Preparing for hot weather in Vermont schools

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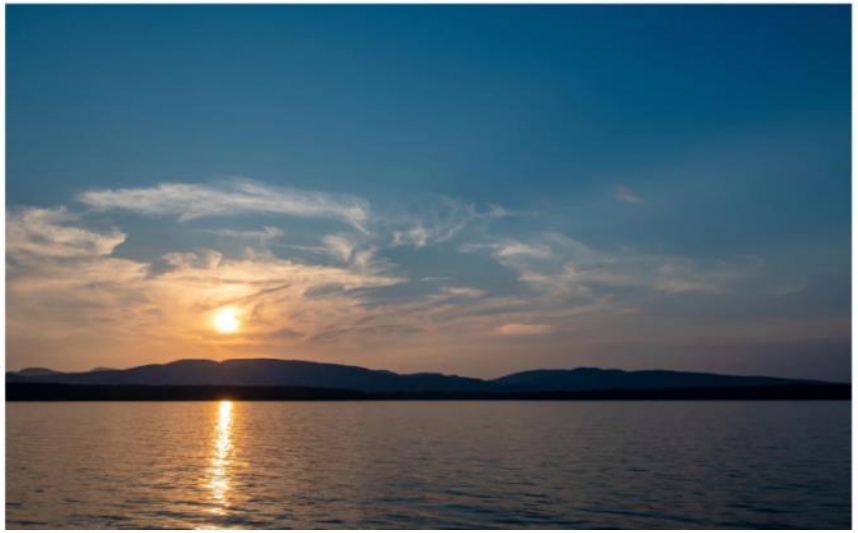
June 7, 2024

VERMONT
DEPARTMENT OF HEALTH

Some Vermont schools closed early last fall due to heat

How Vermonters responded to this week's extreme heat

Vermont Public | By Mitch Wertlieb, Howard Weiss-Tisman
Published September 8, 2023 at 4:33 PM EDT



A handful of Vermont schools closed early Thursday due to the ongoing heatwave.

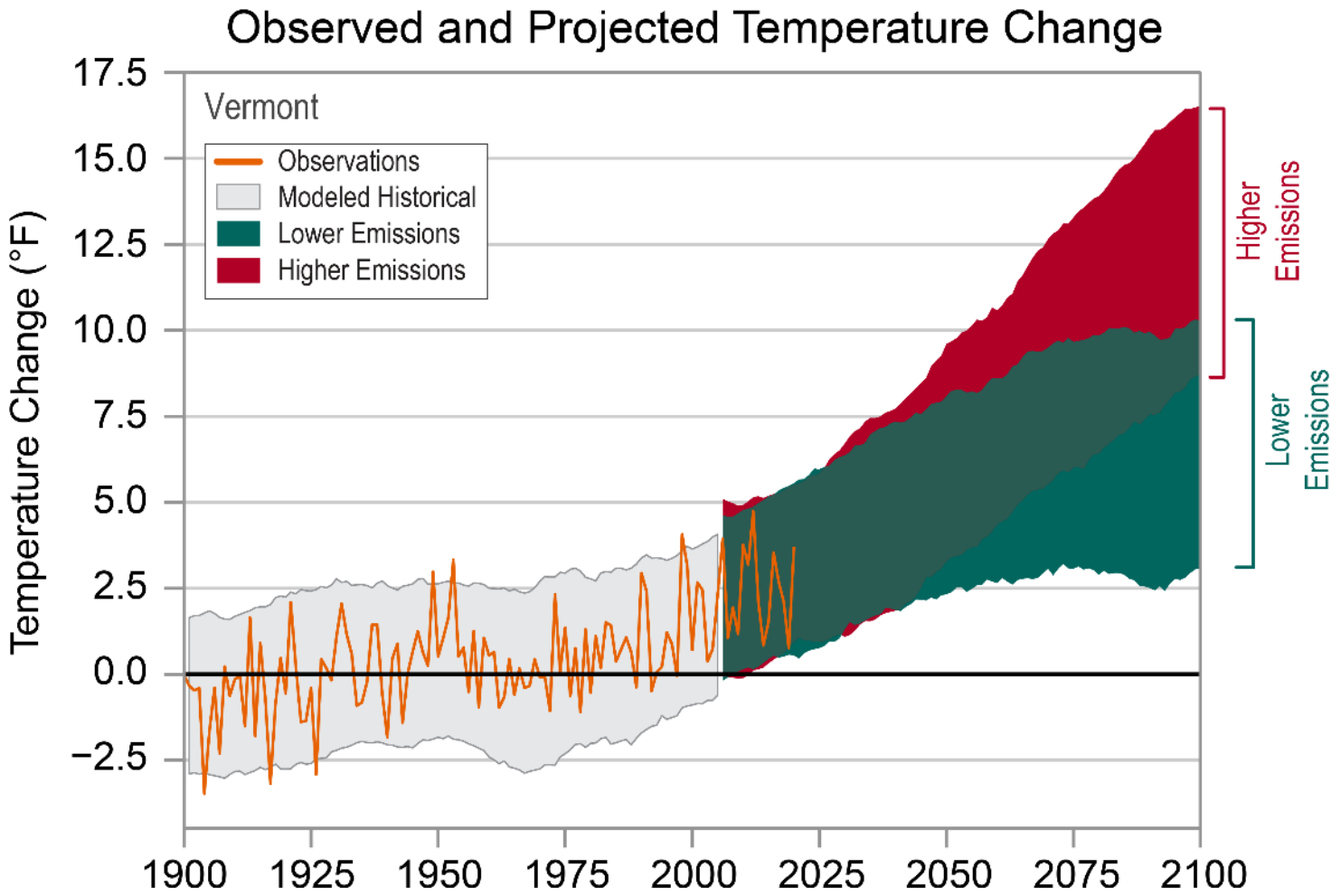
Karen Conroy is the superintendent of St. Johnsbury School District, where it was projected to hit 92 degrees on Thursday.

