÿ Place the topic on local radio and television stations
- ÿ Press release (MM) on cantonal measures, behavioural recommendations, information on heat and health
- ÿ Post on social media (e.g. Facebook, Twitter, Whatsapp message via social networks) in National and foreign languages (text or video, see also measure A9)
- ÿ Posts in the communication channels of e.g. B. meteorological institutes
- ÿ Blog entry

actors

Health Department/Cantonal Medical Office

Various other actors

Planning (time of year)

End of May/beginning of June (publication of the article, (MM)

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

- Wide dissemination of information possible with relatively little effort
- Broad target group

Disadvantages

- A press release alone does not guarantee media coverage or media exposure.
- Danger of an “information flood”: There is no guarantee that information will be perceived and read.

Cantons with this Measure in force

TI

(MM)

VS (newspaper article)

Material availability and further information

Corriere del Ticino (22 June 2020): «Sun and heat in the time of the pandemic»: https://www.cdt.ch/ticino/sole-e-caldo-ai-tempi-della-pandemia-CG28442422?_sid=H7oeEd9z

For examples of media releases before the 2019 heat wave, see Measure 11.

Level A: Education and information

5 A5: Information on heat and health on cantonal and municipal websites

Description

Information on implemented (cantonal) measures, recommendations for behavior, existing information brochures, contact details, links to further information (e.g. Federal Office of Public Health website) are permanently posted on the canton or municipality website.

Information on how to deal with hot days and heat waves can also be posted on the websites of medical associations and other institutions.

actors

Department of Health/Cantonal Medical Office

Communities

Institutions in the health sector

Planning (time of year)

All year round – with current information during Heatwave

implementation

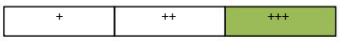
Expense

Cost

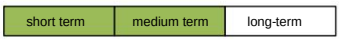
realization

assessment

Frequency of application (national & international)



Effect



Advantages

- Wide dissemination of information possible with relatively little effort

Disadvantages

- Accessibility of risk groups is not guaranteed
- A regular update of the Website is necessary

Cantons with this Measure in force

BL
BS
FR
GE
YE
NE
SO
TG
TI
VD
VS
ZH
City of Bern
Zurich city

Material availability and further information

Examples of cantonal websites (accessed March 15, 2021)

Basel-Stadt https://www.gesundheit.bs.ch/gesundheitsfoerderung/hitze.html
Freiburg http://www.fr.ch/smc/de/pub/praev_gesundheitsfoerderung/gesundheit_umwelt/wärmewelle.htm
Geneva https://www.ge.ch/recommandations-cas-canicule
Jura https://www.jura.ch/DES/SSA/Medecin-cantonal/Canicule/Canicule.html
Neuchâtel https://www.ne.ch/autorites/DFS/SCSP/medecin-cantonal/Pages/Canicule.aspx
Solothurn https://so.ch/verwaltung/departement-des-innern/gesundheitsamt/kantonsaerztlicher-dienst/wärmewelle/
Ticino https://www4.ti.ch/dss/dsp/gosa/canicola/home/
Vaud https://www.vd.ch/themes/sante-soins-et-handicap/prevention-et-maladies/canicule
Valais https://www.vs.ch/de/web/ssp/wärmewelle
Zurich https://www.zh.ch/de/gesundheit/gesund-bleiben/empfehlungen-hitze.html

City of Bern https://www.bern.ch/themen/gesundheit-alter-und-sociales/gesundheit-und-wärme
City of Zurich https://www.stadt-zuerich.ch/gud/de/index/gesundheitsbedarf/public-health/wärme.html

Level A: Education and information

6 A6: Awareness campaign for people who work outside

Description

Information for employers and employees about precautionary measures and support in planning measures (particularly affects the construction industry, transport and agriculture).
Discussions with employers and unions about organizational measures during hot days (e.g. short-term adjustments to company working hours).

actors

Health Department/Cantonal Medical Office

employment exchange

Trade unions, employers' associations

Planning (time of year)

Before summer

implementation

Expense

small amount | medium | high

Cost

small amount | medium | high

realization

simply | complex

assessment

Frequency of application (national & international)

\+ | ++ | +++

Effect

short term | medium term | long term

Advantages

• Minimizes work absences and a reduction in performance.

Disadvantages

• For measures regarding working time regulation during heat waves: Requires a Examination of the Labor Act (ArG) and one Adaptation of the framework conditions
• Requires initiative and cooperation from the Employer

Cantons with this Measure in force

TI (Flyers are provided by the cantonal Employment Office to the unions and distributed by employer associations)

FR (2014)

GE

VD

Material availability and further information

State Secretariat for Economic Affairs (SECO): Information on working outdoors in heat/UV/ozone
(https://www.seco.admin.ch/seco/de/home/Arbeit/Arbeitsbedingungen/gesundheitsschutz-am-arbeitsplatz/Arbeitsraeume-und-umgebungsfaktoren/Klima.html)

- Working outdoors in hot weather... be careful! (2021)
- Legal basis

SUVA prevention: sun, heat, UV rays and ozone
(https://www.suva.ch/de-ch/praevention/sachthemen/sonne-hitze-uv-und-ozon)

- Checklist: Working outdoors in the sun and heat. Hazard identification and action planning (2019)
- Factsheet Heat (Occupational Medicine) (2017)

Swiss Construction Association SBA and Advisory Centre for Occupational Safety BfA: Working on construction sites in summer

http://www.baumeister.ch/de/unternehmensfuehrung/arbeitssicherheit-umwelt-qualitaet/arbeitssicherheit-gesundheitsschutz/arbeiten-auf-baustellen-im-sommer

- Measures and recommendations

- Aids: Protection against heat strokes and UV radiation (information poster)

Recommendations from international organizations and studies

WMO, WHO, Heatwaves and Health: Guidance on Warning System Development. World Meteorological Organization (WMO) and World Health Organization (WHO), Geneva, 2015, pp. 51-52 (http://www.who.int/entity/globalchange/publications/WMO_WHO_Heat_Health_Guidance_2015.pdf)

Information graphics and recommendations for different professional groups (construction, transport, agriculture, factories, tourism) from the Horizon 2020 study *Heat Shield:* https://www.heat- shield.eu/heat-shield-infographics

International Labor Organization (ILO): Working on a warmer planet: The effect of heat stress on productivity and decent work (2019) https://www.ilo.org/wcmsp5/groups/public/---dgreports/--- dcomm/---publ/documents/publication/wcms_711919.pdf

Level A: Education and information

7 A7: Awareness campaigns for sports clubs and Youth associations

Description

Sports and youth associations should be cautious when training outdoors. This applies to all age groups, but especially to older athletes. Recommendations on behavior, information on symptoms of heat-related effects and instructions for action in crisis situations are important.

