

# Conjoint Analysis Application in Healthcare



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# Gelb

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## Overview

With complex nature of the healthcare industry and the challenges brought by healthcare reform, marketers in healthcare industry need to better understand patients, physicians and other stakeholders and therefore ensuring healthcare providers offer services that meet the needs for all stakeholders. When a healthcare provider strives to launch brand new services or attempts to improve existing services, marketers are called on to find out how different stakeholders would response to different service attributes including cost, brand, service feature, deliverables, and etc. Marketers could conduct surveys which ask respondents to rate all the service attributes, but this would often lead to data that indicates all attributes are important. Moreover, respondents often make decisions in a way that they don't even realize. So, conjoint analysis would be an ideal tool to obtain this type of information. Conjoint analysis is a widely-used and reliable multivariate technique, which helps to gain insights of different stakeholders' preference by having respondents make trade-off in simulated market scenarios. In a choice-based conjoint survey, respondents would be asked to choose the most preferable option among various choices of service attribute combination. Respondents could also have a choice of "none" option when they don't see any option they would prefer. Each respondent would go through a numbers of this "trade-off" tasks and each respondent would see a unique version of "trade-off" tasks. Choice-based conjoint survey is a realistic representation of how stockholders make their decision, and preference information would be collected when respondents are making "trade-off" evaluation.

## How does a conjoint analysis study work?

### 1. Survey: Simulated tradeoffs

We would like you to consider an imaginary scenario not related to you. Please imagine you have just recovered from [redacted] surgery to remove a stage 1 tumor (early stage cancer). Your doctor has offered a [personal test](#) to help you decide on treatment options. You will not have to undergo any additional invasive procedures for the test.

The results from the test will predict whether or not you are likely to benefit from chemotherapy. With these tests, patients who are unlikely to benefit from chemotherapy can avoid receiving such treatment and therefore avoid any side effects.

Please imagine you were in the situation described above and assume the options below were the only tests available. Please choose the test that you would most prefer to take, or please select "none" if you would not be willing to take any of these tests.

| What is the cost of testing to you personally?                             | \$25 (or equivalent to average co-pay amount)   | \$500  | \$100  |
|--|---|--|--|
| How will your test results be used?  | Your doctor will decide how best to treat you based upon your results (for example if testing suggests that your risk of recurrence is low, you may not receive chemotherapy) | You will decide how to use the test results, regardless of your risk of recurrence   | Your insurance company will use the test results to determine your coverage (for example if testing suggests that your risk of recurrence is low, your insurance company may not cover the cost of chemotherapy) |
| The chance the test will correctly predict patients' response to treatment | 10% (10 out of 100 tests will correctly predict response to treatment)  | 75% (75 out of 100 tests will correctly predict response to treatment)   | 75% (75 out of 100 tests will correctly predict response to treatment)   |
| What information will the test provide?                                    | Recurrence risk that cancer will return (rated as either low, medium or high risk) and predict how likely you are to benefit from chemotherapy.                               | Predict how likely you are to benefit from chemotherapy and how likely you are to develop severe side effects from chemotherapy. | Recurrence risk that cancer will return (rated as either low, medium or high risk) and predict how likely you are to develop severe side effects from chemotherapy.  |
| Who has access to your test results?                                       | Patient and doctor  | Patient and doctor   | Patient, doctor, insurance company and employer  |

Given what you know about the test, please indicate whether you really would be willing to take the test you selected above if you were in this situation?

Yes  
 No

### 2. Regression estimates the relative importance ("utility") of each product attribute.



### 3. Run market simulations: simulation and sensitivity analysis (a tool able to gauge preference of any service attribute combination)

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## Conjoint Design

For example, a cancer research center developed a ground-breaking technique to evaluate how much patient could benefit from getting chemotherapy based on patient’s gene characteristics. This innovation could prevent patients from unnecessary overtreatment and provide guidance for best alternative treatment option. The cancer research center wants to explore the possibility of designing service and enhancing patient experience. Several names for this service have been proposed and other key service attributes have been identified. The marketing director wants to find out how to leverage the most preferred service brand name and how cancer patients will react to these service attributes when facing the challenge of seeking best cancer treatment.

| Conjoint Attribute | Cost          | Service Brand Name | Results Turnaround time | Result Deliverables              | Benefit statement |
|--------------------|---------------|--------------------|-------------------------|----------------------------------|-------------------|
| Level 1            | Co-pay (\$50) | XX                 | Within 24 Hr            | Risk assessment                  | AAA               |
| Level 2            | \$500         | XX-YY              | 1-3 working Days        | Chemotherapy treatment benefit   | BBB               |
| Level 3            | \$800         | XYZ                | 1-2 Weeks               | Full result & treatment planning | CCC               |
| Level 4            | \$1,200       | XYZ-YY             |                         |                                  | DDD               |

This conjoint design includes 5 attributes and 3-4 levels within each attribute. Different service configurations will be generated and unique version of “trade-off” tasks would be carefully created by Sawtooth Software for individual respondent. This efficient questionnaire design would enable respondents to answer only a subset of all possible service attribute combination. Usually a respondent would go through between 12-18 trade-off evaluation tasks and each task includes 3 service choices and none option. Instead of having respondents rate all possible service combinations (in this example,  $5 \times 4 \times 3 \times 3 \times 4 = 720$  combinations), conjoint analysis survey significantly reduces the time for respondent to evaluate service offerings and effectively capture preference information from their choice selection.

