Definitions
Below are definitions of words, phrases and terminology used within the Minnesota Extreme Heat Toolkit. It is important to note that some of the below definitions may differ outside the context of this toolkit. The definitions below clarify the usage of these words within the toolkit.

**At risk**
People who are “at risk” are people who are at an increased risk for heat-related illnesses because they have certain risk factors, e.g., young children, people with pre-existing conditions or diseases.

**Extreme heat event**
An extreme heat event is a period of time with abnormally high air temperatures and/or high dew point temperatures that affect human health. An exact definition of an extreme heat event varies by geographic location.

**Extreme heat response plan/excessive heat annex**
A plan/annex for states, communities, governments, etc. to use in the event of an extreme heat event and contains information on strategies for preventing heat-related illnesses and identifies who will perform the strategies.

Modified from: [http://www.getreadyforflu.org/pg_glossary.htm](http://www.getreadyforflu.org/pg_glossary.htm)

**Risk factor**
A risk factor is a characteristic that is statistically associated with, although not necessarily causally related to, an increased risk of morbidity (i.e., illness, disease, or condition) or mortality (i.e., death). For example, age is a risk factor for heat-related illnesses.

Modified from: [http://dictionary.webmd.com/terms/risk-factor](http://dictionary.webmd.com/terms/risk-factor)

**Vulnerable population**
Subpopulations who are at increased risk of heat-related illnesses because they have certain risk factors.


**Ways the human body loses heat**
The human body loses heat in four different ways:

1. **Radiation** – transfer of heat through electromagnetic waves (i.e., the body releases heat simply by being in an environment cooler than the body temperature). This is similar to heat leaving a woodstove. Radiation is a normal process of heat moving away from the body when air temperatures are lower than 68°F.

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2. **Evaporation** – conversion of liquid into a gas, which transfers heat energy to the gas and away from the skin (i.e., the body sweats and the evaporation of the sweat from the skin cools the body). During intense exercise, the body loses 85% of its heat through sweating.\(^2\)

3. **Convection** – direct transfer of heat to water vapor molecules surrounding the skin. Heat is carried and dispersed from the body due to fluid motion. This is similar to sitting in front of a fan.\(^2\)

4. **Conduction** – transfer of heat to air or water surrounding our bodies. Heat is lost when temperatures are lower than 68°F. This is heat lost from sleeping on the cold ground or when the body is submerged in water. Water causes more heat loss than air, so heat can be lost from the body very quickly when it is placed in cold water.\(^2\)

As air temperature and humidity increases, the ability to cool the body through radiation is dramatically reduced. Under direct sunlight, heat is actually transferred back to the skin, reversing the process of heat transfer and warming the body. As air temperature rises, evaporation becomes the dominant mechanism of heat transfer through sweating; however as humidity increases, the ability to transfer heat and cool the body through evaporation is dramatically reduced. Convection is minimal when there is little movement in the air around the skin but can become more important as wind speed increases. Convection does not cool the body when air temperatures are high. Only 2% of our body heat is lost through conduction when surrounded by air; however, heat loss through conduction in water can be 25 times greater.

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References


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26 Friedlein, M. National Weather Service Meteorologist - Twin Cities/Chanhassen, MN. (Personal communication, August 29, 2011)