Awareness can be raised via the sports office, by writing directly to sports and youth associations or the largest sports clubs.

actors

Department of Health/Cantonal Medical Office

Sports Office

Sports associations, sports clubs

Youth associations that are
supported by the federal sports promotion program
Youth+Sport (e.g. Scout, Jungwacht and Blauring)

Planning (time of year)

Before summer

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Allows protection during sports and in the Leisure (all ages)

Disadvantages

- Requires cooperation between clubs and Associations
- Implementation of the behavioral recommendations is not guaranteed

Cantons with this Measure in force

T.I

Material availability and further information

Canton of Ticino: Video «Canicola e sport all'aperto: prudenza! www.ti.ch/calurasenzapaura

City of Bern: Heatwaves: Be careful when exercising and during leisure time (flyer) https://www.bern.ch/themen/gesundheit-alter-und-soziales/gesundheit-und-hitze/hitze-und-sport/ftw-simplelayout-filelistingblock/flyer-a4-sommerhitze-sport.pdf/download

German Society for Sports Medicine and Prevention, German Sports Physicians Association: Sport in high summer temperatures - what children and young people should consider (2017) https://www.dgsp.de/seite/376582/sport-bei-hohen-sommerlichen-temperaturen-%E2%80%94-was- kinder-und-jugendliche-beachten-sollten.html

Information and information materials on heat and sport from the **Heat Health Information Network:** https://ghhin.org/in-sports/

Level A: Education and information

8th

A8: Poster campaign in the summer months (seasonal Awareness raising)

Description

During the warm season, the population is made aware of the negative health effects of heat. This includes information about recommendations for behavior during hot days and a call to help people at risk.

The posters can be hung in public spaces such as public transport, public offices and advice centres. The aim is to ensure that the foreign-speaking population is also addressed regardless of language and culture.

actors

Health Department/Cantonal Medical Office

Planning (time of year)

Before and during summer

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

• Wide dissemination of information possible

Disadvantages

• Implementation of the behavioral recommendations is not guaranteed

• There is no guarantee that information will be read and understood.

Cantons with this Measure in force

TI

Material availability and further information

Inspiration for posters on www.wärmewelle.ch

Canton of Ticino: https://www4.ti.ch/dss/dsp/gosa/canicola/materiale-informativo/

9 A9: Video campaigns

Description

The population is made aware of the negative health effects of heat using video messages. This includes information about recommendations for behavior during hot days and a call to help people at risk. The prevention messages are communicated in an easy-to-understand and tangible way.

The video can be posted on relevant websites, distributed on social networks and in waiting rooms of e.g. B. doctor's offices can be shown.

actors

Health Department/Cantonal Medical Office

Media Manager

Planning (time of year)

Before/during summer

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

- Large Dissemination from simply of communicated information possible

Disadvantages

- Implementation of the behavioral recommendations is not guaranteed

Cantons with this Measure in force

TI

VD

Material availability and further information

Canton of Ticino: #calurasenzapaura (2016): www.ti.ch/calurasenzapaura

Canton of Vaud: Canine campaign - State of Vaud 2014: https://www.youtube.com/watch?v=6UtGEldduU3s

Example of a company that produces videos for waiting rooms in general practitioner practices: dr.b.fischer ag https://www.dbf-ag.ch/humanmedizin/hausarztmedizin-edition-2-2018/.

World Health Organization (WHO Europe): #KeepCool campaign 2021: Four videos on how to deal with Heat (Body, at home, outside, during COVID-19)

Level B: Extreme event management

Level B: Management extreme event

10 B10: Heat early warning system

Description

Accurate and timely weather warnings enable the publication of up-to-date information on the timing, duration and intensity of the heat wave for the entire population, the partner organizations of a cantonal heat action plan as well as for other specialists and authorities who contribute to protecting the population from heat. The activation of measures to protect the population at level B (extreme event management) should be based on the MeteoSwiss heat warning system.

Cantons with heat action plans (in French-speaking Switzerland and Ticino) operate an **early heat warning system in collaboration with MeteoSwiss (by order).** This warning system is coordinated by the responsible cantonal medical office. Authorities and organizations that actively initiate measures in accordance with the heat action plan in the event of a heat warning will be informed about weather developments. In French-speaking Switzerland, the approach between the cantons is also coordinated with heat action plans.

Heat alarms are discussed.

An early heat warning system includes three phases of action:

1) Monitoring the weather situation (during the summer months). A contact person at MeteoSwiss regularly sends the cantonal medical office 7-day forecasts of maximum temperatures (with information on the probability) in the canton in order to be able to follow the development of the weather situation. It is also possible to receive long-term temperature forecasts (trend for the next 30 days) from MeteoSwiss.

2) Increased alertness. In the event of a possible impending heat wave, the data sent by MeteoSwiss will be monitored more closely. The partner organizations of the heat action plan are informed about the current weather situation by the cantonal medical office.

3) Heat alarm. If a heat wave is impending, a heat alarm is triggered. In order to evaluate such a situation, the duration and intensity of the heat must be taken into account. To do this, contact the contact person at MeteoSchweiz in advance to decide whether a heat warning will be triggered or not. Together with MeteoSwiss, the weather situation, duration and intensity of the predicted heat wave are assessed. Several danger levels (in addition to the MeteoSwiss levels) can be defined. The cantonal medical office informs the partners of the heat action plan regarding heat (via email or telephone), issues a media release and updates the website with current information on the heat wave. The measures planned for the danger levels (cantonal, individual partner plans) are activated. This may mean a short-term increase in staff or an increase in hospital beds.

Information on the danger levels from MeteoSwiss

From summer 2021, **MeteoSwiss' heat warning system** will be based on the average daily temperature (Tmean) and thus also takes into account the temperatures during the night. The following danger levels apply (for details see https://www.meteoschweiz.admin.ch).

