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Prenatal Exposure to Toxic Chemicals

Let's Talk Prevention

The U.S. is a nation built on synthetic chemicals. From furniture to paint to cleaning products to cosmetics, people are exposed on a daily basis. We all wonder how these substances will affect our health, but never is the question more important than to an expecting mother.



Why are prenatal exposures important?

Prenatal chemical exposure can have lasting detrimental impacts on the lives of children and can cause diseases that show up in adulthood. Harmful chemicals cause the most disease when they are present during fetal development, because organ systems are being developed and the rate of growth is very fast.

Studies have shown that virtually all pregnant women in the U.S. have measurable levels of several toxins in their bodies that pose real threats to the development of the fetus. These dangerous chemicals include phthalates, bisphenol-A (BPA) and flame retardants. Their impacts can manifest in the short term as birth defects or later in life as problems with reproduction, obesity, diabetes, hormonal balance or even cancers.

Although we are exposed to more chemicals today than ever, federal regulations do little to study impacts or prevent exposure to chemicals known to be harmful. Many birth defects and other health outcomes of toxics exposure are irreversible, so prevention, education, and strengthened regulation are vital.

How are women exposed to environmental chemicals?

Chemical exposure can come from a wide variety of places and experiences. Exposure can occur in the workplace during manufacturing or from the use of chemicals in beauty salons. Use of cosmetics or perfumes allows substances such as phthalates or lead to be absorbed through the skin. Breathing dust or vapor from everyday products like sofa cushions (flame retardants) or flooring (formaldehyde) is another route to exposure. Lastly, our food and beverages may have been treated with pesticides or contaminated with toxic BPA residues from containers, putting us at risk every day.

Are children vulnerable only in the womb?

No. Although babies are most susceptible to consequences of exposure in the womb, all children continue to develop organ systems for decades and are at higher risk of exposure to chemicals. Their vulnerabilities increase their health risks substantially. Children ingest more food and water relative to their body weight, they are constantly on the ground where contaminants collect, their defenses are not fully developed, and their high skin-to-body-mass ratio means they are more sponge-like than adults.



Men also play a big role

Research demonstrates that exposure to chemicals in everyday products like plastics can alter and weaken sperm, dramatically influencing the fertilized egg and development of the fetus. Exposure to toxic chemicals can also lead to testicular and prostate cancer.

Some Chemicals of Concern

Chemical	Sources of Exposure	Adverse Health Effects
Mercury	Fish. Frequently enters the food chain from coal combustion.	Reduced IQ, neurodevelopmental disorders including autism
Lead	Paint (in houses built pre-1978). Occupational exposure occurs in battery manufacturing and recycling, car repair, and welding,	Behavioral disorders; reduced IQ; increased risk of preterm labor
Pesticides	Food residues; agricultural settings; in-home use	Impaired cognitive and neurodevelopment; impaired fetal growth; increased susceptibility to testicular cancer; childhood cancer
PCBs (banned substance)	Certain fish. Fish absorb PCBs that has been dump into waterways.	Development of attention deficit and hyperactivity disorder; increased body mass index; reduced IQ
Bisphenol-A (BPA)	Polycarbonate plastics; food, consumer products and packaging	Birth defects; neurodevelopmental disorders; possibly obesity, diabetes
Solvents	Industrial workplaces; used in numerous consumer products including: plastics, dyes, detergents, food containers, carpeting and cleaning products, nail salons	Fetal loss; miscarriage
Phthalates	Plastics; cosmetics; cleaning products; medical devices; toys and many other everyday products	Birth defects; shortened gestational age; impaired neurodevelopment in girls
Perfluorochemicals	Food wrappers, stain-resistant and non-stick surfaces	Reduced birth weight; birth defects
Chemicals (over 4000) in cigarette smoke	Cigarette smoking; second-hand smoke	Learning and behavioral disorders; reduced IQ

What can we do to prevent toxic exposures?

Individuals can take small concrete steps to reduce their exposure to toxic environmental chemicals. These include reducing your use of plastics; avoiding foods high in pesticide residues, mercury or PCBs, and buying more fresh foods and foods in BPA-free packaging. Don't use insecticides in the home or garden.

Under U.S. law, chemicals are considered safe until proven otherwise. Even if this were acceptable – and it is not – the federal law that regulates chemicals in this country (Toxic Substances Control Act, or TSCA) is cripplingly weak. TSCA makes it virtually impossible for the government to remove unsafe chemicals from the market or prevent new ones from gaining access.

We need to demand that policymakers rewrite TSCA to protect the public's health by removing harmful chemicals from the marketplace and preventing new ones from being used without adequate advance testing.

Get involved! Anyone can become a member of Physicians for Social Responsibility. If you share our goal of protecting our health from the threat of toxic chemicals, please join today! Visit us at www.PSR.ORG

Selected References

1. The American College of Obstetricians and Gynecologists Committee Opinion on Exposure to Toxic Environmental Agents, Number 575, October 2013.
2. Shaping Our Legacy: Reproductive Health and The Environment. UCSF Program on Reproductive Health and the Environment, September 2008.

