PHYSICAL RISKS

Preventing the effects of heat

The health and social services sector can involve work situations with elevated temperatures. How can workers prepare for these situations? This fact sheet is intended for safety practitioners, as well as joint occupational health and safety committees and other risk prevention committees. It provides steps to help you plan and carry out your actions.

What is heat stress?

Not all uncomfortable environmental conditions pose a health risk, since the body can adapt. Heat stress occurs when the body is unable to regulate its temperature.

PLAN

1 GET ORGANIZED

- **Invite the people concerned to participate**
- **Take the scope and difficulty of the problem into account (e.g., a single workstation, a sector, a building, etc.)**

2 IDENTIFY AT-RISK AREAS

- **Identify areas without air conditioning or dehumidifying systems**
- **Identify other at-risk areas by consulting:**
  Log of previous measures | List of at-risk sectors | Sectors where corrective measures have been implemented previously | List of outdoor workstations | List of complaints and incidences of the right to refuse | CNESST intervention reports | Sectors equipped with devices that emit heat and humidity (e.g., food services, laundry services, mechanical room)
- **Also consider sectors/areas where:**
  There is no drinking water nearby | There is little or no air circulation | Tasks require sustained physical effort or a rapid work pace without breaks | Work clothes allow for little or no sweat evaporation | Workers are likely unaware of the risks and prevention measures

3 IDENTIFY THE WORKLOAD

The activities carried out by workers in at-risk areas must be classified according to energy expenditure. The following are examples of workload.

- **Light work:** work in a sitting or standing position involving hands or arms | office work | consulting work | taking vital signs
- **Moderate work:** movement accompanied by moderate lifting or pushing effort | patient handling and mobility | personal hygiene | handling linens at laundry facilities | work at a laundry facility | sanitizing surfaces
- **Heavy work:** moving furniture, waste containers, large laundry bags | construction work | horticultural work

Personal conditions or factors that can aggravate the effects of heat

- > **Lack of acclimatization to heat**
- > **Medical history and taking medication**
- > **Lack of sleep, consumption of alcohol or of an energy drink or a drink with a diuretic effect (e.g., containing caffeine or theine)**
- > **Morbid obesity, alcoholism, drug addiction**
- > **Recent vomiting, diarrhea, or fever**

4 ALLOW FOR AN ACCLIMATIZATION PERIOD

Workers are considered to be "acclimatized" if they have worked for more than two consecutive hours on five of the past seven days under the same conditions:[1]

- **During this period, it is important to be vigilant** and consider slowing the pace and postponing non-essential tasks.
- **Acclimatization begins to diminish** as soon as conditions are interrupted. Acclimatization decreases significantly after four days (e.g., after returning from vacation).

5 PREPARE TO ADOPT ENVIRONMENTAL MEASURES

This type of environmental monitoring requires equipment, resources and actions:[2]

- **Thermometer and hygrometer** (temperature and humidity)
- **Digital or manual recording** of ambient temperature and humidity, including place, date, time, threshold values to be considered, and outside temperature
- **Joint team** for taking measurements
- **Measurement taking** at set intervals
- **Measurement taking** at the worksite, in the shade (for outdoor work)

6 CHOOSE PREVENTIVE MEASURES

Several measures help eliminate or limit the effects of heat exposure. A combination of several measures is often necessary. It is important to favour those that reduce risks at the source, since they are more effective.

- **Monitor the worksite:** anticipate heatwaves and take the necessary measures
- **Equip the workplace:** plan for air-conditioned areas, fans, water stations, window blinds, materials that are cool to the touch
- **Environment:** keep away from heat sources, use air conditioning, dehumidify, ventilate, manage opening of windows, keep away from equipment that emits heat
- **Work organization:** plan for lighter work or reorganize duties, implement a work/rest regimen, plan for emergency and first-aid measures
- **Training/information** on the effects of heat
- **Personal protective equipment (PPE):** provide cooling PPE (e.g., headband, neck wrap, vest) Note: Wearing PPE that is water-proof or that allows little sweat evaporation (e.g., gown, gloves, mask, eye protection) increases heat stress.
- **Outdoor work:** reorganize work, arrange to have shaded areas and cold water nearby, light clothing, a head covering, sun-glasses, sunscreen

7 DEVELOP AN ACTION PLAN

The plan consists of actions that an establishment implements to control its heat-related risks. These actions must include providing the staff affected with information, monitoring the situation and controlling the effects of heat. The plan must also provide means for sharing the results of the environmental monitoring with the staff affected.