Level 1: Tmean < 25°C (no or low risk)
Level 2: Tmean >=25°C for 1 or two days (moderate danger)
Level 3: Tmean >=25°C for at least 3 days (significant danger) is considered a heatwave
Level 4: Tmean >=27°C for at least 3 days (high danger) is considered a heatwave

Definition of heatwave by MeteoSwiss

There is no internationally accepted definition of a heat wave. According to MeteoSwiss, there has been a heat wave in Switzerland since summer 2021 when there is a level 3 or 4 warning. At

a period of high temperatures that do not meet the criteria of at least level 3 are considered a "heat period", a "period of high temperatures" or "hot days".

actors

Department of Health/Cantonal Medical Office

MeteoSwiss

Partner organisations Heat Action Plan

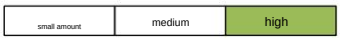
Planning (time of year)

Before summer: organization

Heat warning system, agreements with MeteoSwiss

implementation

Expense

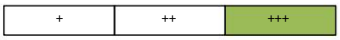


Cost

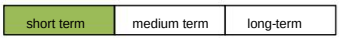
realization

assessment

Frequency of application (national & international)



Effect



Advantages

- Enables timely activation of Protective measures for those particularly at risk Population groups

Disadvantages

- Sophisticated planning

Cantons with this Measure in force

FR
GE
NE
TI
VD
US

Material availability and further information

Description of the cantons' heat action plans including heat early warning systems:

Canton of Valais (June 2018): https://www.vs.ch/documents/40893/3010124/Hitzewelleplan+2018.pdf/6b910467-3d0e-4e12-8f8d- 2cbd7cbb8e89?t=1529327564591

Canton of Vaud (June 2020): https://www.vd.ch/themes/sante-soins-et-handicap/prevention-et-maladies/canicule/

The documents of the cantons NE, FR, GE and TI are available upon request from the respective cantonal medical office.

Warning services and information on the danger levels of a heat wave from MeteoSwiss:

MeteoSwiss website and app https://www.meteoschweiz.admin.ch

AltertSwiss. With the national alarm app Alertswiss, the population receives alarms, warnings and information about various dangers directly on their smartphone. In parallel to the reports in the app, the event information is also published on the Alertswiss website.
https://www.alert.swiss

Further instructions and information on heat warning systems (see also Chapter 6 for further information and literature):

WHO 2021: Chapter 3. Accurate and timely alert systems: heat–health warning systems [9].

WMO, WHO, 2015: Heatwaves and Health: Guidance on Warning-System Development [20]

Level B: Management extreme event

11 B11: Communication of heat warning

Description

The health department/cantonal medical office informs the population about the timing, duration and intensity of the impending heat wave (according to information from MeteoSwiss). In addition, recommendations on behavior and other sources of information (FOPH website, MeteoSwiss, cantonal website, Alertswiss) are provided and the population is called upon to take greater care of people at risk. Different communication channels are available depending on the target group.

Possible communication means and channels (see also measures 4, 5, 9):

ÿ Media Release (MM)
ÿ Warning to healthcare facilities (hospitals, emergency services, mobile care services) by email or telephone ÿ
Update of the cantonal website
ÿ Social media (canton's Facebook page, Twitter, Alertswiss app)
ÿ News is spread via WhatsApp and social networks (Whatsapp avalanche)
(Foreign language information, call for younger people to look after grandparents)
ÿ SMS services
ÿ At canton, municipal level: Emails to employees ÿ Radio spot on local radio (2 to 3 times a day with rules of conduct during hot days)

actors

Health Department/Cantonal Medical Office

Planning (time of year)

Before summer: communication plan (who, what, when to whom), radio spot
Shortly before and during heat waves: communication Warning and behavior tips

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

• Wide distribution of target group-specific information possible.

Disadvantages

• Implementation of the behavioral recommendations is not guaranteed
• Media release: Dissemination of the Information depends on the media.

Cantons with this Measure in force

AG (MM 2019)
BE (MM 2019)
BS (Facebook)
GE (MM 2019)
JU (MM 2019)
NE (MM 2019)
TI (Facebook)
VD (MM, social media, 2019)
ZH (radio spot)
City of Zurich
(Emails to employees 2015)

Material availability and further information

Examples of media releases summer 2019 (accessed March 15, 2021):

Federal government (MeteoSwiss, Federal Office of Public Health, Federal Office for the Environment): https://www.meteoschweiz.admin.ch/home/aktuell/news.subpage.html/de/data/news/2019/6/warning-des-bundes-vor-wärme.html

Canton of Neuchâtel: https://www.ne.ch/medias/Pages/20190624-alerte-canicule-conseils-service-cantonal-sante-publique.aspx

Canton of Vaud: https://www.vd.ch/toutes-les-actualites/news/11800i-le-canton-de-vaud-declenche-les- plans-canicule/

Canton of Geneva: https://www.ge.ch/document/medecin-cantonal-declenche-alerte-canicule

Canton of Aargau: https://www.ag.ch/de/aktuelles/medienportal/medienmitigung/medienmitigungen/mediendetails_125028.jsp

Canton of Bern: https://www.be.ch/portal/de/index/mediencenter/medienmitteiligen/suche.archiv.meldeNeu.html/portal/de/meldungen/mm/2019/06/20190624_1143_correct_behavioronhotdaysandduringheatwaves.html

12 B12: Buddy system (carers look after people at risk)

Description

If they agree, people at risk will be looked after by (voluntary) carers during a heat wave through visits and telephone calls. The buddy system requires cooperation between the canton and the municipalities.

People at risk: Before the summer, the canton will ask the municipalities to compile a list of potential people at risk (e.g. people aged 75 and over, not receiving help from mobile care services, living at home). If possible, the canton will support the municipalities with data on potential people at risk.

Caregivers: They are sought out by the municipalities, trained (e.g. through Spitex courses) and assigned to a person at risk. In addition to volunteers, employees of the social services or the local police are also possible caregivers. Civil protection can also be involved.

If a heat wave is imminent, the canton informs the municipality about the expected duration and intensity of the heat wave. The municipality then mobilizes the care staff.

actors

Health Department/Cantonal Medical Office

Municipalities/Civil Protection

Planning (time of year)

Before summer: planning, drawing up the list of people at risk and caregivers

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Ensures support for one of the largest Risk group
- Oral information and personal Care is considered an effective preventive measure

Disadvantages

- Sophisticated planning •

Requires registration of vulnerable persons

Cantons with this Measure in force

In some Communities of the Cantons

VD

T.I

ENG

Material availability and further information

Description of the heat measures plan for the canton of Vaud: https://www.vd.ch/themes/sante-soins-et-handicap/prevention-et-maladies/canicule

City of Geneva: Canicule plan for the elderly: https://www.geneve.ch/fr/themes/social/politique-sociale-proximite/actions-sociales-proximite/plan-canicule-aine#

13 B13: Telephone helpline (heat telephone or other digital Offers)

Description

A telephone information service (heat hotline) is offered to provide better care for (elderly) people during hot summer days. Heat hotlines provide quick information and help for people with symptoms. In addition, people in the environment of elderly people living at home, such as relatives and neighbors, can get information and advice. If necessary, free home visits can also be offered. Heat hotlines can be operated throughout the summer or during heat waves.

