ASTHO Breast Cancer Learning Community:
“Using Data to Address Disparities in Breast Cancer Mortality at the State Level”

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<tr>
<th>STATE HEALTH DEPARTMENT NAME</th>
<th>ADDRESS: 625 Forster Street Harrisburg PA</th>
<th>PHONE 717-547-3241</th>
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<tbody>
<tr>
<td>Pennsylvania Department of Health</td>
<td>MAIN POINT(S) OF CONTACT: Kathy Makara <a href="mailto:kmakara@pa.gov">kmakara@pa.gov</a>, Sirisha Reddy <a href="mailto:sireddy@pa.gov">sireddy@pa.gov</a></td>
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DATA SOURCES USED IN REPORT:

- HealthyWoman Data (Pennsylvania’s Breast and Cervical Cancer Early Detection Program)
- Pennsylvania’s data portal EDDIE: https://www.phaim1.health.pa.gov/EDD/
  - Late Stage Incidence
  - Mortality
  - U.S. Census Data
- HRSA- Health Provider Shortage Areas- https://datawarehouse.hrsa.gov/
- Commission on Cancer Hospitals- https://www.facs.org/search/cancer-programs

STAKEHOLDERS  Komen Pittsburgh Affiliate, Jefferson Hospital, Alliance of Pennsylvania Councils, Inc., Pennsylvania Cancer Coalition’s Disparity Workgroup (PA office of Rural Health, Geisinger, Catalyst, Consumer Health Coalition), Data Advisory Committee (PA-BCCEDP/HealthyWoman Program, Comprehensive Cancer Control Program, Cancer Registries, Health Statistics/Informatics, Bureau Epidemiologist)

ABSTRACT/DESCRIPTION:

While great strides have been made in breast cancer across Pennsylvania and the nation, with mortality trends declining over the past 20 years, not all groups of people have had the same success.
Through participation in the ASTHO breast cancer disparity project year 2 cohort, Pennsylvania analyzed disparities across geography and race and formulated next steps to decrease disparities in the state. Meetings were held monthly with the Data Advisory Committee of the Pennsylvania Cancer Advisory Board, and additional stakeholder input was sought from the Disparity workgroup of the Pennsylvania Cancer Coalition. It was found that African Americans have a higher mortality and late stage incidence age adjusted rate, but the same does not hold true when all invasive breast cancer is analyzed.

Geographically it was found that there is a service gap in the area that runs across the northern tier of the state and up the middle, where the disparity is aligned with the Appalachian mountain region. This is often referred to colloquially as the “Rural T”. To the West of this T is Allegheny county with Pittsburgh as a large population center with surrounding counties exurbs of this city. To the East of this T is Philadelphia and the southeast region of the state that helps form the East Coast Interstate 95 corridor that stretches from Washington DC to New York City. Many high-quality services are found in both the Pittsburgh and Philadelphia region; however, it is unclear whether those most in need of those services can access them.

LESSONS LEARNED:
Our own HealthyWoman Program (PA-BCCEDP) data mimics national trends. Women with barriers to screening may need additional navigation to get timely follow up diagnostic procedures.
Disparity is a complex issue. No one intervention will solve disparities. Since it is a complex issue, a multi-year approach and program effort will help target resources including staff time, and money for interventions such as patient navigation.
States should have adequate time, resources and support to look at disparities. Being able to take time to look at disparities and having resources to obtain further training has increased Pennsylvania’s ability to look at disparity data.
Analysis is important but so is synthesis- incorporating work already done by state and national organizations is an important step. Reading current literature on disparities helps increase analytical questions.

NEXT STEPS:

*Sustainability:*
Work with Informatics/Health Statistics to automate report as new data is available yearly.
Continue to provide feedback to Informatics to develop cancer dashboard to monitor disparity progress.
Continue to solicit stakeholder input.

*African American Disparity:*
Further analyze data with the help of the newly hired Bureau Epidemiologist. Recent data analysis suggests that the largest disparity may lie with younger African Americans.¹

Help organizations and medical professionals who work within African American communities understand disparities and implement evidence based interventions
Access to Quality Treatment:
Based on the state licensing of medical professionals’ data set, map location of oncologists in Pennsylvania and calculate oncology shortage area.

Screening to Diagnosis:
Employ statistical methods to further analyze differences in follow up to screening in HWP data. States such as South Carolina\(^\text{ii}\) have analyzed data in similar ways and provide ideas for future analyses.

Implement Navigators at strategic provider sites to help bring parity from time of screening to diagnosis.

AT THE TIME OF THIS REPORT, ALL 67 COUNTIES IN PENNSYLVANIA ARE REPRESENTED IN THE DATA SETS.

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<th>Armstrong</th>
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AT THE TIME OF THIS REPORT, THE FOLLOWING DATA SOURCES WERE INCLUDED IN THIS ANALYSIS: (LIST DATA SOURCES HERE)

<table>
<thead>
<tr>
<th>DATA SOURCE</th>
<th>DATA RANGE YEARS</th>
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<tr>
<td>Robert Wood Johnson Rankings</td>
<td>2018</td>
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<tr>
<td>U.S. Census data</td>
<td>2000 Standard Million, population estimates for breast cancer index</td>
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<tr>
<td>HRSA Provider Shortage</td>
<td>updated as of May 2018</td>
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<tr>
<td>Commission on Cancer Centers</td>
<td>updated as of May 2018</td>
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<td>Healthy Woman Data</td>
<td>2012-2017</td>
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Cancer Incidence and Mortality Trends Over the Past 20 Years by Race

Breast Cancer Mortality Trends by Race

- African Americans in Pennsylvania consistently have higher mortality rates.
- Age Adjusted rates from Cancer Registry, accessed on EDDIE
  https://www.phaim1.health.pa.gov/EDD/
Late Stage Incidence by Race

- all races
- White
- Black
- Asian
Invasive cancer trends do not show the same disparity as late stage incidence and mortality.