She says she decided to call a half-day after her staff and students struggled through the past few days of high temperatures.

"We've never had to call school off because of any heat concerns. It's typically not the norm in the Northeast Kingdom," Conroy says.

The Windham Northeast Supervisory Union, around Bellows Falls, also sent home kids early Thursday due to the heat. And some schools canceled their afternoon sports.

The frequency and intensity of hot weather is increasing



Source: https://statesummaries.ncics.org/chapter/vt/

Vermont is experiencing hotter days and nights

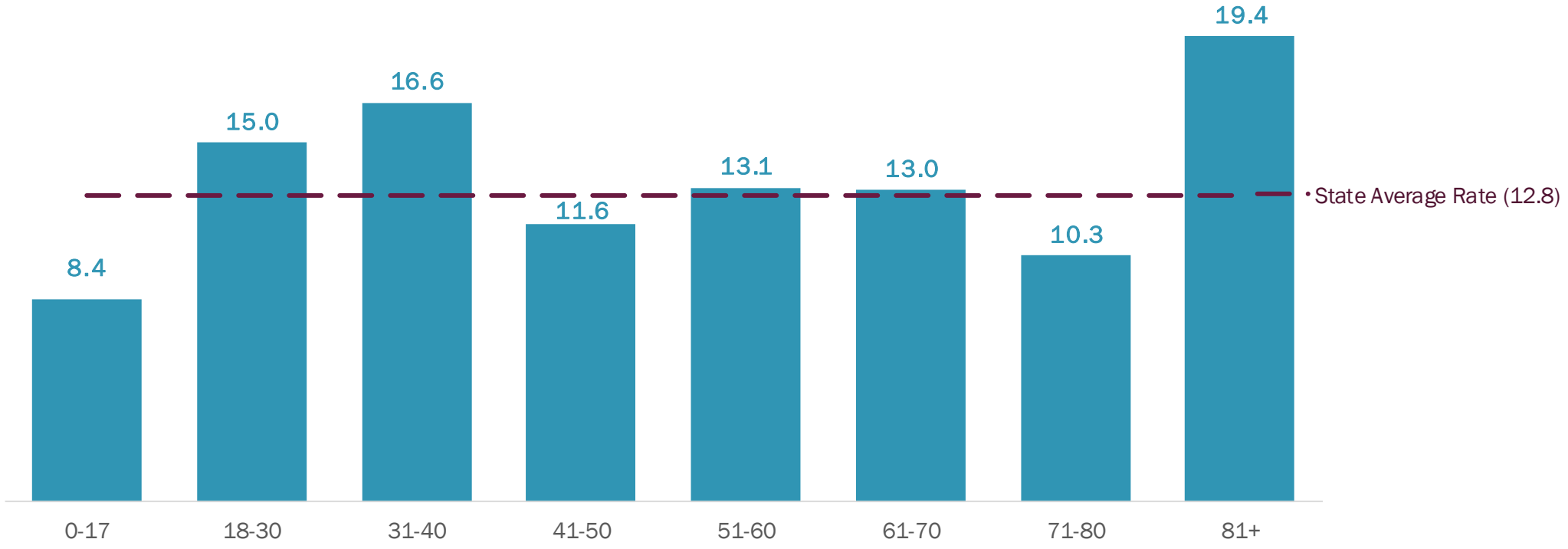
	Observed weather at Burlington Airport		Climate projections for Chittenden County		
Indicator	1950-2009	2010-2022	2015-2044	2035-2064	2070-2099
Days with max temperature above 95°F	0.8	2.0	1.6 – 2.0	3 - 6	6 - 20
Days with max temperature above 90°F	4	9	9 - 10	13 - 19	19 - 44
Days with min temperature above 70°F	2	7	-	-	-

Data sources
Historic observations: https://www.ncdc.noaa.gov/cdo-web/search
Climate projections: https://livingatlas.arcgis.com/assessment-tool/explore/details