The telephone helpline can be coordinated with an existing emergency service/emergency center (example: Canton VD). It is also recommended to offer the information service together with a specialist and service organization for old age (e.g. Pro Senectute). Support from experts in social counseling, nursing and medicine is necessary for the organization and operation of the telephone information service.

Note: With the future digitalization of society, digital offerings (e.g.
Apps) are gaining increasing acceptance among the target group.

actors

Health Department/Cantonal Medical Office

City medical services

Specialist and service organisation for the elderly (e.g. Pro Senectute)

Emergency Services

Actors in the field of technology and digital

Planning (time of year)

Before the summer: Organisation of information service, Training of specialist staff

During summer: Operate heat phone

implementation

Expense

small amount	medium	**high**

Cost

small amount	**medium**	high

realization

simply	**complex**

assessment

Frequency of use (national & international)

+	**++**	+++

Effect

short term	**medium term**	long term

Advantages

- Information service for older people (largest risk group)
- Contributes to relieving the burden on the health system during heat waves at

Disadvantages

- Relatively high costs, as additional Staff is needed

Cantons with this Measure in force

B.S
VD
Zurich city

Material availability and further information

Canton of Vaud: Hotline during heat waves in collaboration with *Centrale téléphonique des médecins de garde (CTMG),* description of heat measures plan:
http://www.vd.ch/themes/sante/prevention/canicule

City of Zurich: Heat telephone for older people (pilot project summer 2019, continued in 2020). The city's heat telephone offers information and advice (between June and September) as well as free home visits during a heat wave. https://www.stadt-zuerich.ch/content/dam/stzh/gud/Deutsch/SGD/Dokumente/Hitze/Flyer%20Hitzetelefon%20.pdf

Canton of Basel-Stadt: Heat telephone was introduced as part of the 2020 heat campaign together with Pro Senectute. https://www.bs.ch/nm/2020-hitze-kampagne-fuer-seniorinnen-und-senioren-gd.htm

14 B14: Compilation of information on cool places where the population can recover during hot periods

Description

A collection of cool/air-conditioned places where the population (especially those at risk) can relax and cool down during heat waves and hot summer days. The list can be published by the municipalities or the canton.

Possible locations:

- Libraries
- Community centers
- Cultural centers
- Museums
- Cinemas
- Local recreation areas
- Public swimming pools
- Information on publicly accessible (drinking water) fountains
- …

By arrangement, the opening times of such places can be extended during heat waves. At the municipal level, the planning of a transport service that takes less mobile people to such places should be examined. If necessary, the creation of additional cooled rooms that are publicly accessible during heat waves can be examined.

actors

Department of Health/Cantonal Medical Office

communities

Transport companies/transport services

Stakeholders of the affected places

Planning (time of year)

Before summer: creating the list, planning Transport service

During Heatwave/Summer: Update and publication

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

• Staying in cool places reduces the risk of negative health effects of heat.

Disadvantages

• Research shows that refrigerated facilities are used primarily by less vulnerable people rather than those most at risk [21].

Cantons with this Measure in force

Some communities in Canton GE

City of Bern

(Note to Spring)

Material availability and further information

Example from the city of Geneva: “Que faire à Genève pendant les fortes chaleur? https://www.geneve.ch/fr/actualites/faire-geneve-pendant-fortes-chaleurs (accessed on March 7, 2021)

City of Bern: Note on the website that the fountains in the city of Bern all have drinking water (with link to map) https://www.bern.ch/themen/gesundheit-alter-und-sociales/gesundheit-und-wärme (accessed March 15, 2021).

Level B: Extreme event management

15 B15: Specific measures for people who work outside

Description

During heat waves, special precautionary measures apply to people who have to work outside. The restriction of physically demanding activities and other protective measures must be examined (e.g. shifting working hours to the early hours of the morning, shading, break regulations, drinks delivery).

actors

Health Department/Cantonal Medical Office

employment exchange

Employers/employer associations (e.g.
Construction industry)

Trade unions

Planning (time of year)

Before the summer: raising awareness,
Action planning

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Enables the health protection of people who are exposed to heat and sun during their professional activities.

Disadvantages

- For measures concerning working time regulations during heat waves: Requires a review of the working time regulations according to the ArG.

Cantons with this Measure in force (2015)

TI

Material availability and further information

See also measure 6

Obligations of employers regarding...

… working hours: Guide to the Labour Law and its Regulations 1 and 2

... the protective measures: Guide to Art. 20 ArGV 3 “Sunlight and heat radiation”

16 B16: Advice on office work in hot weather

Description

Hot days can have an impact on health and performance. Office workers who work indoors on hot days are also affected. Employees are informed about precautionary measures by email, flyer or poster. Employers must also protect the health of employees during hot days through technical, organizational and personal measures (see SECO fact sheet).

actors

Health Department/Cantonal Medical Office

employment exchange

Companies with office work

Planning (time of year)

Before summer (communication plan)

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Simple measure to protect the Health.

Disadvantages

- Positive effect is not guaranteed.

Cantons with this Measure in force

Can be

Companies, administrations etc. internally be implemented

Material availability and further information

Office work in hot weather, information for employers and employees (information sheet and flyer): (SECO, 2020): https://www.seco.admin.ch/seco/de/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Work/Working conditions/Information sheets and checklists/office work in the heat.html

Brochure “Stay cool. Thermal insulation of office and commercial spaces” (EnergySwiss, Federal Office of Energy 2019): https://pubdb.bfe.admin.ch/de/publication/download/9729

Information from international studies and organizations: See measure 6

Level B: Extreme event management

17 B17: Distributing drinking water to publicly accessible areas places

Description

Drinking is especially important during hot days. Distributing free drinking water in public places (e.g. public transport, train stations, motorways), large events or providing drinking fountains in public buildings.

actors

Department of Health/Cantonal Medical Office

employment exchange

Civil protection

Healthcare institutions (e.g. pharmacies)

Other actors (Swiss Federal Railways SBB, organizers of major events, etc.)

