August 12, 2010

New Study Links DDT Exposure in the Womb to Testicular Cancer

OAKLAND, CA -- Men exposed in the womb to the pesticide DDT and its related compounds are more likely to develop testicular cancer, according to a study by Public Health Institute (PHI) researchers published today in the online journal *Archives of Environmental & Occupational Health*.

The rate of testicular cancer has increased in recent decades, and this new study by researchers at the Child Health and Development Studies (CHDS) in Berkeley, California, a project of PHI, adds evidence that there may be an environmental link, a hypothesis that researchers have suspected.

“This study is unique and valuable in being the first to be able to provide information about prenatal and early postnatal exposure in testicular cancer cases,” said Shanna Swan, an epidemiologist and professor at the University of Rochester Medical Center in New York who is an expert on environmental chemicals and male reproduction. “It is based on blood samples from a median of 30 years prior to diagnosis, and I don’t know of another study that has that capability.”

The paper, “Prenatal DDT Exposure and Testicular Cancer: A Nested Case-Control Study,” is co-authored by CHDS researchers Barbara Cohn, Roberta Christianson and Piera Cirillo. Cohn is the director of the CHDS.

The findings are based on the CHDS’s continuing 50-year longitudinal study that is hailed as a rich research resource for studying the causes of health and illness in mothers and their children. The CHDS enrolled 15,000 pregnant Kaiser Foundation Health Plan members in the San Francisco Bay area from 1959 to 1967, and many families participated in follow-up studies from early childhood through adolescence.

The research published today is especially relevant in assessing the pros and cons of continued use of DDT in countries where it is considered the most effective way to kill insects that carry malaria, particularly in Sub-Saharan Africa. About one million people die each year from malaria, most of them young children.

“There is no doubt that DDT has been a benefit in controlling malaria, but this study gives some insight about whether there may be a cost associated with its use, which would require further evaluation of its health effects in areas where it’s actively being used,” said co-author Cirillo. “It provides important information to be used in the continuing discussion about using DDT for malaria.”
In the study, 15 sons who developed testicular cancer, a rare and curable cancer, were compared to a control group of other CHDS sons who did not. The researchers compared blood samples of the mothers just after pregnancy – during DDT’s peak usage period in the U.S. in the 1960s. Researchers use the ratio of DDT to DDE (the chemical DDT converts to in the body) as a measure of exposure. They found higher levels of DDT in cases than in the controls for a given level of DDE. The study suggests a correlation between how fast mothers break down DDT into DDE and testicular cancer. The median age at which sons were diagnosed with the disease was 30 years.

DDT and its breakdown compound DDE are readily absorbed by soil where it persists for decades and because the chemicals are stored easily in fat, DDT and DDE accumulate in the environment and our food.

The study builds on earlier CHDS studies linking more DDT for DDE in a mother’s blood during pregnancy to her own breast cancer risk and her daughter’s difficulty conceiving.

DDT was first used during World War II to protect soldiers from insects carrying malaria and typhus. Beginning in 1945, the organochlorine pesticide was broadly used in agriculture to prevent crop damage and in households to control pests; the U.S. banned DDT use in 1972 because of environmental and human health hazards. The increase in rates of testicular cancer in the decades after DDT was introduced gave rise to concerns that there may be a link to DDT or other environmental toxins.

The article is available at http://www.informaworld.com/smpp/content~db=all~content=a925757084~frm=tit lelink.

About the Public Health Institute

PHI, an independent nonprofit organization based in Oakland, California, is dedicated to promoting health, well-being and quality of life for people throughout California, across the nation and around the world. PHI's primary methods for achieving these goals include: sharing evidence developed through quality research and evaluation; providing training and technical assistance; and promoting successful prevention strategies to policymakers, communities and individuals.

For more information contact:

Jessica Tomlinson
Special Advisor, Planning and Communications
Public Health Institute
jtomlinson@phi.org
(510) 285-5533