Tecumseh: ‘a remarkable partner’

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The Tecumseh community has long been part of health studies conducted by the University of Michigan, began with the Tecumseh Community Health Study that started with a 1957 canvass of all households and the collection of data for more than 30 years, and more recently, the Michigan Bone Health and Metabolism Study (MBHMS), which began in 1988 and has been re-launched thanks to a $2.2 million grant from the National Institute for Health (NIH).

Carrie Karvonen-Gutierrez, MPH, PhD, is an assistant professor of epidemiology in the University of Michigan School of Public Health. As the principal investigator for the MBHMS who took over the project after the passing of the program’s founder, Dr. MaryFran Sowers, she oversees the study to learn more about women’s bone strength and the prevention of age-related fractures. “I studied under Dr. Sowers for years, and it has been a great honor and privilege to be able to continue this work,” Karvonen-Gutierrez said. “The women of the Michigan Bone Health Study have done so much for advancing science and women’s health.”

The NIH halted the funding when Sowers passed away, but the team has been working for the past six or seven years to restart it. With the new grant, they will take the original data about bone traits in women from MBHMS and use it to better understand how bone strength changes over time. “We’ve spent a lot of time looking at bone density, but we actually see that it’s not a great predictor of fracture,” said Karvonen-Gutierrez. “What we really want to know is how strong is that bone, and so we have been working with some folks in orthopedic surgery and engineering and have identified some features of the bone that can help us estimate strength.”

Those working on the study have identified a trait of bone width that has shown promise in determining bone strength. Preliminary results show that women with narrow bones don’t lose much bone mass. Those women actually gain bone on the outer surface during menopause, which means women with narrow bones may maintain or increase their bone strength during midlife. However, women with wide bones have shown substantial loss of bone mass but not much outer bone expansion, so women with wide bones may lose bone strength earlier and faster than women with narrow bones.

The continuation of the MBHMS, along with information from the sister study of women’s health across the nation, will further the research on women’s bone health as they transition through menopause. “It’ll let us look over a period of 25 years about how strength might change, and then ultimately to link to outcomes like fractures,” she said. The researchers are also interested in looking at how hormonal changes during menopause affect bone changes. Now in year two of a five-year program, the team is about halfway through collecting data from the women who were part of the original study.

Researchers have been contacting women who were previously part of the MBHMS to gather information through surveys, measurements and blood tests, as well as bone scans and an x-ray of the subject’s dominant hand, to further understand bone strength. The original bone health research in Tecumseh studied 664 women. “It’s one of the largest studies of mid-life women that have been followed for this period of time,” Karvonen-Gutierrez said. “It’s really quite remarkable.”

Many of the women in the MBHMS were children when the original Tecumseh Community Health Study took place, so research can look at how the health of their parents might influence their health as well as following them from childhood into late adulthood.

One of the real values of the Michigan Bone Health Study is having data for 25 years on the same people, according to Karvonen-Gutierrez. “That’s so incredibly powerful in research, because we’re comparing within a person, that’s something that few studies can do and that’s really the gem and the treasure of the Michigan Bone Health Study,” she said.

Once all the data is collected, the researchers will spend the rest of the five years analyzing and processing the information compared to the information from 25 years ago and will seek additional grants to continue their work. Those who take part in the study will receive information on their own health as well as data on the study.

The researchers want to contact all the study’s prior participants, even if they no longer live in the area. Karvonen-Gutierrez encouraged anyone who was a participant in the MBHMS who has not been contacted in the past year to call Project Coordinator Kerry McCullough at 734.647.5068. Those with questions about the study may contact Karvonen-Gutierrez at 734.763.0571.

There will be a display about the Tecumseh Community Health Study at the Tecumseh District Library in September and October, and Karvonen-Gutierrez will give a presentation about that study and the MBHMS research at the library from 7-8 p.m. on October 3. The presentation will share how much the residents of Tecumseh have done to contribute to science and health research.

“Tecumseh as a community has just been a remarkable partner and resource, and really has contributed so very much science, both through Michigan Bone Health and Metabolism, but also through its predecessor, the Tecumseh Community Health Study,” she said.