Planning (time of year)

Before summer: list of potential locations, events, distributors and suppliers; communication

Check waste management (when distributing PET drinking bottles)

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

• Simple measure to protect the Health.

Disadvantages

• Positive effect is not guaranteed. • Possible accumulation of waste (PET drinks bottles)

Cantons with this Measure in force

Some communities in Canton GE

TI (Civil Defense; Gotthard South portal 2015)

Zurich city (Pharmacies 2019)

Federal Wrestling Festival 2016 (SBB)

Material availability and further information

Description of the water distribution campaign at the **Gotthard South Portal** during the 2015 heat wave: BAFU (ed.) 2016. Summer 2015: Heat, drought and effects on people and the environment. Federal Office for the Environment FOEN, Bern. Environmental status no. UZ-1629: 118 p.

Pharmacists' Association of the Canton of Zurich: The pharmacies of the Canton of Zurich are launching the "Summer Heat Campaign" in collaboration with the health services of the City of Zurich, the Health Directorate of the Canton of Zurich and the city's pharmacy network in 2019 and 2020. In the summer months, the pharmacies in the canton of Zurich refilled empty water containers free of charge upon request. This also contributes to environmental protection by reducing the amount of disposable bottles and containers. https://www.avkz.ch/?nodeId=101201

At the **2016 Federal Wrestling Festival,** free drinking water bottles were handed out to SBB customers at the Payerne train station in the immediate vicinity of the festival site.

18 B18: Monitoring morbidity and mortality events

Description

During the summer, morbidity and mortality events (e.g. number of emergency admissions stratified by age group and information on fever >38°C in the canton of VD, heat-related emergency hospital admissions in the canton of TI) are observed and analyzed. This provides an overview of the current situation and efficient planning of measures. The data can be used to assess the danger level of the heat wave and for further analyses (e.g. heat-related excess mortality). Advice or the involvement of specialists (e.g. research institute) is recommended for the preparation and analysis of the data.

actors

Department of Health/Cantonal Medical Office

Hospitals

MeteoSwiss (temperature data)

Research institute

Possibly Federal Statistical Office (BFS) for data on mortality and morbidity

Planning (time of year)

Before summer: planning data analysis,
Data request

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long-term

Advantages

• Enables well-founded action planning and evaluation.

Disadvantages

• Data acquisition and data analysis is complex.

Cantons with this Measure in force (2015)

T.I
VD

Material availability and further information

Description of the heat action plan for the canton of Vaud: https://www.vd.ch/themes/sante-soins-et-handicap/prevention-et-maladies/canicule/

WHO 2021: Chapter 9 “Real-time information: surveillance, monitoring and evaluation of HHAPs” [9].

Level C: Long-term adjustment

19 C19: Embedding of heat protection measures and Heat action plans in strategies for adapting to the Climate change

Description

Measures to protect health from heat and heat action plans are embedded in regional climate adaptation strategies. This simplifies collaboration with other sectors (in particular urban planning, transport planning, construction) and supports coordination with actors involved in climate adaptation. Cross-sector collaboration is particularly important for long-term heat protection in urban regions and in buildings.

actors

health department

Spatial planning

Transport planning

Energy sector

Environmental Agency

Research

implementation

Expense

small amount | **medium** | high

Cost

small amount | **medium** | high

realization

simply | **complex**

assessment

Frequency of use (national & international)

+ | ++ | +++

Effect

short term | medium term | **long-term**

Advantages

• Important contribution to the long-term Protection the Population before Extreme temperatures.

Disadvantages

• Sophisticated planning and implementation

Material availability and further information

WHO **supports** the embedding of heat action plans in climate adaptation strategies: Heat and health in the WHO European Region: updated evidence for effective prevention (2021) [9].

The **canton of Zurich's action plan for adaptation to climate change** (October 2018) contains, in addition to other areas of action (terrestrial ecosystems and their use, water and bodies of water, natural hazards, local climate, energy), a health risks area of action. This includes
Measures to deal with heat. https://www.zh.ch/de/umwelt-tiere/klima/massnahmeplaene.html

The **EU** also recommends integrating human health into all climate change adaptation policies: European Union, Research and Innovation (June 2020): Adaptation to health effects of climate change in Europe: https://ec.europa.eu/info /publications/adaptation-health-effects-climate-change -europe_en

C Long-term adjustment

20 C20: Urban planning measures to reduce Heat accumulation and heat islands

Description

In urban areas, summer heat is exacerbated by the heat island effect. This is because densely built-up areas with lots of sealed surfaces and limited air circulation warm up more during the day and cool down less at night than the surrounding rural areas. In cities, the temperature difference between the center and the green outskirts can be several degrees.

This heat island effect in cities should be reduced in order to reduce the negative effects of heat on health in the long term. The aim should be to use various urban development measures to reduce heat stress in the summer months and thus promote adaptation to a warmer climate. At the same time, this will help to counteract the various challenges of climate change (e.g. air pollution, heavy precipitation). Cooperation between different policy areas and research fields is essential for this. The involvement of the health sector is important because synergies can be used for other health-related concerns.

Possible urban and building planning measures:

- ÿ Promote and ensure ventilation; keep cold and fresh air ducts clear
- ÿ Increasing and improving the proportion of green space and reducing the sealed area
- ÿ Greening of buildings
- ÿ Creation of shaded public spaces such as parks, playgrounds, bus stops public transport, sidewalks (e.g. through tree-lined avenues) ÿ Establishment and expansion of open, moving water areas
- ÿ Installation of permanently installed drinking water dispensers in public spaces
- ÿ «Sponge City» concept (see further information below)

actors

Health Department

Spatial planning

Transportation planning

Energy sector

Environmental Agency

Research

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of application (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Important contribution to the long term Protection the Population before Extreme temperatures.

