University of Vermont
Larner College of Medicine

GUND INSTITUTE FOR ENVIRONMENT

VCHIP
VERMONT CHILD HEALTH IMPROVEMENT PROGRAM

Climate Change and the Health of Vermont's Children

Acting Now to Protect Our Future

DECEMBER 2025

Summary

Healthy people depend on a healthy planet. While humans of all ages are affected by environmentally driven health hazards, children are uniquely vulnerable to extreme heat, poor water quality, poor air quality, and infectious diseases. Extreme events like storms or droughts put children at risk for long-term negative physical and mental health outcomes. Climate change is exacerbating these threats in Vermont despite the state's efforts to respond to and contain these dangers.

Heat, air quality, vector-borne diseases, water quality and flooding, and climate anxiety affect the health of Vermont's children now and in the future, and state government agencies, communities, and university researchers can collaborate to mitigate those harms and help Vermonters adapt to the impacts of climate change.

Why Focus on Children?

Environmental health hazards affect everyone, but children are more vulnerable than adults. They are more susceptible to heat-related illness and many vector-borne diseases. Because their organ systems are still developing, they are more at risk from airborne particulates and toxins in flood sediments. Because of their long future lifespans, they suffer more from exposure to carcinogens. Their social/emotional development is also deeply shaped by the stress of climate change. Finally, concern for children and commitment to protect their health unites Vermonters across the political spectrum. But because children generally use health care services less intensely than adults, they can get lost in discussions of broad population health and health care policy.

Why Now?

The impacts of climate change are increasing rapidly, and it is cheaper and more effective to anticipate these threats than to react to them. However, our responses are constrained by research gaps and a lack of real-time, location-specific information. Public, private, and university partners need to collaborate and invest in research, data gathering, and platforms for information sharing.

Climate Hazards Impacting Children's Health in Vermont

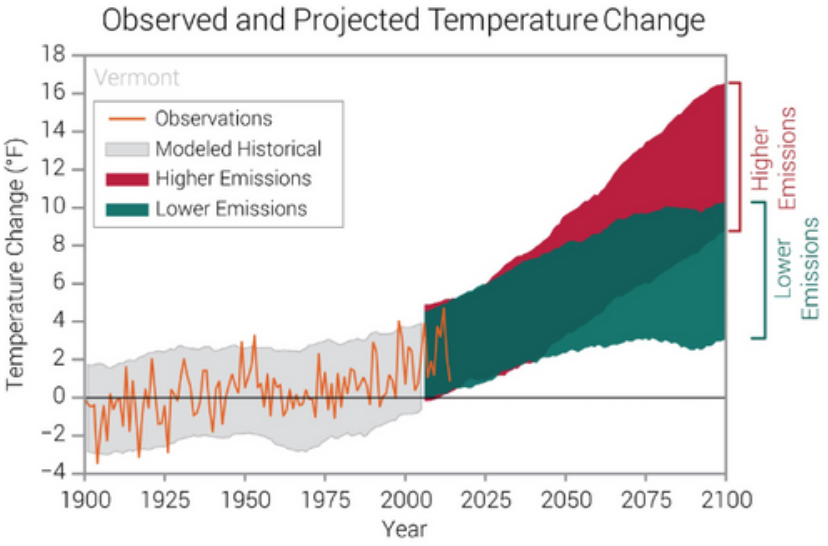
Mental Health

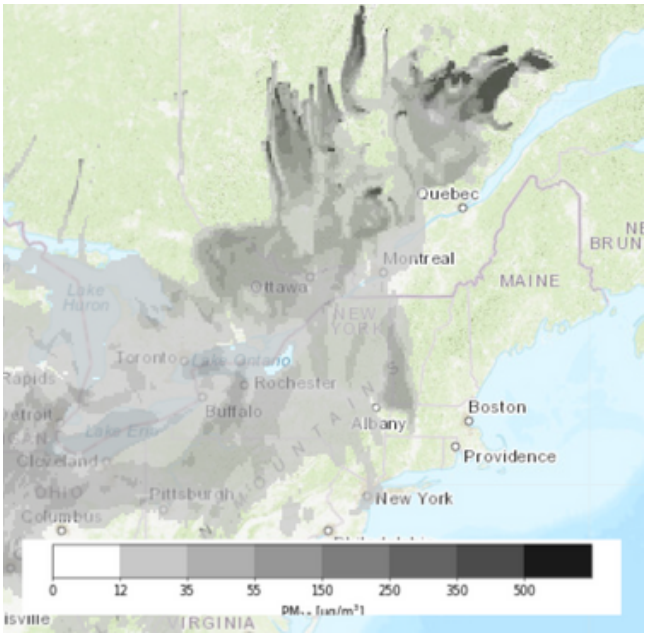
Reports of climate change anxiety are rising among children in the United States and can be compounded by depression and a host of physical health effects. The long-term effects on children are not known yet.

