

Plans and  
strategies

# Heat wave and high temperatures

Action plan and advice for those  
who work in Kalmar municipality



Kalmar kommun

[piren.kalmar.se](http://piren.kalmar.se)

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***Tillsammans*** gör vi ett  
Kalmar för alla ännu bättre

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## General advice at high temperatures



### Pay attention to the indoor temperature

The risk of health problems increases significantly if the temperature reaches 26 degrees for three days in a row.



### Encourage increased fluid intake

Avoid large amounts of sugary and caffeinated drinks and alcohol. Feel free to serve liquid-rich food, for example vegetables and fruit. **Help especially young children, the elderly and people with disabilities to drink.** People with a specific disease, consider fluid list and weight control as there may be a risk of overhydration. See checklist doctor/nurse.



### Try to arrange a cool environment

Make use of curtains, blinds and awnings and fans in the living environment. It is important that sensitive people stay in the coolest part of the home or accommodation. Air at night when it is cool. Keep in mind that the temperature can differ by several degrees in different rooms. When staying outdoors - seek shady places!



### Arrange cooling measures

A cool shower is most effective. A wet towel around the neck is an option. Loose-fitting clothes in natural materials is cooler than tight synthetic clothing.



### Encourage reduced physical activity

Especially during the hottest hours of the day.



### Pay extra attention to signs of heat exposure

Warning signs can be elevated body temperature, pulse, and breathing rate, dizziness and abnormal fatigue. Dry mouth and decreased urine output can be signs of dehydration. Keep in mind that antipyretic medications can worsen the condition.

## RISK GROUPS

- elderly
- people with disabilities
  - chronically ill
  - cardiovascular disease
- lung disease
  - kidney disease
- people with serious mental illness
- dementia
- bedridden
  - socially isolated
- pregnant
- infants and young children
- people taking medicines that affect the body's regulation of heat
- people who are physically active and/or work in a strenuous environment or office environment.

## Target group

The action plan for heat waves and high temperatures is aimed at you who work within the municipality, in, for example, preschools, home care, home health care or special forms of accommodation. The plan addresses how the health effects of a heat wave and high temperatures are handled, as support there are both checklists and advice.

Those of you who work with people in risk groups, remember that you too are affected by the heat. How you experience and cope with the heat is individual.

## Health effects of heat wave and high temperatures

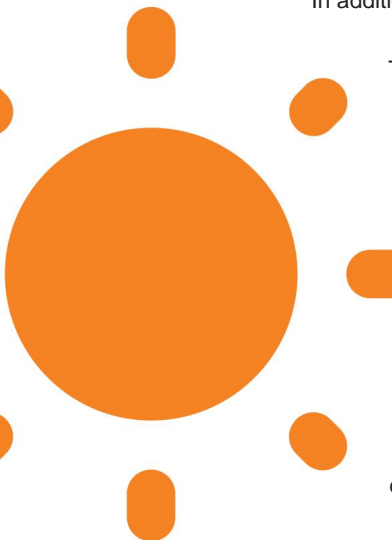
It is well known that heat waves and high temperatures can lead to health problems and an increased number of deaths, especially in the elderly population. The daily mortality rate increases by approximately ten percent if the temperature reaches 26 degrees or more for three days in a row, and it increases by another ten percent if the temperature reaches 30 degrees or more for three days in a row.

With a changing climate, we can count on both a rising average temperature and extreme weather conditions such as heat waves and high temperatures becoming more common. As we in Sweden are not so used to high temperatures, negative health effects are already seen at lower temperature levels than, for example, in tropical countries.

Extreme heat is dangerous for everyone, but the elderly (over 65) and chronically ill people are particularly vulnerable groups.

Older people are more sensitive than younger people, because they have poorer temperature regulation and a reduced ability to feel thirst.

In addition, they more often have chronic diseases.



The heat itself causes the superficial blood vessels to dilate and the sweating increases. If you do not have time to take in enough fluid to compensate for the increased evaporation, the blood becomes more concentrated and the risk of blood clots in the heart and brain increases. If the heart cannot cope with the increased demands on pumping capacity, it can result in severe heart failure. Heat-related deaths in the elderly depend usually on circulatory disorders.