Heat-related emergency department visits in Vermont

Rate of Heat-Related Emergency Department Visits by Age Group, 2017-2021

Rate per 100,000 people



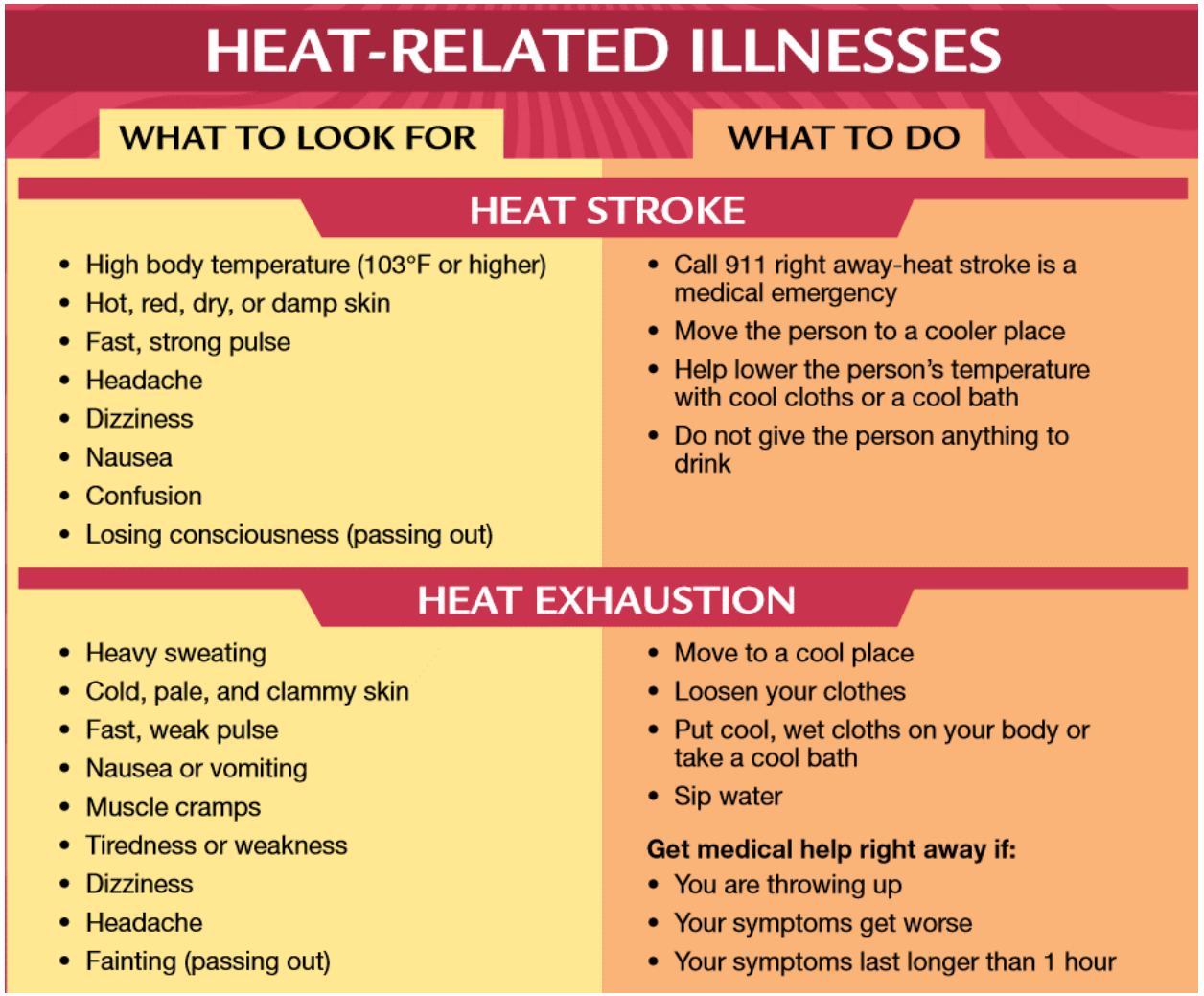
Data Source: Vermont Uniform Hospital Discharge Dataset.

Children tend to be more sensitive to heat than adults

- Children heat up faster than adults
- Children have less sweating capacity than adults
- Children may have less awareness of heat risks and less ability to manage risks

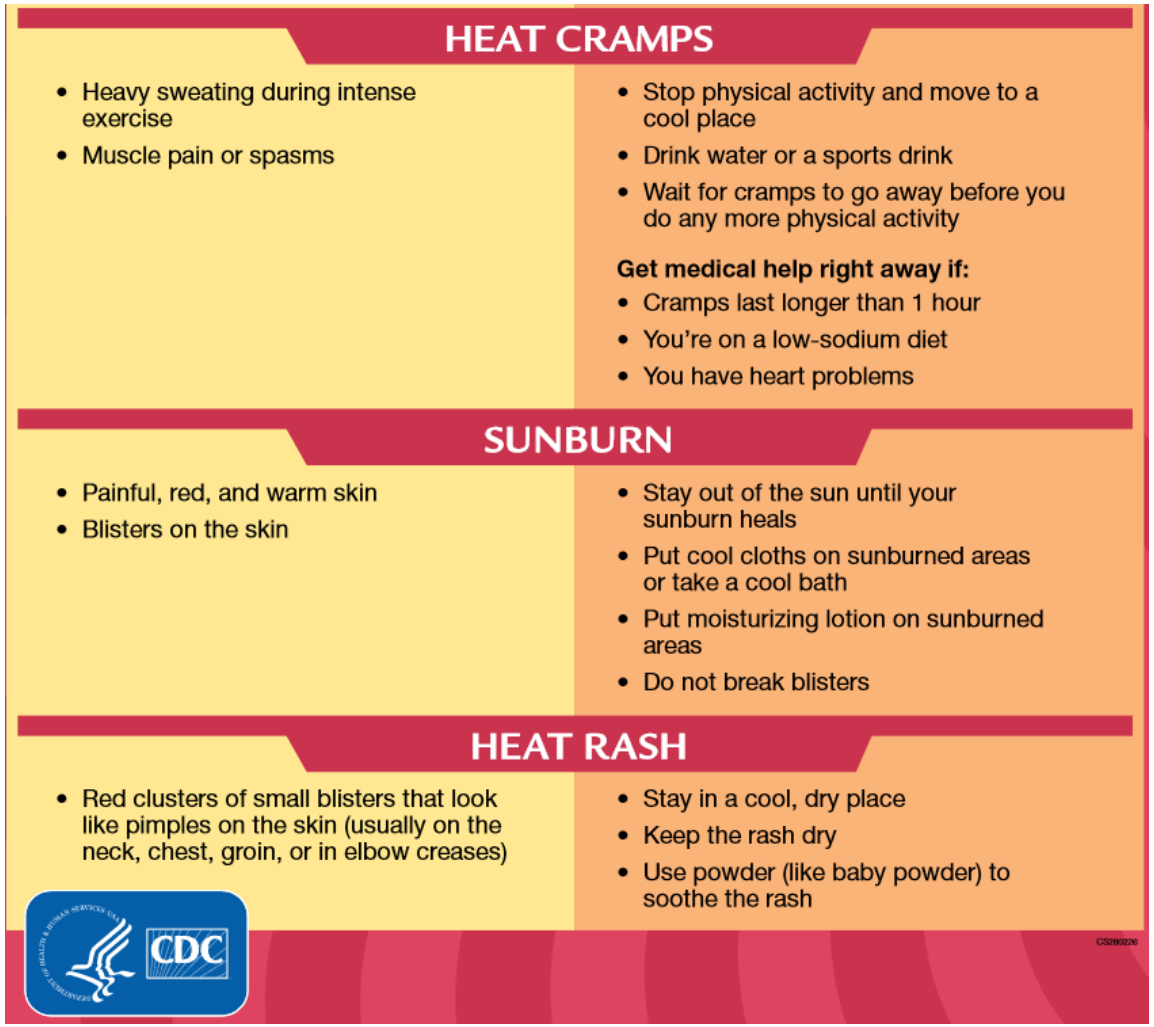
- Children at highest risk include:
  - Young/small children
  - Children with chronic health conditions (asthma, other respiratory conditions, impaired kidney function, diabetes, etc.)

