

# ‘Explosive growth’ in petrochemical production poses risks to human health

New report warns of deadly health risks from fossil fuel pollution, including alarming rise in neurodevelopmental issues



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A petroleum refinery in Port Arthur, Texas. Photograph: Rex Wholster/Alamy

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Chemical pollution tied to fossil fuel operations poses serious risks to human health, warns a new analysis published in the New England Journal of Medicine on Wednesday.

Citing data from dozens of studies, the report points to an alarming rise in neurodevelopmental issues, diabetes, chronic respiratory disease, and certain cancers in young people taking place amid what the paper’s author calls “explosive growth” in the petrochemical industry. Between 1990 and 2019, rates of certain cancers in people under 50 increased dramatically. Meanwhile, fossil fuel use and petrochemical production have increased fifteen-fold since the 1950s, according to the report.

“One of the major factors driving climate change is also increasing our exposures to chemicals that are adversely impacting health,” said the report’s author, Tracey Woodruff, a professor at the University of California San Francisco (UCSF). “Typically people say cancer is a disease of the aging, but now we’re seeing it increasing in people under 50.”

The report points to endocrine-disrupting chemicals (EDCs), chemicals commonly found in plastics and other products that interfere with healthy hormonal function, as a key threat.

“Numerous medical societies, government agencies, and systematic reviews have concluded that exposure to chemicals and pollution, including EDCs is an important risk factor for multiple diseases and health inequities and probably contributes to these increases,” the report notes, adding that increases in disease and petrochemical production at the same time “alone cannot be interpreted as causal”.

Phil Landrigan, an epidemiologist at Boston College who was not involved with the study, said he agreed with the paper’s conclusions.

“All of this plastic is laden with over 10,000 chemicals,” Landrigan said. “These chemicals include carcinogens, developmental neurotoxicants, endocrine disruptors and hundreds more that have never been tested for toxicity.” He added that these chemicals leach out of plastics where they can cause a range of ailments including cancer, cardiovascular disease and infertility.

### **Altering hormones**

Endocrine systems regulate an array of key biological processes, including brain and nervous system development, reproduction, and metabolism and blood sugar levels. Exposure to EDCs, including through contaminated food, air and water, can lead to problems with male and female fertility and fetal development in both people and animals. Even small disturbances to endocrine function, especially during pregnancy, can lead to “profound and lasting effects”, according to the US Environmental Protection Agency.

EDCs are found in several everyday materials, including pesticides, building materials and cosmetics, as well as in many fabrics and children’s toys, according to the new analysis.

These chemicals are part of a broader pollution burden that has become the leading cause of premature deaths around the world, according to the analysis.

Chemical pollution is estimated to be responsible for at least 1.8 million deaths each year, the paper states.

People of color and those living in low-income areas, or otherwise disadvantaged communities are often the most exposed to harmful chemicals. The analysis cites data showing levels of EDCs in urine and blood of Black and Hispanic women “persistently higher” than levels found in non-Hispanic White women.

Due in part to a boom in single-use plastics production, petrochemical production continues to climb despite growing use of renewable energy sources to power homes and vehicles.

The paper published Wednesday calls for stricter safety testing of chemicals, more tracking of chemical exposures and full or partial bans on single chemicals and single-use plastics. “We need to have government policies that ensure that chemicals that are being used and produced in the US are not creating toxic exposures to people,” Woodruff said. “This can really only be accomplished through improved public policies.”