The Project – What's Next

Steps	Status
Blood PCB results	Information Sheet #2
Outdoor air PCB results	Information Sheet #3
Combined blood and outdoor air results	In Progress
Indoor air PCB results	In Progress
Nervous system results	In Progress

For more information, contact:

General study and blood sampling information:
Erin Belanger at 1-800-458-1158, ext. 27950

Outdoor air results:
Patrick Palmer at 1-800-458-1158, ext. 27711

Reports, Updates, Community Outreach:
Bettsy Prohonic at 1-800-458-1158, ext. 27530

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New York State Department of Health
Center for Environmental Health

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PCBs and Health: The Hudson River Communities Project

Information Sheet #1: Project Update

- The purpose of this project is to evaluate the level of polychlorinated biphenyls (PCBs) in peoples' blood, exposure to PCBs through sportfish and air, and nervous system function (the brain and the body's nerves).
- The purpose of this pamphlet is to summarize, separately, the results of outdoor air and blood sampling for PCBs.
- The average levels of PCBs in blood and in outdoor air were within levels seen in other research studies with no unusual source of PCBs.
- Information Sheets #2 and #3 provide more detailed summaries of the blood and outdoor air results.
- A future information sheet will provide results of an analysis that combines the blood and outdoor air results to see if persons with higher outdoor air levels are also likely to have higher levels of PCBs in their blood.
- Future information sheets will also provide results of indoor air sampling and neurological testing.

Who was part of this project?

Over 250 people participated in the Hudson River Communities Project from 2000 to 2002. Participants were placed in one of the two following groups:

(1) Study Group:
A total of 133 volunteers, 55 to 74 years old, who were in good health, and who lived for more than 25 years in Fort Edward or Hudson Falls, NY. These communities have two General Electric facilities that used large amounts of PCBs and several waste sites that were contaminated with PCBs.

(2) Comparison Group:
A total of 120 volunteers who were in good health, and who were similar to the study group in age, gender, and length of residency from the community of Glens Falls, NY. Glens Falls is upstream from the study communities and about 3 miles from the GE facilities. As far as we know, no PCB contamination is within the city boundaries.

Who was not included here?

This study was concerned with community members who may have been exposed to PCBs from their environment. So, people who worked with PCBs were not included here. Other studies are looking at workers' exposure to PCBs.

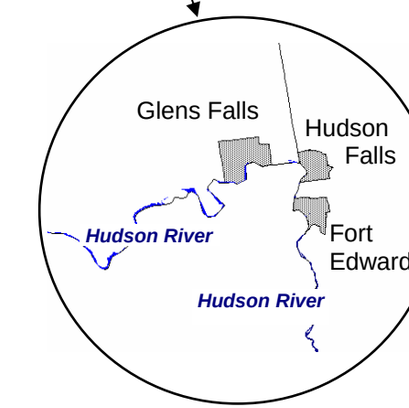
What were participants asked to do and why?

All participants were asked to:
- complete an interview
- complete some nervous system tests
- give a blood sample
- let us collect indoor and outdoor air samples at their homes

We compared the data for the study group to the data for the comparison group to see if there were differences between them.

Few studies have looked at the health effects, particularly neurological, that PCBs may have on adults with environmental exposures.

Project Area



Outdoor Air Sampling

We collected outdoor air samples to see what contribution, if any, breathing PCBs in outdoor air might make to PCB levels found in people's bodies and how indoor and outdoor air are related. Additionally, because a large number of outdoor air samples were collected, we realized we could also look for possible links with local PCB sources.

How were the outdoor air samples collected?

We collected one 24-hour outdoor air sample at each participant's home. Of those, we chose 93 in the study area and 85 in the comparison area to analyze. These samples were collected between the months of May and November. We recorded the weather conditions on the day the air was collected and calculated distances from PCB contamination.

How were the outdoor air PCB results used?

The outdoor air results were examined in two parts. First, we compared average outdoor air PCB results for the study and comparison areas. Second, we examined outdoor air PCB levels in the study area and looked for possible links to local PCB contamination. For this, the results were categorized and compared as follows:

For the **Hudson River**
- homes within ¾ of a mile of the River
- homes beyond ¾ of a mile of the River

For **Other Sites with PCBs**
- distance from homes to other PCB sites
- wind direction from the other sites

What did the outdoor air results show?

- The average PCB level in outdoor air was somewhat higher in the study area (0.7 ng/m^3) than in the comparison area (0.4 ng/m^3).
- These averages are similar to levels measured in other research projects (usually less than 1 ng/m^3) and much less than levels measured in other areas with PCB contamination (less than 53 ng/m^3).
- Homes closer to the Hudson River had somewhat higher amounts of PCBs in outdoor air than homes farther away.
- PCB levels were somewhat higher in the air around homes downwind from one or more sites contaminated with PCBs.

Blood Sampling

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. These sources can include PCB contaminated foods, water, soils, and air.

What sources of PCBs in blood were examined for this project?

(1) For most people, fish (particularly sportfish) and other foods are the main source of PCBs in blood.

All participants were asked to tell us:
- type of sportfish they ate
- amounts eaten
- 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.

With this, we estimated each person's exposure to PCBs over their lifetime from eating Hudson River sportfish caught from a 25 mile stretch of the Hudson River near Fort Edward, Hudson Falls and Glens Falls and compared it to levels of PCBs in their blood.

(2) 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, or air.

We looked at the distance from both the Hudson River and other PCB sites for participants in the study group. The following categories were used:

For the **Hudson River**, we compared people's blood PCB levels according to one of the following categories:
- living within ½ mile of the Hudson River
- living beyond ½ mile of the Hudson River

For **Other Sites with PCBs**, we compared people's blood PCB level according to both:
- their home's distance to any PCB site
- wind direction from the other sites

Note on units of measurement:

Outdoor air and blood results are reported using different units of measurement - **nanograms per cubic meter** (ng/m^3) for outdoor air and **parts per billion** (ppb) for the blood. Both units are used to express very small amounts of PCBs. For example, one part per billion is like having one yellow marble in a box containing one billion (1,000,000,000) blue marbles.

What did the blood results show?

- Average blood PCB levels were about the same for all participants: 3.5 ppb in the study group and 3.7 ppb in the comparison group.
- Levels for individuals in both groups are close to levels measured in other research projects where participants had no unusual exposures to PCBs (0.5 to 10 ppb).
- Participants who ate sportfish from the Hudson River had somewhat higher PCB levels in their blood than participants who did not, even though most of this consumption occurred in the 1970's or earlier.
- We did <u>not</u> detect higher levels of PCBs in the blood of participants who lived closer to the Hudson River or sites contaminated with PCBs.

What does this mean to my health?

Results from this study suggest that eating sportfish from the Hudson River increased levels of PCBs in people's blood, even if the sportfish were eaten more than 30 years ago.

To avoid exposure to PCBs, follow health advisories for eating sportfish in New York State waters. To learn more about the NYSDOH health advisories for sportfish, call 1-800-458-1158, extension 27815.