

Fernald Medical Monitoring Program The Fernald Community Cohort

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Department of Environmental and Public Health Sciences
University of Cincinnati



Research Studies: Uranium Exposure and Cancer in the Fernald Community Cohort

Special points of interest:

- Upcoming study on uranium exposure and cancers
- Search of state cancer registries
- Funding from NIH for study of uranium exposure and infertility.
- PFOA exposure and kidney, thyroid and vaccination health effects

Fernald Community Cohort Research Office

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The risk of a future cancer diagnosis was the main focus of the settlement agreement which created the Fernald Medical Monitoring Program. We have now reached the time to do research studies to determine if the uranium exposure was related to an increase in cancer diagnoses.

In order to conduct a credible study of uranium exposure and cancer, we need to have enough cancer cases. In our records, we now have 1805 cancer diagnoses, including 189 cases of lung cancer, 258 of prostate cancer, and 304 of breast cancer. We hope to learn about any cases we have missed from the information that you give us on this year's questionnaire. We will be going forward with those statistical analyses early next year, which will include all types of cancers. At this point, we have no idea if any type of cancer

is related to uranium exposure, but we will be telling you what we find. The work done by CDC allows us to use an equation to estimate the uranium exposure of each person during the time of operations at the Fernald plant.

To be sure we have a complete count of cancers in the Fernald Community Cohort, we are also in the process of obtaining information from the cancer registries of Ohio, Kentucky and Indiana. Linking their records with ours will identify cancer diagnoses that we missed. We also have contacted family members of deceased Program participants to obtain death certificates which may include cancer diagnoses. On the questionnaire enclosed with this newsletter, we again ask about cancer diagnoses.

Other Research Studies

There have been 84 research studies that have used the database and biospecimens (stored blood and urine) of the Fernald Community Cohort. In a large new study we are seeking to learn more about the effects of uranium exposure on fertility in both men and women. We asked questions about infertility on several questionnaires, including a few questions on the current questionnaire. We have submitted a grant to the National Institutes of Health to obtain funds for this data analysis study. It will be a novel study—the first to examine infertility in a large cohort with chronic uranium exposure. (more on page 2)

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Incident Cancer Diagnoses in the Fernald Community Cohort

Colorectal	147
Pancreas	64
Lung/Bronchus	189
Melanoma	207
Female Breast	304
Prostate	258
Bladder	65
Kidney/Renal including urethra	63
Thyroid	42
Lymphoma	79
Leukemia/Lymphoma	48
Other	339
Total	1805

We Need Your Help so that We Can Learn More

www.eh.uc.edu/fmmp

Research Studies (continued from page 1)

New discoveries also have resulted from research not related to uranium exposure. You may have heard recent media reports of an industrial chemical, PFOA, that was released into the Ohio River in Parkersburg, West Virginia. Persons in the greater Cincinnati area were exposed to PFOA when it found its way into our drinking water throughout the 1980s and 1990s. PFOA is no longer being manufactured, but persons who lived in our area during the time of exposure had levels in their blood serum that were higher than the general population. Dr. Bevin Blake at the National Institute of Environmental Health Sciences used Fernald cohort data to discover that persons with higher blood levels of PFOA had diminished kidney and thyroid gland function.

Currently, Dr. Senu Apewokin, an infectious disease physician at the University of Cincinnati, is using Fernald cohort biospecimens to determine if higher levels of PFOA in blood serum are related to less of an antibody response to pneumococcal pneumonia vaccination. Pneumococcal pneumonia is a serious disease in older adults, sometimes resulting in death, but an effective pneumococcal pneumonia vaccination can prevent a person from developing the disease. If PFOA affects vaccine effectiveness, a person could be vaccinated a second time.

You also may be familiar with the chemical bisphenol-A (BPA), which in the past has been used to be in many plastics and other manufactured

materials. BPA is rarely used in production now but similar chemicals are substituted. Dr. Hong-Sheng Wang and Dr. Jack Rubinstein have received funds from the National Institutes of Health to study whether BPA and a related substitutes bisphenol-S (BPS) and bisphenol-F (BPF) may cause small changes in heart beats. They are using frozen Fernald cohort urine samples and electrocardiogram data.

