Each year more than 250,000 women are diagnosed with breast or ovarian cancer. Of these women, 5-10% develop cancer due to an inherited genetic variant. Prevention or early detection in this subset of women could be identified by genetic testing prior to a cancer diagnosis. Because genetic testing is covered by insurance only when certain medical or family history criteria are met, an accurate and complete family history is an essential step prior to genetic testing. The National Cancer Comprehensive Network (NCCN) and the US Preventative Services Task Force (USPSTF) guidelines recommend that primary care providers elicit a screening personal and family history of cancer, and make appropriate referrals to cancer genetics professionals.

The hypothesis of our project is that latent information present (but not recognized by treating providers) stored in the electronic health record (EHR) can identify patients who should be referred to the Genetics Clinic.

**RESULTS**

<table>
<thead>
<tr>
<th>Mother</th>
<th>Reported with Cancer</th>
<th>Confirmed by Genetics</th>
<th>Confirmed Cases with Cases changed</th>
<th>Percent Confirmed</th>
<th>Percent Changed from Reported</th>
<th>Percent Changed from Confirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td>14</td>
<td>12</td>
<td>100.0%</td>
<td>85.7%</td>
<td>85.7%</td>
<td>85.7%</td>
</tr>
<tr>
<td>Paternal 2nd Degree</td>
<td>25</td>
<td>21</td>
<td>84.0%</td>
<td>56.0%</td>
<td>66.7%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Paternal 3rd Degree</td>
<td>9</td>
<td>2</td>
<td>66.7%</td>
<td>22.2%</td>
<td>33.3%</td>
<td></td>
</tr>
<tr>
<td>Siblings</td>
<td>11</td>
<td>7</td>
<td>100.0%</td>
<td>63.6%</td>
<td>63.6%</td>
<td>63.6%</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th>Total Relatives With Cancer Reported</th>
<th>Before Genetics</th>
<th>After Genetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>106</td>
<td>242</td>
</tr>
</tbody>
</table>

**NCCN Guidelines Met**

- Yes: 45
- No: 11
- Percent Yes: 80.4%

**Genetics Visit Changed Family History**

- 24 (42.9%)

**Genetic Testing Performed**

- Total Tested: 40
- Positive Tests: 9
- Percent Positive: 22.5%

**DISCUSSION**

Results interpretations:
- 24/56 (43%) of patient’s family histories changed significantly after the Genetics visit.
- Relatives reported with cancer doubled from 121 to 242.
- 79/106 (75%) relatives with a confirmed cancer diagnosis had details of the diagnosis changed after receiving genetic counseling.
- 45/56 (80%) women referred to the genetics clinic met NCCN guidelines for genetic testing.
- 9/40 (23%) tested women were positive for a Likely Pathogenic or Pathogenic (LP/P) variant.

Limitations:
- Number of completed primary and secondary reviews of charts.
- Future work:
  - Characterize if women meet NCCN guideline based on family history, personal history, or both.

**CONCLUSIONS**

This pilot study of 56 women demonstrates the value of a Genetics Clinic visit via:
- Improved rates of identifying the key family history components for identifying women at increased risk of hereditary cancers.
- More appropriate use of genetic testing for risk assessment.

**ACKNOWLEDGEMENTS**

JH was supported by the American College of Medical Genetics Foundation Summer Scholars Program. This project was supported by a Brotman Baty Institute for Precision Medicine Catalytic Collaborations award. Contact emails: jhinsha@uw.edu; fmh2@uw.edu