



Understanding the Issues

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Why do we need a conversation about public health and chemical exposures?

Each day, people in the United States come across thousands of different chemicals in their homes, workplaces, and schools. Because we use chemicals in so many aspects of our lives, we must carefully balance their benefits and risks. Many chemicals enhance our quality of life and offer real benefits. Some chemicals, for example, are often used to disinfect our drinking water supply. But exposure to other chemicals can cause short-term health effects, long-term health effects, or both. For many chemicals, we may not know or fully understand the risks exposure poses. Also, some groups—children, the elderly, people of color, and low-income communities—face higher health risks because of certain chemical exposures. As a nation, we can and should do a better job of protecting everyone from harmful chemical exposures.¹

We've come a long way, but we need to go further

Over the past few decades, several laws have helped to reduce exposures to some well-known, harmful chemicals. Removing lead from gasoline, for example, greatly reduced blood lead levels in the United States. Still, we lack a system that adequately protects the public from all kinds of chemical hazards. To achieve such protection, we must improve scientific knowledge, modernize policies, use best practices, educate health professionals and the public, and much more.

Better science to protect the public

We have learned a lot about how chemical exposures can affect our health, but a lot remains that we don't fully understand. We know that we are exposed to multiple chemicals at the same time but past studies largely have focused on the health effects of exposure to one chemical. National biomonitoring studies, which measure chemicals in blood, urine or other body tissues, have measured in United States residents more than 200 chemicals.² But we still do not have enough information about the how these multiple exposures may affect our health. And given our current level of exposure, we also do not understand the health risks many of these chemicals pose.

¹ For the purposes of the *National Conversation* project, “chemical” is defined broadly to include industrial and naturally occurring chemicals regardless of their source, including biologically produced chemical substances. We encourage *National Conversation* participants to consider emerging chemical exposure issues such as those presented by engineered nanoparticles. The project will not address human health risks posed by radioactive properties of chemicals.

² For CDC's *National Report on Human Exposure to Environmental Chemicals*, see www.cdc.gov/exposurereport/



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Strengthened policies and practices

Local, state, tribal, and federal government agencies, business groups, and other non-governmental organizations work to prevent harmful chemical exposures, but to better protect us, they need to do a better job. Among the many ways to do this are:

- Switching to safer, greener chemicals;
- Limiting exposures through stricter regulation of industrial processes;
- Increasing scrutiny of chemicals used in consumer products; and
- Improving our ability to understand the effect of, and our response to, exposures once they have occurred.

Increased Public Understanding and Involvement

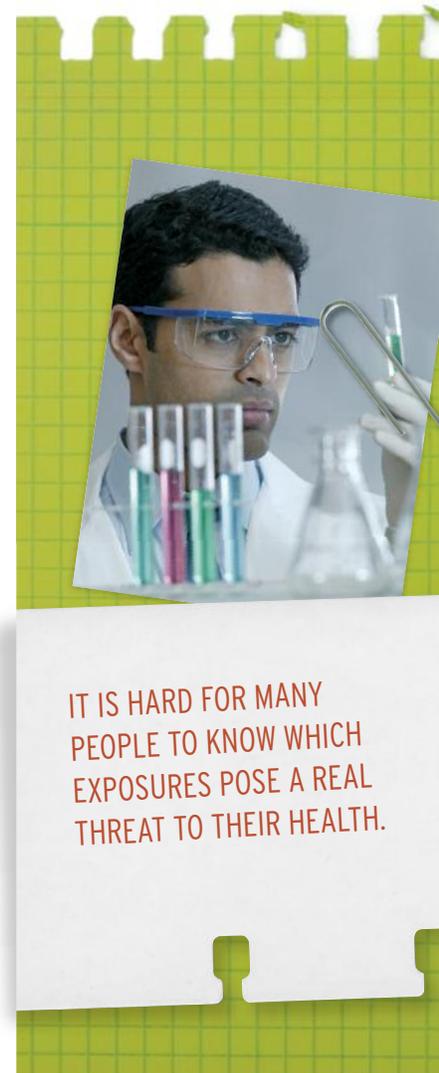
Every day we encounter complex and at times conflicting information about chemical exposures. For many people knowing which exposures pose a real threat to their health is difficult. Doctors, government officials, journalists, and others need to do a better job of communicating about these exposures so people have accurate information about risks and about when they need to take steps to reduce exposures. We also need to do a better job of involving the public in decisions that may affect their health.

How are people exposed?

We can be exposed to chemicals from many sources including the food we eat, the air we breathe, and the water we drink. Chemicals come from many sources including industrial and vehicle emissions, molds and other microbes, pharmaceuticals, pesticide use, runoff from hazardous waste sites, and chemicals used in consumer goods such as household cleaners, cosmetics, food and beverage containers, gardening products, and toys. Workers can be exposed directly to hazards and can bring harmful chemicals home with them, unknowingly exposing their families.

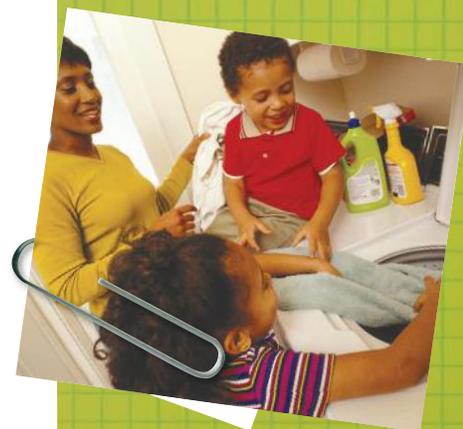
What makes an exposure harmful?

We are exposed to many chemicals every day. But what makes an exposure harmful to our health? Answering this question is often complicated, requiring information about the source, route, dose, and potential health effects of the chemical, as well as knowledge about our health status.



³ See the American Public Health Association's *Protecting America's Health: Federal Chemical Safety System* brochure for more information on the roles and responsibilities of federal agencies. http://www.apha.org/NR/rdonlyres/3787ACA1-EFC6-49DD-A9CA-21811326186A/0/APHACChemSafety_f2_single.pdf

For example, if a local manufacturing or service business leaks a chemical from an underground tank, that leak is a potential exposure source. If that chemical contaminates the water in a nearby well, drinking water from that well is a potential exposure route. If the chemical can cause negative health effects and is present at a harmful level or dose, it poses a health risk. When all of these links are present, and when risk is sufficiently high, a reason for concern most likely also present. In addition to these environmental factors, individual characteristics, such as a person's existing health problems or other risk factors, can make one person more likely to be harmed by an exposure than someone else. In sum, determining how our health may be affected by an exposure is a difficult process. Many times we are without entirely satisfactory answers.



JOIN THE NATIONAL
CONVERSATION!

How can you get involved?

You can help protect public health by joining the *National Conversation on Public Health and Chemical Exposures*. The *National Conversation* is a 2-year initiative to create an action agenda of recommendations to help ensure chemicals are used and managed in ways that are safe for everyone. The Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry support this project. It is designed to collect input from many organizations and individuals, including you! Visit our website (www.atsdr.cdc.gov/nationalconversation) to learn more about how you can participate in the *National Conversation*.