

# Risk Factors for Re-Excision Following Breast-Conserving Surgery

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Gwartz and Skrine contributed to the conceptualization and design. Rodriguez and Skrine completed the data collection. Wilkins, Newcomb, and Skrine provided statistical support. Newcomb, Gwartz, and Skrine provided the analysis. All of the authors contributed to the manuscript preparation.

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**Purpose/Objectives:** To identify previously unstudied factors predicting re-excision following breast-conserving surgery (BCS) and to assess the feasibility of obtaining data about breast density for predictive modeling.

**Design:** Retrospective secondary data analysis.

**Setting:** Data were obtained from the cancer registry and electronic health records (EHRs) at Texas Health Harris Methodist Hospital, a large, urban, private, nonprofit hospital in North Texas.

**Sample:** 244 patients choosing BCS from 2011–2012.

**Methods:** Data were subjected to univariate analyses (chi-square) followed by logistic regression.

**Main Research Variables:** The primary dependent variable was re-excision following BCS. Predictors of interest included lifestyle factors, time from diagnosis to surgery, surgical approach, patient age, and breast density, and controlled for covariates, such as assay results.

**Findings:** Three factors predicted re-excision with 87% accuracy: time from diagnosis to surgery, needle localization, and age. Missing data precluded using breast density as a predictor.

**Conclusions:** Women younger than 60 years whose surgery included placement of a wire for localization of tissue to be removed and who underwent surgery soon after diagnosis are the least likely to require reoperation after BCS. Data integrity is critical to the success of research using EHRs and registry information.

**Implications for Nursing:** Nurses may improve patient outcomes by helping women considering BCS solve problems that may delay surgery. Nurses can contribute to the success of nursing research by thoroughly and accurately recording patient information in EHRs.

Breast-conserving surgeries (BCSs) are excisions of breast tissue that are not full mastectomies. Early-stage invasive breast cancer and ductal carcinoma in situ (DCIS) (i.e., cancer of the ductal elements of the breast that has not invaded beyond the ducts) (Dudley & Zuckerman, 2013) can be successfully treated with breast-conserving therapy and postoperative radiation (Hunt, Robb, Strom, & Ueno, 2008). However, some patients who undergo breast-conserving treatment may need to have a second excision or mastectomy to obtain clear margins or address complications. *Clear margin* refers to a margin of healthy cells surrounding the area of the tumor (Benedet & Rounsaville, 2004).

Data from diverse studies across the globe indicate that 7%–30% of patients undergo re-excision, with an average of about 20%. The re-excision rate is even higher for DCIS cases, with rates closer to 30%–60% of patients (Devouge et al., 2013; Jeevan et al., 2012; McCahill et al., 2012; Meier-Meitingner et al., 2012;