Descriptive Analysis of Maryland Breast and Cervical Cancer Screening Program (BCCP) Enrollees to Inform Program Management Activities

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May 9, 2014

Maryland Breast and Cervical Cancer Program
Preceptors: Kaplan, Epidemiologist; Sara Seitz, Partnerships, Outreach, and Grants Manager
Outline

- Maryland Breast and Cervical Cancer Program
- Analysis Aim 1
- Analysis Aim 2
- Limitations and Challenges
- Lessons Learned
- Policy Implications
Maryland Breast and Cervical Cancer Screening Program (BCCP)

- Comprehensive screening program established by the National Breast and Cervical Cancer Early Detection Program (NBCCEDP), funded via the Centers for Disease Control and Prevention and the State of Maryland

- Objective
  - Decrease mortality from breast and cervical cancers by providing breast and cervical cancer screening tests, such as clinical breast exams, mammograms, and Pap tests

- Eligibility
  - Maryland resident between the ages of 40 and 64
  - Uninsured or underinsured
  - Household income at or below 250% of the federal poverty level
Analysis Aims

- Compare Program enrollees to a group of eligible women from the larger Maryland population using data from the Maryland Behavioral Risk Factor Surveillance System (BRFSS)

- Compare Program clients diagnosed with breast cancer to women diagnosed with breast cancer who were identified through the Maryland Cancer Registry (MCR)
Aim 1: BCCP compared to BRFSS

COMPARE PROGRAM ENROLLEES TO THE LARGER MARYLAND POPULATION USING DATA FROM THE MARYLAND BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS)
Study Population

- **BCCP**
  - Included all active clients aged 40-64 who received a Program-funded mammogram, clinical breast exam, or Pap test between July 1, 2008 and June 30, 2013 (FY 2009-13)

- **Behavioral Risk Factor Surveillance System (BRFSS)**
  - Nationwide surveillance system to collect standardized data at the state-level on preventive health practices and risk behaviors
  - Restricted to female respondents 40-64 in the 2011 and 2012 surveys
Definition of ‘BCCP Eligible’

Female MD Residents 40-64 from BRFSS

- YES: ≤ 250% Federal Poverty Level?
  - YES: Uninsured or underinsured?
    - YES: BCCP Eligibility Unknown 863 (12%)
    - NO OR UNKNOWN: BCCP Eligible 1887 (27%)
  - NO: BCCP Ineligible 4308 (61%)

- NO: Unknown
## Breakdown of Eligibility

<table>
<thead>
<tr>
<th>Income Eligibility</th>
<th>Eligible</th>
<th>Ineligible</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible</td>
<td>648</td>
<td>1,088</td>
<td>2</td>
<td>1,738</td>
</tr>
<tr>
<td></td>
<td>(24.6%)</td>
<td>(61.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ineligible</td>
<td>334</td>
<td>3,971</td>
<td>3</td>
<td>4,308</td>
</tr>
<tr>
<td></td>
<td>(14.3%)</td>
<td>(83.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>149</td>
<td>859</td>
<td>4</td>
<td>1,012</td>
</tr>
<tr>
<td></td>
<td>(16%)</td>
<td>(83.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,131</td>
<td>5,918</td>
<td>9</td>
<td>7,058</td>
</tr>
<tr>
<td></td>
<td>(16%)</td>
<td>(83.9%)</td>
<td>(0.1%)</td>
<td></td>
</tr>
</tbody>
</table>
Race: BCCP Clients Compared to BRFSS
Ethnicity: BCCP Clients Compared to BRFSS
Race/Ethnicity: BCCP Clients Compared to BRFSS

Restricted to women of White or Black race.
Prior Mammogram: BCCP Clients Compared to BRFSS

Cancer screening data from BRFSS restricted to data from 2012. Cancer screening data from BCCP is restricted to women in their first screening cycle. Restricted to women with available data.
Duration Since Prior Mammogram: BCCP Clients Compared to BRFSS

Cancer screening data from BRFSS restricted to data from 2012. Cancer screening data from BCCP is restricted to women in their first screening cycle. Restricted to women reporting a prior mammogram.
Prior Pap Exam: BCCP Clients Compared to BRFSS

Cancer screening data from BRFSS restricted to data from 2012. Cancer screening data from BCCP is restricted to women in their first screening cycle. Restricted to women with available data.
Duration Since Prior Pap Exam: BCCP Clients Compared to BRFSS

Cancer screening data from BRFSS restricted to data from 2012. Cancer screening data from BCCP is restricted to women in their first screening cycle. Restricted to women reporting a prior Pap.
Aim 1 Summary

- Percent of women who are Black non-Hispanic is similar comparing BCCP clients and the ‘BCCP eligible’ population
- Higher percent of BCCP clients are White Hispanic compared to the ‘BCCP eligible’ population
- BCCP clients were less likely to report prior cancer screening services than the ‘BCCP eligible’ population
- Of those reporting a prior cancer screening service, many BCCP clients reported delays between screenings compared to the ‘BCCP eligible’ population
Aim 2: BCCP compared to Maryland Cancer Registry

COMPARE PROGRAM CLIENTS DIAGNOSED WITH BREAST CANCER TO WOMEN DIAGNOSED WITH BREAST CANCER WHO WERE IDENTIFIED THROUGH THE MARYLAND CANCER REGISTRY (MCR)
Study Population

