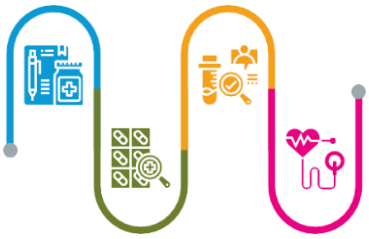
ROSA™

WHITE PAPER

## Commercializing Life Science Products

# Which Product Properties Are Important in Convincing Physicians and Patients to Use My Product? And How to Ask This Question.

William C. Brastow, PhD



# Commercializing Life Science Products

A **prescription drug therapy, medical diagnostic product, or medical device** usually begins with an **idea** from the biological sciences lab. Commercializing this idea, turning it into an FDA approved product, or preparing the asset for out-licensing, takes a lot of additional effort and investment.

**The key to successful commercialization is to determine what healthcare issues this new science might be able to address, and to design a product with properties to address them.**

**Starting with development as possible product properties are developed, development decisions must be made, and companies need to ask themselves – "Which Product Properties Are Important?"** That is, which combination of product properties will get the **most share** from physicians/patients, and, therefore, are the ones to spend development dollars on.

**How we ask this question and how it is answered has important implications for successful commercialization and is the subject of this white paper.**

## The Question – What is the Question?

"Which Product Properties Are Important?" is only part of the question. We really want to know **"Which Product Properties Are Important in Convincing Physicians and Patients to Use My Product?"** If we only emphasize the first part of this question, we will be tempted to use simple ratings or rankings to answer it.

# Ratings & Rankings

In rating or ranking questions, physicians/patients are asked to rate or rank attributes of a product in order of importance to them. Notice that we are talking about ranking the attributes that describe products, not the products themselves.

## Ratings:

Let's look at ratings. The respondent is asked to specify how much more important one attribute is than another. If the respondent is not constrained in some way, the ratings could, in the extreme, all be the same. Or they might cluster at the top and at the bottom. The important ones are all equally important, the unimportant are equally so (Figure 1 for properties A - F). There is not much useful information here. We end up with only two levels of importance. This is not a basis for subtle decisions. Over the years, market researchers have come up with various methods to deal with this by constraining the question. For example, the respondent can be asked to allocate a fixed number of points to all the attributes. This helps to an extent but does not completely solve the problem, because the allocation may force some attributes to be farther apart than the respondent really wants them to be.

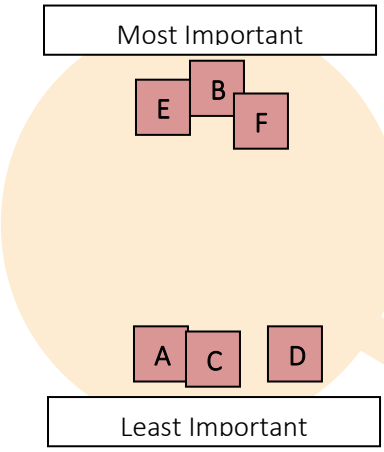



*Figure 1*

## Rankings:

Another way to deal with this issue is by asking respondents to rank attributes in order of importance. If ties are not allowed, then everything gets ranked from top to bottom. Doing this spreads out the attributes, but we lose information about how far apart any two rankings might be in a respondent's mind. Again, we don't have enough information to make decisions.

# Tradeoffs and Discrete Choice

In addition to the issues mentioned above, there is another very important property of human decision-making that any rating and ranking exercise misses. In the real world, we are very seldom offered a set of products to choose from that have all the attributes we want in any one of them. We must make "tradeoffs."

## Tradeoffs:

**Neither rankings nor ratings force respondents to think about making "tradeoffs"**. Let's look at a simplified example. A patient is asked to rate the efficacy and cost of treatment for a particular disease. The patient likes to think that efficacy is always more important than cost, so on a scale of 0 to 1, they rate efficacy .8 and cost .4. Right away, you can see that there is not much information being given to the patient and that could be a problem. Now let's ask the patient a different question.

| Which treatment do you prefer for this same disease? | |
|---|---|
| Treatment A | Treatment B |
| You get better in 1 week<br>It costs $1,000 | **You get better in 4 weeks**<br>**It costs $100** |

Based on the ratings given above the patient would prefer Treatment A, but on looking at the two treatments, the patient thinks "maybe I'm not so sick that I couldn't stand 3 extra weeks of it if I could save $900. So, I prefer Treatment B." The patient **made a tradeoff based on the combinations of efficacy and cost available** and the resulting decision for Treatment B flips the order of importance for efficacy and cost. Cost is now more important than efficacy.