Heat illnesses - signs & symptoms



HEAT-RELATED ILLNESSES

WHAT TO LOOK FOR	WHAT TO DO
HEAT STROKE	
• High body temperature (103°F or higher) • Hot, red, dry, or damp skin • Fast, strong pulse • Headache • Dizziness • Nausea • Confusion • Losing consciousness (passing out)	• Call 911 right away-heat stroke is a medical emergency • Move the person to a cooler place • Help lower the person's temperature with cool cloths or a cool bath • Do not give the person anything to drink
HEAT EXHAUSTION	
• Heavy sweating • Cold, pale, and clammy skin • Fast, weak pulse • Nausea or vomiting • Muscle cramps • Tiredness or weakness • Dizziness • Headache • Fainting (passing out)	• Move to a cool place • Loosen your clothes • Put cool, wet cloths on your body or take a cool bath • Sip water **Get medical help right away if:** • You are throwing up • Your symptoms get worse • Your symptoms last longer than 1 hour



HEAT CRAMPS

• Heavy sweating during intense exercise • Muscle pain or spasms	• Stop physical activity and move to a cool place • Drink water or a sports drink • Wait for cramps to go away before you do any more physical activity **Get medical help right away if:** • Cramps last longer than 1 hour • You're on a low-sodium diet • You have heart problems

SUNBURN

• Painful, red, and warm skin • Blisters on the skin	• Stay out of the sun until your sunburn heals • Put cool cloths on sunburned areas or take a cool bath • Put moisturizing lotion on sunburned areas • Do not break blisters

HEAT RASH

• Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)	• Stay in a cool, dry place • Keep the rash dry • Use powder (like baby powder) to soothe the rash

CDC

CS280226

Hot weather thresholds of concern

Outdoor thresholds

Max heat index* (°F), Burlington Airport	Heat illness risk	National Weather Service thresholds
Less than 80°	Can occur, but uncommon**	n/a
80° - 89°	Moderate risk**	n/a
90° - 94°	High risk	n/a
95° - 104°	Dangerous	Heat advisory
105° or hotter	Very dangerous	Heat warning

*Heat index accounts for humidity
Full sun makes it feel even hotter

**Consider what is "normal" for your area and time of year.
Health is affected by heat at lower temperatures:

- Early in the year
- If it hasn't been very hot recently
- In places that normally don't get very hot

Child Care Weather Watch

Understand the Weather

Wind-Chill

- 30°is ***chilly*** and may be ***uncomfortable***
- 15°to 30° is ***cold***
- 0° to 15° is ***very cold***
- -20° to 0° is ***bitter cold*** with significant risk of ***frostbite***
- -20° to -60° is ***extreme cold*** and ***frostbite*** is likely

Heat Index

- 78° or below is considered ***comfortable***
- 85° beginning to feel ***uncomfortable***
- 90° ***uncomfortable*** and may be ***hazardous***
- 100° considered ***dangerous***

All temperatures are in degrees Fahrenheit

Child Care Weather Watch Wisconsin

Wind-Chill Factor Chart (in Fahrenheit)

Air Temperature \ Wind Speed in mph	Calm	5	10	15	20	25	30	35	40
40	40	36	34	32	30	29	28	28	27
30	30	25	21	19	17	16	15	14	13
20	20	13	9	6	4	3	1	0	-1
10	10	1	-4	-7	-9	-11	-12	-14	-15
0	0	-11	-16	-19	-22	-24	-26	-27	-29
-10	-10	-22	-28	-32	-35	-37	-39	-41	-43

Comfortable for out door play

Caution

Danger

Heat Index Chart (in Fahrenheit %)

Air Temperature (F) \ Relative Humidity (Percent)	40	45	50	55	60	65	70	75	80	85	90	95	100
80	80	80	81	81	82	82	83	84	84	85	86	86	87
84	83	84	85	86	88	89	90	92	94	96	98	100	103
90	91	93	95	97	100	103	105	109	113	117	122	127	132
94	97	100	103	106	110	114	119	124	129	135			
100	109	114	118	124	129	130							
104	119	124	131	137									