A group of physicians at the University of Cincinnati Cancer Center were awarded a Ride Cincinnati grant to study risk factors for breast papillomas, small projections in the ducts of the breast that may be a risk factor for future breast cancer. The added value of this study is that it would be the first to demonstrate that de-identified information in the UC Health electronic health record can be linked with health information for members of the Fernald Community Cohort, enhancing the value of the cohort for addressing a wide variety of research questions. Eventually we will examine the data to determine the relationship between uranium exposure and breast papilloma.

These discoveries are listed on the Publications webpage <http://med.uc.edu/eh/research/projects/fcc>.

We need your help so that we can learn more!

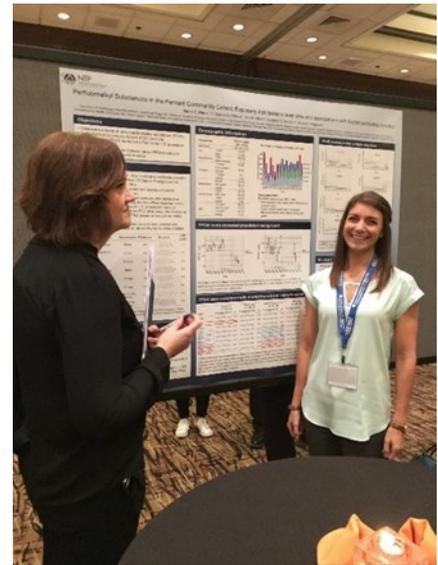
With this newsletter you will find a short questionnaire about cancer diagnoses and other health information. We've designed the questionnaire to be easy to fill out! Something new – you can complete the paper copy (enclosed) and return to us OR complete the questionnaire online. Just follow the directions at the top of the form. You're as healthy as a horse? We really want to know that, too. The checks for "No" on the questionnaire are just as important as the "Yes" checks.

We will use this information to continue to study whether uranium exposure is related to certain health conditions. With more information, we have more statistical power—and more opportunities for

new discoveries.

A thank you for your time....

Two years ago we received a National Institutes of Health grant to support our work with the Fernald Community Cohort. Funds in that grant allow us to give a \$5 gift card to each person who completes the 2020 questionnaire – either online or on a paper copy. It's a token of our appreciation of the time you have given in answering our many questions. You will be sent the gift card after we receive your question-



Dr. Bevin Blake presenting the results of her study at a NIEHS meeting in North Carolina.



The Fernald Community Cohort Advisory Committee

The Fernald Community Cohort Advisory Committee has a very important job – and we need a few new members. The Committee reviews proposals from researchers interested in using the Cohort database and biospecimens for research studies. Researchers must first submit an application, which then is reviewed by at least two medical research scientists. The Advisory Committee then considers whether the research project is scientifically sound, and whether the investigators will follow strict procedures to keep all data

confidential. We do not give out any identifying information, such as name, address, phone number or email address.

The Committee meets by conference call, usually two times per year. We especially are looking for new male members or young and middle-aged persons. Committee members must have been participants in the Fernald Medical Monitoring Program. If you wish to nominate yourself or someone else, please send an email to Dr. Susan Pinney.

susan.pinney@uc.edu.

Fernald Community Cohort Advisory Committee

Current Members

Lisa Crawford
Carol Schroer
Gary Volz
Edwa Yocum

We Relocated Six freezers and Purchased Two New Freezers



Freezer room at the UC Reading Campus.

A major accomplishment this past year was moving our six -80 C freezers from a location near the University of Cincinnati Medical Center to the University of Cincinnati Reading campus. The Cincinnati Children's Hospital Medical Center freezers and the Hoxworth Blood Center freezers are both at this secure location. Preparations for the move required much effort. The freezers were packed with packing bubble materials. We rented a moving van with electrical power and professional movers. We also purchased a new computer monitoring system for all 6 freezers (SensaphoneWeb 600), which will text and email the research staff if the freezer temperature has increased. The stored blood and urine in these freezers are extremely valuable for future research.

