



Health Information Preferences of U.S. Consumers

Summary of Phase 1 & Phase 2 Results

March 31, 2006

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Introduction

The information that follows is derived from research conducted by MRxHealth, an Informed Medical Communications (IMC) company in March of 2006. With direction from Medical Marketing and Media magazine and support from The PATH Institute, the study was designed to measure the importance of health information to US consumers, discover how these consumers seek information, and reveal the ways in which available information affects treatment decisions. In answering these basic questions, MRxHealth also discovered information that reveals significant opportunities for pharmaceutical marketers.

One of the key findings of this study is the large proportion of physicians willing to give patients medications they specifically request. In fact, 87% of consumers in this study reported that their physicians have given them a prescription that they requested. Several hypotheses exist to explain this, including that physicians are interested in maintaining a positive relationship with their patient or that physicians lack the ability to differentiate products based on individual patient need. Regardless of the reason for physician behavior, these findings confirm that marketers have an opportunity to drive adoption if they can generate specific brand awareness with patients.

Related to generating a specific product request, this study found that of the fourteen information sources evaluated, these four were highly influential: internet, family/friends, television, and the pharmacist. Interestingly, the level of trust placed on a source of information did not correlate to increased requests. Further, consumers' attitudes toward prescription ads were not as negative as might be expected: 19% of those surveyed stated that they found prescription ads helpful and among the sub-set of consumers who reported poor health, 33%, purportedly the higher utilizers of healthcare, found ads helpful. Moreover, only 19% considered prescription ads harmful. Taken together, these two findings imply that marketers should focus less on the media, but more on the persuasiveness of the message itself. It also suggests that marketers should take steps to ensure that messages are effective for each channel used.

Another area of significant interest for the pharmaceutical industry that is illuminated by findings from this study is compliance and persistency. While often referred to as the "Holy Grail," pharmaceutical companies to date have been unsuccessful in improving either compliance or persistence. Unsurprisingly, forty percent (40%) of the consumers in this study said that they have stopped taking



medications without talking to their doctor, citing lack of efficacy and side effects as the primary reasons for discontinuing. More interesting, however, is the discovery that the likelihood to discontinue therapy was directly related to lack of trust in the competence of medical professionals. This is not insignificant since the recent trends show that lack of confidence is estimated at 17 - 33% among consumers and rising. Since it is possible to use consumers' belief in the competence of medical professionals as a statistically significant predictor for dropping or staying on medications, marketers are given the opportunity to refine consumer targeting and messaging to align with our improved understanding of these attitudes.

Lastly, this study also illustrates the value of segmenting consumers in order to understand their underlying attitudes about healthcare, physicians and treatment. By uncovering consumer healthcare segments, marketers create the opportunity to develop specific and motivating messages to not only predicatively drive patient requests, but also shape the physician-patient interaction, a key determinant of satisfaction with treatment.



Study Background

Informed Medical Communications, together with Medical Marketing & Media, commissioned a general population study among U.S. consumers in order to profile their health information seeking preferences. The first phase of this research focused on: the motivations behind looking for information; the sources used; the frequency of searching; and how the information was used.

Respondents' overall health and demographics were also profiled in order to place the results in a meaningful context for marketers.

Research Design

An online questionnaire was used to collect feedback from 546 U.S. adult consumers representing a range of ages and genders. Participants were recruited from an online survey database of more than 4 million opted-in members. The survey averaged 18 minutes in length. Data were weighted to represent census proportions for age and gender nationally, and the findings of this research are considered to be generally representative of the U.S. adult population who has access to the Internet.

Key Findings

Phase 1 of this study found that the motivations for seeking health information, the behaviors surrounding that search, how the information is used, and the openness to advertising for prescription drugs, all vary based on the individual's overall health and health behaviors, priorities and attitudes. Further, this research also yielded a comprehensive comparison of the various sources that deliver health information, including their reach, frequency of use, trustworthiness, and ability to motivate a conversation with a doctor or a request for a specific product.

