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Using a model to estimate breast cancer risk in effort to improve prevention

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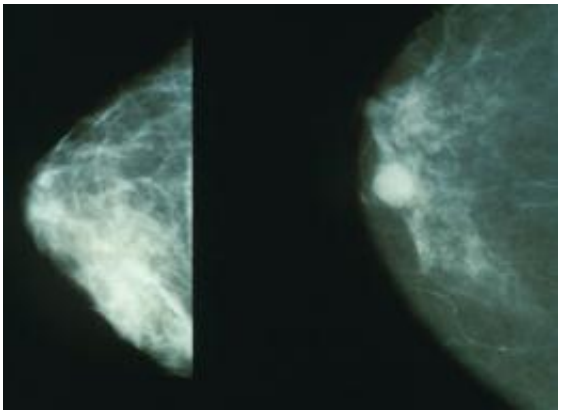

Mammograms showing a normal breast (left) and a cancerous breast (right). Credit: Wikipedia.

A model developed to estimate the absolute risk of breast cancer suggests that a 30-year-old white woman in the United States has an 11.3 percent risk, on average, of developing invasive breast cancer by the age of 80, according to a new study published online by *JAMA Oncology*.

Breast cancer is a common form of cancer diagnosed in women. An improved model for predicting absolute risk (an estimate of the incidence of disease in a population) could help guide public health strategies for breast cancer prevention.

Nilanjan Chatterjee, Ph.D., of Johns Hopkins University, Baltimore, and

coauthors used study data to develop a more empirical model to predict absolute risk of invasive breast cancer. The model included 92 susceptibility single nucleotide polymorphisms (SNPs) and a variety of epidemiologic factors (family history, anthropometric factors, menstrual/reproductive factors and lifestyle factors) to examine risk.

When the model included all risk factors, the range of average absolute risk was 4.4 percent to 23.5 percent for women at the bottom and the top of risk, respectively, according to the results.

For women at the highest level of risk because of nonmodifiable risk factors, those who had low body mass index (BMI), did not drink or smoke, and did not use menopausal hormone therapy had risks comparable to an average woman in the general population.

Overall, the authors estimate that as many as 28.9 percent of all breast cancers could be prevented if all white women in the U.S. population were at the lowest risk from these modifiable risk factors.

The authors note study limitations including an inability to evaluate several known risk factors for breast cancer not available in the data.

"Our results illustrate the potential value of risk stratification to improve breast cancer prevention, particularly to aid decisions on risk factor modification at the individual level. The effect of such models for improving the cost-benefit ratio of population-based prevention programs will depend on the implementation cost of risk assessment," the authors conclude.

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