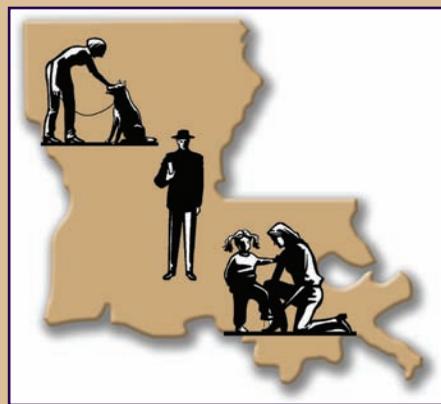


Dioxin

Serum Dioxin Levels in Residents of Calcasieu Parish, Louisiana



This fact sheet was written by the **Agency for Toxic Substances and Disease Registry (ATSDR)**, a federal public health agency. ATSDR's mission is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to help prevent harmful exposures and disease related to toxic substances.



ATSDR does an exposure study when we think that people maybe harmed from chemicals in their environment. Dioxin is a chemical that may have harmed some people who live in Calcasieu Parish, Louisiana, so ATSDR did an exposure study there. "The study found that most people in the Parish have average levels of dioxin in their bodies. Some people-mostly those older than 68 years-have higher levels.

What is an exposure study?

An exposure study uses scientific methods to collect, analyze, and interpret information on a community's exposure to hazardous chemicals. The study plan describes steps to find people who are exposed and to recruit a representative sample of people to be in the study. We then ask participants questions about their exposure. Often we also measure levels of chemicals in their blood or urine or the levels in air or water where they live.

What was the purpose of the Calcasieu Parish exposure study?

The Calcasieu Parish study looked to see if people in the parish were exposed to dioxins. It also compared the dioxin levels of people living in the parish to the dioxin levels of people living in Lafayette Parish, an area with fewer industries that release dioxins into the air.

Who participated in this exposure study?

We chose 295 participants from Calcasieu Parish and 120 participants from Lafayette Parish to represent each area. To be in the study, people had to

- be at least 15 years old,
- live in either Calcasieu or Lafayette Parish for the last 5 years, and
- be able to give a blood sample.

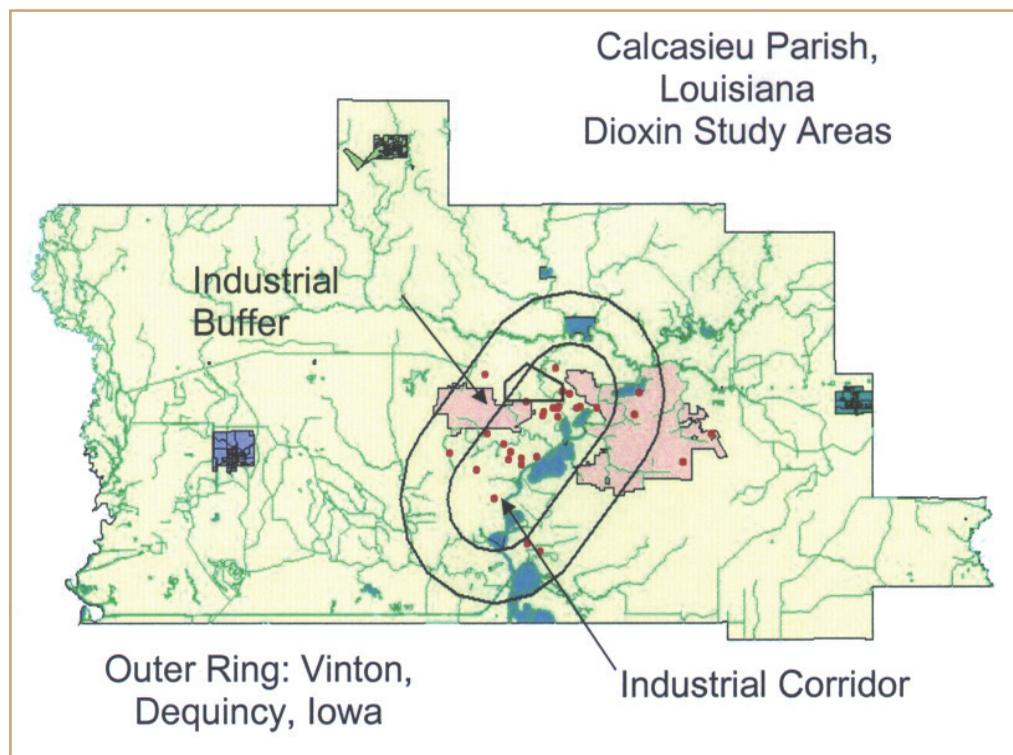
In addition, residents of Lafayette Parish could never have lived in Calcasieu Parish.

