

2022 NPCR NEW JERSEY SUCCESS STORY

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Female Breast Cancer in New Jersey: Combining Data Sources to Identify Geographic Disparities in Incidence, Screening, and Risk Factors

National Program of Cancer Registries SUCCESS STORY

SUMMARY

Like the United States overall, breast cancer is the most common cancer diagnosed and the second leading cause of cancer death among women in New Jersey. The New Jersey State Cancer Registry (NJSCR) combined breast cancer data with the New Jersey Behavioral Risk Factor Survey (NJBRFS) breast cancer screening and risk factor data to assess county-level variation in incidence, mammography screening, and behavioral risk factors. The findings can inform cancer control programs with a focus on access to cancer screening, education on the importance of prompt follow-up, and healthy lifestyle promotion.

CHALLENGE

Among New Jersey women, currently 8,208 new breast cancer cases were diagnosed and 1,253 died from breast cancer. New Jersey has a significantly higher breast cancer incidence rate compared to the rate for U.S. women.^{2,3} Geographic variation in health-related behaviors, cancer screening, and socioeconomic status (SES) is often associated with a region's cancer incidence and proportion of early detection as measured by stage at diagnosis.

Modifiable behavioral risk factors for breast cancer include but are not limited to alcohol consumption, physical inactivity, and excess body weight. Women who drink 3-6 servings of alcohol per week have a 15% increased risk (RR 1.15 [95% CI, 1.06-1.24]) of developing breast cancer compared to non-drinkers.⁴ Higher levels of drinking have higher risk; women who drink 3-4 servings of alcohol per day have a 32% increased risk and each additional serving of alcohol increases risk by 7%-9%.^{5,6} Women who engage in regular physical activity have a 10%-12% lower risk of breast cancer compared to women who are inactive.⁷ The effects of obesity on breast cancer risk depend on menopausal

status: obese premenopausal women are half as likely to be diagnosed with breast cancer compared to women of normal weight, while obese postmenopausal women are 25% more likely to develop breast cancer.⁸

Breast cancer is most treatable if found in the early stages. Mammography can detect breast cancer before there are signs or symptoms. Healthy New Jersey (HNJ) 2020, the State's health improvement plan, has an objective to increase the percentage of women who receive mammograms to 87.5%, and is based on women ages 50-74.⁹ Among New Jersey women in this age cohort, for years 2011-2018, 79.5% reported receiving mammograms, which is about 8 percentage points lower than the HNJ target.¹⁰

Identifying geographic areas of New Jersey with higher breast cancer incidence, higher prevalence of behavioral risk factors, and lower prevalence of mammogram screening as compared to New Jersey overall, will facilitate targeting of public health resources to increase screening and promote healthy behaviors.

SOLUTION

NJSCR data were used to capture invasive breast cancer cases diagnosed among New Jersey screening age women, aged 40-74, for the diagnosis years 2014-2018 by county. By using the NJBRFS Custom Dataset Query feature, we obtained county-level mammography screening, obesity, alcohol consumption, and physical activity data only for women ages 40-74. The NJBRFS survey data used were for years 2014-2018 for mammography screening, obesity, and alcohol consumption and years 2011, 2013, 2015, and 2017 for physical activity, due to limited availability. Thus, we were able to align the selection criteria for the cancer data and the NJBRFS data. Additionally, we measured SES at the county level by utilizing decile rankings of the Area Deprivation Index.

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Each measure was geographically displayed by county-level choropleth maps. Statistically significant differences between county and New Jersey overall values for each measure were determined and were indicated on the maps by symbology. Patterns between cancer incidence, risk factors, mammogram screening, and SES were determined at the county level.

RESULTS

A total of 29,337 breast cancer cases were selected for analysis based on the selection criteria. Breast cancer burden, screening, and risk factors among screening age women vary across New Jersey. Overall, breast cancer incidence rates are higher in North and Central Jersey compared to South Jersey. North and Central Jersey have lower obesity prevalence, higher alcohol consumption, and less area deprivation (i.e., higher SES) relative to South Jersey.

