

Conjoint Analysis

Multivariate Solutions

What is Conjoint Analysis?

- *Conjoint analysis is a technique for estimating the value people place on the attributes or features which define products and services.*
- *The goal of any conjoint design is to assign specific values to the range of options buyers consider when making a purchase decision.*
- *These choices or ratings, when taken together, allow the researcher to compute the relative importance of each of the attributes studied. Instead of "stated importance," conjoint analysis uses "derived importance" values for each attribute or feature.*

Why Use Conjoint?

- *In a real purchase situation consumers do not make choices based on a single attribute. Consumers examine a range of features or attributes and then make judgments or trade-offs to determine their final purchase choice.*
- *Conjoint analysis examines these trade-offs to determine the combination of attributes that will be most satisfying to the consumer.*
- *By using conjoint analysis, the marketer can determine the optimal features for his product or service.*
- *In addition, conjoint analysis can be used to identify the best advertising message by revealing the features that are most important in product choice.*

Why Use Conjoint? (cont'd)

- *Conjoint Analysis can be used to understand market strategy development, new product design, market share, profitability, or margin optimization, and customer retention and profitability.*
- *One of the key advantages of conjoint analysis is the ability to use the results to develop market simulation models that can be used for forecasting.*
- *With conjoint analysis, the changes in the product or market can be incorporated into the simulation model to generate predictions of how buyers will respond to “what if” scenarios.*

Applications

- *Choice Based Conjoint Analysis consists of a series of questions that ask respondents to either:*
 - *rank a set of products or services at the given level, or*
 - *state the likelihood to purchase a product or service with the given levels of attributes, or*
- *Respondents are then shown another example with different levels of attributes and then are asked to perform the same ranking or rating.*

Pharmaceutical Conjoint Example

Study Objectives

- *Determine the relative importance of different attributes for key medical specialties.*
- *Measure the preference between alternative conditions for each feature level.*
- *Construct a simulation model allowing the client to determine the optimum treatment attributes.*
- *Using the simulation model predict market share among specialists for a drug with differing levels.*

Target Groups

3 Medical Specialties

- Cardiologists
- Hematologists
- Internal Medicine

Features

3 Drug Features

- Toxicity
- Route of Administration
- Efficacy

Three Medical Features

Varying Levels

- **Toxicity**
 - Toxicity demonstrated in animals but not in humans.
 - Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.
 - Toxic in humans when taken in either an oral or inhaled formulation — toxicity reversible after discontinuation of either formulation.
- **Route of Administration**
 - Oral
 - Inhaled
- **Efficacy**
 - 50% improvement in condition
 - 60% improvement in condition
 - 70% improvement in condition

Conjoint Agenda

1. Relative importance of treatment attributes for each specialty
2. Individual feature preferences
3. Simulation models of market share

Utility Sums

- Utilities for individual treatment attributes are aggregated to calculate the total utility for a defined treatment.
- Different programs—different combinations of treatment attributes—result in different utility sums.
- Programs with the highest utility sums are preferred.

Choice Exercise

Using a 10-point scale, please rate your overall likelihood of prescribing the product on **this Card**.

Example

- ***Can be toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.***
- ***Inhaled Administration***
- ***60% Improvement in condition***

Cardiologists

Likelihood to Prescribe This Treatment

Toxicity	
Average Importance	51.24
Utility	
Toxicity demonstrated in animals but not in humans	-0.9815
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	-1.963
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	-2.9444
Route of Administration	
Average Importance	27.45
Utility	
Oral	0.6528
Inhaled	1.3056
Efficacy	
Average Importance	21.31
Utility	
50% improvement in condition	0.1852
60% improvement in condition	0.3704
70% improvement in condition	0.5556