This example is very oversimplified, but when health care products made up of many attributes are involved, we rarely see simple choices (Figure 2 is a more realistic example), because biological fundamentals tend to push up cost (and price) as we try to improve efficacy and safety. So, instead of asking the question "What's Important?" we should be asking. **"After doctors/patients make tradeoffs when choosing a medical product, what attributes of products will be important?"** In market research the best way to answer this question is through the methods of "discrete choice".

## Discrete Choice:

A discrete choice is an informed decision involving the selection of one product from a finite number of competing products. **People make these choices by taking the attributes of each product and its competitors into account.**

The methods of discrete choice collect data from on-line surveys in which respondents are asked to make "forced choices" among partially described

alternative diagnostics, therapeutics, or medical devices to use for dealing with a patient's particular health issues. Figure 2 is an example of a forced choice question.

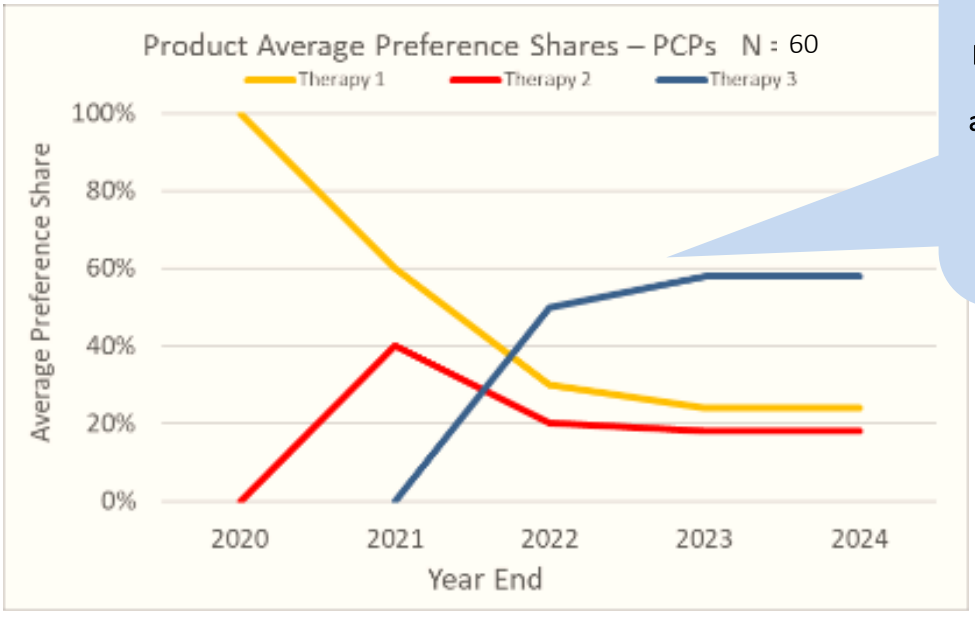
**Please examine the hypothetical therapies described on the left and right. Then select your preference level below.**

You can assume that any attributes NOT shown are identical for both therapies.

| Therapy I | | | Therapy II | |
|---|---|---|---|---|
| Efficacy: Response Rate<br>50% | | | Efficacy: Response Rate<br>70% | |
| Safety (Grade 4 Side Effect):<br>5% | | | Safety (Grade 4 Side Effect):<br>2% | |
| Number of Patients in Phase 3 Trial:<br>1,000 | | | Number of Patients in Phase 3 Trial:<br>500 | |
| Dosage Form:<br>Syringe and Vial | | *versus* | Dosage Form:<br>Auto-Injector | |
| Dose Frequency:<br>Once a Week | | | Dose Frequency:<br>Once a day | |
| Sales Rep Support Provided to MD:<br>Yes | | | Sales Rep Support Provided to MD:<br>No | |
| Patient Monthly Co-Pay:<br>$100 | | | Patient Monthly Co-Pay:<br>$25 | |
| Strongly Prefer ☐ | Somewhat Prefer ☐ | No Preference ☐ | Somewhat Prefer ☐ | Strongly Prefer ☐ |

*Figure 2*

The decision models we derive from our discrete choice surveys **tell us the shares** of a product and its competitors **based on their differing attributes** (Figure 3). These models also tell us **how much each attribute contributes to a product's share**.