Phase 2 compared the learning styles and language preferences of the groups identified in Phase 1 of the project. The findings suggest that while an individual's overall health rating was somewhat predictive of their preferences and behavior, the more complex segments derived from stated health values were more directly related to differences and were, therefore, more useful in predicting behavior.



Overall Health

Validity of the Overall Health Measure

Respondents were asked to rate their overall health on a scale of one to ten, where one meant, “Poor health impacts my quality of life every day,” and ten meant, “I am very healthy, with no health problems.” The mean rating for the total sample was 6.68 with a standard deviation of 2.13. Health ratings are seen to vary by age, with the 45-54 group returning the lowest rating (5.93) and the 24 and unders rating their health the highest (7.07). This is generally comparable to findings found nationally. The number of conditions with which respondents were diagnosed is also related to the health rating: as the number of conditions rises, the overall health rating declines.

Number of Conditions	0	1	2	3	4	5	6+
Mean Health Rating	8.39 bcdefg	7.54 cdefg	6.99 efg	6.62 fg	6 g	5.49 g	4.82
Std. Dev.	1.24	1.60	1.67	1.70	2.39	1.87	1.92
Base	109	87	79	68	45	40	110
	a	b	c	d	e	f	g

One additional measure supports the validity of the health rating: as would be expected, ratings are lower among respondents who visit the doctor more frequently.

Doctor Visits per Year	0	1	2-3	4-5	6+
Mean Health Rating	7.57 cde	7.46 cde	6.87 de	5.97 e	4.55
Std. Dev.	1.79	2.02	1.70	1.84	2.01
Base	141	105	135	73	85
	a	b	c	d	e

Health Rating Groups

Respondents can be divided into four distinct groups using the overall health rating:

- Poor Health (1-2)
- Low-Average Health (3-5)
- High-Average Health (6-8)
- Good Health (9-10)

Information seeking motivations, behaviors, and uses were seen to differ between these four groups.



Impact of Health Groups - Motivations

When asked to indicate their level of agreement with a series of statements about the motivations for looking for health information, those with high-average or good health were more likely to seek to maximize their health. Those with poor or low-average health tend to look for information on a situational basis, when they or a friend/family member experiences a problem.

Motivations	Poor Health	Low-Average Health	High-Average Health	Good Health
I look for information about health in order to be as healthy as possible	3.67	3.36	3.78 b	3.69 b
I look for information about health when I am having a problem	4.23	4.00	4.08	3.98
I look for information about health when a friend or family member has a problem	4.06	3.82	4.00	3.83
I look for information about health because I have a general interest in the subject	3.47 b	3.03	3.55 b	3.36 b
I notice health information such as TV ads or magazine articles when I come across it, but I don't look for it	3.47 b	3.04	3.19	3.27
I never look for information about my health and I don't pay attention to it when I come across it	1.70	1.95	1.77	1.91
Base	51	169	205	114
Scale: 1 to 5 where 1 means Strongly Disagree and 5 means Strongly Agree				
	a	b	c	d

Impact of Health Groups - Frequency

Those with poor health tend to look for information more frequently, with the majority of respondents in this category looking for information at least once a week. A majority of those in the low- and high-average group look for health information at least two or three times a month while those in good health look at least once a month. This suggests that necessity drives frequency.

Respondents in the low-average and good health groups are more likely than the others to report that they never look for health information; this implies that disinterest in health can be both attitudinal and situational.

How often do you look for health information?	Poor Health	Low-Average Health	High-Average Health	Good Health
Daily	17% bc	5%	6%	7%
Two or three times a week	16% d	9%	12% d	5%
Once a week or so	19%	22% c	13%	21%
Two or three times a month	15%	15%	20% d	10%
Once a month or so	17%	14%	12%	15%
Two or three times a year	4%	12%	16% a	12%
I rarely look for health information	11%	17%	20%	22%
I never look for health information	1%	5% c	1%	9% ac
Base	51	169	205	114
	a	b	c	d

Impact of Health Groups – Doctor Relationship

Those respondents with high-average or good health report better relationships with their physicians than the low-average health group on every element

measured. Surprisingly, those with poor health also report better doctor relationships than the low-average group on three of the five measures: getting an appointment; feeling comfortable asking questions, and understanding the information the doctor gives them.