Presence of chronic diseases such as dementia, physical disabilities, cardiovascular disease

dom, kidney disease, asthma or COPD, but also diabetes, obesity and serious mental illness, can further increase the risk of health problems during a heat wave or high temperatures. Some medications that are common among the elderly can cause more serious side effects at high temperatures. During a heat wave, in addition to the high temperature, increased humidity and air pollution can also contribute to the negative health effects.

## Reactions and symptoms to heat

The majority of increased morbidity/mortality during heatwave/high temperatures is due to cardiovascular disease and lung disease, as well as medication effects.

However, you should be aware that there are a number

specifically heat-related symptoms/disease conditions, which can also affect younger and healthy individuals:

- Cramps due to dehydration (dehydration) and disturbance in salt balance (electrolyte loss). Mainly seen during intense sports in the heat.
- Rash, small itchy red bumps. This is harmless and will pass spontaneously.
- Swelling (edema) – usually manifests as swollen ankles.
- Dizziness and fainting due to dehydration and dilation of superficial blood vessels (often with concomitant cardiovascular disease and medication).
- Exhaustion: nausea, vomiting and circulatory collapse.  
Can appear at a body temperature of 37-40 degrees. This is due to a lack of water or salt and requires rapid intervention with cooling and rehydration in accordance with local care routines.
- Heat stroke can occur with untreated heat exhaustion and is a non-acute condition with confusion, convulsions, possible loss of consciousness, hot and dry skin and a body temperature exceeding 40.6 degrees, which untreated can cause organ failure, brain damage and lead to death.

## Specific efforts

In general, in case of heat exhaustion and heat stroke, antipyretics should not be given, as this can worsen the condition. People who suffer from exhaustion and, or heatstroke must be treated in hospital.

Often, treatment in an intensive care unit is necessary. Take the temperature, cool down and give to drink if the person is conscious.

Contact a nurse for assessment or call an ambulance if necessary. There are still no controlled studies of which type of fluid treatment is best for alleviating the health effects of heat for the elderly, which is why specific recommendations cannot be given in the checklists.

In cases where specific rehydration treatment needs to be considered, an individual assessment must be made taking into account:

- any underlying disease
- medication
- local care routines.

## Heat warnings

When the weather forecast shows that the temperature will reach 26°C or more three days in a row, SMHI sends advance information to those responsible in health and social care via the county administrations and municipalities, in order to increase preparedness there.



### SMHI's heat wave warning system:

- Message about heat wave: The forecast shows that the maximum temperature the trip is at least 26°C three days in a row.
- Class 1 warning for heat wave: The forecast shows that the maximum temperature is at least 30°C for three consecutive days.
- Class 2 warning for heat wave: The forecast that the period with a maximum temperature of at least 30°C may be longer than five days and or that the maximum temperature is at least 33°C for three consecutive days.



## Alarm chain within the municipality

How the alarms are relayed varies a little depending on where in the organization we work.



## Get help to spread the word

There are many actors to collaborate with during a heat wave and high temperatures, for example:

- real estate company
- the Home Guard
- police volunteers
- Missing people
- the emergency services
- neighborhood cooperation representative
- Municipal Pensioners Council (KPR)
- Municipal council for disability issues
- good man (supervisory authority)
- the cultural and leisure administration to reach various associations such as receive grants
- postman.

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## **Checklists for managers and employees in Kalmar municipality**

## General information for managers, regarding the work environment

The ability to work is affected because high heat affects both body and mind. The body's natural response to high heat is to lower the work rate to reduce the body's heat production. Attention and judgment deteriorate and the risk of accidents increases. Mood is affected by heat stress in the same way as by other stress.

Already after a few days of staying in the heat, heat acclimatization begins. It is an adaptation of the body's functions so that sweating is activated at a lower body temperature. Also the regulation of blood circulation is improved. However, maximum tolerance for heat is reached only after 8-10 days of acclimatization.

