New model more accurately predicts breast cancer risk in Hispanic women

December 20 2016

A new breast cancer model, published today in the *Journal of the National Cancer Institute*, will help health care providers more accurately predict breast cancer risk in their Hispanic patients.

The model, developed by a Kaiser Permanente researcher and his colleagues, is the first to be based exclusively on data from Hispanic women, and will become part of the National Cancer Institute's online tool that helps providers calculate breast cancer risk in individual patients.

"Hispanics are the largest racial/ethnic minority group in the U.S., so it's important that the NCI tool include information from these women in determining their risk score. Our model does that because it is based on data from Hispanic women and specifically tailored for them," said Matthew P. Banegas, PhD, MPH, lead author and researcher from the Kaiser Permanente Center for Health Research.

NCI's Breast Cancer Risk Assessment Tool asks providers to enter information about the patient's age, race, family history of breast cancer and other risk factors, including:

- When the patient started her first menstrual period
- How old she was when she gave birth to her first child
- Whether she has first-degree relatives with breast cancer
- Whether she has had a breast biopsy for benign breast disease

The Breast Cancer Risk Assessment Tool currently includes risk models for non-Hispanic white, African-American and Asian and Pacific Islander women, but no model specific to Hispanic women, and studies show that the tool underestimates breast cancer risk in these women.

"Prior studies have shown that Hispanic women born in the U.S. have a higher breast cancer risk than Hispanic women who emigrate here from other countries," said Banegas. "Our model includes data from U.S. and foreign-born women, so providers will be able to more accurately predict risk based on where the woman was born."

Building and validating the model

To build the model, researchers started with data from the San Francisco Bay Area Breast Cancer Study, which included 1,086 Hispanic women who developed breast cancer between 1995 and 2002 and 1,411 women who did not have breast cancer. Nearly 1,000 of the women were born in the United States and 1,500 were born in other countries. The researchers then included breast cancer incidence and mortality data from the California Cancer Registry and NCI's Surveillance, Epidemiology and End Results program.

To validate their model, researchers used data from the Women's Health Initiative and the Four-Corners Breast Cancer Study. The new model accurately predicted the number of breast cancers among U.S.-born Hispanic women who participated in the Women's Health Initiative, but slightly overestimated the number of breast cancers among foreign-born Hispanic women in the WHI.

"We built the model using data from Hispanic women in California who are mostly of Mexican and Central American descent, so these are the women for whom the model will be most accurate," said Banegas. "As we collect more data on Hispanic women from other regions and

countries, we will be able to further refine the model."

The new model, like the National Cancer Institute's Breast Cancer Risk Assessment Tool, should not be used for women who already have invasive breast cancer, for women who have an inherited genetic mutation known to cause breast cancer, or for women who received therapeutic radiation of the chest for other types of cancers.

Provided by Kaiser Permanente