Hematologists

Likelihood to Prescribe This Treatment

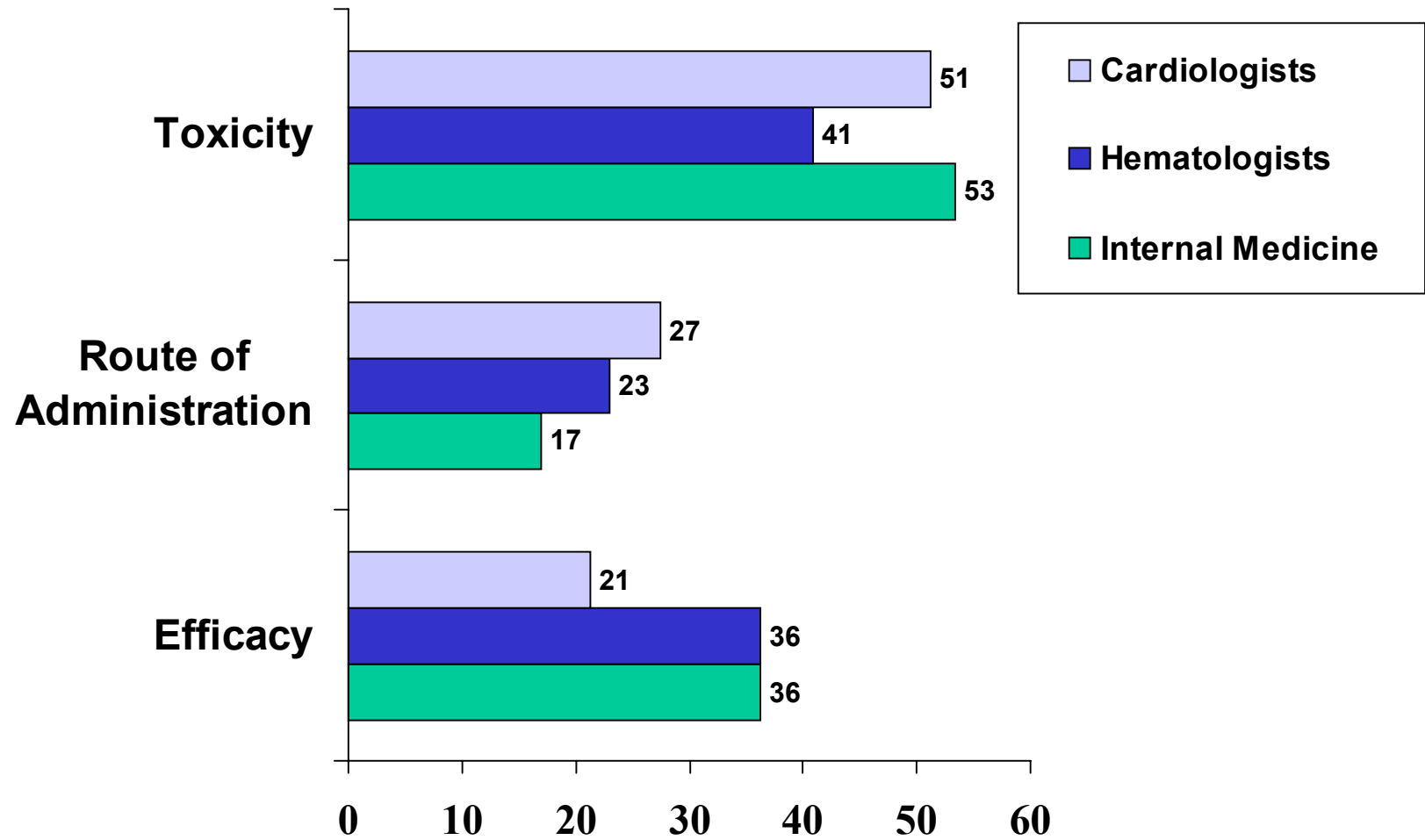
Toxicity	
Average Importance	40.83
Utility	
Toxicity demonstrated in animals but not in humans	-0.7724
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	-1.5447
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	-2.3171
Route of Administration	
Average Importance	22.93
Utility	
Oral	0.5000
Inhaled	1.0000
Efficacy	
Average Importance	36.25
Utility	
50% improvement in condition	0.4959
60% improvement in condition	0.9919
70% improvement in condition	1.4878

