



PCBs and Health: The Hudson River Communities Project

Information Sheet #2: Detailed Summary Blood Sampling

PCBs and Health: The Hudson River Communities Project is an environmental health study being done by the New York State Department of Health (NYSDOH) in the Fort Edward, Hudson Falls, and Glens Falls areas of Upstate New York. The purpose is to look at how polychlorinated biphenyls (PCBs) affect people's nervous system. We collected blood from a study group (Fort Edward and Hudson Falls) and a comparison group (Glens Falls) and measured the PCB levels. Since PCBs build-up in a person's body over time, the amount of PCBs seen in blood is a good way to measure current and past exposure to PCBs. Overall, there was no detectable difference in the average blood PCB levels for the two groups. The average PCB levels measured in blood were similar to levels measured in blood for other research projects where people had no unusual exposure to PCBs. This information sheet (#2) gives a summary of results for the blood sampling. Information Sheet #1 (pamphlet) gives a project overview and Information Sheet #3 gives a summary of results for outdoor air sampling. Future information sheets will summarize the results for indoor air sampling and nervous system testing.

Key Points and Findings: Blood Sampling

- Blood samples were collected as part of a larger project designed to help researchers better understand if PCBs can affect people's health.
- The average PCB level in blood was about the same for participants in both the study and comparison groups. The study group had an average blood PCB level of 3.5 parts per billion (ppb) and the comparison group had an average of 3.7 ppb. Our statistical tests showed that these two groups were not different.
- A higher percentage of participants in the study group (24%) reported eating Hudson River sportfish than participants in the comparison group (13%). For both groups, eating sportfish from the Hudson River was much more likely to have occurred during the 1970's or earlier.
- People who ate sportfish from the Hudson River tended to have higher PCB levels in their blood (3.6 ppb) than those who didn't eat sportfish from the Hudson River (3.1 ppb), even though most of the sportfish were eaten more than 30 years ago.
- No detectable difference was found in PCB levels in the study group's blood for participants living closer to the Hudson River (3.3 ppb) compared to those living farther away (3.4 ppb). There was also no difference in PCB levels in blood for study group participants living closer to and downwind from sites contaminated with PCBs (3.2 ppb) compared to participants living further away and downwind (3.4 ppb) or upwind from the sites (3.7 ppb). According to our statistical tests, each of these groups is similar to the others and to participants from the comparison group.
- The blood PCB levels that we measured in both groups in this study are similar to levels measured in people with no unusual exposure to PCBs in other research done in the United States.

Why were the blood samples collected and how were they evaluated for PCBs?

We collected blood samples from 133 people in the study group and 120 people in the comparison group. The blood samples were tested for levels of PCBs, pesticides, lead, mercury, and fat (cholesterol and triglycerides). Measuring PCB levels in a person's blood is a good way of measuring a person's total exposure to PCBs from a variety of sources. For this project, two sources of PCBs were evaluated: (1) consumption of sportfish and (2) residential proximity to the Hudson River and other PCB contaminated sites.

For most people, eating fish (particularly sportfish) and other foods are the main source of PCBs in blood. The study participants were asked to tell us the type of sportfish they ate, the amounts, and where they caught the sportfish. This information was collected for any sportfish eaten from the Hudson River during four time periods: the 1970's or earlier, from 1980 to 1989, from 1990 to 1999, and the past year. The information was then used to estimate each person's exposure, over their lifetime, to PCBs from eating Hudson River sportfish caught from a 25-mile stretch of the Hudson River near Fort Edward, Hudson Falls and Glens Falls. This estimated exposure was then compared to levels of PCBs measured in blood.

Living near the Hudson River or another site containing PCBs may also be a possible source of PCBs in blood through contact with contaminated soils, water, and air. For the study group, possible exposure related to the Hudson River was looked at separately from possible exposure from living near other sites with PCBs. For the Hudson River, participants were divided into two categories: living within ½ mile of the Hudson River and living beyond ½ mile of the Hudson River. For the sites with PCBs, the participants were divided into categories based on their distance to the sites and if they were upwind or downwind from the sites. The levels of PCBs in blood for participants in all categories were then compared.

What were the blood sampling results?

The study group had an average blood PCB level of 3.5 ppb and the comparison group had an average of 3.7 ppb. A higher percentage of participants in the study group (24%) reported eating Hudson River sportfish than participants in the comparison group (13%). For both groups, eating sportfish from the Hudson River was much more likely to have occurred during the 1970s or earlier. People who ate sportfish from the Hudson River had higher PCB level in their blood (3.6 ppb) compared to people who did not eat sportfish from the Hudson River (3.1 ppb).

Participants living within ½ mile to the Hudson River had an average blood PCB level of 3.3 ppb compared to 3.4 ppb for those living beyond ½ mile from the Hudson River. There was no statistical difference in PCB levels in blood for participants living closer to and downwind from other sites contaminated with PCBs (3.2 ppb) compared to participants living farther away and downwind (3.4 ppb) or upwind (3.7 ppb) from the sites.

What are the researchers planning to do next?

The next step in this study is to look at the outdoor air and blood PCB data together to determine whether persons who have higher air levels are also more likely to have higher levels of PCBs in their blood. Then, researchers will look at the blood data with the nervous system test data to determine whether higher PCB levels are associated with lower nervous system test scores. Since the study and comparison areas don't have different average blood PCB levels, they can be looked at together to determine whether individual people with higher blood PCB levels have lower nervous system test scores than people with lower blood PCB levels.

Questions and Additional Information: Who to contact at NYSDOH

General study and blood sampling information:

Erin Belanger at 1-800-458-1158, extension 27950

Outdoor air results:

Patrick Palmer at 1-800-458-1158, extension 27711

Reports, Updates, Community Outreach:

Betsy Prohonic at 1-800-458-1158, extension 27530

For additional information on this and other similar projects at the New York State Department of Health, visit our website at: www.nyhealth.gov/environmental/

