Agricultural Health Study

The Agricultural Health Study seeks to identify factors that promote good health

AHS Scientists Begin Study of Lung Health

Agricultural Health Study (AHS) scientists have begun a large study of asthma and respiratory health among participants, including applicators and their spouses.

The Lung Health Study was developed because research shows that farmers and their families may be more likely than the general population to have asthma and other respiratory problems.

In the AHS, for example, farmers and commercial pesticide applicators who used specific pesticides or raised animals were more likely than others to report wheezing, which is a common symptom of asthma.

For women who grew up on farms, there are two interesting findings: 1) they report less asthma than women who didn’t grow up on farms. 2) if they applied chemicals, they report more allergic asthma than others in the group.

“We hope to find out if specific pesticides contribute to asthma, as well as to evaluate the role of other farming exposures,” said Dr. Jane Hoppin, the scientist who is leading this study.

The Lung Health Study will look at lung function, allergic status, and genetic characteristics associated with asthma and other respiratory illnesses.

“This study will give us better information about the onset of asthma and whether there are any associations with the use of pesticides,” said Dr. Hoppin.

“If you are one of the 6,000 AHS participants we contact over the next four years, we hope you will agree to take part in the Lung Health Study.”

What is asthma? Asthma is a serious chronic illness that causes inflammation of the airways and increased production of mucus in them. In addition to wheezing, symptoms include coughing and tightness in the chest.

With Your Help

We hope that if you are asked to participate in an AHS add-on study, such as the swine flu study, you will say yes. If you have already participated in one or provided a buccal cell sample for AHS research, we appreciate your contribution very much!
Study Measures Pesticide Residues in Homes

As a study of homes of AHS participants in Iowa indicates that pesticide residues find their way into homes on the clothes and shoes of family members who work with the chemicals.

“This study suggests that families on farms where pesticides are used should take extra care in their routine cleaning efforts,” said Dr. Brian Curwin, the scientist who conducted the study.

This is especially important if there are children in the home. Because their bodies are still developing, children are likely to be more susceptible than adults to any toxic effects of pesticides.

In the Iowa study, researchers collected dust samples on two occasions in 25 farm homes and 25 non-farm homes in two counties. In some cases, they visited the farm homes soon after pesticides had been applied and again four weeks later. On other occasions, pesticides had not been applied recently when samples were collected.

Dust samples were taken from carpets. Wipes were used to collect samples from hard surfaces in the kitchen, entranceway, laundry area, living room, children’s playroom and children’s bedroom.

Researchers tested for one common insecticide, chlorpyrifos, and six commonly used herbicides: atrazine; metolachlor; glyphosate; acetochlor; alachlor and 2,4-D.

“We found that farm homes had higher amounts of pesticide residues than non-farm homes,” Dr. Curwin said.

On farms where atrazine and metolachlor had been applied to crops, higher amounts of these pesticides were found in rooms where dirt was tracked in or work clothes were left after the chemical was applied.

Glyphosate and 2,4-D, which are used in both residential and agricultural settings, were found in dust samples in most farm and non-farm homes. Chlorpyrifos, which has not been registered for residential use since 2000, was also found in dust samples.

Guide for Reducing Pesticide Exposures in the Home

- Remove work clothes in an area away from the rest of the house and wash them separately from other laundry.
- Remove work shoes and boots before entering the house.
- Vacuum carpets and clean floors on a regular basis.
- Close all windows and doors whenever pesticides are being sprayed nearby.
- Keep children and pets inside when pesticides are being applied outside.
- Strictly follow the instructions on pesticide labels regarding how long to wait before it’s safe for adults or children to enter pesticide-treated areas.

Some Pesticides May Increase Risk of Colorectal Cancer

Although farmers have a lower rate of colorectal cancer than the general population, research suggests a possible link between the disease and certain chemicals.

To learn more about this, AHS researchers decided to look for evidence of a link between colorectal cancer and exposures to agricultural pesticides.

Scientists compared information from 305 private applicators who were diagnosed with colorectal cancer during a seven-year period with information from those who did not develop the disease.

A few pesticides — including the insecticides chlorpyrifos and aldicarb — were associated with the risk of developing rectal or colon cancer.

Agricultural Health Study before a long-term AHS study.

As an AHS participant, you are contributing to an important study of the health of the agricultural community.

We appreciate your help over the years and want to stay in touch.

Please let us know of any changes in your address or phone number by calling 1-800-217-1954.

Thanks from all of us at the Iowa Field Station.

Pesticides May Increase the Risk of Diabetes

Research involving pesticide applicators in the AHS shows that exposure to some agricultural chemicals may increase the risk of diabetes, confirming the findings from earlier studies.

The study found a link between diabetes and seven pesticides: aldrin, chlordane, heptachlor, dichlorvos, trichlorfon, alachlor, and cyazine. The strongest association with the disease was found for trichlorfon, although the number of applicators with heavy use was small.

Scientists with the National Institute of Environmental Health Sciences (NIEHS) analyzed data from nearly 1,200 participants in North Carolina and Iowa who developed diabetes after they enrolled in the long-term AHS study.

“The burden of diabetes is increasing around the world,” said Dr. Dale Sandler, who oversaw the research at NIEHS. “We hope what we’ve found will inspire other scientists to pursue additional studies on this important issue.”

Although three of the insecticides studied — chlordane, aldrin, and heptachlor — are no longer on the market, measurable levels of these and other pollutants are still detectable in the general population and in food products. These chemicals are organochlorines, as is dioxin, which has been shown to increase the risk of diabetes among Vietnam War veterans exposed to Agent Orange.

Participants who had used the herbicides alachlor and cyazine had a higher risk for developing diabetes, particularly those participants who had used these chemicals repeatedly over their lifetime.

“Because few studies have looked at the association between herbicides and diabetes, more research is needed to confirm these findings,” Dr. Sandler said.

As in other studies, AHS results confirmed the known link between obesity and diabetes. In fact, the strongest associations were found among overweight and obese participants. This may be because people with more body fat are more likely to store high levels of pollutants than people who are lean.

To protect your health, the National Cancer Institute suggests that you follow your doctor’s recommendations for cancer screenings, such as a colonoscopy. These tests can detect precancerous changes or signs of cancer before any symptoms are observed, making prevention or early treatment possible.