



Healthy Environments for Children Alliance

A world-wide alliance to reduce environmental risks to children's health that arise from the settings where they live, learn, play, and sometimes work by providing knowledge, increasing political will, mobilizing resources, and catalyzing intense and urgent action.

Issue Brief Series: Chemicals

Several international agreements demonstrate increased commitment worldwide to the safe management of chemicals and the special vulnerabilities of children. While many countries require chemical testing to protect human health and safety, relatively few have been explicitly tested for safety to children.

Hazardous chemicals may be unsafely stored in homes and schools, without adequate safety labeling, or child resistant packaging. Sometimes, packages of chemicals are broken open and the contents sold in open containers.

Both acute and chronic exposures to unsafe chemicals can have lasting health effects, such as hindering growth and development, affecting the immune and endocrine systems, causing or triggering asthma, inducing poisoning and other effects. Yet despite this, the effects of chemicals on children's health are often given insufficient attention by scientists and policy-makers.

Poor children are more likely to be exposed, and are more vulnerable to chemicals because of how and where they live. For example, the United Nations estimates that over 171 million children as young as age five are working in hazardous conditions, in some cases exposing them to dangerous chemicals.

In addition, poor communities often live near industrial sites and may use lower quality, inferior products. Undernourished children are particularly susceptible to the effects of chemical exposures.

The safe use of **pesticides and fertilizers** benefits the world's population through the provision of sufficient food, yet these chemicals, when used inappropriately, can also harm children through acute poisonings or chronic, lower-level exposures.

Minerals and metals can be essential elements with nutritional benefits to the human body but at high levels, some minerals and metals, such as lead, mercury, arsenic, and fluoride, and their derivatives, can be dangerous to children's health. Arsenic is a poison which can kill at high doses or cause chronic disease at lower-levels of long-term exposure. Long-term exposure to elevated levels of fluoride in drinking water can lead to dental and skeletal degeneration. Low levels of lead exposure can lead to irreversible neurological and other damage. Lead is found in the air, water, food, as well as in products like paints, ceramics, folk health remedies, cosmetics, and in car batteries, to mention a few.

Persistent Organic Pollutants (POPs) do not break down in the environment and can enter the food chain through crops grown on contaminated sites and through fish from contaminated waters.

Some of these POPs may be **endocrine disrupting chemicals (EDCs)**. Exposure to EDCs during critical developmental stages may cause irreversible changes in growth, development, and behavior and may result in impaired reproductive and immune functions later in life.

... a Global Concern

- South-East Asia and the Western Pacific together use two-thirds more fertilizer per hectare of agricultural land than the world average, and have increased use by 35% since 1989.
- Millions of people are exposed to pesticides in the Eastern Mediterranean region. In Egypt, over 1 million children between the ages of 7 and 12 help with cotton pest management, exposing them to pesticides.
- It is estimated that there are more than 15,000 tons of obsolete pesticide stocks in Africa, many of which are POPs.
- In Latin America, more than 1 million people work in small scale gold mining in the Amazon, using mercury to leach gold from its ore.

Acting to safeguard children's environments can save millions of lives, reduce disease and provide a safer, healthier world for our children's future.

See the *Healthy Environments for Children Alliance Framework for Action*

Children's Vulnerability to Chemicals

Behavioral: Very young children explore, taste and touch objects and crawl on the ground and floors, exposing them to chemicals. In poor areas, children as young as five years, may begin working to help their families, often in agriculture, becoming exposed to pesticides and fertilizers. Children living or selling items in the streets may be highly exposed to lead and other vehicular or industrial emissions.

Physiological: A child's size and body weight are important factors influencing the effects that chemical exposures may have. Relative to their size, children eat more, drink more and breathe more than adults, potentially increasing their exposure to pollutants and toxic substances. Children's bodies process chemicals differently than adults, metabolizing and eliminating substances differently.

Developmental: Critical development stages may expose children to particular impacts of some chemicals on their growth, health and development. Also, a child will have more years of life than an adult in which to develop delayed responses to chemical exposures.

Actions at Every Level Make the Difference

The most effective way to reduce children's risks from chemicals is to prevent their exposure. International organizations, governments, individuals, communities, non-governmental organizations, the private sector, health professionals, teachers, parents and children themselves play vital roles in this regard. While international organizations can provide assistance, national governments are responsible for setting laws and regulations to protect the environment and public health, including a safe food supply, safe labor practices, proper use of chemicals and vector control. National investment and international cooperation in research on chemical effects on children's health, including cumulative effects and long-term studies are greatly needed, as is more consistent risk assessment and toxicity testing for chemicals and children.

Settings-based Interventions

Parents and caregivers should be knowledgeable about potentially harmful chemicals that are found in and around the home and places where children live, study and play. Individuals should avoid purchasing repackaged or unsafely packaged chemicals and should not transfer chemicals from original packaging. Chemicals must be stored out of the reach of children and young children must remain under constant supervision. Parents and caregivers should have first aid supplies available and keep emergency contact information readily on-hand, such telephone numbers for emergency treatment and poison control centers.

As children grow and learn, they can increase their understanding of chemical risks and learn to protect themselves from the dangers that unsafe chemicals pose. Teachers have the opportunity to inform children about chemical exposures, integrated vector control and self protection. School administrators have the responsibility to ensure the safety of their students, with appropriate use of chemicals as part of integrated vector control strategies. They should review the safe use and storage of chemicals in the school.

Non-governmental organizations and community leaders can join forces to improve local handling of hazardous chemicals. They can compile and share information on chemical threats of particular concern locally, as well as the dangers of improper chemical use and potential for accidental poisonings. Community groups can advocate for policy changes awareness-raising of decision-makers.

At Home

At School

In the Community

www.who.int/heca/