In this type of work, the working time in heat must be adjusted so that the total stress on the body does not become too great. With heat training, the body can cope with higher heat, but after a break in work, for example a holiday, the body needs heat training again.

During summer, the temperature indoors should normally be between 20 and 26 °C if the work is light and sedentary.



### Temporary measures when working during a heat wave or high temperatures



- Limit solar radiation.
- Shield or move heat-emitting machines.
- Switch off unnecessary heat sources.
- Increase air exchange through window ventilation on the shadow side of the building.
- Run the ventilation at night.
- Use table fans (not in common areas when running infection or in case of risk of infection spreading).
- Wear as cool clothing as possible. • Wear more informal clothing when possible.
- Have good access to fluids. Drinking water must be provided in a hygienic manner within a reasonable distance from the workplace.
- If possible, adapt your work to the hours of the day and heat peaks. This can mean, for example, shifting working hours, rearranging the order of your tasks, prioritizing work in the shade when the sun is strong, taking longer breaks and, if possible, working from home.

Some actions require a decision from the manager or management. Stay up-to-date on what applies via intranet and e-mail or other contact with your manager.

Source temporary measures: Work Environment Agency, [www.av.se](http://www.av.se)

## Checklist for those who work in home care and home health care

In addition to the general advice during a heat wave and high temperatures, you should consider the following:

- Manager is responsible for informing employees about risks with heat wave and high temperatures at the workplace meeting. The information must also be available in paper form and digitally.
- Recommend care recipients and patients, preferably before the high summer heat arrives, to purchase a fan.
- All employees must annually read through the checklist for operations for the summer. The checklist must be able to be quickly distributed to all employees if necessary.
- Strong heat can have a negative effect on elderly people. Discuss in the working group how you can best prepare for heat waves within your business.
- Identify extra sensitive individuals, with the help of the nursing supervisor. In addition to old age, a number of different chronic illnesses, as well as certain medications, can make an individual extra vulnerable to heat waves and high temperatures.
- Some homes can get very hot in summer. Discuss together if there are homes in your area that are special exposed, and what measures you can advise the care recipient about to lower the temperature.
- Manager is responsible for having preparedness in case of a heat wave reprioritize efforts and focus on nursing instead of less urgent service efforts (for example laundry and cleaning). In the event of an extreme and prolonged heat wave, it may be necessary to call in extra staff.
- There must be a responsible person to receive alarms about heat waves and high temperatures - also during weekends and holidays. This person must know where the information is and how it is disseminated to colleagues.
- For more medical advice, see separate nurse checklist.

## Checklist for those who work in special forms of accommodation

In addition to the general advice during a heat wave and high temperatures, you should consider the following:

- Manager is responsible for informing employees about risks with heat wave and high temperatures at the workplace meeting. The information must also be available in paper form and digitally.
- Inform care recipients and users, preferably at the move-in meeting, that they themselves are responsible for procuring a fan for their apartment.
- Strong heat can have a negative effect on people in risk groups and on elderly people. Discuss in the working group how you can best prepare for heat waves within your business.
- Identify extra sensitive individuals with the help of the nurse in charge. In addition to old age, a number of different chronic illnesses, as well as certain medications, can make an individual extra vulnerable to heat waves and high temperatures. More detailed information on this can be found in the special advice for nurses.
- If it is not possible to maintain a normal temperature throughout the accommodation, access should be given to at least one room in each unit or department where the temperature is less than 25 degrees, so that extra sensitive people can stay there during the hottest hours.
- The temperature can differ greatly between different rooms. A thermometer should therefore be installed in all housing units in the accommodation, as well as in public areas.
- If the temperature in a resident's apartment is above 25 degrees, they should be asked to be in a cooler place until the temperature has dropped.
- Make sure that there is an opportunity to reduce the heat through well-functioning air conditioning, and measures that reduce heat radiation such as light curtains, blinds and awnings.
- Check that windows can be opened for ventilation during the cool hours of the day. Keep in mind that opening windows can reduce the effect of any air conditioning.