Heat

Children's smaller size, tendency to be outdoors, and inability to recognize and report symptoms, puts them at unique risk for heat-related illnesses including heat stroke and death.

Figure 1: (right) Observed and projected temperature rise for the state of Vermont, 1900 to 2100. Source: Vermont State Climate Summary, Fig. 1.





Air

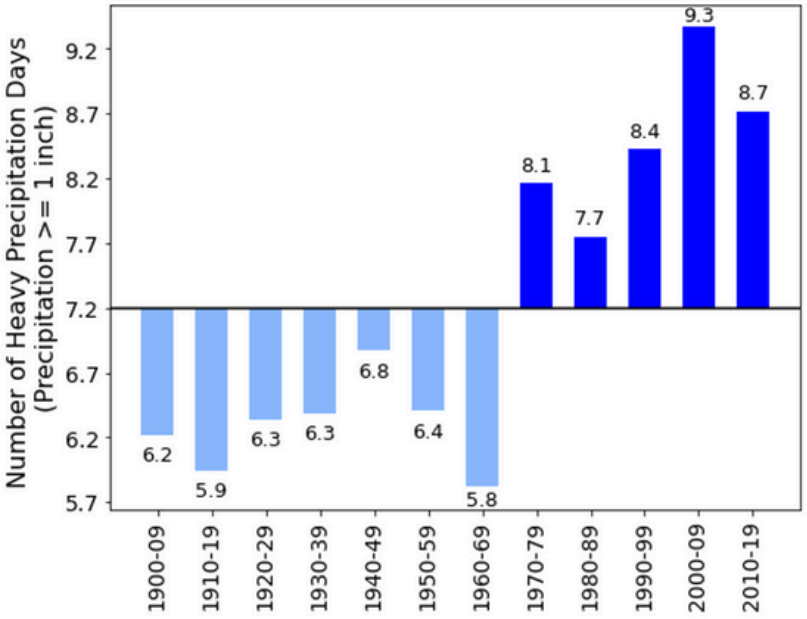
Surges in poor air quality due to wildfire smoke and ground level ozone threaten children's developing lungs, especially those with asthma and other chronic respiratory conditions.

Figure 2: (left) One-hour average particulate pollution contribution from wildfire smoke. Units are micrograms per cubic meter (µg/m3). Source: HRRR-Smoke Hourly PM2.5, Model run 20230605-00Z; 7:00 PM, June 5, 2023.

Water

Heavy precipitation and flooding events are on the rise, exposing children's developing immune systems to toxic sediments and infection-causing bacteria in flood runoff, and mold from flooded buildings.

Figure 3: (right) Decadal averages of the observed number of days per year with heavy precipitation in Vermont. Note: heavy precipitation events are defined as more than one inch of precipitation. Decadal average values are plotted above and below the 1900-2019 mean value (solid black line). Source: 2020 Vermont Climate Assessment Fig. 1-9.



Vector Borne Diseases

As temperatures, rainfall, and humidity increase, ticks and mosquitoes carrying harmful diseases spread north and increase in abundance. Children are uniquely vulnerable to vector-borne diseases infections, including Lyme disease, and experience more severe infections.