Disadvantages

- Conflicts of interest are possible
- Demanding planning and implementation

Material availability and further information

Heat in cities. Fundamentals for climate-friendly urban development (ARE, BAFU 2018) https://www.bafu.admin.ch/bafu/de/home/themen/klima/publikationen-studien/publikationen/hitze-in- staedten.html

Planning aid for green and open spaces. Scope for action and tools for planning, implementation and management (Energy Switzerland, BAFU 2019): https://www.local-energy.swiss/dam/jcr:98f580a4-1e07-4a52-9af4-46f2b7b7bbf4/ESfG_Planning_Aid_DE_web_20190124.pdf

Adaptation to climate change in the cantons. Individual cantons, cities and municipalities are already actively dealing with aspects of adaptation to climate change and have developed basic documents or strategies:

https://www.bafu.admin.ch/bafu/de/home/themen/klima/fachinformation/adaptation-an-den-klimawandel/adaptation-an-den-klimawandel-in-den-kantonen.html

Specialist planning for heat reduction in the city of Zurich: https://www.stadt-zuerich.ch/ted/de/index/gsz/planung_und-bau/fachplanung-hitzeminderung.html

Promotion of green roofs and facades in Mendrisio: https://mendrisio.ch/servizio/inverdimento-di-tetti-e-pareti-esterne/

Pilot project for adaptation to climate change ACCLIMATASION: A climate-adapted urban development for Sion»: https://www.sion.ch/acclimatasion

Sponge City concept : An urban planning concept that serves both to reduce heat and to protect against flooding. The city is understood and developed as a "sponge" that absorbs rainwater and releases it again when needed. In the case of light and medium rainfall, the rainwater is stored locally near the surface or seeps into the groundwater.

In hot and dry weather, it can evaporate from plants or soil, thus cooling the surrounding area. Only during heavy rainfall does additional surface runoff form, which is then drained away in a controlled manner.

Explanations of the concept: https://www.sieker.de/fachinformationen/umgang-mit-regenwasser/article/das-_konzept-der-schwammstadt-sponge-city-577.html

Press release from the city of Zurich: “Heat reduction: City of Zurich tests elements of the sponge city (3. December 2020): https://www.stadt-zuerich.ch/ted/de/index/departement/medien/medienmitteilungen/2020/dezember/201203a.html

SRF contribution (December 3, 2020 in Schweiz Aktuell) on the pilot project in the canton of Zurich: https://www.srf.ch/play/tv/schweiz-aktuell/video/schwamstadt-zuerich-kaempft-mit-regenwasser-gegen-_wärme?_urn=urn:srf:video:b071e1bc-f096-4fd8-8b30-adf30064b825

European Environment Agency: Urban adaptation in Europe: how cities and towns respond to climate change (2020) https://www.eea.europa.eu/publications/urban-adaptation-in-europe

Global Heat Health Information Network: Current examples and measures from all over the world: https://ghhin.org/in-the-city/

Chapter 8 **(Long-term urban planning: reducing heat risks)** in the WHO publication “Heat and health in the WHO European Region: updated evidence for effective prevention” (2021 [9]): https://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/publications/2021/heat-and-health-in-the-who-european-region-updated-evidence-for-effective-prevention-2021

21 C21: Summer thermal protection (buildings)

Description

Measures for new buildings and the renovation of existing buildings are important not only with regard to reducing energy consumption and global warming. Adaptation measures to the climate change that is already taking place are urgent in order to save costs, reduce damage and to ensure safety and comfort in the living and working world. Structural, technical and operational measures are intended to prevent buildings from overheating and thus create an optimal indoor climate. In addition, a pleasant room temperature should be able to be achieved during hot periods with as little additional energy requirement as possible.

The health sector is also encouraged to invest more in such adaptation measures.
This particularly applies to the conversion/renovation/new construction of buildings in the healthcare sector (retirement homes, hospitals).

Possible building-related measures:

- ÿ Heat-adequate building planning for new buildings
- ÿ Installation of systems to release the heat trapped inside buildings during the night (night cooling using, for example, automatically opening windows or exhaust systems with negative pressure openings in the parapet area)
- ÿ Improving building insulation (including non-insulated attics)
- ÿ Sun protection of buildings and window surfaces
- ÿ Building greenery
- ÿ Proportion of reflected radiation through appropriate choice of building colours and building materials increase
- ÿ Use of the best equipment (computer, television, refrigerator, lighting, etc.) that is energy efficient and emits little heat
- ÿ Switching to LED lamps
- ÿ Retrofitting ventilation systems (providing, among other things, better and cooler air when closed windows into the building and prevent ineffective individual cooling devices).

actors

Health Department

Town planning

Environmental Agency

architecture

Energy sector

Research

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Important contribution to the long term Protection the Population before Extreme temperatures.
- Measures promote well-being in the living and working environment and performance

Disadvantages

- Complex planning and implementation

Material availability and further information

Adaptation to climate change in the cantons. Individual cantons, cities and municipalities are already actively dealing with aspects of adaptation to climate change and have developed basic documents or strategies:

https://www.bafu.admin.ch/bafu/de/home/themen/klima/fachinformation/adaptation-an-den-klimawandel/adaptation-an-den-klimawandel-in-den-kantonen.html

EnDK – Conference of Cantonal Energy Directors. In the building sector, the cantons are responsible for legislation. In the enforcement aid EN-102 “Thermal protection of buildings” The requirements for summer heat protection are discussed (Chapter 8). The enforcement aid also makes reference to the relevant **SIA standards .** www.endk.ch, www.sia.ch

Minergie. Summer thermal protection is an important topic for the building label. The measures described are possible for all buildings, not just if a label is being sought. In the corresponding publication "Minergie Knowledge: Summer Thermal Protection" and directly on the website the background and measures are described. The brochure “Minergie Knowledge: Cooling with PV” is also available , a practical example of office buildings and other aids. www.minergie.ch

KBOB - Coordination Conference of the Construction and Property Bodies of Public Building Owners. The KBOB recommendation "Building when the climate gets warmer" Although it dates back to 2008, the statements it contains are still valid. The recommendation shows the most important points for building owners, planners and architects. www.kbob.admin.ch

MeteoSwiss. Solar energy potential of house roofs and facades thanks to satellite climatology. With two interactive online applications www.sonnendach.ch and www.sonnenfassade.ch The potential electricity and hot water production of buildings can be determined.

Energy.ch. Energy efficient buildings. An overview lists various measures to reduce energy consumption. Immediate measures that do not require any investment are also mentioned http://www.energie.ch/gebaeude (accessed on March 15, 2021)

Recommendation for sustainable construction “Building when the climate gets warmer” (KBOB Sustainable Building Specialist Group / BBL Federal Office for and 2008): https://www.kbob.admin.ch/dam/kbob/de/documents/Publikationen/Nachhaftes%20Bauen /Archive_2005-2009/2008_2%20Build,%20if%20the%20climate%20w%C3%A4rmer%20becomes.pdf

buildings logistics

C Long-term adjustment

22 C22: Climate protection

Description

By 2050, Switzerland should no longer emit any greenhouse gases. The Federal Council decided on this net-zero target in 2019. On January 27, 2021, it adopted the associated "Long-term Climate Strategy of Switzerland". This formulates ten basic strategic principles that should shape Swiss climate policy in the coming years. Strategic objectives for reducing emissions have been defined for the building, industry, transport, agriculture and food sectors, the financial market, aviation and the waste industry.