Internal Medicine

Likelihood to Prescribe This Treatment

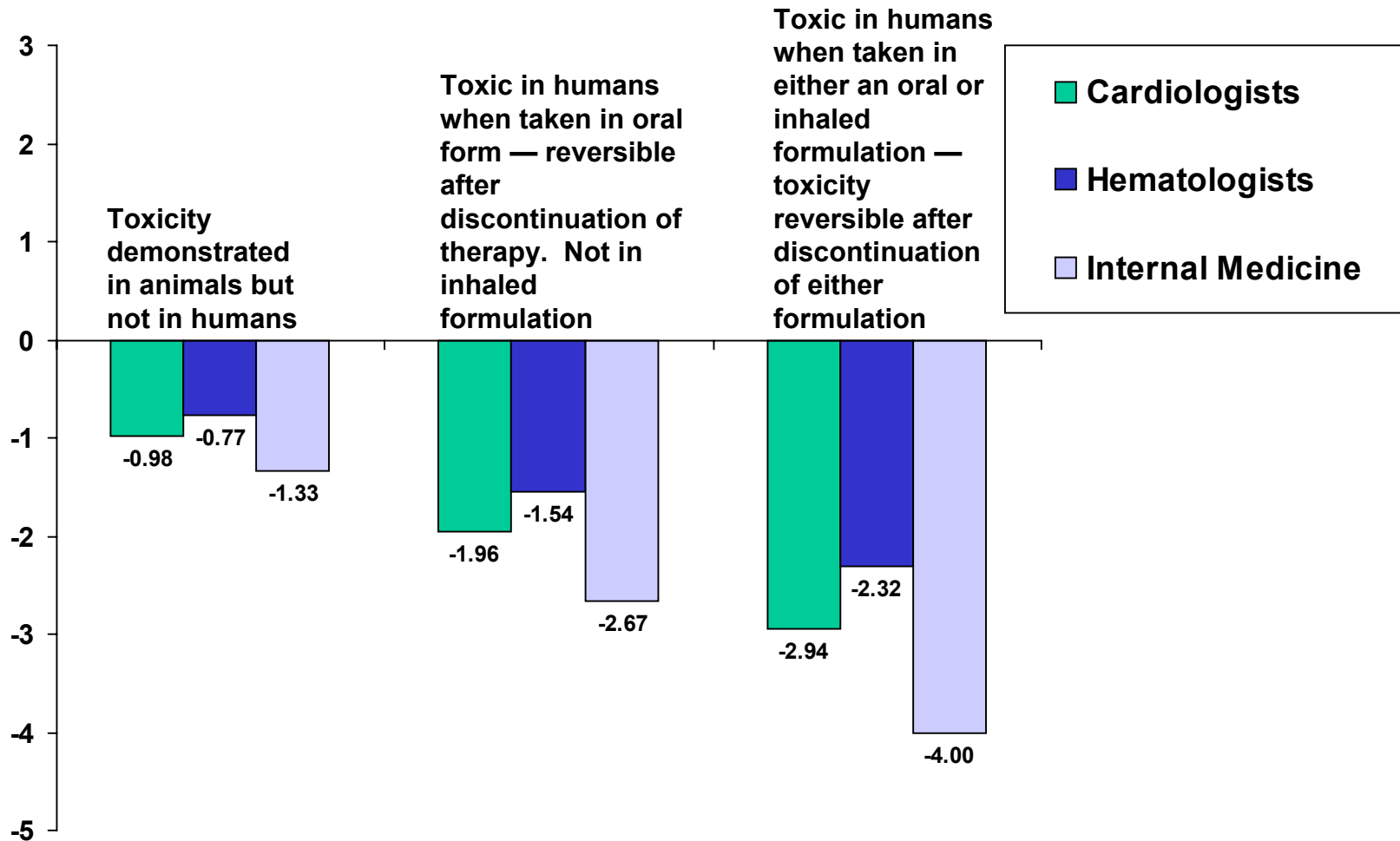
Toxicity	
Average Importance	53.35
Utility	
Toxicity demonstrated in animals but not in humans	-1.3333
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	-2.6667
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	-4.0000
Route of Administration	
Average Importance	17.00
Utility	
Oral	0.5570
Inhaled	1.1140
Efficacy	
Average Importance	36.25
Utility	
50% improvement in condition	0.3114
60% improvement in condition	0.6228
70% improvement in condition	0.9342

