Survival Trends and Disparities in New Jersey Females Diagnosed with Breast Cancer by Stage, Race/Ethnicity, and Census Tract Poverty, 1995-2011

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Background

Breast cancer is the most common cancer diagnosed in women in New Jersey and the United States. Each year approximately 7,500 women in New Jersey are diagnosed with breast cancer, and 1,300 women die of the disease. Overall, breast cancer survival has improved in the United States, with an estimated five-year relative survival of 75% in women diagnosed from 1975-1977 to 91% in those diagnosed from 2009-2015, but disparities remain.1

Objectives

Characterize time trends in breast cancer survival in New Jersey women
- by race/ethnicity
- by census tract poverty level
- by stage at diagnosis

Methods

- Data source: New Jersey State Cancer Registry (NJSCR)
  - Population-based registry that collects data on all cancers diagnosed in New Jersey residents since 1979.
- Exclusions: Patients diagnosed with prior cancers, unknown age at diagnosis, reported by death certificate only or autopsy only, or who had zero follow-up time.
- Statistical methods:
  - Estimated five-year relative survival by stage at diagnosis, race/ethnicity, and census tract poverty level (CTPL) using the Ederer II method in SEER*Stat version 8.3.5.
  - Relative survival is the ratio of the observed survival of cancer patients to the expected survival of individuals without cancer.
  - We used state-, county socioeconomic status- and race/ethnicity-specific life tables for the United States population, available from the National Cancer Institute, to estimate expected survival.
  - Census tract of residence at diagnosis was categorized into 4 groups by CTPL: 0%–<5%, 5%–<10%, 10%–<20%, and 20%+. CTPLs are based on the percentage of population living below the poverty level. Cases diagnosed from 1995-2004 were coded based on the 2000 United States Census. Cases diagnosed after 2004 were coded based on the American Community Survey.
  - Joinpoint regression analysis2:
    - Calculated annual percent changes (APCs) in five-year relative survival in New Jersey women diagnosed with breast cancer and identified points in time when survival rate trends change significantly (joinpoints) using Joinpoint Regression Program, Version 4.6.0.0, April 2018, National Cancer Institute.

Results

Characteristics of New Jersey Female Breast Cancer Patients Included in the Analysis, Diagnosed 1995-2011

<table>
<thead>
<tr>
<th>Race</th>
<th>All</th>
<th>Non-Hispanic White</th>
<th>Non-Hispanic Black</th>
<th>Non-Hispanic Asian or Pacific Islander</th>
<th>Hispanic*</th>
<th>Other/Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94,160</td>
<td>73,490</td>
<td>9,983</td>
<td>3,491</td>
<td>6,842</td>
<td>354</td>
</tr>
</tbody>
</table>

Census Tract Poverty Level**
- 0%–<5%: 40,336
- 5%–<10%: 23,968
- 10%–<20%: 13,431
- 20%+: 6,953
- Unknown: 472

Stage at Diagnosis
- Local: 54,571
- Regional: 29,276
- Distant: 5,847
- Unstaged/Unknown: 4,466

Results (2)

Trends in Five-Year Breast Cancer Relative Survival Rates in New Jersey Women by Census Tract Poverty Level, 1995-2011

Results (2)

Trends in Five-Year Breast Cancer Relative Survival Rates in New Jersey Women by Stage at Diagnosis, 1995-2011

Limitations

- Cases with missing or inaccurate addresses that could not be geocoded to the census tract were excluded from the census tract poverty level analyses (n = 472).
- Patients with a PO Box instead of a street address were geocoded to the centroid of their zip code, which may lead to misclassification of census tract poverty level.
- Small numbers in some racial/ethnic groups

Strengths

- Population-based cancer registry with high-quality data
- Diverse population of New Jersey
- Long term follow-up to evaluate breast cancer survival trend data

Conclusions

Breast cancer survival improved in New Jersey women from 1995-2011, but disparities remain, with worse survival observed in non-Hispanic Black women, women residing in areas of higher poverty, and women diagnosed with late stage cancer.

Acknowledgments

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