Differing shares are based on **differing product attributes** and measured **physician attitudes toward them.**

**Shares can vary as product attributes change over time.**

*Figure 3*

# Discrete Choice Versus Ratings and Rankings

The discrete choice method yields ratings (utilities) and their rankings and excellent estimates of product shares. Would we get the same results from simpler ratings or ranking surveys? The answer is no because discrete choice accounts for tradeoffs respondents make, while rating/ranking surveys do not. We can illustrate this from our survey data.

## Rankings Before and After Tradeoffs

Over the years Rosa has surveyed thousands of physicians and patients for our clients. In each survey, before forcing choices, we asked respondents to rank the attributes we were studying according to their perceived importance. We then forced respondents to make a series of choices between two products. After the forced choice exercise, we calculate ratings (utilities). We then re-ranked the attributes based on these ratings. When we compare these "before and after rankings" we find they are often different. Let's look at some examples.

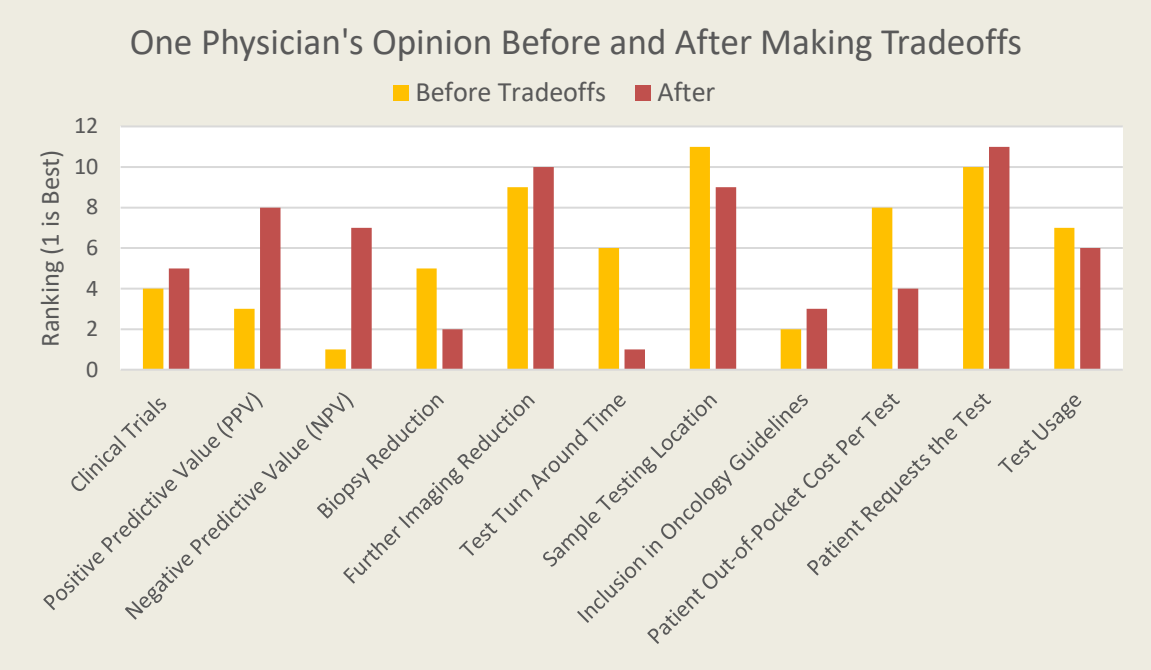



*Figure 4*

Figure 4 shows one respondent's rankings for attributes of a diagnostic assay. We have the respondent's initial ranking that we asked for directly, in orange. We also have the rankings implied by the choices this respondent made after being shown a

series of product pairs like those of Figure 2. Notice that the less important (ranked 8 or higher) did not change much, but 5 of the higher rankings changed by more than a few places up or down. Why? It's one thing to rank a list of attributes. It is quite another to be faced with a choice of products whose attributes are not all to your liking. Each time you make a choice you may be sub-consciously changing your original, unconstrained ranking.

If we look at all the respondents for this same survey, we find that, on average, they all changed their rankings. Figure 5 shows this result.