Relative Importance of Parameters



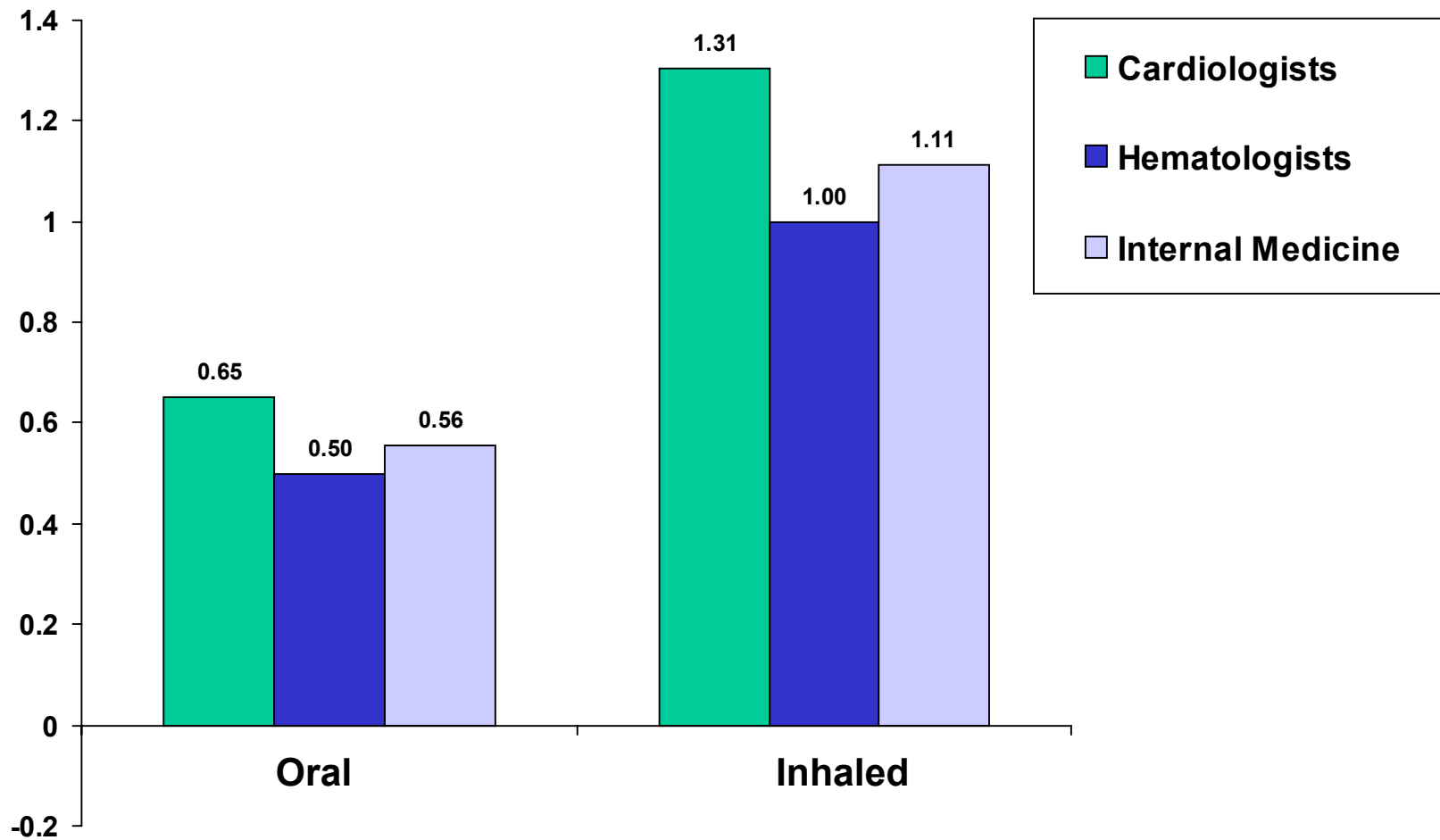
Utility Levels

Toxicity



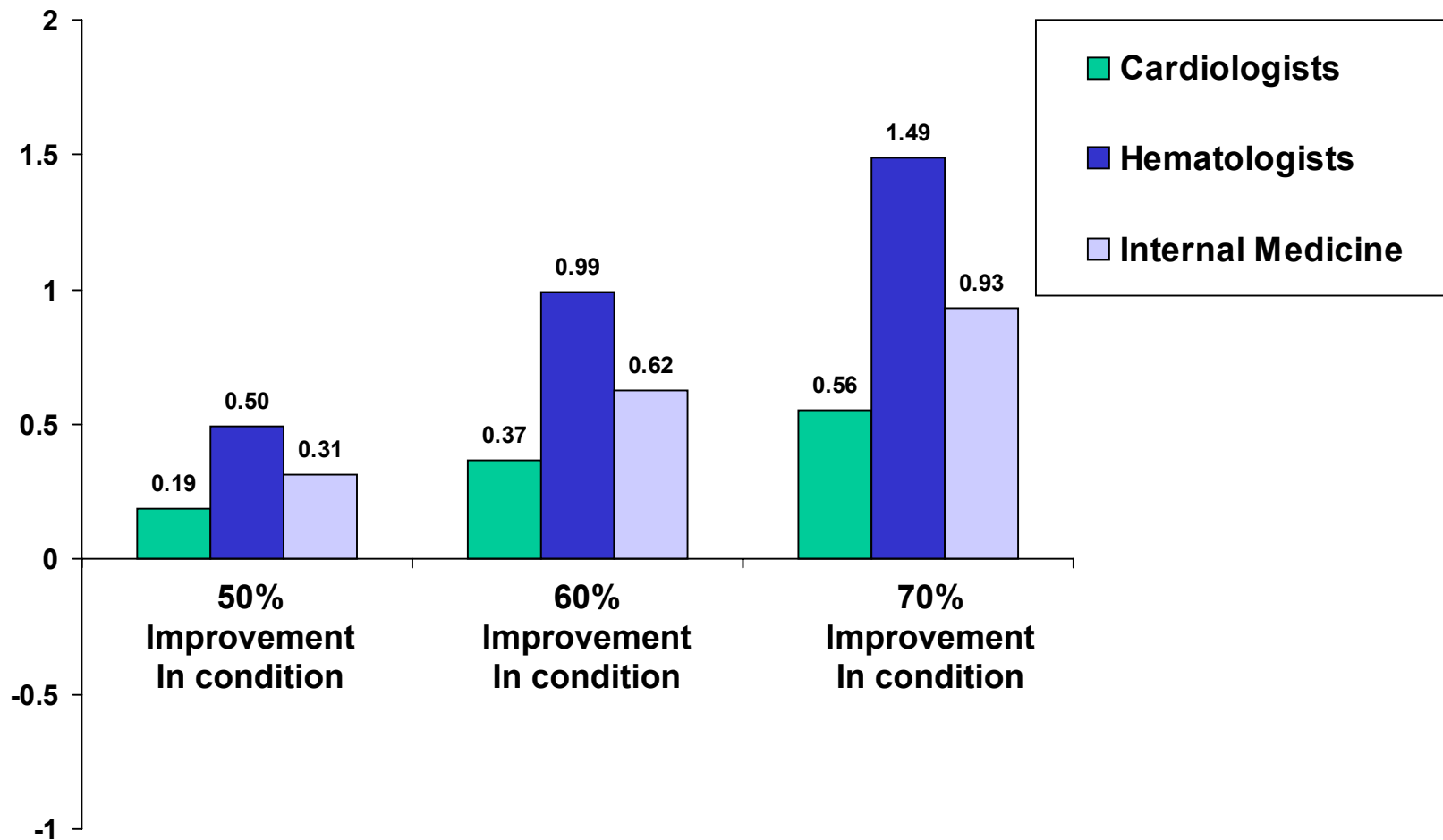
Utility Levels

Route of Administration



Utility Levels

Efficacy



Computing Market Share

- Model Calibrated on Highest Projected 'Number of Patients Would Prescribe' asked in a different section of the questionnaire.
- Market Share Reflects Relative Change in Market Share If Levels of Treatment are Changed in the marketplace.

Example--Computing Market Share

- At the maximum level, among Cardiologists prescribing the treatment, 35% would prescribe a treatment that is 'Toxicity demonstrated in animals but not in humans', 'Inhaled administration', and '70% improvement in condition'.

MARKET SHARE SIMULATOR	
CARDIOLOGISTS	
CONJOINT ANALYSIS	
MARKET SHARE OF NUMBER WOULD PRESCRIBE OVER NEXT 100 PATIENTS	
	Indicate Desired Levels of Treatment 1=Desired Level
Toxicity	
Toxicity demonstrated in animals but not in humans	1
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	0
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	0
Route of Administration	
Oral	0
Inhaled	1
Efficacy	
50% improvement in symptoms	0
60% improvement in symptoms	0
70% improvement in symptoms	1
Predicted Market Share	35%

Example--Computing Market Share