## Market Simulation (What-if analysis)

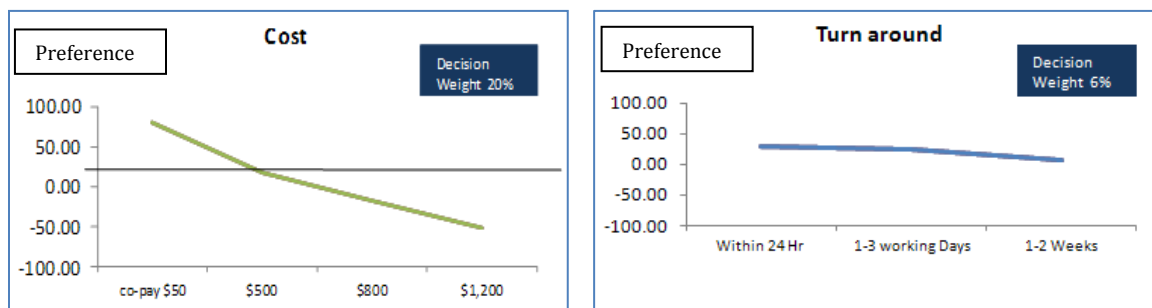
Once respondents’ choice selections are captured, part-worth utilities scores could be calculated to indicate how preferable each level is within one service attribute. Additionally, importance scores for all service attributes would be presented to show relative preference. Then, individual utilities score would be imported into Sawtooth SMRT simulation software and the share of preference model will be built for “what-if” scenarios simulation. This simulation tool enables marketer to see how changes in service attributes will influence the share of preference and identify the most promising service configuration that will most likely to be successful before the healthcare provider commits to developing and marketing this new service.

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## Values of Conjoint Analysis for your organization

The value of Conjoint Analysis can be seen as the followings:

- Identify and prioritize service features that are important for healthcare service provider to consider and avoid service features that are insignificant to stakeholders



- Optimize the appeal of service features by testing different service combinations

| Service Specifications       |             |             |             |                 |             |
|------------------------------|-------------|-------------|-------------|-----------------|-------------|
|                              | Attribute 1 | Attribute 2 | Attribute 3 | Attribute 4     | Attribute 5 |
| Service 1                    | \$500       | XX          | 1-3 days    | Risk Assessment | AAA         |
| Service Shares of Preference |             |             |             |                 |             |
|                              | Share       | Std Err     |             |                 |             |
| Service 1                    | 72.86       | 7.37        |             |                 |             |
| None                         | 27.14       | 7.37        |             |                 |             |

- Evaluate price sensitivity and determine optimal pricing strategy (this technique holds all attributes constant except for price to see how change in price impact preference)

| Price sensitivity for | Co-pay (\$50) | \$500 | \$800 | \$1,200 |
|-----------------------|---------------|-------|-------|---------|
| Service 1             |               |       |       |         |
| Share of preference   | 80%           | 78%   | 74%   | 68%     |

- Segment market based on individual part-worth utilities and how individual appeal to different service attributes
- Create effective communication messaging
- Provide guidelines for marketing strategy

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## **Taking Action**

Healthcare service providers need insightful market information they can rely on to make the right decisions and to identify the most promising market opportunities. They can obtain great benefits from understanding patients, physicians and other stakeholders' preferences and opinions via conducting conjoint analysis. If you think conjoint analysis could help you and your organization solve some of the problems you are facing, please don't hesitate to let us know.

## **About Gelb**

Feeling pressure to increase volume and grow revenues? Gelb Consulting Group, Inc. is a strategic marketing firm that merges analysis, strategy and technology to help clients build and sustain revenue growth.

Gelb is here to help you understand the complexities of your market to develop and implement the right strategies. We use advanced research techniques to understand your market, strategic decision frameworks to determine the best deployment of your resources, and technology to monitor your successes.

For over 40 years, we have worked with marketing leaders on:

- Strategic Marketing
- Brand Building
- Customer Experience Management
- Go to Market
- Product Innovation
- Trademark/Trade Dress Protection