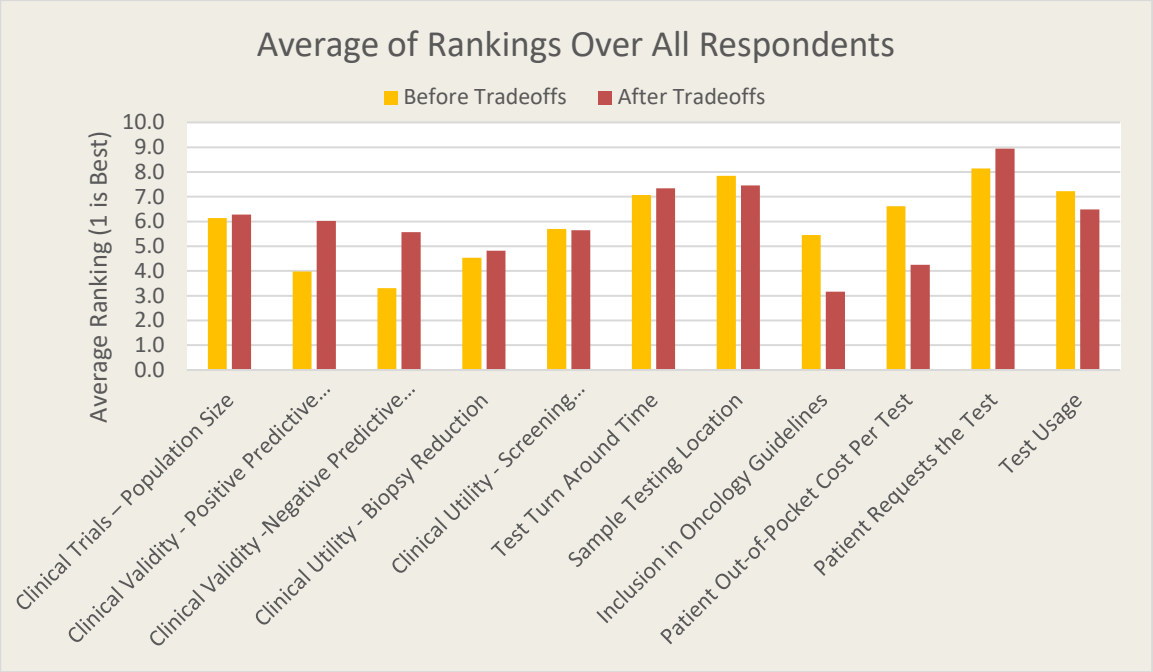



*Figure 5*

After the tradeoffs, two attributes were ranked, on average, higher and two lower than initially. This result is not uncommon in our experience.

Now let's look at multiple surveys done over the years. Since they all have different attributes, we must summarize the before and after rankings by showing what fraction of attributes moved.

Figure 6 shows the results for some 20 surveys in various treatment and diagnostic markets.