Vermont Principals Association – Heat Policy

Activity Modification Chart Table 1 Regional Category 1 Guidelines-Grundstein

RISK	WBGT*	MODIFICATIONS#
Minimal Risk	≤ 76.1°F	*Normal Activities, no modifications necessary*
Low Risk	76.2 - 81°F	*Normal Activities/Regular practice/game prep* Discretion for Intense/Prolonged Activity; Watch at Risk Players Provide at least 3 rest/fluid breaks each hour of 4+mins each.
Moderate Risk	81.1 - 84°F	*Rest/Work ratio to be increased;* 15-20 min of activity followed by 4+ min rest/fluid breaks; Practice will be in shorts, helmets, shoulder pads only No equipment may be worn for conditioning activities **Maximum length of practice 2 hours**
High Risk	84.1 - 86°F	*Rest/Work ratio to be increased*; 20 mins activity/6+ min rest 20 mins of rest distributed throughout 1 hr of practice Practice will be in shorts only (all protective equipment removed) No conditioning activities **Maximum Length of practice 1 hour** **Change Time of Day activity is held (no practices b/t 11am-4pm)**
Extreme Risk	≥86.1°F	*No Outdoor Workouts* May delay practice until cooler WBGT reading occurs

*Wet bulb globe temperature accounts for:

- Humidity
- Sun
- Wind

Additional forecasting & alerting resources

Follow heat hazard forecasts:

- National Weather Service Excessive Heat Awareness and Safety
- National Weather Service Hazardous Weather Outlook
- Centers for Disease Control & Prevention HeatRisk Forecast Tool

Stay informed by subscribing to the following:

- Vermont Alert, notifications by text, phone, or email when NWS issues a heat-related weather advisory (make sure to select “heat alerts” from the list of subscription options)
- Department of Public Safety weather alerts

Indoor thresholds

Optimal conditions for comfort, academic performance, and behavior:

- Temperature: 68-76°F
- Relative humidity: 30-50% (below 60% is generally okay)
- Carbon dioxide: below 1000ppm

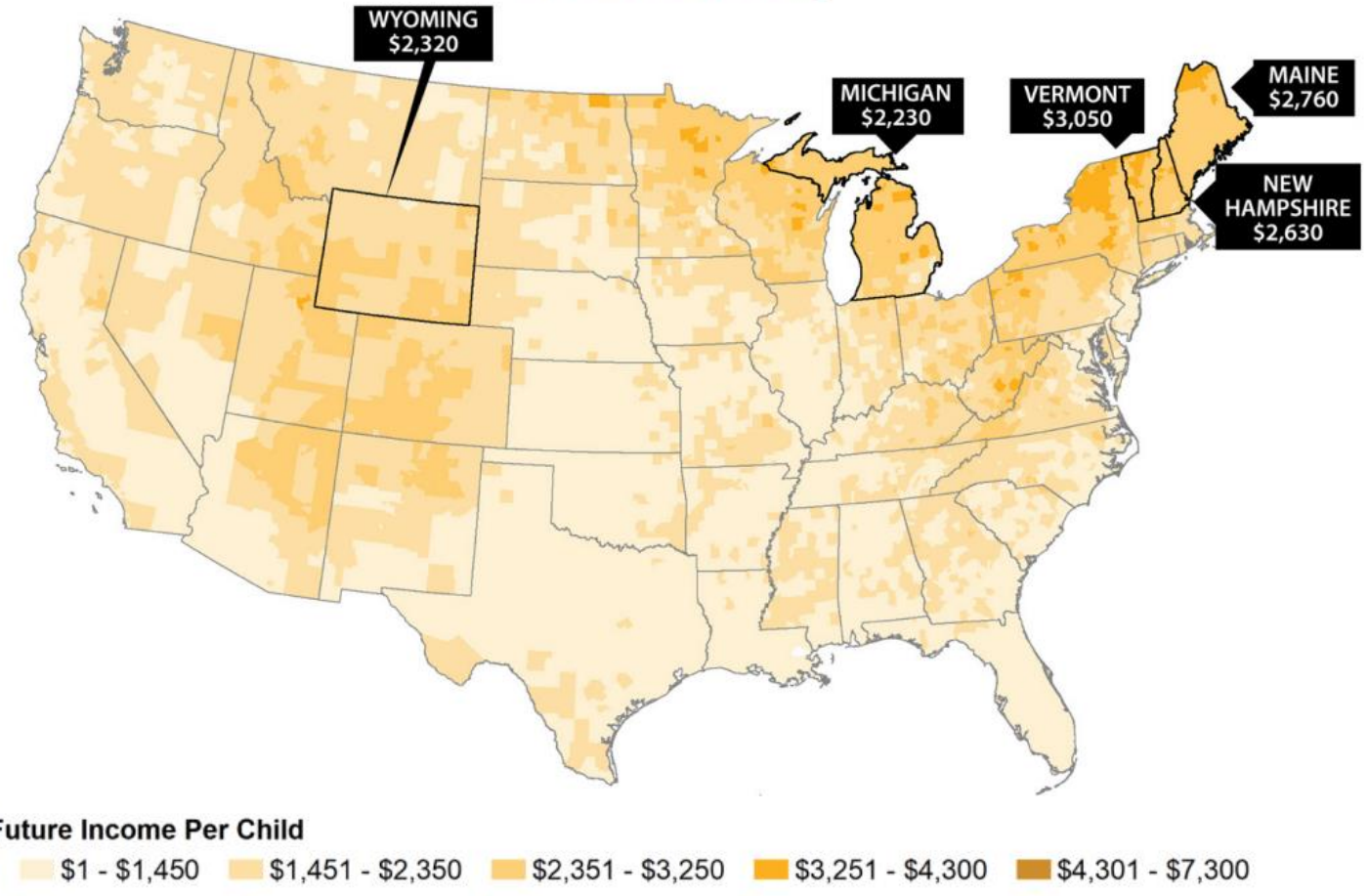
As temperatures increase beyond optimal conditions:

- Reduced concentration, motivation, cognitive function, learning outcomes
- Increased behavioral challenges, aggression

Vermont Child Care Licensing Regulations for center-based and licensed home-based programs set the maximum allowable temperature in a room used by children at 85°F.