Among the findings:

The counties of Bergen, Gloucester, Hunterdon, Monmouth, Morris, and Somerset have the highest breast cancer incidence rates in New Jersey. All, except for Gloucester County, have the highest percentages of alcohol consumption and the lowest ADI rankings (highest SES). Alcohol consumption is a well-established risk factor for breast cancer. Educational outreach to limit alcohol consumption can be targeted toward these counties.

The northern and central counties of Essex, Hudson, Middlesex, Sussex, and Warren have the highest proportions of late-stage diagnoses. All these counties, except Essex, are also among those with a high prevalence of being not up to date with breast cancer screening when compared to New Jersey overall, indicating a need for increased screening outreach and accessibility in these counties. The maps for alcohol consumption and late-stage breast cancer are displayed in Figure 1.

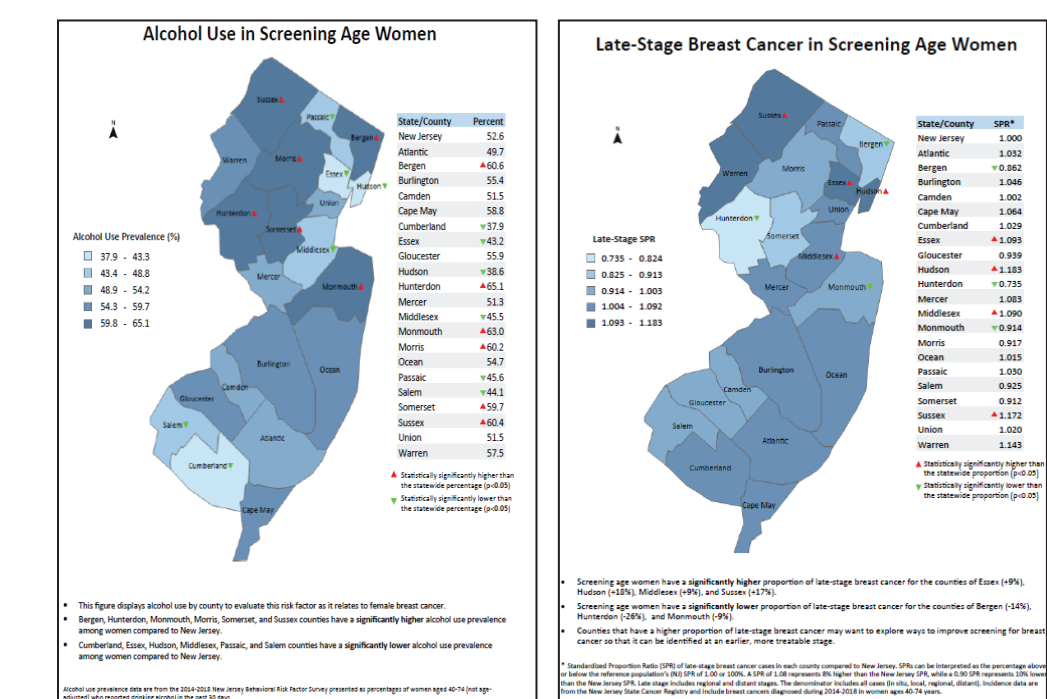
SUSTAINING SUCCESS

Increasing access to cancer screening and promoting healthy lifestyles are ongoing public health priorities in New Jersey. NJSCR will continue to produce reports describing the cancer burden in the state with a focus on geographic areas and demographics that are at increased risk for cancer with the goal of understanding and reducing cancer in New Jersey. Identifying geographic areas of New Jersey with higher breast cancer incidence, higher prevalence of behavioral risk factors, and lower prevalence of mammogram screening as compared to New Jersey overall, will facilitate targeting of public health resources to increase screening and promote healthy behaviors.

REGISTRY CONTACT INFORMATION:

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FIGURE 1. ALCOHOL CONSUMPTION PREVALENCE AND LATE-STAGE BREAST CANCER IN NEW JERSEY BY COUNTY MAPS



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