



Improving Risk Prediction in Black Women



Grantees from left to right: Lynn Rosenberg, ScD and Deborah A. Boggs, ScD

How good are we at predicting the chances that a woman, regardless of race or ethnicity, will get breast cancer? ***“Better than flipping a coin, but not good enough,”*** says Dr. Lynn Rosenberg, Associate Director of the Slone Epidemiology Center at Boston University’s School of Public Health. As part of their Komen Postdoctoral Fellowship grant, Drs. Deborah Boggs, a postdoctoral fellow, and Lynn Rosenberg, her mentor, are working to improve risk prediction for black women by testing current risk prediction models.

The accuracy of current risk prediction models for breast cancer is inadequate because

Improving our ability to predict risk is critical since this information is used to counsel a woman on her chances of developing breast cancer and could influence her lifestyle or prevention choices.

Learn More about Breast Cancer Risk Factors and Prevention [here](#).

many of the risk factors included in the models are only weakly associated with breast cancer, not all risk factors have been identified, and the impact of individual risk factors can vary with race and between subtypes of breast cancer. For example, the [Breast Cancer Risk Assessment Tool](#) of the National Cancer Institute – or the Gail model – is the most widely used method to predict

Black women are more likely to be diagnosed with breast cancer before the age of 40 and are more likely to have ER- disease (worse prognosis).

breast cancer risk. However, the Gail model was created with data from white women and thus not ideal for estimating risk in black women. A modified version of the Gail model called the CARE model (Women’s Contraceptive and Reproductive Experiences) has since been developed and was created to predict risk more accurately in black women. However, the CARE model had not been validated in premenopausal women, aged 50 years or less, or ever tested to predict the chances of having an estrogen receptor-positive (ER+) versus estrogen receptor-negative (ER-) breast cancer.

Drs. Boggs and Rosenberg have worked to further validate the CARE model in both pre- and postmenopausal black women using data from the Black Women’s Health Study. They found that the CARE model underestimated risk in that it predicted fewer women would get cancer than actually did. The CARE model was least accurate for women who were 25 years of age or older when they had their first child. This may be because the CARE model does not include a woman’s age at the birth of her first child – a risk factor considered important by the researchers. Drs. Boggs and Rosenberg also found that the CARE model was not effective at predicting the likelihood, at an individual level, of developing ER+ compared to ER- breast cancer. They published these [findings](#) in March 2013 in the Journal of the National Cancer Institute.

“The next step will be to examine additional factors, including age at first birth, BMI, and breastfeeding history to see if including these factors will improve the [CARE] model and by how much,” says Dr. Boggs.

Results from studies like these are important as they can help black women to more accurately determine their chances of developing breast cancer. Even more, improvements in these prediction models will help patients at increased risk to make informed choices about prevention strategies including chemoprevention, tailor their screening schedules, and determine their eligibility to enroll in prevention studies.

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