

Breast Cancer Surveillance Consortium



Working together to advance
breast cancer research

The Breast Cancer Surveillance Consortium (BCSC) Invasive Breast Cancer Risk Calculator is an interactive tool designed by BCSC scientists to estimate five-year and ten-year risk of developing invasive breast cancer. The BCSC Invasive Breast Cancer Risk Calculator was developed in individuals assigned female sex at birth, hereafter 'individuals.'

The BCSC Invasive Breast Cancer Risk Calculator was designed for use by health professionals. If you are not a health professional, you are encouraged to discuss the results and your personal risk of invasive breast cancer with your health care provider.

The calculator is NOT applicable to individuals that meet any of the following criteria:

1. Younger than age 35 or older than age 79.
2. Previous diagnosis of invasive breast cancer.
3. Previous diagnosis of ductal carcinoma in situ (DCIS).
4. Previous mastectomy.

To calculate BCSC six-year cumulative advanced breast cancer risk, please visit <https://tools.bcsc-scc.org/AdvBC6yearRisk/> or the Apple App Store <https://apps.apple.com/us/app/bcsc-advancedbreastcancerrisk/id1627084023>.

Five- and ten-year risk of invasive breast cancer calculations are based on the following risk factors:

- Age
- Race and ethnicity
- Family history of breast cancer in a first-degree relative (mother, sister, or daughter) or second-degree relative (aunt or grandmother)
- History of a breast biopsy (core biopsy, excisional biopsy, or fine-needle aspiration) with benign breast disease diagnoses if known
- BI-RADS® breast density (radiologic assessment of the density of breast tissue by a radiologist who interprets mammograms)
- Menopausal status (premenopausal, postmenopausal, or individual Doesn't Know menopausal status) •Body mass index (weight and height)
- Age at first live birth

The BCSC Invasive Breast Cancer Risk Calculator may be updated as new data or research becomes available.

Current version 3.0.

References for model development:

- Gard CC, Tice JA (Co-First Author), Miglioretti DL, Sprague BL, Bissell MC, Henderson LM, Kerlikowske K. Extending the Breast Cancer Surveillance Consortium Model of Invasive Breast Cancer. *J Clin Oncol*.
- Tice JA, Miglioretti DL, Li CS, Vachon CM, Gard CC, Kerlikowske K. Breast Density and Benign Breast Disease: Risk Assessment to Identify Women at High Risk of Breast Cancer. *J Clin Oncol*. 2015 Oct 1;33(28):3137-43. doi: 10.1200/JCO.2015.60.8869. Epub 2015 Aug 17. PMID: 26282663; PMCID: PMC4582144.
- Tice JA, Cummings SR, Smith-Bindman R, Ichikawa L, Barlow WE, Kerlikowske K. Using clinical factors and mammographic breast density to estimate breast cancer risk: development and validation of a new predictive model. *Ann Intern Med*. 2008 Mar 4;148(5):337-47. doi: 10.7326/0003-4819-148-5-200803040-00004. PMID: 18316752; PMCID: PMC2674327.

References for model validation:

- Eroglu I, Sevilimedu V, Park A, King TA, Pilewskie ML. Accuracy of the Breast Cancer Surveillance Consortium Model Among Women with LCIS. *Breast Cancer Res Treat*. 2022 Jul;194(2):257-264. doi: 10.1007/s10549-021-06499-8. Epub 2022 May 20. PMID: 35595928; PMCID: PMC10229518.
- McCarthy AM, Liu Y, Ehsan S, Guan Z, Liang J, Huang T, Hughes K, Semine A, Kontos D, Conant E, Lehman C, Armstrong K, Braun D, Parmigiani G, Chen J. Validation of Breast Cancer Risk Models by Race/Ethnicity, Family History and Molecular Subtypes. *Cancers (Basel)*. 2021 Dec 23;14(1):45. doi: 10.3390/cancers14010045. PMID: 35008209; PMCID: PMC8750569.
- McCarthy AM, Guan Z, Welch M, Griffin ME, Sippo DA, Deng Z, Coopey SB, Acar A, Semine A, Parmigiani G, Braun D, Hughes KS. Performance of Breast Cancer Risk-Assessment Models in a Large Mammography Cohort. *J Natl Cancer Inst*. 2020 May 1;112(5):489-497. doi: 10.1093/jnci/djz177. PMID: 31556450; PMCID: PMC7225681.

- Tice JA, Bissell MCS, Miglioretti DL, Gard CC, Rauscher GH, Dabbous FM, Kerlikowske K. Validation of the Breast Cancer Surveillance Consortium model of breast cancer risk. *Breast Cancer Res Treat.* 2019 Jun;175(2):519-523. doi: 10.1007/s10549-019-05167-2. Epub 2019 Feb 22. PMID: 30796654; PMCID: PMC7138025.
- Vachon CM, Pankratz VS, Scott CG, Haeberle L, Ziv E, Jensen MR, Brandt KR, Whaley DH, Olson JE, Heusinger K, Hack CC, Jud SM, Beckmann MW, Schulz-Wendtland R, Tice JA, Norman AD, Cunningham JM, Purrington KS, Easton DF, Sellers TA, Kerlikowske K, Fasching PA, Couch FJ. The contributions of breast density and common genetic variation to breast cancer risk. *J Natl Cancer Inst.* 2015 Mar 4;107(5):dju397. doi: 10.1093/jnci/dju397. PMID: 25745020; PMCID: PMC4598340