

Development of Breast Cancer Risk Prediction Model

Mano S. Selvan, Joe Ensor, John Cook, Constance Johnson, Christopher Amos, Melissa Bondy, Therese Bevers, Donald A. Berry. The University of Texas M. D. Anderson Cancer Center, 1515 Holcombe Blvd., Houston, TX 77030.

Purpose. To develop a robust model to predict breast cancer risk for an individual woman interested in her risk for developing breast cancer. The risk prediction models most widely used in breast cancer research and in clinical and genetic counseling are the Gail model¹, the Claus model², and the BRCAPRO^{3,4}. The former two were developed to estimate the risk of developing breast cancer, and the latter was developed to estimate the probability of being a carrier of BRCA1/2 mutations. Our goal is to provide a more comprehensive model of developing breast cancer—one that incorporates the latest information concerning risk factors.

Methods. We reviewed the available literature as reported on National Cancer Institute PDQ Web site⁵. We combined the findings of the various studies using regression models.

Results. We will report progress in developing this model.

References

1. Gail MH, Brinton LA, Byar DP, et al.: Projecting individualized probabilities of developing breast cancer for white females who are being examined annually. *J Natl Cancer Inst* 1989; 81(24):1879-1886.
2. Claus EB, Risch N, Thompson WD. Autosomal dominant inheritance of early-onset breast cancer. *Cancer* 1994; 73:643-51.
3. Berry DA, Parmigiani G, Sanchez J, et al. Probability of carrying a mutation of breast-ovarian cancer gene BRCA1 based on family history. *J Natl Cancer Inst* 1997; 89(3):227-238.
4. Parmigiani G, Berry D, Aguilar O. Determining carrier probabilities for breast cancer-susceptibility genes BRCA1 and BRCA2. *Am J Hum Genet.* 1998; 62(1):145-58.
5. PDQ Website. National Cancer Institute, Accessed Jan 2004. Available at: <http://www.cancer.gov/>.