- Review the need for the purchase of fans for common areas, the unit manager is responsible for having fans on each unit. Fans must be **avoided in common areas** if there is infection or risk of infection spreading in the accommodation.
- Manager is responsible for having preparedness in case of a heat wave reprioritize efforts and focus on nursing instead of less urgent service efforts (for example laundry and cleaning). In the event of an extreme and prolonged heat wave, it may be necessary to call in extra staff.
- There must be a responsible person to receive alarms about heat waves and high temperatures - also during weekends and holidays.  
This person must know where the information is and how it is disseminated to colleagues.
- For more medical advice, see separate nurse checklist.



## Checklist for municipal nurses

In addition to the general advice during a heat wave and high temperatures, you should consider the following:

- Chronic illness and medication: Certain illnesses and medications mean an increased risk of complications and death during a heat wave. Patients with cardiovascular disease, lung disease and kidney disease are at greatest risk, but also people with diabetes, severe obesity, physical disabilities, neurological disease, serious mental illness and dementia have an increased risk.
- The medication groups that can most often cause problems during a heat wave are:
  - Diuretics, which can cause electrolyte disturbance and decreased liquid volume. ACE inhibitors can also cause dehydration, but loop diuretics seem to be the most problematic in this respect.
  - Anticholinergics, which cause dry mucous membranes and reduced sweating.
  - Psychopharmaceuticals (especially neuroleptics), which by disrupting the body's temperature regulation can reduce sweat production, but also anti-depressants can increase the risk of complications. This may partly be due to an anticholinergic effect, but also SSRI preparations in combination with diuretics (thiazide or furosemide) increase the risk of electrolyte disturbances (hyponatremia).
  - Antihypertensives (including beta blockers) can also diuretics in connection with heat wave contribute to an insufficient cardiac output. In addition, antihypertensive and anti-anginal preparations reduce arterial pressure, which can cause insufficient heat regulation via impaired sweat gland function.
  - Lithium, digoxin, anti-epileptics and preparations for Parkinson's disease have a narrow therapeutic range and dehydration can therefore cause serious side effects.
- People with heart failure and, or diuretic treatment may need to be monitored with a fluid list and more frequent weighing than usual,



as well as possible control of electrolytes. Both dehydration, over-hydration and electrolyte disturbances can cause serious deterioration.

Mental and physical disabilities can mean that it is more difficult to perceive or adequately handle the body's warning signals in the event of heat and may then need practical help to take measures.

- In the case of planned care contacts before the summer, there may be reasons to give extra information to care recipients who belong to one of the risk groups. During a possible heat wave, they should be especially observant of worsening of their underlying disease and signs of a serious heat reaction.
- Regardless of whether you are responsible for special or ordinary accommodation might it be wise to go through the list of care recipients and users and decide which people may need individual advice or extra efforts in connection with a heat wave.

This makes it easier for the staff who work during the holiday period.

## Checklist for those who work in preschools, educational care and leisure centers

In addition to the general advice during a heat wave and high temperatures, you should consider the following:

- Principals are responsible for informing employees about the risks of heat waves and high temperatures at workplace gatherings. The information must also be available in paper form and digitally.
- Identify which people belong to risk groups in your business, such as children with special diseases and, or disabilities.
- If it is not possible to maintain normal room temperature in the unit, access should be given to at least one room in each unit or department where the temperature is less than 25 degrees, so that extra sensitive people can stay there during the hottest hours.
- Thermometers should be available in all areas.
- Make sure that it is possible to reduce the heat through air conditioning where it is available and take measures that reduce heat radiation with awnings and blinds.
- Review the need for the purchase of fans for common areas, the principal is responsible for having fans in each unit. Fans should be avoided if there is infection or the risk of it spread of infection on the unit.
- Prevent the risk of infection through careful hand hygiene, cleaning and food storage.
- Avoid food and drinks that are too hot and drinks that are too cold, which can cause cramping.
- Encourage light and cool clothing and headgear when staying outdoors.
- Inform guardians continuously about what they can do, as well as about what preventive measures are being taken in the business.