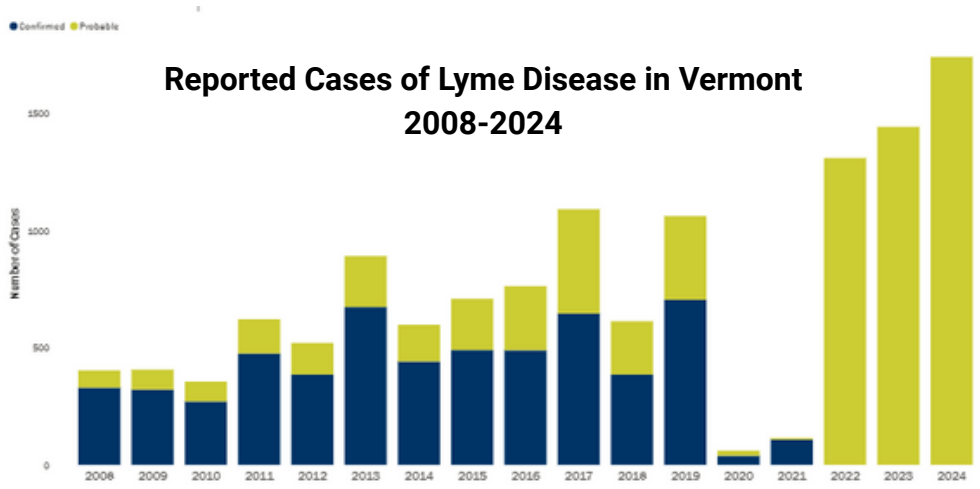


Figure 4: (above) Lyme disease cases in Vermont 2008-2024. Beginning in 2022, Vermont reports cases based on laboratory evidence alone, classified as "probable." Source: VT Department of Health tickbite illness dashboard.

Policy Recommendations and Potential Collaboration

Education and Outreach

Getting actionable information to groups responsible for children's health and welfare – schools, caregivers, pediatric and family medicine offices, afterschool programs, community organizations – is critical for mitigating harm. The Department of Health should expand educational outreach efforts around the health risks identified in the dashboard and provide guidance and standards based on up-to-date science.

- **Collaboration opportunities**: The Department of Health and UVM could co-develop a program to gather qualitative feedback from citizens on their educational needs around climate hazards and to conduct behavioral research on the relative effectiveness of different educational and behavioral campaigns. UVM and VDH could leverage longstanding efforts through VCHIP and other programs to disseminate best practices and guidance to child-serving professionals.

Infrastructure and Community Resilience

As climate-related disasters increase, both physical structures (buildings, roads, utilities) and services (education, health, emergency systems) will need to be strengthened, and communities will be tasked with more communication, response, and recovery duties. Municipalities should stand up "climate safety centers" that will protect children and families from dangerous heat, air pollution, and flooding events. The state should focus on "healthy buildings," investing in updated HVAC systems and air and water quality monitoring for schools and daycares.

- **Collaboration opportunities:** The Climate Action Office and UVM could create a civilian climate corps and recruit student volunteers for cooling centers and community greening projects, and the state agencies could sponsor interdisciplinary community projects for undergraduate courses.

Monitoring, Reporting, and Modeling

Because gathering and disseminating accurate, location-specific, and real-time data about these health threats is critical, existing monitoring efforts at the Vermont Department of Health (VDH), Agency of Natural Resources, and Vermont Emergency Management should be expanded. A consolidated environmental health dashboard is needed, with real-time data on heat risk, air quality, water quality, natural disaster risk, and vector borne illness. This effort could expand to collecting new population survey data to gauge Vermonters' experiences related to climate health. Monitoring and population-health data could be used to model future exposures and develop anticipatory public messaging.

- **Collaboration opportunities**: UVM's Forest Ecosystem Monitoring Cooperative (FEMC) data can be combined with Vermont Child Health Improvement Program's (VCHIP's) long-term evaluation of children's health in Vermont to uncover and quantify relationships between the environment and children's health. Building on Vermont's vector monitoring program, partners could produce real time distribution maps and alerts, model future range shifts in vectors, and predict outbreaks. Modelers could predict elevations in the Air Quality Index and its effect on asthma-related emergency department visits, hospitalizations, and school attendance.

Emergency Management and Hazard Mitigation

As the state, municipalities, and communities develop new climate action and hazard mitigation plans, they should include actions to protect children's health and equal attention to mental health needs during climate events. The Vermont Division of Emergency Management could include mental health professionals in crisis teams, promulgate lists of available mental health resources in communities affected, and prepare a workforce for increased demand for services. orkforce for increased demand for services.

- **Collaboration opportunities:** Through VCHIP, the state has worked for decades to leverage UVM faculty's clinical and public health expertise to connect clinicians with public health priorities. Ongoing activities that could incorporate climate change information include provider training, quality improvement, systems design, and evaluation.

Conclusion

The threats facing Vermont's children from the rapidly accelerating pace of climate change are real, immediate, and wide ranging. Children are more frequently exposed to the many manifestations of climate change, and they are uniquely susceptible to the effects. Expert collaboration across public, private, and academic sectors can inform effective public policies designed to mitigate growing health risks and protect our children's health.

Further Reading

This brief is based on a white paper, "Climate Change and the Health of Vermont's Children," produced for UVM's Planetary Health Initiative, December 2025.

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