AT A GLANCE

Water and Early Childhood Development

Learn how water affects early childhood development—and find practical, actionable solutions to support children and caregivers in your community.

Science Snapshot: What We Know

Water is essential for life. The brain, heart, kidneys, and lungs require continued hydration to function.[1] Our bodies need water for digestion, nutrient absorption, blood distribution, and more.[2]

During the prenatal and early childhood periods, the availability and quality of water are especially important. Children drink more water per pound of body weight than adults,[3] and their organs are developing rapidly. This rapid development also makes them more sensitive to what is *in* that water—including contaminants like toxic metals, chemicals, viruses, and parasites.[4,5*]

Yet, in the US, there are serious gaps in access to clean and affordable water.[6] Increases in extreme weather events, like droughts and floods, are also exacerbating water quality and supply challenges.

Disruptions in the availability and quality of water can impact young children's development and lifelong health, including through:

- **Birth outcomes:** Water is one of the primary ways people are exposed to hormone-disrupting chemicals. Parental exposure to certain chemicals has been linked to preterm birth, reduced birthweight, and other birth outcomes associated with long-term health complications.[7,8,9]
- **Brain development:** Contaminants in drinking water can disrupt brain development, particularly in early childhood when the brain's protective membrane is not fully developed, leading to potential long-term cognitive and behavioral issues.[3,10]
- **Infection and disease:** Floods and heavy rain can overwhelm sewage systems, exposing children to pathogens and contaminants in drinking water and increasing infections and gastrointestinal illness.[11] Exposure to certain chemicals in drinking water can also disrupt immune function and increase the risk of chronic diseases.[12]
- **Nutrition:** Clean water is essential for growing, washing, and cooking nutritious foods; contaminated water can lead to lower crop yields and nutritional value.[13,14] Droughts and floods can also reduce crop production, affecting children's access to high-quality food.[14]

Solutions Snapshot: What We Can Do

Actionable solutions to increase access to clean water already exist, and many communities are implementing them with positive effects. Policymakers, organizations, and community leaders can:

- **Strengthen protections and enforcement.** Federal, state, and local agencies evaluate, implement, and enforce water standards. Bolstering these agencies helps reduce young children's exposure to contaminants, and makes water safer for everyone in our communities.
- **Make water access affordable.** For example, the Low-Income Household Water Assistance Program helped 1.4 million low-income families maintain access to water in their homes.[15] The program ended in 2024, highlighting the need for a permanent solution.
- **Support healthy development generally.** Interventions like enriched educational opportunities, supportive relationships, and good nutrition can help reduce the negative effects of exposure to contaminants.[16,17]
- **Make testing and filtering widely available.** The EPA offers resources to help public water systems enhance drinking water quality.[18] Technologies like point-of-use filtration systems—for example, carbon filtration in a pitcher—can supplement public systems, with subsidies for families who cannot afford them.
- **Improve the resilience of water systems.** Combining "green infrastructure," such as green spaces to help absorb stormwater, with "gray infrastructure," like updated sewer systems and flood barriers, enhances resilience to storms and flooding.[19,20]
- **Engage in "citizen science."** Citizen-led action and community-engaged research can be powerful tools. In Flint, Michigan, activists and researchers worked together to validate concerns about water quality and drive protective measures.[21]

Learn more and take action in your community:

- Read our full Working Paper on water and early childhood development.
- View our InBrief for more key takeaways.
- See our Solutions Spotlight to learn how communities are improving access to safe water.
- Watch our webinar for a conversation on the ways water affects early childhood.
- Listen to our podcast on how communities are addressing disparities in water access and climate-related threats.

For a complete list of references, please see below.

**To read about specific water contaminants, see "Protecting Children from Water Contaminants" in our Working Paper.*