In addition, we purchased two new -80 C freezers, to replace freezers purchased in 1990 and 1992, which were still functioning but not able to hold a temperature below -70 C and had door gasket issues. Each freezer cost \$13,270; one was purchased with P30 Center for Environmental Genetics (CEG) institutional commitment funds and one with CEG carryover funds. At this time, we are using freezers purchased in 1996, 2005 and two in 2008 in addition to the two purchased this year. We are seeking funds to replace the freezer purchased in 1996.

Death Certificates: Important Records for the Fernald Community Cohort

We continue to work on updating our records of the **cause of death for persons in the Fernald cohort who have died**. Death certificates are important records for the Fernald Community Cohort as they inform us about cancer and other diagnoses that we did not know about previously.

You can help us in several ways. If you have a family member who was a participant in the Fernald Medical Monitoring Program and has died, you can email this information to Jeanette Buckholz at buckhojm@ucmail.uc.edu or call her at 513-558-0487. If you receive a request for a copy of the death certificate, would you please mail a photocopy to us in the postage pre-paid envelope?

Dr. Eula Bingham – we have lost a hero!



Dr. Bingham was a strong advocate for the need for a Medical Monitoring Program.

She also was the convener and one of 15 members of the Fernald Citizens Task Force, chartered in 1993 to provide recommendations to DOE, US EPA, and Ohio EPA, regarding cleanup of the site.



Dr. Bingham and students at her 90th birthday party.

Eula Bingham , PhD, served as the assistant secretary of labor for Occupational Safety and Health from 1977 to 1981.

She then returned to the University to continue her research and become a University Vice-Provost.

Whether it was in Washington, DC, serving as the head of the Occupational Safety and Health Administration (OSHA), working with the Fernald Citizens Advisory Board, or researching in her Kettering lab space, Eula Bingham, PhD, was always working for American workers and citizens.

Bingham, who died June 13, 2020 at age 90, was an emerita professor in the University of Cincinnati College of Medicine's Department of Environmental and Public Health Sciences. She is remembered as a tireless advocate, friend and fighter for people exposed to hazardous substances.

Eula Lee Bingham was born on July 9, 1929, in Covington, Ky., across the Ohio River from Cincinnati. Her father, Arthur Bingham, was a railroad worker who lost his job during the Depression and became a farmer in Burlington, Ky., about 15 miles to the southwest. Her mother, Frieda (Sperl) Bingham, a nurse and phone operator, also worked the farm, where the couple produced most of their food and where Eula grew up.

She went on to major in biology and chemistry at Eastern Kentucky University, and then to graduate school at the University of Cincinnati, where she did pioneering research on carcinogens while studying in the toxicology division.

She served as the Assistant Secretary of Labor for Occupational Safety and Health from 1977 until 1981 under President Jimmy Carter. She was an associate professor at UC when President Carter personally interviewed her – a rarity for a sub-Cabinet appointee.

Although she worked in Washington for more than three years, she never moved there. None of her predecessors had lasted more than a year, and she figured she might not, either. She commuted home on weekends, when she would cook up batches of meals and freeze them for her teen-age daughters to eat during the week.

Returning to UC in 1981, she conducted research in worker safety, including studies on construction workers employed by the U.S. Department of Energy (DoE) at nuclear weapons production sites, including Fernald, which led to the creation of the DoE Former Worker Medical Screening Program. She developed a novel method for reconstructing their past exposures, based on blueprints of buildings and worker interviews.

Dr. Bingham was fearless if she felt that someone was being harmed by either an occupational hazard or by a hazard to the community. Likewise, she advocated for members of the community who lived around the Fernald plant and were exposed to uranium emissions.

President Carter would recall her as “one of the best ... She helped eliminate barriers to women in the workforce. Eula deserves credit as one of the unsung heroes giving women an important voice and place in our nation’s history.”