Impact of Health Groups - Persistence

The health rating groups are also distinguished by their persistence with treatment. The poor and low-average health groups are one and a half times more likely to

Doctor Relationship	Poor Health	Low-Average Health	High-Average Health	Good Health
I can get an appointment with my doctor when I need one	4.36 b	3.50	4.16 b	4.23 b
I feel comfortable asking questions about my condition	4.43 b	4.08	4.5 b	4.33 b
My doctor is knowledgeable about my condition	4.01	3.83	4.24 b	4.26 b
My doctor makes time to listen to my questions	4.17	3.88	4.38 b	4.3 b
I can easily understand the information my doctor gives me	4.33 b	3.94	4.45 b	4.39 b
Base	51	169	205	114
Scale: 1 to 5 where 1 means "I do not agree at all" and 5 means "I agree completely"				
	a	b	c	d



report that they stopped taking a prescription medication without talking to their doctor. The primary reason for stopping treatment also differs between the groups: the poor and low-average health groups report side effects, while the high-average and good health groups cite improvement in their condition as their reason for stopping.

Impact of Health Groups – Information Uses

Those with poor and low-average health are more likely to have spoken to their doctor about the information they have found. Those with poor health are also three times more likely to have asked their physician for a specific medication. Physicians do not seem to distinguish between the health groups, however, as there is no difference between the likelihood that, having asked for a specific medication, a respondent receives it (87% overall).

Uses of Health Information	Poor Health	Low-Average Health	High-Average Health	Good Health
Have you spoken to your doctor about information you found?	82%	78%	74%	69%
Have you ever asked your physician to prescribe a specific medication?	68% cd	54% cd	32% d	22%
Did your doctor give you the prescription you asked for?	90%	84%	90%	83%
Base	51	169	205	114
% Yes				
	a	b	c	d

Impact of Health Groups – Openness to Advertising

Those with poor health are more interested in ads than those in the other health groups. This group at the lowest level of health, along with those who report low-average health, is also more likely to recall the specific product named in the ad. Those with poor health are also more likely to say that ads for prescriptions are helpful than are the healthier groups.

Openness to Advertising	Poor Health	Low-Average Health	High-Average Health	Good Health
How interested are you in ads for prescription drugs? (Scale of 1 to 5)	3.33 bcd	2.88	2.76	2.74
What was the product named in the last ad you remember seeing? (% saying Don't Remember)	38%	35%	49% b	48% b
Do you think that ads for prescription drugs are helpful or harmful? (% saying Helpful)	33% bc	18%	20%	20%
Base	51	169	205	114
	a	b	c	d

Health Groups: Conclusions

An individual's overall health is related to their interest in health information, their information seeking behaviors and preferences, and their attitudes about the usefulness of information. Further, overall health is strongly related to awareness of healthcare advertising and the value that is placed on such ads. The importance of one's health seems logical; it is easy to believe that the sicker one feels, the more important it becomes to seek out effective treatments. Unfortunately, overall health is not an effective means by which to target advertising or communications because health alone is not a defining characteristic. In order to target groups, a more holistic view of each consumer is required.

PATH Archetypes: Defining Patients by Activities and Attitudes

The PATH Institute Approach

The Profiles of Activities and Attitudes Towards Healthcare (PATH)[™] model is a systematic approach to revealing otherwise unseen patterns of healthcare related behaviors and attitudes (i.e. "archetypes") among adults that shape the healthcare outcomes we see. The PATH Model was included in this research for four key reasons:

- It is a robust, durable and comprehensive multidimensional model of the healthcare consumer based on self-disclosed descriptions of past and present healthcare focused behaviors, attitudes, and priorities which reliably predicts future behaviors.



