

Can Chemicals Cause Breast Cancer?



Breast cancer is the most common cancer for women in the U.S. In fact, 1 of 8 women born today will get breast cancer. However, only about a third of breast cancers are related to a woman's family history.

Research shows that chemicals in our environment and our consumer products may be linked to breast cancer.

Unfortunately, companies that use chemicals in their products are not required to test the health effects of the chemicals they use. That means we know very little about how tens of thousands of chemicals could affect our health. We need to learn more.

How Can We Learn More?

We need to test more chemicals to find out if they present a risk to breast health. Once dangerous chemicals are identified, manufacturers, consumers, and government programs can look for safer alternatives.

Knowing which chemicals affect breast health—and how—will help us understand how to prevent breast cancer cases in the future.

Better Testing Needed to Lower Breast Cancer Risk

To decide if a chemical causes cancer, current testing methods look for final signs of disease, such as a tumor. Most testing does not look for indirect causes or signs of cancer that happen before a tumor develops, such as changes in hormones.

To get a more complete picture, future testing would need to look at:

- Which chemicals cause early changes to breast tissue,
- The impact of exposure to those chemicals at different stages of a woman's life, and
- How a woman's genes or an underlying disease might affect her susceptibility to a chemical.

Did you know...

- Breasts can be more sensitive to chemicals than other parts of the body.
- Breasts change over a woman's life, from fetal development, through puberty, pregnancy, and menopause. Scientists know that during these critical periods some chemicals can change the breasts in ways that increase a woman's risk for breast cancer.
- Learning more about which chemicals affect breast health, and how, could help prevent more cases of breast cancer.

Which Chemicals Should Be Tested?

The Breast Cancer and Chemicals Policy project, or BCCP, recommends targeting two categories of chemicals for testing, chemicals with:

1. Early indicators of hazard, and
2. Potential for high exposure

Chemicals with early indicators of hazard are chemicals that would most likely put a woman at risk for breast cancer because we already know they:

- Affect the body's hormones,
- Alter breast development,
- Change genes, or
- Have a structure that is similar to other chemicals that cause breast cancer.

Chemicals with potential for high exposure are chemicals a woman is more likely to be exposed to, such as chemicals that:

- Accumulate in the body and the environment,
- Are likely to come in contact with breast tissue, or
- Are produced in high volumes or used widely in consumer products or workplaces.

Where to Start

The BCCP project recommends an approach that identifies chemicals that might raise a woman's risk for breast cancer. We call this approach the **Hazard Identification Approach**, or HIA for short.

Hazard Identification Approach



The HIA would start with rapid, cell-based testing to look at the ability of different chemicals to:

- Change a cell's normal growth cycle or DNA, or
- Mimic or block hormones.

To gather more information, we may also need to do animal testing to learn how different chemicals can:

- Change the DNA of cells in breast tissue,
- Change the normal growth of cells that line the breast milk ducts, or
- Mimic or block hormones that control how mammary glands and tissue develop during certain stages of life.

At this time, we know of more than 200 chemicals that cause breast tumors in animals, such as:

- Vinyl chloride, found in shower curtains, vinyl flooring, and children's toys
- 1,3-butadiene, used to make rubber and latex products
- Acrylamide, used to make paper, dyes, and plastics

Laws Need to Change

In most cases, chemical manufacturers do not have to test their products for safety or the potential to cause cancer. But in recent years, advocates, chemical manufacturers, and government agencies have all called for updating the Toxic Substances Control Act (TSCA). Individual states can also pass laws to protect their residents.

For more information, see: www.saferchemicals.org.

What You Can Do Now!



- Limit your exposure to dangerous chemicals. To learn how, visit the University of California, San Francisco Program on Reproductive Health and the Environment website: <http://prhe.ucsf.edu/prhe/toxicmatters.html>
- Tell companies and policy makers you want more chemical testing, including specific tests for the effects of chemicals on breast tissue.
- Advocate for change at one of these programs:
 - Breast Cancer Fund: breastcancerfund.org
 - Safer Chemicals, Healthy Families Coalition: saferchemicals.org
 - Breast Cancer Action: bcaction.org
 - Zero Breast Cancer: zerobreastcancer.org

The Breast Cancer and Chemicals Policy Project (BCCP) prepared this Fact Sheet to explain what kind of testing is needed and why. BCCP is funded by the California Breast Cancer Research Program.

For more information on the BCCP, including access to the full report, see:

<http://coeh.berkeley.edu/greenchemistry/cbcrp.htm>