## Checklist for those who work in open businesses

In addition to the general advice during a heat wave and high temperatures, you should consider the following:

- Manager is responsible for informing employees about risks with heat wave and high temperatures at the workplace meeting. The information must also be available in paper form and digitally.
- Strong heat can have a negative effect on elderly people. Discuss in the working group how you can best prepare for heat waves within your business.
- Make sure that there is an opportunity to reduce the heat through well-functioning air conditioning and measures that reduce heat radiation such as light curtains, blinds and awnings.
- Check that windows can be opened for ventilation during the cool hours of the day, of course for safety reasons. Remember that opening windows can reduce the effect of any air conditioning.
- Review any need for the purchase of fans, the manager is responsible for having fans on the unit. Fans must be avoided if there is infection or risk of infection spreading on the unit.
- Inform visitors about what measures can and should be taken.

## In the event of power outages and disturbances in district cooling deliveries

Power outages or disruptions in district cooling deliveries may mean that we need to take measures. Below is a list to decide on, depending on the situation:

- Deployment of portable cooling units, fans, dehumidifiers and mobile backup power.  
Fans should be avoided if there is infection or risk of infection spreading on the unit.
- Condensation within the business to rooms with cooling units. Also consider that each person emits quite a lot of heat, so it may be appropriate to reduce the number of people, or divide groups. If necessary, priority is given to people who are particularly heat-sensitive. In case of infection or risk of infection, densification is not relevant.
- If possible, section the district cooling in the building to the most critical activities and spaces. Close doors even indoors to minimize the amount of air that needs to be cooled.
- Evacuation of people to premises with cold.
- Reposition medicines placed in refrigerators if the refrigerators are not connected to backup power. Do not open the door unnecessarily.
- Empty fridges and freezers with food if the power cut persists. Do not open the fridge and freezer door unnecessarily.

### Other things to think about

- If it is 35 °C, cooling equipment is probably not enough to lower the temperature more than 25-27 °C.
- Moisture damage. Condensation occurs when the water content in air is cooled off, pay extra attention to cooling systems for dripping water. There is not necessarily anything wrong with the equipment, but collect the water with towels and the like and inform property technicians or the like.
- Walk around premises closed for the summer to detect faults.
- Run the ventilation at night. Often it is turned off during this time.
- Place mobile water stations where a lot of people move.
- Increase the frequency of water sampling at bathing areas.
- Check the temperature in the medicine room/cabinet.
- Be careful with hygiene routines and food temperatures to avoid food poisoning.
- The risk of burglary increases with open windows, especially during the dark hours.
- Avoid traffic chaos at bathing areas by hiring security companies, parking attendants and cooperating with the police.
- Risk of drowning increases during heat waves. It is therefore important to ensure emergency routes for the emergency services, ambulance and police.

## Medicine storage



- If a refrigerator with medicine in it breaks, move the medicine to the means for functioning refrigerators.
- In a room that has too high a temperature for storing medicines, shield from direct sunlight and check the ventilation (possible contact with property manager).
- If temperatures are too high for a longer period, for example during the summer, the temperature needs to be documented daily if possible. Medically responsible nurse, MAS, (or delegated staff) needs to periodically, at least once a week, make an assessment of the documented temperature as follows:
  - How has the temperature (room and refrigerator) been during the current period since the previous assessment?
  - How long (number of weeks or days) have the values been too high or too low?
  - Have measures taken in the past produced any effects?
  - Are any new measures required?
  - Does something need to be discarded?


In order to determine whether a medicine can be considered to maintain sufficiently good quality for continued use despite storage at a high temperature, an assessment must be made on a case-by-case basis - the properties of the medicine, how high the temperature has been and how long the temperature has been high govern. The current pharmaceutical company can help in the assessment.


The general recommendation is that practically all medicines that have instructions for storage at 25 degrees can handle a shorter time at a higher temperature (25-30 degrees), for example a couple of hot summer weeks. The storage instructions are determined with the medicine's entire shelf life in mind (for example, three years).

Please note that medicines to be stored at room temperature must **not** be placed in the refrigerator at excessively high room temperatures.



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