Introduction - Breast cancer

- Most common cancer diagnosed among women in NJ and US
- ACS estimates that in the U.S. in 2015
  • 231,840 women will be diagnosed with breast cancer &
  • 40,290 women will die of the disease
- Women diagnosed with breast cancer have risk for a subsequent primary breast cancer
- Risk for breast cancer varies by race/ethnicity
- Few studies on risk for subsequent primary breast cancer in breast cancer survivors by race/ethnicity

Objectives

Evaluate risk of subsequent breast cancer in a cohort of NJ women diagnosed with breast cancer
  • by race and ethnicity
  • by age group
  • by histologic subtype and other clinical factors
**Methods**

Data Source: NJ State Cancer Registry

Cohort: NJ women dx with invasive breast cancer or carcinoma in situ as a 1st primary malignancy during 1992-2012

Excluded:
- diagnosed with cancer prior to index breast cancer
- diagnosed at autopsy or by DCO
- < 2 months of follow-up time
- other/unknown race.

N = 136,671 women after exclusions (112,374 invasive, 19,653 DCIS, and 4,644 lobular carcinoma in situ)

**Methods (2)**

Standardized incidence ratios (SIRs) and 95% confidence intervals

SIR = Observed/expected

Observed: Subsequent invasive primary breast cancers
- Diagnosed > 2 months after index breast cancer and before December 31, 2012
- All 2nd and later (3rd, etc.) breast cancers were included
- NJSCR follows SEER rules for classifying multiple primary cancers

**Methods (3)**

Person years at risk (PYR):
- Calculated from 2 months after dx of index breast cancer until date of death, last known follow-up, or 12/31/2012
- Stratified by age at initial dx (5 year groups), race (or ethnicity), calendar year

Expected:
NJ female age-, race-, & year-specific breast cancer rates were multiplied to strata-specific PYR and then summed.

MP-SIR session of SEER*Stat software

**Results**

Risk for subsequent invasive breast cancer significantly elevated in all 4 racial/ethnic groups

<table>
<thead>
<tr>
<th></th>
<th>Persons</th>
<th>Observed</th>
<th>SIR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>96,201</td>
<td>3,712</td>
<td>1.40</td>
<td>1.36-1.45</td>
</tr>
<tr>
<td>AA</td>
<td>12,139</td>
<td>555</td>
<td>2.48</td>
<td>2.28-2.69</td>
</tr>
<tr>
<td>API</td>
<td>3,918</td>
<td>108</td>
<td>2.26</td>
<td>1.85-2.73</td>
</tr>
<tr>
<td>Hispanic*</td>
<td>8,050</td>
<td>268</td>
<td>2.10</td>
<td>1.86-2.37</td>
</tr>
</tbody>
</table>

*Hispanics may be of any race; therefore, the categories of race and ethnicity are not mutually exclusive.

SIR = standardized incidence ratio. Null value = 1.0.

AA = African American. API = Asian or Pacific Islander.
**Risk of subsequent invasive breast cancer after diagnosis of ductal or lobular carcinoma *in situ* in NJ women, 1992-2012**

Vertical lines indicate 95% confidence intervals.

*Hispanics may be of any race; therefore, the categories of race and ethnicity are not mutually exclusive.

**Risk of subsequent invasive breast cancer after breast cancer dx by hormone receptor status of index breast cancer in NJ women, 2004-2012**

Vertical lines indicate 95% confidence intervals. ER = estrogen receptor; PR = progesterone receptor. Patients with index breast cancer of unknown ER or PR status were excluded.

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**Limitations**

- Medical surveillance bias
- Possible misclassification of separate primary cancer vs. recurrence of original cancer
- Patients who move out-of-state → under-ascertainment of subsequent cases
- Misclassification of race or ethnicity

**Strengths**

- Population based cancer registry with high-quality data
- Diverse population of New Jersey
- Large numbers to do sub-analyses
- High rates of microscopic confirmation of cases (98.8%)

**Conclusions**

- Our findings support the importance of continued surveillance of breast cancer patients, especially African American women, women dx at younger ages & lobular carcinoma in situ patients.
- Risk of subsequent breast cancer continued to be elevated more than 10 years after dx of the first breast cancer.
Thank you!

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http://nj.gov/health/ces/index.shtml

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