TAKE ACTION

8 INFORM STAFF

Inform staff about the conditions that lead to heat stroke and the possible symptoms. Identify who to contact and the immediate care to be administered.

SIGNS AND SYMPTOMS	MEASURES TO TAKE
HEAT EXHAUSTION > PALE, HOT AND MOIST SKIN > HEAVY SWEATING > RAPID BREATHING > DIZZINESS, VERTIGO > UNUSUAL FATIGUE	> IMMEDIATELY TAKE A BREAK IN A COOL PLACE > REHYDRATE > CONSULT A PHYSICIAN IF CONDITION DETERIORATES
HEAT STROKE > NO SWEATING > HOT, DRY SKIN > SLURRED SPEECH > LOSS OF BALANCE, STAGGERING GAIT > SLEEPINESS > NAUSEA, VOMITING > LOSS OF CONSCIOUSNESS, CONVULSIONS	> CALL FIRST-AID: WORKPLACE RESPONDERS AND 911 > TRANSPORT THE PERSON TO A SHADED OR COOL AREA, AND REMOVE UNNECESSARY CLOTHING > WET THE PERSON'S SKIN > CREATE AS MUCH VENTILATION AS POSSIBLE > GIVE THE PERSON SMALL AMOUNTS OF COOL WATER, IF CONSCIOUS AND LUCID

9 TAKE ENVIRONMENTAL MEASURES

- **Take temperature and humidity readings** with the CNESST's CAT (corrected air temperature) tool to assess the risks. The tool is easy to use and requires no knowledge of heat stress.
- **Follow the steps** described by the CNESST.[1]
- **Consult the CNESST's complementary sheet.**[2] This tool provides an estimate with regard to required rest time and hydration, and proposes solutions based on risk.
- **Use the computerized calculation tools** provided by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) for a professional risk assessment.[3]

10 IMPLEMENT PREVENTION MEASURES

Based on the data collected, implement the planned prevention measures. Monitor their effectiveness and make any necessary adjustments.

LEGAL GUIDELINES

Sections 121 to 124 of the *Regulation respecting occupational health and safety* cover heat stress for establishments employing 50 or more workers. They specify the following:

> Take heat stress measurements at least twice a year, including once during the summer, at the workstation where threshold values may be reached.
> Use the Wet-Bulb Globe Temperature (WBGT) method.
> Enter the results in a register that must be kept at least five years.
> When the heat stress index exceeds the regulatory value, ensure that:
  - Workers receive medical supervision
  - Drinking water is available
  - One shower per 15 exposed workers is provided
  - The workstation is re-equipped (insulation from the source, ventilation, screen)
> If this is inadequate, implement a work-rest regimen to control the workload, exposure time and recovery time.

REFERENCES

1. CNESST. *Travailler à la chaleur… Attention!* 2019. [Online] https://www.cnesst.gouv.qc.ca/sites/default/files/publications/travailler-a-la-chaleur.pdf

2. CNESST. *Travailler à la chaleur… Attention! Fiche complémentaire à l'intention des employeurs.* 2014. [Online] https://www.cnesst.gouv.qc.ca/sites/default/files/publications/travailler-a-la-chaleur-fiche-complementaire-employeurs.pdf

3. IRSST. *Utilitaires pour la contrainte thermique due à la chaleur en milieu de travail.* 2019. [Online] https://www.irsst.qc.ca/prevenir-coup-chaleur-travail/

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