Figure 9: Estimated Distribution of Lost Future Income Per Student Per Year from Heat

2°C of Global Warming



Notes: These maps present lost future income per child attributable to learning losses from heat exposure during school years. Areas with darker shading have higher rates of learning losses. The five states with the highest learning losses per child are outlined in black. See Appendix C for more details on the distribution of impacts.

Source:

https://www.epa.gov/cira/climate-change-and-childrens-health-and-well-being-united-states-report

Strategies to consider for school hot weather preparedness

Before the heat season starts - plan, prepare, and train

- Adopt a Heat Annex to your Emergency Operations Plan or find another way to document hot weather policies and procedures
- Have an emergency plan in place for providing medical attention

- Make sure that staff are familiar with symptoms of heat-related illnesses and first aid responses and strategies for supporting heat and sun safety
- Have a plan for monitoring children at higher risk to make sure they stay cool and hydrated

Consider environmental changes

Indoors:

- Make sure that air conditioning or other cooling systems are in place and functioning
- Consider installing or updating cooling equipment if feasible

Outdoors, consider environmental cooling strategies:

- Planting trees
- Installing shade structures
- Providing access to hoses/misters or other water resources

Photo source: Vermont Urban and Community Forestry Program

When hot weather is in the forecast, consider the following:

- Communicate with parents about upcoming heat risks
- Talk to students about heat and sun safety
- Provide guidance and assistance with hydration, appropriate clothing, and skin protection
- Provide or make sure students have easy access to water, ice, and cool spaces

Modify, limit, or cancel outdoor and physical activity on hot days

- Limit strenuous activities to the morning or to air-conditioned spaces
- Reduce activity intensity, provide frequent rest, hydration, and shade breaks
- Take extra precautions while students acclimate to activity in hot weather
- Child Care Weather Watch guidance
- Vermont Principals' Association Hot Weather Policy for athletic activities

In schools or rooms without adequate air conditioning:

- Avoid generating heat inside if practical
- Use window shades to keep out sun and absorb heat
- Use window fans when the temperature outside is cooler or similar to inside
- Inside the classroom, point fans directly at occupants to provide a cooling benefit
- Try to keep indoor relative humidity below 60%

In schools or rooms without adequate air conditioning:

- Consider modifying scheduled activity plans to help reduce behavioral and learning challenges in hot classrooms
- If a room becomes too hot to occupy, move to a shaded outdoor location or to a cooler indoor location, if possible
- Consider closing the facility or ending early if indoor temperatures are too hot for safety or for continued learning

Additional resources for school hot weather preparedness

Heat Safety Info: www.healthvermont.gov/climate/heat

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I am searching for...

Translations for you

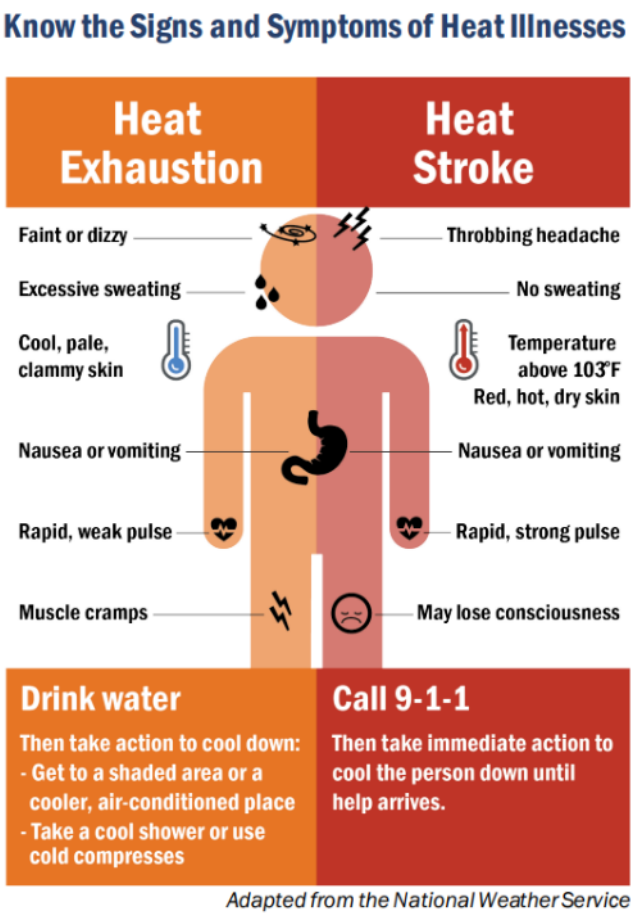
Home / Health & The Environment / Climate & Health / **Hot Weather**

Heat Can Cause Serious Illness

Heat illnesses can be deadly. On very hot days, sometimes your body temperature control systems can't keep up and your body temperature can get dangerously high. This makes you at greater risk for serious heat illnesses, including heat exhaustion and heat stroke. Heat stroke is a life-threatening emergency. **Dial 9-1-1 or get immediate medical help if you are concerned about your health or someone else's health when it's hot outside.**

Know the **signs and symptoms of heat illnesses**
Find tips on **how to stay safe when it's hot outside**