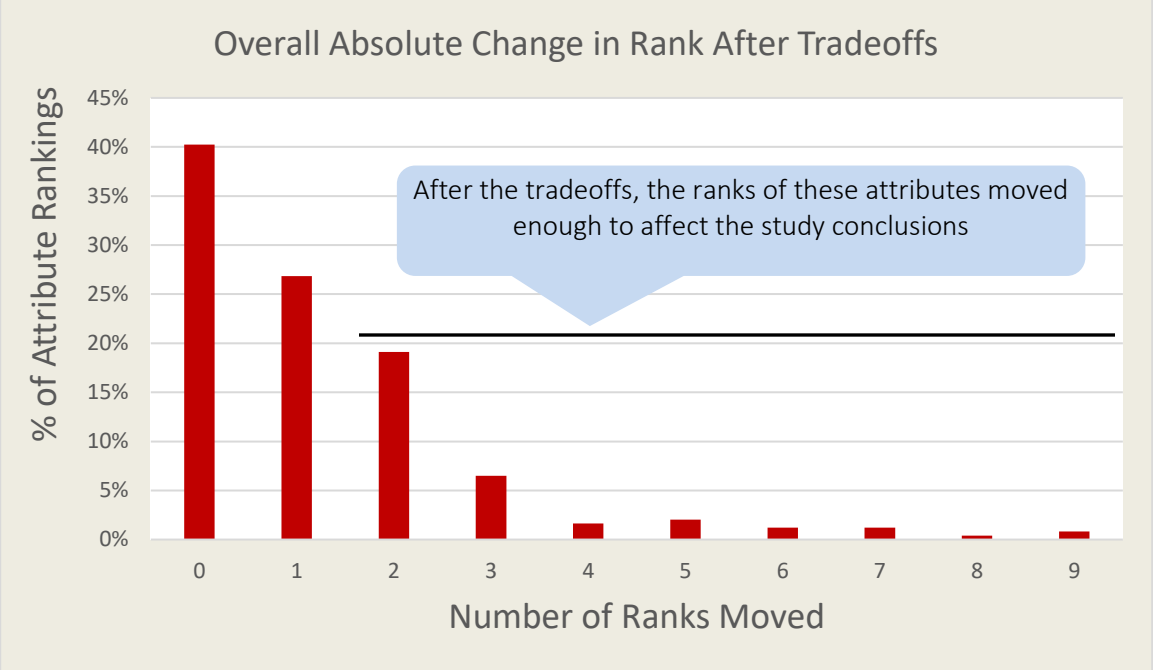



*Figure 6*

While most rankings did not materially change, about **35% of the original rankings moved up or down by 2 or more places** from where the respondents initially ranked them before they were forced to choose between products and had to make tradeoffs. This is like the result from the single survey we showed at the beginning. These movements, consistent over the many surveys we have conducted, is the reason that simple ranking or rating schemes are often misleading.

# Summary

The initial rankings or ratings of product attributes will seldom be the same as ratings and their rankings derived from discrete choice survey forced choices. These discrete choice ratings and rankings will more accurately estimate real-world decision-maker uptake of products, and, just as important, will more accurately represent the degree to which certain product attributes impact that uptake. In other words, discrete choice methods answer the question - **"Which Product Properties Are Important in Convincing Physicians and Patients to Use My Product?"**

# Rosa Market Modeling

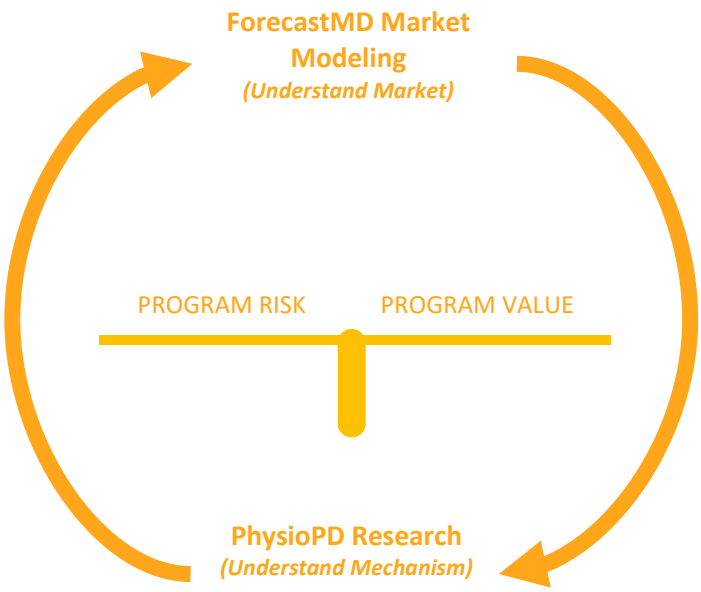
For 20 years, Rosa Market Modeling has been delivering insights that are difficult if not impossible to achieve any other way. Using a combination of carefully executed qualitative and advanced applied mathematics-based tools, our models are transparent, dynamic, and individually tailored to a specific product, therapy, or diagnostic. Furthermore, they cover a wide range of situations, including product development, product design, and promotional methods. To answer each client's needs in the complex world of commercialization, our models consider complex interactions between relevant factors within a wide variety of competitive scenarios. Rosa Market Models are the antidote to traditional, unrealistic, overly optimistic revenue forecasts and provide concrete evidence for your business decisions.

Our clients use the results from these studies to identify what product attributes are most important to drive demand, to understand how their product will perform vs. current and future competitors and to communicate their product's value proposition to VCs, PE firms and potential partners.

## About The Author

**William C. Brastow**, PhD
Principal and Chief Technology Officer, ForecastMD

*As the Chief Technology Officer of Rosa's Market Modeling practice, Dr. Brastow specializes in the design and implementation of customized market research surveys, physician choice models, and dynamic market models for biopharmaceutical and diagnostic companies*




To learn more or to see a demonstration, please contact

Rob Singer, Principal, ForecastMD

rsinger@rosaandco.com or (415) 793-4276