

Webinar Highlights

Tattoo Inks and Cancer: Gaps in Research and Regulation

Nearly a third of adults in the US have at least one tattoo, according to a recent Pew Research Center survey. People choose to have tattoos for many reasons, including, in an increasing number of cases, as a way to honor a loved one.

The European Union adopted restrictions on tattoo inks in 2020, and the requirements of the restriction came into force in 2022. In contrast, the US Food and Drug Administration (FDA) has authority to regulate tattoo inks, but does not do so. Tattoo inks contain thousands of chemicals, including some known carcinogens, and many other chemicals whose toxicity is unknown.

In this webinar, **Dr. David Kriebel** discussed the existing evidence on possible health effects of tattoos, including cancers and autoimmune diseases, and the need for additional research to understand possible hazards.

Featured Speaker: David Kriebel, ScD, Professor Emeritus in the Department of Public Health at the University of Massachusetts Lowell and Director of the Lowell Center for Sustainable Production, speaking February 22, 2024.

This fact sheet has been created by CHE based on information presented in a webinar done in partnership with the Cancer and Environment Network of Southwest Pennsylvania and Breast Cancer Prevention Partners. Selected quotes in bold are from the webinar speaker(s). For the full set of resources provided by the webinar presenters, see the [webinar page](#), where you'll also find associated Slides & Resources.

The Problem

Little research has been conducted to assess possible health effects of tattoos. Tattoo inks can contain a variety of toxic chemicals, including chemicals classified by the International Agency for Research on Cancer (IARC) as carcinogenic to humans. These include metals (such as arsenic, chromium (VI), cadmium, and nickel) and aromatic amines such as 2-naphthylamine.

In addition to known toxicants, tattoo inks contain thousands of chemicals of unknown toxicity. Many of the chemicals used in tattoo inks have only recently been invented.

While the FDA has a legal responsibility to regulate tattoo inks, it has not done so. According to the FDA's own [website](#), "Many pigments used in tattoo inks are not approved for skin contact. Some are industrial grade colors that are suitable for printers' ink or automobile paint."

The FDA also [states](#):

"FDA has not approved any inks for injection into your skin."

In contrast to the FDA, the European Union has restricted more than 4,000 chemicals from tattoo inks.

There is a lack of data into the long-term health effects from tattoos. However, we do know the following:

- Over time, much of the ink is cleared from the injection site. Adjacent lymphatic tissue often contains large numbers of ink particles.
- Tattoos continuously attract immune cells to the tattoo site. It is unknown what effects this might have, but it could lead to immune dysregulation and errors in immune cell replication.
- There are many reports of skin cancers in people with tattoos, as well as pseudolymphoma, lymphoid hyperplasia, and other similar conditions. Whether or not there is a causal relationship is currently unknown.

Recommendations

Dr. Kriebel stressed that people have a right to better safety standards.

"People should be able to choose to have a tattoo and not have to worry that maybe they're increasing their risk of some chronic disease down the road."

More research is urgently needed, including epidemiological studies, clinical studies, and better information on toxicology.

The European Union is moving to limit chemicals from tattoo inks that are classified as:

- carcinogen, mutagen, or toxic to reproduction
- skin sensitizer
- skin corrosive
- skin irritant
- eye irritant
- eye damaging

The FDA has a responsibility to enact and enforce similar regulations.

To Find Out More

- Watch the February 22, 2024 webinar: [Tattoo Inks, Cancer and Other Chronic Diseases: Gaps in research and regulation](#)
- Read the presentation slides: [Tattoo inks, cancer, and other chronic diseases: gaps in research and regulation](#)
- Visit the [Cancer and Environment Network of Southwest Pennsylvania website](#)
- Visit the [Breast Cancer Prevention Partners website](#)

About the Speaker



David Kriebel, ScD is Professor Emeritus in the Department of Public Health at the University of Massachusetts Lowell and Director of the Lowell Center for Sustainable Production, which collaborates with industries, government agencies, unions, and community organizations on the redesign of systems of production to make them healthier and more environmentally sound. Dr. Kriebel's research focuses on the epidemiology of occupational injuries, cancer, and non-malignant respiratory disease. He has published over 130 peer reviewed articles and co-authored two textbooks: *Research Methods in Occupational Epidemiology* with Harvey Checkoway and Neil Pearce (Oxford University Press 2004), and *A Biologic Approach to Environmental Assessment and Epidemiology* with Thomas J. Smith (Oxford University Press, 2010). He has won numerous teaching awards for his courses in epidemiology and biostatistics as well as occupational and environmental health. In 2023 he received the EPICOH Lifetime Achievement Award in recognition of his contributions to the field of occupational and environmental health. He also frequently speaks to community groups and participates in advisory committees on the role of science in democratic decision making, particularly in cancer prevention. He received his doctorate in epidemiology from the Harvard School of Public Health.