

THE STATE OF CHILDREN'S ENVIRONMENTAL HEALTH

NORTH CAROLINA

All children deserve and need a safe and healthy environment to grow and develop. They need clean air to breathe and safe water to drink, nutritious food to eat, and healthy places in which to live, learn, and play. Early exposure to harmful agents can lead to acute and chronic adverse outcomes. Infants and children are especially vulnerable to environmental exposures because they breathe, eat and drink more, in proportion to their body size, than do adults, and because their bodies and brains are still developing.

There are 2.3 million children in North Carolina and nearly 21% live in poverty.

Poverty is an important social determinant of health; poverty hurts children and their families.

Children of color and young children are disproportionately poor and experience a host of issues that lead to adverse health outcomes.

Children's environmental health indicators (CEHIs) are measures that can be used to assess environmental hazards, environmental exposures, and their resulting health outcomes in children. Below are some key CEHIs for North Carolina:



Safe drinking water

24% of public water utilities had drinking water violations (2019).
National Average: 31%



Air quality

4.5 million children under age 18 live in the 68 (out of 100 total) counties that do not monitor ozone pollution¹ (2020).



Warming temperatures

2.1 degrees F warmer² in 2018 than in 1970
National Average: 2.5 degrees F warmer



Toxic chemical releases

53.3 million pounds of toxic chemicals were disposed of or released³ (2018).
United States: 3.8 billion pounds



Neuro-developmental disorders

10.5% of children age 3-17 have ADHD or ADD⁴ (2017)
Nationwide: 8.8%

1.7% of children age 3-17 have Autism Spectrum Disorder⁴ (2017)
Nationwide: 2.8%



Asthma

7.8% of children under age 18 have asthma⁵ (2017)
Nationwide: 7.5%



Pediatric cancer

172.8 cases of pediatric cancer⁶ per 1 million population (2005-2015)
Nationwide: 181.0 cases per 1 million



Blood lead levels

0.7% of tested children under age 6 have elevated blood lead levels⁷ (2017)
Nationwide: 3.0%

1. In this fact sheet, counties with "unhealthy" ozone pollution are those receiving a grade of D or F for ozone pollution in the American Lung Association's 2020 State of the Air report. Out of North Carolina's 100 counties, 68 did not monitor for ozone. One of the 100 counties that monitored had unhealthy ozone pollution, with 1,093,901 children under the age of 18.
2. Warming matters -- it drives most of the hazards associated with climate change such as extreme weather, heat days, droughts and heavy downpours. Children are more vulnerable to harm from extreme heat and to the other cascading effects of warming temperatures.
3. EPA's Toxics Release Inventory (TRI) tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. Certain industrial facilities in the U.S. must report annually how much of each chemical is disposed of or released on- and off-site. Many of these chemicals are known carcinogens, developmental toxicants, and neurotoxicants, such as arsenic, lead, and mercury, that adversely impact children's health.
4. Mounting scientific research links environmental exposures with risk of Attention-Deficit Hyperactivity Disorder (ADHD), Attention-Deficit Disorder (ADD), and Autism Spectrum Disorder (ASD). Neither genetics nor changing diagnoses or other artifacts fully account for the increased incidences of these conditions. ADHD, ADD and ASD data are for North Carolina children aged 3-17 years.
5. A wealth of research links exposure to poor outdoor air quality, including high concentrations of ground-level ozone, with the exacerbation of children's respiratory illnesses, including asthma. Several studies link it with the onset of childhood asthma.
6. Although cancer in children is rare, the rate of pediatric cancer has been increasing since the 1970s. It is the leading disease-related cause of death past infancy in U.S. children. Neither genetics nor improved diagnostic techniques can explain the increased rate. According to the President's Cancer Panel's 2008-2009 Annual Report, "the true burden of environmentally induced cancer has been grossly underestimated."
7. In 2017, 15% of North Carolina children under age 6 were tested for blood lead levels (BLLs). Of those tested, 0.7% had a BLL \geq 5 $\mu\text{g}/\text{dL}$. Of the 54.9% of 1- & 2-year olds tested, 1.3% had a BLL \geq 5 $\mu\text{g}/\text{dL}$. Often the most vulnerable children are not tested, and not all who are tested get reported, so 0.7% is likely an underestimate of the true scope of children's elevated blood lead in North Carolina. There is no safe level of lead exposure for children. A potent neurotoxicant, lead reduces IQ and impairs other cognitive, behavioral, and developmental functions.

FEDERAL SUPPORT within past 5 years



CDC-funded Lead Poisoning Prevention Program



ATSDR State Cooperative Agreement Program



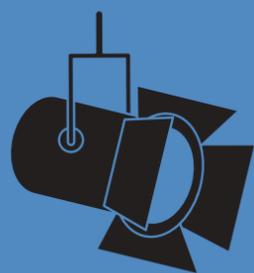
CDC National Asthma Control Program



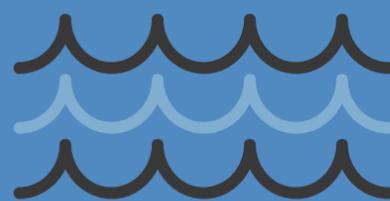
CDC-funded Environmental Public Health Tracking Program



CDC State Biomonitoring Cooperative Agreement Program



NORTH CAROLINA SPOTLIGHT



The health of communities in North Carolina is being threatened by contamination of water by per- and polyfluorinated chemicals (PFAS). In fact, North Carolina is the third highest state for PFAS exposure. Waters of concern include the Cape Fear Watershed, which supplies about 1.5 million people with drinking water, and the Deep and Haw Rivers and surrounding communities. Despite recent research findings linking possible human exposures to PFAS and adverse health outcomes (including potential effects on metabolism, the immune system, pregnancy, and children's cognitive and neuro-behavioral development), there is still no federal health standard for PFAS.

In response to citizen concerns, and in lieu of timely federal action, the state is acting on PFAS and making investments to address the issue now. The N.C. Policy Collaboratory has established a network of researchers and is testing public water systems across the state for PFAS in order to determine exposure risk and to inform monitoring and mitigation efforts.



Children are our future—society has a moral obligation to protect them. Exposure to environmental hazards can and must be prevented. Prevention requires strong environmental regulations and fully funded and supportive public and environmental health programs and a robust workforce.

A Blueprint for Protecting Children's Environmental Health: An Urgent Call to Action
www.cehn.org/blueprint

The Children's Environmental Health Network set out to identify a set of CEHIs that can be used to provide an understanding of children's environmental health at the state level. Through this process, CEHN found that robust, valid, and regularly updated state level data--that are comparable across most states--were not readily accessible. States need adequate funding and capacity to collect and make accessible reliable CEHI data in order to set goals and track progress towards improving children's health.

For references and for more information, visit www.cehn.org/states/northcarolina