- **BCCP**
  - Active Program clients who were diagnosed with breast cancer between 2004 and 2009

- **Maryland Cancer Registry (MCR)**
  - Collects information regarding new cases of cancer diagnosed in Maryland from hospitals, physicians, radiation centers, ambulatory facilities and laboratories
  - Dataset included all women aged 40-64 who were diagnosed with breast cancer between 2004 and 2009 identified from the Registry
## Stage at Diagnosis

### AJCC* Stage vs Early/Late Stage

<table>
<thead>
<tr>
<th>AJCC* Stage</th>
<th>Early/Late Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>Stage 0</td>
</tr>
<tr>
<td>Stage I</td>
<td>Early Stage</td>
</tr>
<tr>
<td>Stage IB</td>
<td></td>
</tr>
<tr>
<td>Stage IIA</td>
<td>Early Stage</td>
</tr>
<tr>
<td>Stage IIB</td>
<td></td>
</tr>
<tr>
<td>Stage III NOS</td>
<td></td>
</tr>
<tr>
<td>Stage IIIA</td>
<td>Late Stage</td>
</tr>
<tr>
<td>Stage IIIB</td>
<td></td>
</tr>
<tr>
<td>Stage IIIC</td>
<td></td>
</tr>
<tr>
<td>Stage IV</td>
<td></td>
</tr>
<tr>
<td>Stage Unknown</td>
<td>Stage Unknown</td>
</tr>
</tbody>
</table>

*American Joint Committee on Cancer
Race/Ethnicity: BCCP Clients Compared to MCR

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>BCCP (N=475)</th>
<th>MCR (N=16,337)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Non-Hispanic</td>
<td>52.9</td>
<td>70.3</td>
</tr>
<tr>
<td>White Hispanic</td>
<td>9.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Black Non-Hispanic</td>
<td>36.3</td>
<td>28.0</td>
</tr>
</tbody>
</table>

Restricted to women of White or Black race.
AJCC Stage: BCCP Clients Compared to MCR
Early/Late Stage: BCCP Clients Compared to MCR

- Stage 0:
  - BCCP: 17.7%
  - MCR: 21.1%

- Early Stage:
  - BCCP: 57.3%
  - MCR: 57.7%

- Late Stage:
  - BCCP: 20.0%
  - MCR: 13.7%

- Stage Unknown:
  - BCCP: 5.1%
  - MCR: 7.6%

(N=475 for BCCP, N=16,337 for MCR)
Early/Late Stage, Black Non-Hispanic: BCCP Clients Compared to MCR

<table>
<thead>
<tr>
<th>Stage</th>
<th>BCCP (N=155)</th>
<th>MCR (N=3,994)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>20.6%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Early Stage</td>
<td>54.2%</td>
<td>54.8%</td>
</tr>
<tr>
<td>Late Stage</td>
<td>19.4%</td>
<td>18.1%</td>
</tr>
<tr>
<td>Stage Unknown</td>
<td>5.8%</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

BCCP (N=155) vs MCR (N=3,994)
Early/Late Stage, White Hispanic: BCCP Clients Compared to MCR
Early/Late Stage, White Non-Hispanic: BCCP Clients Compared to MCR

- **Stage 0**: BCCP 15.0%, MCR 21.6%
- **Early Stage**: BCCP 58.4%, MCR 60.9%
- **Late Stage**: BCCP 21.7%, MCR 12.6%
- **Stage Unknown**: BCCP 4.9%, MCR 4.9%

Legend: BCCP (N=226)  MCR (N=10,012)
Early/Late Stage, BCCP

Stage 0

Early Stage

Late Stage

Stage Unknown

White Non-Hispanic (N=226)

Black Non-Hispanic (N=155)
Early/Late Stage, MCR

- Stage 0
- Early Stage
- Late Stage
- Stage Unknown

White Non-Hispanic (N=10,012)
Black Non-Hispanic (N=3,994)
Aim 2 Summary

- Overall see higher percent of BCCP clients diagnosed at later stages of breast cancer compared to women identified through the MCR.
- Difference in stage at diagnosis primarily among White non-Hispanics.
Limitations and Challenges

- Project required obtaining data from external sources (BRFSS and MCR)
- Difficulty in defining BCCP eligibility among the BRFSS data
- Impact of missing data on defining eligibility, tumor staging, and analyses
- Differences in data sources and sample sizes made statistical comparisons difficult
- Additional factors associated with screening history and stage at diagnosis may not be accounted for in analysis
Lessons Learned

- Gained familiarity working with large datasets, including survey data
- Exposure to survey methodologies
- Improved analytic, presentation, and reporting skills
Policy Implications

- The Program appears successful in recruiting its target population of underserved minority populations, particularly in identifying women in high need of screening services
  - Changes in healthcare policy may impact retention and recruitment of eligible women in the future

- Minority women in the Program appear to have similar stages at diagnosis as compared to women in the larger Maryland population
  - White non-Hispanic BCCP clients appear to be diagnosed at a later stage compared to their counterparts in larger Maryland population, which may be an area of future research
Acknowledgements

➢ Preceptors: Doug Kaplan and Sara Seitz
➢ Maryland Breast and Cervical Cancer Program
➢ Maryland Department of Health and Mental Hygiene
➢ Johns Hopkins School of Public Health PHASE Administrators
References


