INTRODUCTION

• Women with breast cancer in our region, Eastern North Carolina (ENC), face multiple barriers in access to care and suffer poorer oncologic outcomes relative to the rest of the state.
• Screening mammography has been promoted to facilitate earlier detection of breast cancer.
• A previous analysis demonstrated that the rate of mammographic screening in ENC increased significantly from 1998 to 2008, and then plateaued.
• We sought to examine temporal associations between screening mammography rates and the incidence of early- versus late-stage breast cancer in ENC.

MATERIALS & METHODS

• ENC population estimates for women aged 40 and older were derived from US census data.
• Screening rates were estimated from the annual number of screening mammograms performed between 1998 and 2016 in the region.
• Breast cancer incidence data were obtained from the NC Central Cancer Registry.
• Rates were modeled using a negative binomial with population size included as an offset that assumed a stable underlying risk of breast cancer.

RESULTS

• From 1998 to 2007, mammographic screening rates significantly increased by 3.4% per year (95% CI 2.2 to 4.7%), whereas from 2008-2016, the rate was relatively stable (0.5% increase per year, 95% CI -0.2 to 3.2%, p>0.05) (Figure).
• From 1998-2007, overall breast cancer incidence increased by 0.7% per year (95% CI 0.0 to 1.5%), with no significant change in the rate of early-stage disease (0% change per year, 95% CI -1.6 to 1.6%) and an increase in late-stage disease incidence of 0.9% per year (95% CI 0.0 to 1.9%).
• From 2008-2016, overall breast cancer incidence was relatively stable (0.2% increase per year, 95% CI -0.1 to 1.8%, p>0.05), with a nonsignificant increase of 1.2% per year (95% CI -0.1 to 3.2%) for early-stage disease and a nonsignificant decrease of -0.1% per year (95% CI -0.3 to 1.5%) in the rate of late-stage disease.

DISCUSSION

• Results demonstrate a temporal association between increased mammographic screening and increased incidence of breast cancer in ENC, with stable rates of breast cancer following the stabilization of the rate of mammographic screening in 2008.
• We did not observe a migration from late- to early-stage disease following more widespread utilization of screening mammography, which calls into question whether screening facilitates earlier detection in this population.
• Further analyses are needed to clarify the reason for the increased incidence of late-stage disease observed prior to 2008; one possible explanation is that receipt of screening mammography is a surrogate for increased access to/utilization of medical care in this population.

REFERENCES

• North Carolina Central Cancer Registry Brochure, December 2017
• Female Breast Cancer: A fact sheet from the North Carolina Central Cancer Registry, State Center for Health Statistics, August 2017
• National Health Interview Survey. Table 86: Use of mammography among women 40 years of age and over, by selected characteristics: United States, selected years 1987-2008. Atlanta: Centers for Disease Control and Prevention.

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