Age adjusted rates from Cancer Registry, accessed on EDDIE.
Defining Breast Cancer Disparity

The National Cancer Institute (NCI) defines cancer health disparities:

Adverse differences in cancer incidence (new cases), cancer prevalence (all existing cases), cancer deaths (mortality), cancer survivorship, and burden of cancer or health related conditions that exist among specific populations groups in the United States. These population groups may be characterized by age, disability, education, ethnicity, gender, geographic location, income, or race. People who are poor, lack health insurance, and are medically underserved (have limited or no access to effective health care)- regardless of ethnic and racial background- often bear a greater burden of disease than the general population.

Working with Pennsylvania Department of Health’s (Department) Health Statistics Informaticians, Pennsylvania wanted to know where in the Commonwealth women were doing disproportionately worse. Health Statistics created one measure that incorporates late stage incidence, mortality and survivorship.

Breast Cancer Burden Index

A “breast cancer burden” index has been created for individual counties using measures of cancer outcomes. These outcomes are ones that the Department must be able to affect. The index summarizes the outcomes as a single number to allow prioritization of program activities.

The index is on a scale of 0 (no burden) to 100 (most burden).

Measures

The index uses three measures of cancer burden (all age-adjusted).
Late stage incidence

The incidence rate of late-staged diagnoses shows where increased screening rates would have the largest benefit. These are diagnoses among female Pennsylvanians aged 40+ during the period 2011-2015.

Late-stage female breast cancer incidence rate
Age-adjusted, 2013-2015
Mortality

The mortality rate measures the impact on residents in an area. These are deaths for which breast cancer is the underlying cause, among female Pennsylvanians aged 40+ during the period (2012-2016).

Female breast cancer death rate
Age-adjusted, 2012-2016
Net survival

The net survival rate measures the quality of care and life for patients after diagnosis. Because the index should be scaled so that a higher score means a worse burden, survival is incorporated as cumulative net hazard.

The estimates used are five-year net breast cancer survival rates among female Pennsylvanians diagnosed during the 2008 to 2014 period.
Combining the measures

Each region’s index score is the weighted sum of the region’s measures. The weights are chosen so that changes in a measure cause an appropriate amount of change in the index score, according to expert opinion. The index attempts to distribute value equally to each measure. Differences in weights reflect the different scales of the measures.

The weights used are:

<table>
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<th>Measure</th>
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<tr>
<td>Late-stage incidence rate</td>
<td>3295</td>
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<tr>
<td>Mortality rate</td>
<td>6674</td>
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<tr>
<td>Cumulative net hazard</td>
<td>31</td>
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The sum of the weights, 10000, was chosen to inflate all index scores to a more easily understood scale. High index scores are those above 10.
Breast cancer burden index
All residents

Technical notes in end notes\textsuperscript{iv}
Breast cancer burden index
White residents
Breast cancer burden index
Black residents
Social Determinants of Health

Robert Wood Johnson Health Rankings and Roadmap ranks each state counties in both health outcomes and health factors. Below are the rankings of health factors related to many of the social determinants that play a role in chronic disease. Categories included in these rankings: Health Behaviors, Clinical Care, Social and Economic Factors, and Physical Environment. Lighter colors show less challenges to health, darker colors may have more challenges to health. The lightest color, top quartile represents counties with the best outcomes, with the darkest quartile representing counties with many health challenges.
Accessibility to Quality Treatment

Commission on Cancer Centers “recognizes cancer care programs for their commitment to providing comprehensive, high-quality, and multidisciplinary patient centered care.”

Health Provider Shortage Areas (HPSA) primary care are designated by HRSA as having a deficient ratio of population to providers. The providers in these areas may be excessively distant, over-utilized, or inaccessible to the population under consideration.
HealthyWoman Program Data
The HealthyWoman Program is Pennsylvania’s Breast and Cervical Cancer Early Detection and Prevention Program. The CDC has collected Minimum Data Elements for the past 20 years, and helps track 12 core indicators to help programs deliver quality services.

One of the core indicators helps program track time between abnormal breast screenings results and diagnostics completed. The performance indicator sets the standard at >60 days. Pennsylvania consistently meets this indicator, and feedback is given by the CDC twice a year. The Core Indicator was analyzed by race for years 2012-2017 to look for potential differences.
Race distribution meeting the CDC standard of 60 days and distribution not meeting the standard.

Race distribution of abnormal screening to diagnostic completion 60 days and under

- Black: 20%
- White: 74%
- Asian: 6%

≤ 60 days

Race distribution of abnormal screenings with diagnostic completion after 60 days.

- Black: 47%
- White: 36%
- Asian: 17%

> 60 days

2 categories not included because of small numbers: Native Hawaiian or other Pacific Islander, American Indian or Alaska Native
Excluded: unknown (includes refused)


https://www.cancer.gov/about-nci/organization/crchd/cancer-health-disparities-fact-sheet#q1

Technical notes for Breast Cancer Index:

The annual number of cancer diagnoses and deaths is assumed to follow a Poisson distribution.

Age-adjustment is done using the United States standard million from calendar year 2000. The standard was retrieved from SEER’s website.

A measure’s value is suppressed if it is based on zero events or its standard error is twice the size of its value. If any of the component measures are suppressed, the index is suppressed.

https://www.facs.org/quality-programs/cancer/coc