Where was the study conducted?

We asked people living in Lafayette Parish and in three areas of Calcasieu Parish to take part in the study. The three areas included

- the industrial corridor-a 3-by-6 mile oval containing most of Calcasieu's industrial area,
- the industrial buffer- a 1.5-mile oval around the industrial corridor, and
- the outer ring including the towns of Iowa, Dequincy, and Vinton.





What did ATSDR find?

ATSDR measured the amounts of dioxin found in blood samples from participants. The toxic equivalent quotient (TEQ) is a measure ATSDR uses to estimate how harmful dioxin levels might be. This study found that the average serum (blood) dioxin TEQ level was

- The same for people who live in Calcasieu Parish and people who lived in Lafayette Parish;
- the same for people living in the industrial corridor, the industrial buffer, and the outer ring in Calcasieu Parish; and
- similar for people living in Calcasieu or Lafayette Parish and a group of people exposed to average levels of environmental dioxin.

ATSDR also found the following:

- Calcasieu and Lafayette Parish residents who ate local fish, smoked cigarettes, worked in a job with exposure to dioxin, or used pesticides, had similar serum dioxin levels.
- The dioxin TEQ increased with age for people living in Calcasieu or Lafayette Parish.
- A small group of people (11%) in both parishes have serum dioxin TEQ levels higher than average. This group of people is older than 68 years of age.
- African Americans in Lafayette Parish had higher serum dioxin levels than African Americans in Calcasieu Parish and whites in Lafayette Parish.

What do these results mean?

These results mean that most people below 68 years of age in both Parishes have about the same levels of dioxin in their bodies as people with average dioxin exposure. However, people who are older than 68 years of age have levels of dioxin in their bodies that are higher than average. Most of the dioxin in our bodies comes from foods such as meat, fish, and dairy products. When we eat these foods, dioxin often builds up in the body over time. That means older people often have more dioxin in their blood than younger people. Older people also have had more time to be exposed to other sources of dioxin.

What are the health effects of dioxin at these levels?

- The most sensitive short-term health effects of high serum dioxin levels are skin disease, such as an acne-like condition called chloracne, and change in liver function.
- The serum levels of dioxin in residents of Calcasieu and Lafayette Parishes are low. They are not likely to cause chloracne or affect the liver. However, long exposure to low serum dioxin levels may affect a person's immune, endocrine, reproductive, and developing nervous systems.
- Dioxin caused cancer in people with high serum dioxin levels who worked in industries for a long time or people who were accidentally exposed to dioxin. Those people had higher serum dioxin levels than the levels found in people in Calcasieu and Lafayette Parishes.

How can I avoid dioxin exposure?

More than 90% of dioxin exposure comes from eating meat, fish, and dairy products. You can reduce possible exposure in the following ways:

- Eat lean meats, poultry and fish.
- Avoid fatty fish, such as garfish and catfish.
- Choose low fat or fat free (skim) dairy products.
- Remove skin and fat from fish, meat, and poultry.
- Decrease the amounts of butter or lard used in cooking.
- Broil or bake instead of frying food.

For more information

If you want more information on limiting your environmental exposure to dioxins, or have specific questions, contact ATSDR:

- Toll free call: 1-888-42-ATSDR (1-888-422-8737)
- Online: <http://www.atsdr.cdc.gov/contactus.html>