Translated information in: العربية (Arabic) | ဘာမြန်မာ (Burmese) | 中文 (Chinese - simplified) | Français (French) | ကညီကျိ (Karen) | Kirundi | नेपाली (Nepali) | Soomali (Somali) | Español (Spanish) | Kiswahili (Swahili) | Tiếng Việt (Vietnamese)



Adapted from the National Weather Service

www.healthvermont.gov/climate/heat#prepare

Prepare and protect your community

- Create a community response plan that identifies protective actions to take on hot days.
- Open a cooling center by following the community cooling center guidance.
- Send out messages via social media or Front Porch Form to communicate to your community about how to prepare for hot weather, what to do, and what resources are available.
- Mobilize local care networks to check on people at high risk for heat illness.
- Limit or cancel outdoor job, school or extracurricular activities, including athletic practices, games and other outdoor events.
- Have a plan for hot weather by following the preparedness guidance for schools and child care providers.
- Plant trees and shrubs, and reduce paved surfaces to keep urbanized areas cooler.
- Promote energy-efficient building design, including use of cool roofs and pavements.

List of Guidance Documents for Partners

- Local Hot Weather Preparedness Guidance
- Local Hot Weather Preparedness Guidance Summary
- Local Hot Weather Preparedness Guidance Template
- Community Cooling Center Guidance
- Hot Weather and Health Media Toolkit and Key Facts
- Preparing for Hot Weather at Schools and Child Cares

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Preparing for Hot Weather at Schools and Child Cares

June 2024

How Heat Impacts Children's Health

Vermont data indicates that heat-related illnesses increase when outdoor temperatures reach the mid- to upper-80s, with impacts getting progressively worse as temperatures rise into the 90s. Humid conditions make the temperature feel even hotter. Impacts can occur at even lower temperatures for anyone not already acclimated to hot weather, especially in the spring.

Children are generally at higher risk for heat illnesses because their bodies warm up faster than adults, they have less sweating capacity than adults, and they may have less awareness of and ability to manage heat risks. Young/small children and children with underlying health conditions are typically at highest risk.

Indoor temperatures above 80°F can result in reduced concentration, impaired academic performance, an increase in behavioral issues, increased risk of asthma attacks, and other health problems.

Symptoms and First Aid

Muscle cramps, heavy sweating, nausea, headache or light-headedness may all indicate a heat-related illness. Most heat-related illnesses can be treated with fluids and by resting in a cooler place. If symptoms persist or get worse, or someone you are with seems confused or loses consciousness, dial 9-1-1 and get immediate medical help. Learn more about symptoms and first aid.

What to do before the heat season

Consider these preparedness strategies:

HeatReady Schools

engagehue.org/heatready-schools

Healthy Urban Environments Initiative

HUE

Let's be HeatReady at: _____!

This **HeatReady School Scorecard** (+ growth organizer) is intended for you and your school to become HeatReady! *First* consider your school's unique needs, culture, priorities, and available resources. *Then*, fill out the table below based on the status of each recommendation supporting heat safety at your school (see scoring list). *Finally*, use the growth tree to visually organize, track, and plan your prioritized actions for becoming a HeatReady School!

Identify your score (1–4) for each statement; next, set your goal (timeline) to achieve the recommendation and notes on how you will achieve it in that timeframe. Finally, total your score to determine your final level of heat readiness. We understand each school is unique and different — use this HeatReady School tool as a *starting point* and a *guidance mechanism* to improve heat readiness in our schools. Remember, a "low level" just means that there are more opportunities to improve our schools! Boxes in the table that are **bolded** can make a bigger impact.

Level (of Heat Readiness, total at end): 120–90 = A, 89–60 = B, 59–30 = C

Score (for each recommendation):
4 = Formal (protocol, policy, document, plan, communication, response, etc.) [established forms or standards]
3= Semi-formal [relaxed standards]
2 = Informal [casual]
1 = No/not started/not applicable