- What if 'Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.'? Market Share drops to 24%.

MARKET SHARE SIMULATOR

CARDIOLOGISTS

CONJOINT ANALYSIS

MARKET SHARE OF NUMBER WOULD PRESCRIBE OVER NEXT 100 PATIENTS

	Indicate Desired Levels of Treatment 1=Desired Level
Toxicity	
Toxicity demonstrated in animals but not in humans	0
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	1
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	0
Route of Administration	
Oral	0
Inhaled	1
Efficacy	
50% improvement in symptoms	0
60% improvement in symptoms	0
70% improvement in symptoms	1

Predicted Market Share

24%

Example--Computing Market Share

- What if 'Oral' administration and 60% effective? Market Share drops to 19%.

MARKET SHARE SIMULATOR	
CARDIOLOGISTS	
CONJOINT ANALYSIS	
MARKET SHARE OF NUMBER WOULD PRESCRIBE OVER NEXT 100 PATIENTS	
Toxicity	Indicate Desired Levels of Treatment 1=Desired Level
Toxicity demonstrated in animals but not in humans	1
Toxic in humans when taken in oral form — reversible after discontinuation of therapy. Not in inhaled formulation.	0
Toxic in humans when taken in either an oral or inhaled formulation —toxicity reversible after discontinuation of either formulation.	0
Route of Administration	
Oral	1
Inhaled	0
Efficacy	
50% improvement in symptoms	0
60% improvement in symptoms	1
70% improvement in symptoms	0
Predicted Market Share	19%