**Metastatic Breast Cancer: Using Conjoint Analysis to Analyze Patient Preferences**

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### KEY QUESTIONS/AIMS OF THE PROJECT

- How would information from biomarkers influence patient decision making?
- How do patients weigh the risks and benefits of treatment during decision making?

### PROCESS

**Conjoint Analysis**

- **Survey Development:** Data Collection
  - Using Beyond Breast Cancer
  - [link to data collection](#)
  - [link to data analysis](#)
  - [link to report](#)
  - [link to additional information](#)

**Survey Revision**

- [link to additional information](#)

### DEMOGRAPHICS

- [link to additional information](#)

### CANCER PROFILE

- [link to additional information](#)

### CONJOINT ANALYSIS

Conjoint analysis is a specialized-market research technique often used to better understand the trade-offs between various treatment options. Respondents are asked 12 questions in which they could choose between two hypothetical treatments described by a likelihood of benefit and a likelihood of side effect. For example, a patient might choose to have treatment with a 75% likelihood of benefit and 20% likelihood of side effect, or they might opt for no treatment. Analysis of patterns of choices allows prediction of selecting treatment for any combination of benefit and side effect likelihoods.

### SURVEY FINDINGS

**Biomarker Predicting Toxicity:**

The chart below shows the predicted likelihood of selecting a treatment with different benefit and side effect likelihoods.

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Side Effect</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>40%</td>
<td>30%</td>
<td>20%</td>
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<tr>
<td>50%</td>
<td>40%</td>
<td>30%</td>
</tr>
</tbody>
</table>

### CONCLUSIONS

- This effort has shown a high degree of interest in biomarkers and a great desire for information.
- Respondents’ open-end statements express frustration, both with toxicity and the feeling of guesswork or trial and error.
- Patients are eager for the type of information that biomarkers are intended to provide.
- The conjoint model gives us an exciting basis to measure and predict patient decision-making in a rigorous manner.
- Conjoint analysis can be used to quantify patient preferences with respect to benefit and side effect trade-offs.
- Predictions and usefulness will be improved by designing conjoint analysis based on specific treatment research questions that have particular side effect profiles.
- Biomarker influence can be modeled using conjoint data.

### FUTURE DIRECTIONS

- In the future, we envision:
  - Conducting this research with a more representative population (women of color, and women with lower incomes and/or educational levels)
  - Varying the severity and duration of the side effect and, perhaps, the type of treatment
  - Providing results with more clinical and research applicability

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**Supporting Agencies**

- Center for the Advancement of Individualization of Therapy in Breast Cancer
- Indiana University
- [link to additional information](#)

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