

Study Update

The Agricultural Health Study (AHS) is a long-term study of agricultural exposures and chronic disease (especially cancer) among commercial and private pesticide applicators (and their spouses, if married) in Iowa and North Carolina. The study is funded primarily by the National Cancer Institute (NCI). The National Institute of Environmental Health Sciences (NIEHS), the U.S. Environmental Protection Agency (EPA), and the National Institute for Occupational Safety and Health (NIOSH) also are working with NCI. We are in the 11th year of the study.

In the first 5 years, 89,658 subjects (58,564 in Iowa and 31,094 in North Carolina) were enrolled in the study. In Iowa, this number included 31,877 private applicators, 21,771 spouses of private applicators, and 4,916 commercial applicators. The Iowa Department of Agriculture and Land Stewardship and Iowa State University Extension helped in enrolling participants through Iowa's Pesticide Applicator Certification Program. Participation in the study has been excellent.

We finished the second phase of the study with private applicators and their spouses in September 2003. This phase had three parts:

1) a telephone interview, 2) a mailed dietary questionnaire, and 3) a cheek cell sample. The telephone interview asked about pesticide use since enrollment, current farming and work practices, and current health status. The dietary health questionnaire asked about cooking practices and types of foods eaten as cooking practices and diet may play a role in cancer and other health conditions. Information from the cheek cells may help answer the question how genetic differences among people affect the body's response to chemicals. To protect participant confidentiality, multiple safeguards have been put in place so that test results cannot be directly linked to personal identifiers such as name and birthdate.

As of September 15, 2003, 21,088 private applicators in Iowa had completed some or all of the telephone interview, 12,740 had provided cheek cells, and 12,517 had returned the dietary questionnaire. For spouses of private applicators in Iowa, 16,934 had completed some or all of the telephone interview, 11,017 had provided cheek cells, and 11,842 had returned the dietary questionnaire. We started interviewing commercial applicators in November 2002 and plan to continue contacts over

Post-enrollment Newly Diagnosed Invasive Cancers, Agricultural Health Study, 1994-2001

Cancer Site	Iowa	North Carolina	Total
Prostate	524	387	911
Breast	271	204	475
Colon and rectum	223	183	406
Lung	119	184	303
Non-Hodgkin's lymphoma	80	54	134
Other	699	497	1,196
Total	1,916	1,509	3,425



www.aghealth.org

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

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the next two winters. The third phase of the study, another telephone interview, will begin in January 2005.

For the last several years, we have annually linked cohort members to mortality and cancer registry incidence databases in both states. In addition, mortality data on the cohort are being obtained every year from the National Death Index (NDI). Personal identifiers sufficient for linkage are available for the entire Iowa cohort. As of June 2003, 1,413 deaths and 1,916 newly diagnosed invasive cancers had been identified after enrollment through the year 2001 in Iowa.

Cohort cancer incidence / mortality analyses are currently being conducted, with the first findings on prostate cancer published in Spring 2003. Those initial findings will be updated and published as we receive more information from our study participants over time. The long term nature of this study will prove to be of great value in directing

researchers to look closely at more specific relationships between pesticide use and cancer.

There are also several completed, ongoing, and planned special studies that involve cohort members. More information about recent results from the Agricultural Health Study, the study background, frequently asked questions, other resources for agricultural health information, references for Agricultural Health Study publications to date, and information for scientific collaborators can be found on the Web at www.aghealth.org.

We truly value the continuing participation of cohort members in this landmark study of agricultural workers and their families. Because of the valuable information they have already provided, no other people can take their place. This study would not be possible without the cooperation and participation of thousands of these individuals. We thank them for their time and support.

Cause-specific Mortality in the Agricultural Health Study, 1994-2001

Cause of Death	Iowa	North Carolina	Total
Cancer	585	497	1,082
Heart disease	386	492	878
Accidents	135	134	269
Respiratory disease	60	88	148
Cerebrovascular disease (stroke)	40	90	130
Diabetes	33	30	63
Other	174	156	330
Total	1,413	1,487	2,900

The Agricultural Health Study is a long-term study to investigate the effects of environmental, occupational, dietary, and genetic factors on the health of the agricultural population. This study will provide information that agricultural workers can use in making decisions about their health and the health of their families. The study is conducted in Iowa by the Department of Epidemiology at the University of Iowa and in North Carolina by Battelle CPHRE. The study is directed by the National Cancer Institute, the National Institute of Environmental Health, and the US Environmental Protection Agency.

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