Measures to reduce greenhouse gas emissions (e.g. increasing energy efficiency, promoting renewable energy sources, promoting slow transport, promoting public transport, reducing air pollutants) contribute to minimizing the risks of global warming to health in the long term and increase adaptability. The health aspect should be taken into account in climate protection policy. It is recommended that actors in the health sector implement measures to reduce emissions within the health sector. It should be noted that the health sector also contributes significantly to national greenhouse gas emissions. Internationally, the health sector's share of total emissions is 4.6% according to the 2020 Lancet Countdown report [22].

actors

Health Department

Town planning

Traffic planning

Environmental Agency

Energy sector

Construction (building)

Agriculture and Nutrition

science and Research

implementation

Expense

small amount	medium	high

Cost

small amount	medium	high

realization

simply	complex

assessment

Frequency of use (national & international)

+	++	+++

Effect

short term	medium term	long term

Advantages

- Important contribution to the long term Protection the Population before Extreme temperatures.

Disadvantages

- Conflicts of interest are possible
- Complex planning and implementation

Material availability and further information

Federal government: Long-term climate strategy 2050 https://www.bafu.admin.ch/bafu/de/home/themen/klima/fachinformationen/emissionsvernahme/vermin development goals/target-2050/climate-strategy-2050.html

Federal Roads Office. Dossier on the subject of slow traffic. https://www.astra.admin.ch/astra/de/home/themen/langsamverkehr.html

Federal Office for the Environment. Measures to keep the air clean in road traffic. Promoting the use of public transport and slow traffic as well as spatial planning also contribute to improving air quality. https://www.bafu.admin.ch/bafu/de/home/themen/luft/fachinformationen/massnahmen-zur-luftreinhaltung/massnahmen-zur-luftreinhaltung-beim-strassenverkehr.html

Greenhouse gas inventory of Switzerland (Federal Office for the Environment). https://www.bafu.admin.ch/bafu/de/home/themen/klima/zustand/daten/treibhausgasinventar.html

Climate tips for everyday life (Federal Office for the Environment). https://www.bafu.admin.ch/bafu/de/home/themen/klima/dossiers/magazin-umwelt-leben- klimawandel/klimatipps-fuer-den-alltag.html

Climate and financial market (Federal Office for the Environment). https://www.bafu.admin.ch/bafu/de/home/themen/klima/fachinformationen/klima-und-finanzmarkt.html

EnergieSchweiz: The federal funding program in the field of energy. https://www.energieschweiz.ch/

Natural Sciences Switzerland. Current articles and fact sheets on mobility and climate change. https://naturwissenschaften.ch/climate/people/mobility

The building program. Save energy and receive funding. https://www.dasgebaeudeprogramm.ch

Publications on the role of the health sector in climate protection

WHO 2015: Did you know: by taking action on climate change you can strengthen public health [23]
Nikendai et al 2020: Climate change: causes, consequences, solutions and implications for health care [24]

Maibach et al. 2021: Health professionals, the Paris agreement, and the fierce urgency of now [25]
European Academies' Science Advisory Council (EASAC) and Federation of European Academies of Medicine (FEAM): Decarbonization of the Health Sector (April 2021): A Commentary by EASAC and FEAM: https://easac.eu/publications/details/decarbonization -of-the-health-sector/

C Long-term adjustment

23 C23: Promoting resilience in health systems

Description

Resilience can be a key factor in meeting the challenges of increasing heat stress. Heat action plans and the consideration of human health in adaptation strategies help support the resilience of the health sector. Strengthening the resilience of health systems should be a fundamental goal when developing action plans, emergency plans and adaptation strategies.

The following measures support the resilience of the health sector:

- ÿ Education and information of health professionals (measures 1, 3)
- ÿ Protection of the most vulnerable social groups (measures 2, 6, 12)
- ÿ Sustainable infrastructure (measures 20, 21)
- ÿ Integrating human health into all climate change adaptation policies (Measure 19)

actors

Health Department

Spatial planning

Transportation planning

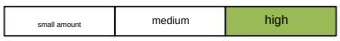
Energy sector

Environment Agency

Research

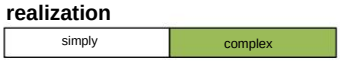
implementation

Expense



Cost

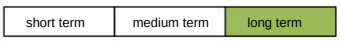
realization



assessment

Frequency of application (national & international)

Effect



Advantages

- Important contribution to the long term Protecting the population from heat

Disadvantages

- Demanding planning and implementation

Material availability and further information

WHO 2021 publication “Heat and health in the WHO European Region: updated evidence for effective prevention” [9].

European Union, Research and Innovation (June 2020): Adaptation to health effects of climate change in Europe: https://ec.europa.eu/info/publications/adaptation-health-effects-climate-change-europe_en

6. Further information and literature

Studies and data on the effects of heat stress on health

- National Centre for Climate Services NCCS: Human Health: Overview of current publications and data on the topic of heat and health in Switzerland • Lancet Countdown on Health and Climate Change: The Lancet Countdown Group, an international group of experts, uses various indicators to show the effects of climate change on health in an annual report.
- The imperative of climate action to protect human health in Europe (EASAC 2019)

Further information on developing heat action plans

- Heat and health in the WHO European Region: updated evidence for effective prevention (WHO, 2021)
- Public health advice on preventing health effects of heat. New and updated information for different audiences (WHO, 2019) (available in German and English) • Heatwaves and Health: Guidance on Warning-System Development (WMO &WHO 2015).
- Heat health action plans guidance (WHO 2008). • Recommendations for the development of heat action plans to protect human health (Federal/State Ad-hoc Working Group “Health Adaptation to the Consequences of Climate Change (GAK)”, Federal Environment Agency Germany, 2017).