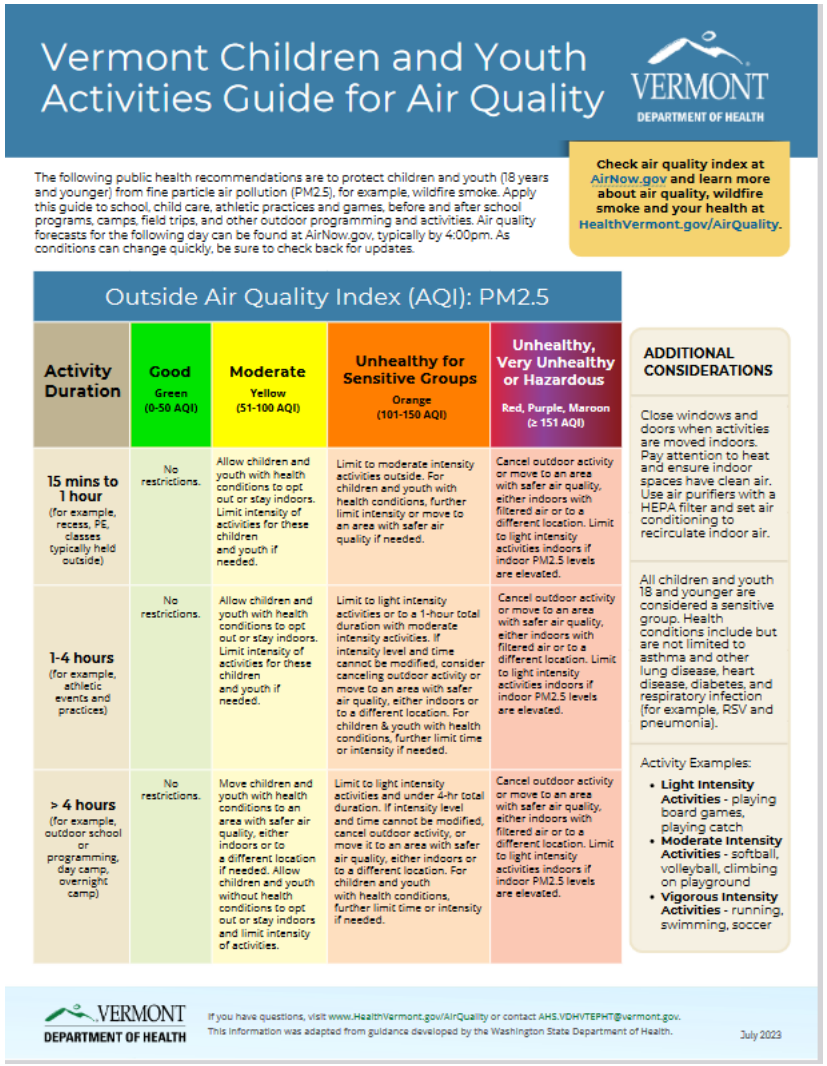
HeatReady Schools Scorecard

Action Area	Recommendation	Score	Goal (timeline)	Notes
1. School Policy	**1a.** Our school has formal guidelines for heat-related actions taken within the school.[1]			
	1b. Our school has a plan for communicating effectively with parents about heat in a way that's accessible to many parental needs.			
	1c. Our school has an emergency heat response plan document that includes location(s) of medical resources, a plan in case heat illness is experienced (staff and students), and how to respond appropriately.[2]			
	1d. Our school has a formal protocol for changing the schedule of school activities and programs during high heat periods.[3]			

Managing Extreme Heat: Recommendations for Schools (AZDHS)

ARIZONA DEPARTMENT OF HEALTH SERVICES

Considerations for wildfire smoke



Vermont Children and Youth Activities Guide for Air Quality

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The following public health recommendations are to protect children and youth (18 years and younger) from fine particle air pollution (PM2.5), for example, wildfire smoke. Apply this guide to school, child care, athletic practices and games, before and after school programs, camps, field trips, and other outdoor programming and activities. Air quality forecasts for the following day can be found at AirNow.gov, typically by 4:00pm. As conditions can change quickly, be sure to check back for updates.

Check air quality index at AirNow.gov and learn more about air quality, wildfire smoke and your health at HealthVermont.gov/AirQuality.

Outside Air Quality Index (AQI): PM2.5

Activity Duration	Good Green (0-50 AQI)	Moderate Yellow (51-100 AQI)	Unhealthy for Sensitive Groups Orange (101-150 AQI)	Unhealthy, Very Unhealthy or Hazardous Red, Purple, Maroon (≥ 151 AQI)
15 mins to 1 hour (for example, recess, PE, classes typically held outside)	No restrictions.	Allow children and youth with health conditions to opt out or stay indoors. Limit intensity of activities for these children and youth if needed.	Limit to moderate intensity activities outside. For children and youth with health conditions, further limit intensity or move to an area with safer air quality if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.
1-4 hours (for example, athletic events and practices)	No restrictions.	Allow children and youth with health conditions to opt out or stay indoors. Limit intensity of activities for these children and youth if needed.	Limit to light intensity activities or to a 1-hour total duration with moderate intensity activities. If intensity level and time cannot be modified, consider canceling outdoor activity or move to an area with safer air quality, either indoors or to a different location. For children & youth with health conditions, further limit time or intensity if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.
> 4 hours (for example, outdoor school or programming, day camp, overnight camp)	No restrictions.	Move children and youth with health conditions to an area with safer air quality, either indoors or to a different location if needed. Allow children and youth without health conditions to opt out or stay indoors and limit intensity of activities.	Limit to light intensity activities and under 4-hr total duration. If intensity level and time cannot be modified, cancel outdoor activity, or move it to an area with safer air quality, either indoors or to a different location. For children and youth with health conditions, further limit time or intensity if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.

ADDITIONAL CONSIDERATIONS

Close windows and doors when activities are moved indoors. Pay attention to heat and ensure indoor spaces have clean air. Use air purifiers with a HEPA filter and set air conditioning to recirculate indoor air.

All children and youth 18 and younger are considered a sensitive group. Health conditions include but are not limited to asthma and other lung disease, heart disease, diabetes, and respiratory infection (for example, RSV and pneumonia).

Activity Examples:

- **Light Intensity Activities** - playing board games, playing catch
- **Moderate Intensity Activities** - softball, volleyball, climbing on playground
- **Vigorous Intensity Activities** - running, swimming, soccer

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If you have questions, visit www.HealthVermont.gov/AirQuality or contact AHS.VDHVTEPHT@vermont.gov.
This information was adapted from guidance developed by the Washington State Department of Health.

July 2023

Stay informed:

- Check www.airnow.gov
- Subscribe to alerts: www.enviroflash.info

Considerations when air quality is unhealthy:

- Reduce/avoid strenuous outdoor activity
  - Consider wearing an N95/KN95 mask when outside
- Stay indoors with windows shut, if possible
  - Use an air purifier if you have one
  - If using A/C, recirculate indoor air only

For more information:

- Air Quality Alerts, Wildfires & Your Health (VDH)
- Improving Ventilation and Indoor Air Quality During Wildfire Smoke Events (wa.gov)

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Thank you!

Let's stay in touch.

Email: ClimateHealth@vermont.gov

Web: www.healthvermont.gov

Social: @healthvermont