



The University of Chicago
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Master's Thesis Presentation

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**A Study of the Individual and Combined Effects
of Hormone Replacement Therapy (HRT), Age, and Ethnicity
on Breast Cancer Incidence in the Breast Cancer Surveillance
Consortium (BCSC) Cohort Using Multiple Imputation**

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ABSTRACT

The Breast Cancer Surveillance Consortium (BCSC) was established by the National Cancer Institute to study mammography use and outcomes in a large sample of women in the United States. Between 1996 and 2002, there were 2392998 eligible screening mammograms collected along with potential risk factors for breast cancer. However, a high percentage of missing information exists for most of the risk factors. Several researchers have used the BCSC data to develop predictive risk models for breast cancer, without addressing the missing data problem using modern imputation methods. We applied multiple imputations to re-estimate a risk model using multivariable logistic regression and compare it to the previous model, evaluating the performance of the procedure and assessing the effect on important risk factors. In particular, we investigate the impact of hormone replacement therapy use on breast cancer risk, and its possible relationship with age and race/ethnicity in terms of the magnitude of the risk imparted.