Who Do We Care For: Guideline Concordant Care Delivery for Breast Cancer Patients

By: Taussia Boadi
Mentor: Dr. Yehoda Martei, MD, MSCE
Background

1 in 8 women will be diagnosed with breast cancer before the age of 85*

*Source: National Breast Cancer Foundation
Background


<table>
<thead>
<tr>
<th>Age</th>
<th>Death Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td>0%</td>
</tr>
<tr>
<td>20–34</td>
<td>1%</td>
</tr>
<tr>
<td>35–44</td>
<td>4.4%</td>
</tr>
<tr>
<td>45–54</td>
<td>11.6%</td>
</tr>
<tr>
<td>55–64</td>
<td>21.3%</td>
</tr>
<tr>
<td>65–74</td>
<td>24.1%</td>
</tr>
<tr>
<td>75–84</td>
<td>20.2%</td>
</tr>
<tr>
<td>Over 84</td>
<td>17.3%</td>
</tr>
</tbody>
</table>
Background
Project Aims

1. Evaluate
   • Evaluate trends in the receipt of guideline concordant care among population of interest

2. Determine
   • Determine survival trends among population of interest

3. Analyze
   • Analyze disparities in time difference between diagnosis and initiation of treatment between population of interest
Population of Interest
Population of Interest

- Non-Hispanic Black (NHB) and white (NHW) women
- Elderly women (≥65)
- Women diagnosed with stage I-III non-metastatic breast cancer
Big Question

Who is receiving guideline concordant care?
Methodology

1. DETERMINE WHAT GUIDELINE CONCORDANT CARE IS

2. CREATE A CODE TO DEFINE GUIDELINE CONCORDANT CARE

3. APPLY CODE TO NATIONALLY SOURCED DATA
What is Guideline Concordant Care?

- Guideline Concordant Care (GCC) is a standard of care for certain health conditions determined by a governing medical body.
For breast cancer, GCC is determined by the presentation of the following factors:

1) Receptor Status (estrogen & progesterone receptors, HER2)
2) Tumor Size
3) Axillary Nodes
4) Metastasis
Determination of Guideline Concordant Care

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

Breast Cancer

Version 4.2022 — June 21, 2022

NCCN.org
SYSTEMIC ADJUVANT TREATMENT: HR-POSITIVE - HER2-NEGATIVE DISEASE<sup>d,q,y</sup>
POSTMENOPAUSAL<sup>z</sup> PATIENTS with pT1–3 AND pN0 or pN+ TUMORS

- Ductal/NST<sup>l</sup>
- Lobular
- Mixed
- Micropapillary

**Tumor ≤0.5 cm and pN0**

**Tumor >0.5 cm or pN1mi (≤2 mm axillary node metastases) or pN1 (1–3 positive nodes)**

- Strongly consider 21-gene RT-PCR assay if candidate for chemotherapy (category 1)<sup>h,f,i</sup>

**pN2/pN3 (≥4 ipsilateral metastases >2 mm)<sup>g8</sup>**

- Consider adjuvant endocrine therapy (category 2B)<sup>aa</sup>
- Adjuvant chemotherapy<sup>a,b,b</sup> followed by endocrine therapy<sup>aa,ee</sup> (category 1)
- Adjuvant endocrine therapy<sup>aa,ee</sup>
- Adjuvant chemotherapy<sup>a,b,b,aa</sup> followed by endocrine therapy<sup>aa,ee</sup> (category 1)
- Adjuvant chemotherapy<sup>a,aa,bb,ij</sup>

**Not done**

**Recurrence score <26**

**Recurrence score ≥26**
<table>
<thead>
<tr>
<th>Axillary Nodes</th>
<th>Tumor Size</th>
<th>Systemic Treatment</th>
<th>Radiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>negative</td>
<td>&lt;0.5cm</td>
<td>optional</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td></td>
<td>0.5-1.0cm</td>
<td>optional</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td></td>
<td>&gt;1.0cm</td>
<td>optional</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td>1-3 positive</td>
<td>&lt;0.5cm</td>
<td>optional</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td></td>
<td>0.5-1.0cm</td>
<td>chemotherapy + endocrine therapy</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td></td>
<td>&gt;1.0cm</td>
<td>chemotherapy + endocrine therapy</td>
<td>whole breast RT +/- boost</td>
</tr>
<tr>
<td>4+ positive</td>
<td>&lt;0.5cm</td>
<td>optional</td>
<td>whole breast RT +/- RNI +/- boost</td>
</tr>
<tr>
<td></td>
<td>0.5-1.0cm</td>
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Code Creation for Guideline Concordant Care
<table>
<thead>
<tr>
<th>Tumor Characteristics</th>
<th>Guideline Concordant Treatment Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ER-/HER2+ receptor status</td>
<td>• Chemotherapy</td>
</tr>
<tr>
<td>• 1-3 positive axillary nodes</td>
<td>• HER2 targeted therapy</td>
</tr>
<tr>
<td>• Tumor size &gt;1.0 cm</td>
<td>• Breast Conservation Surgery</td>
</tr>
<tr>
<td></td>
<td>• Whole breast radiation</td>
</tr>
</tbody>
</table>
Tumor Characteristics

- ER-/HER2+ receptor status
- 1-3 positive axillary nodes
- Tumor size >1.0 cm

Tumor Characteristics

- CS_SITESPECIFIC_FACTOR_1 =0
- CS_SITESPECIFIC_FACTOR_15 =1
- REGIONAL_NODES_POSITIVE 01-03
- TUMOR_SIZE_SUMMARY_2016 >010
Guideline Concordant Treatment Expected

- Chemotherapy
- HER2 targeted therapy
- Breast Conservation Surgery
- Whole breast radiation

Guideline Concordant Treatment Expected

- RX_SUMM_CHEMO 01-03
- RX_HOSP_SURG_PRIM_SITE 20-24
- PHASE_I_RT_VOLUME 40
1. DETERMINE WHAT GUIDELINE CONCORDANT CARE IS

2. CREATE A CODE TO DEFINE GUIDELINE CONCORDANT CARE

3. APPLY CODE TO NATIONALLY SOURCED DATA
/*CREATE GCC VARIABLE*/

data ncbd.ncdb_puf; /*RENAME THIS TO WHATEVER YOU WANT*/

set origdata.ncdb_puf2; /*HAVE*/

/*KEEP ONLY VARIABLES YOU'LL NEED (REPLACE X Y Z) - THIS WILL MAKE IT RUN FASTER BC THE DATASET WILL BE SMALLER*/
keep x y z;

/*IF HER2+, AND CHEMOTHERAPY (YES) AND SURGERY (MAST/BCS).... (IF TOO LONG, SEE BULLET #1*/
if cs_sitespecific_FACTOR_1 =000 AND CS_SITESPECIFIC_FACTOR_15 =001 AND RX_SUMM_CHEMO IN (01-03) AND RX_HOSP_SURG_PRIM_SITE in (20-24) then GCC =1;

RUN;
1. Complete language translation from NCDB codebook to SAS
2. Create GCC code in SAS and apply to dataset
3. Analyze results and begin preparation for abstract presentation
Lessons Learned

- SAS literacy and coding
- Introduction to oncology
- Maintaining diligence throughout research process
Acknowledgements

- Dr. Yehoda Martei, MD, MSCE
- Liz Taggert, MPH
- Joanne Levy
- SUMR Cohort
Questions?