- Global Heat Health Information Network: Current information on measures and Studies on heat and health from around the world

Recommendations for inpatient geriatric care facilities (Germany)

- Heat action plan for inpatient geriatric care facilities. Recommendations from practice for practice (LMU Klinikum, Institute and Polyclinic for Occupational, Social and Environmental Medicine, University of Munich, 2020)

Climate scenarios for Switzerland CH2018

- The Web Atlas CH2018 contains a wealth of graphics and related data. A wide variety of climate variables are available for measuring stations, large regions or the whole of Switzerland.

Adaptation to climate change at the federal level

- Adaptation to climate change in Switzerland: Action Plan 2020-2025.

Health equity

- Short version for practice. Equal opportunities in health promotion and prevention. Proven approaches and success criteria (Federal Office of Health, Health Promotion Switzerland, Swiss Conference of Cantonal Health Directors, April 2020). • BAG website on equal health opportunities
- Create and distribute information materials tailored to target groups – information for health organizations (migesplus.ch)

- Report from the European Environment Agency EEA on environmental pollution in Europe (Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe). The report addresses the unequal heat stress within the population and contains recommendations for measures (as well as examples) to minimize social inequalities in health effects and exposure to high temperatures (EEA 2018).

Literature and recommendations to protect your health from heat waves during the COVID-19 pandemic

- Health recommendations World Health Organization on heat during the COVID-19 outbreak. WHO Regional Office for Europe (2020)
- Technical Brief: Protecting health from hot weather during the COVID-19 pandemic. Global Heat Health Information Network (2020)
- Planning checklist: Managing heat risk during the COVID-19 pandemic. Global Heat Health Information Network (2020)
- Heat and COVID-19 Q&A Series. Global Heat Health Information Network (2020)
- Health recommendations of the Canton of Ticino: «Canis lupus and covid-19» (2020)

References

1. Ragettli, MS, et al., *Exploring the association between heat and mortality in Switzerland between 1995 and 2013.* Environmental Research, 2017. **158C:** p. 703-709.
2. Song, X., et al., *Impact of ambient temperature on morbidity and mortality: An overview of reviews.* Science of The Total Environment, 2017. **586:** p. 241-254.
3. Ragettli, MS, et al., *Impact of the warm summer 2015 on emergency hospital admissions in Switzerland.* Environmental Health, 2019. 18(66): p. 1-10.
4. Ragettli, MS and M. Röösli, *The importance of preventive measures. Heat-related mortality in summer 2019.* Prim Hosp Care Allg Inn Med., 2021. 21(03): p. 90-95.
5. Ragettli, MS and M. Röösli, *Health effects of heat in Switzerland and the importance of preventive measures. Heat-related deaths in the hot summer of 2019 – and a comparison with the hot summers of 2003, 2015 and 2018.* 2020, Swiss Tropical and Public Health Institute (Swiss TPH): Basel, on behalf of the FOPH.
6. BABS, *National Risk Analysis Report. Disasters and emergencies Switzerland 2020.* 2020, Federal Office for Civil Protection (BABS): Bern. p. 1-57.
7. BABS, *CATAPLAN guide. Basis for cantonal risk analyzes and action planning.* 2013, Federal Office for Civil Protection (BABS): Bern. p. 1-57.
8. NCCS, *CH2018 - Climate scenarios for Switzerland.* 2018, National Centre for Climate Services: Zurich. p. 1-24.
9. WHO Regional Office for Europe, *Heat and health in the WHO European Region: updated evidence for effective prevention.* 2021: Copenhagen. p. 1-176.
10. Weber, D. and S. Hösli, *equal opportunities in health promotion and prevention. Proven approaches and success criteria. Short version for practice.* 2020, Federal Office of Public Health (FOPH), Health Promotion Switzerland (GFCH), Swiss Conference of Cantonal Health Ministers (GDK): Bern. p. 1-16.
11. EEA, *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe.* 2018, European Environment Agency (EEA): Luxembourg. p. 1-97.
12. EEA, *Healthy environment, healthy lives: how the environment influences health and well-being in Europe.* 2020, European Environment Agency (EEA): Luxembourg. p. 165.
13. WHO, *Heat-Health Action Plans. Guidance.* 2008, World Health Organization (WHO) Regional Office for Europe: Copenhagen. p. 1-46.

14. Benmarhnia, T., et al., *A difference-in-differences approach to assess the effect of a heat action plan on heat-related mortality, and differences in effectiveness according to sex, age, and socioeconomic status (Montreal, Quebec).* Environmental Health Perspectives, 2016. 124(11): p. 1694.
15. Martínez-Solanas, E. and X. Basagaña, *Temporal changes in temperature-related mortality in Spain and effect of the implementation of a Heat Health Prevention Plan.* Environmental Research, 2019. **169:** p. 102-113.
16th Federal/State Ad-hoc Working Group on Health Adaptation to the Consequences of the Climate change, *recommendations for the creation of heat action plans to protect human health.* Federal Health Gazette-Health Research-Health Protection, 2017. **60:** p. 662-672.
17. Ragettli, MS, et al., *Evaluation of cantonal heat action plans and heat-related mortality in summer 2015,* in *report for the Federal Office of Public Health (BAG).* 2016, Swiss Tropical and Public Health Institute (Swiss TPH).
18. Ragettli, MS and M. Röösli, *Hot summer 2018. Impact on mortality and cantonal prevention measures.* 2019, Swiss Tropical and Public Health Institute (Swiss TPH): Basel.
19. BAFU et al., *Heat and drought in summer 2018. Impacts on humans and Environment,* in *Environmental Status No. 1909.* 2019, Federal Office for the Environment (FOEN) Bern. p. 1-91.
20. WMO and WHO, *Heatwaves and Health: Guidance on Warning System Development.* 2015, World Meteorological Organization (WMO) and World Health Organization (WHO): Geneva. p. 1-96.
21. Kovats, RS and LE Kristie, *Heatwaves and public health in Europe.* The European Journal of Public Health, 2006. 16(6): p. 592-599.
22. Watts, N., et al., *The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises.* Journal of Clinical Oncology, 2019.
23. WHO. *Did you know: by taking action on climate change you can strengthen public health. Key facts.* 2015 12 January 2021]; Available from: https://www.who.int/globalchange/publications/didyouknow-health-professionals.pdf?ua=1 .
24. Nikendei, C., et al., *Climate Change: Causes, Consequences, Solutions and Implications for Health Care.* Journal of Evidence, Training and Quality in Healthcare, 2020.
25. Maibach, E., et al., *Health professionals, the Paris agreement, and the fierce urgency of now.* The Journal of Climate Change and Health, 2021. 1: p. 100002.