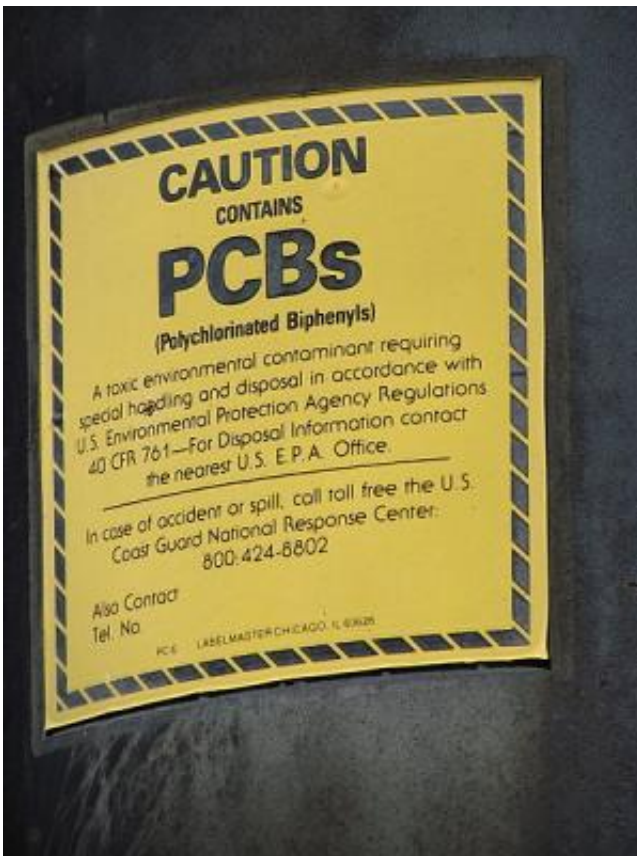


# Association between high blood PCB levels and premature death

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PCB warning label affixed to a railroad signal power supply transformer dating from the 1930's at CP-SLOPE interlocking, west of Altoona, PA on the Norfolk Southern Pittsburgh Line. Credit: Sturmovik/Wikipedia

High levels of polychlorinated biphenyls (PCBs) in the blood are associated with premature death. This is shown by a cross-disciplinary

study, based on 1,000 randomly selected 70-year-olds in Uppsala, that is published in the *JAMA Network Open* journal today.

The study is one in a series of studies from a cross-disciplinary collaboration, which has now lasted more than ten years, between Professors Lars Lind and Monica Lind at Uppsala University and environmental chemists at Örebro University. It shows [health risks](#) associated with PCBs, although these substances have long been banned.

Polychlorinated biphenyls (PCBs) are a group of environmental pollutants that are subject to restrictions in many countries, and bans have reduced their concentrations in the environment. But since these substances decompose very slowly and are stored in fatty tissue, they remain present in animals and humans. In particular, PCBs with many chlorine atoms in the molecule persist in most Swedes' blood.

In the study known as PIVUS (Prospective Investigation of the Vasculature in Uppsala Seniors), more than 1,000 randomly selected 70-year-olds in Uppsala were monitored over a long period. In the study relating to PCBs in blood, concentrations were measured in the subjects' blood in 2001-2004, and then again when they reached the age of 75. Follow-up of those who had died over a 10-year period showed that the individuals with the highest PCB levels with many chlorine atoms in the [blood](#) had 50% excess mortality, especially from [cardiovascular disease](#), compared with the other groups. This corresponds to some seven extra deaths during the 10-year follow-up period.

The results were independent from the [risk factors](#) that had previously been found to be connected with cardiovascular disease, such as [high blood pressure](#), diabetes, smoking, obesity, high cholesterol, low educational attainment and cardiovascular disease at age 70.

Previous studies have also shown an association between high PCB levels

and atherosclerosis in humans and experimental animals alike. In the researchers' view this finding and the new data combined indicate that intake of PCBs in food should be reduced.

"We humans get most PCBs in our bodies by ingesting them in food. These substances are fat-soluble and found mainly in fatty animal foods like fish, meat and dairy products. According to the Swedish National Food Agency, particularly high concentrations of PCBs are present in fatty fish like Baltic herring and wild-caught salmon from polluted areas, such as the Baltic Sea, the Gulf of Bothnia, and Lakes Vänern and Vättern," Monica Lind says.

**More information:** Monica Lind, et al. An Association of Exposure to Persistent Organic Pollutants With Mortality Risk. An Analysis of Data From the Prospective Investigation of Vasculature in Uppsala Seniors (PIVUS) Study. *JAMA Network Open*. 2019;2(4):e193070. [DOI: 10.1001/jamanetworkopen.2019.3070](https://doi.org/10.1001/jamanetworkopen.2019.3070)

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Provided by Uppsala University

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