- The PATH model has been widely and nationally applied across many healthcare contexts by health insurance plans, hospital systems, disease management, and healthcare marketers. The national trends tracked by the PATH Institute can be used to validate the information in the current project, and relate it to additional trends beyond the scope of this research.
- The patterns of everyday healthcare behaviors, attitudes and priorities identified by the PATH model reliably predict differences in disease prevalence, utilization of medical services, pharmaceutical claims, and response to healthcare communications.
- The PATH model offers the opportunity to go beyond the mere selection and targeting of communication channels to the *tailoring* of communications to specific user segments for maximum educational and persuasive effect.

The archetypal patterns revealed by the PATH model also show their influence in the areas of satisfaction, loyalty, adherence, compliance, and persistence.

By systematically and consistently measuring the healthcare attitudes and behaviors among groups of people, then tracking actual behaviors over time, the PATH Institute can predict current and future healthcare behavior based on the archetypal pattern an adult displays.



The PATH Model Predicts Pharmaceutical Claims

Pharmacy Claims Analysis: Commercial Health Plans, N=13,295

PATH Archetypes	N	Pharma Claims PMPY		Per 10,000	Variance	
Clinic Cynic	202	\$	407	\$	4,068,384	(\$2,232,906)
Avoider	497	\$	401	\$	4,008,037	(\$2,293,253)
Generic	2,386	\$	503	\$	5,028,202	(\$1,273,088)
Traditionalist	399	\$	467	\$	4,674,188	(\$1,627,102)
Family Centered	2,083	\$	637	\$	6,367,818	\$66,528
Loyalist	933	\$	736	\$	7,364,103	\$1,062,813
Ready User	2,050	\$	897	\$	8,973,426	\$2,672,136
Independently Healthy	1,852	\$	525	\$	5,246,252	(\$1,055,038)
Naturalist	1,457	\$	764	\$	7,641,602	\$1,340,312
Unassigned	1,436	\$	511	\$	5,111,472	(\$1,189,818)
Total Average Per Member	13,295	\$	630	\$	6,301,290	

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One of the ways in which the PATH model’s validity is demonstrated is by its proven ability to link membership in a segment to the use of prescription drugs. Pharmacy claims data recently collected from over 13,000 health plan members reveals that for every 10,000 patients, Loyalist, Ready User and Naturalist adults generate in excess of \$5 million more in health plan prescription drug claims compared to other groups of adults identified by the PATH model. To the extent that the value of any given segmentation is its ability to predict pharmaceutical revenues, the archetypes identified by the PATH model reveal a spread of about \$6,000 per person per year in pharmacy claims paid by health plans.

PATH and Communications

Because the reasons behind an individual’s choices are well understood, the PATH approach offers the opportunity to influence healthcare behaviors and decisions through the development and execution of tailored interactions at both the individual and group levels. The PATH Model allows you to create communications that are tailored to who a person is and what they do, not just to the problem they have. This allows the focus to change from a reliance on the trustworthiness of the media channel to influence, to the development of messages that persuade, *regardless of the medium used*.



The nine PATH archetypes are defined by responses to statements that assess an individual's reaction to eleven health issues. These are:

- Involvement in family health
- Trust in medical professionals
- Experiment with healthcare alternatives
- Avoid healthcare
- Healthcare information seeking
- Involvement in decision-making
- Health proactivity
- Health emphasis and involvement
- Receptivity to healthcare advertising
- Quality concern
- Price concern

Each of these dimensions interact in different ways within the healthcare consumer population. The PATH model provides a clear picture of these varying interactive patterns and their impact on healthcare consumer trends and outcomes.

The chart below shows the archetypes' levels across each of the health dimensions. A series of fifteen questions is used to identify the archetypes.

Health Values	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
Involvement in family health	H	L	L	VL	VH	H	L	H	M
Trust in medical professionals	VL	L	L	M	L	M	H	L	VL
Experiment with healthcare alternatives	H	M	M	M	H	H	VH	VH	VH
Avoid healthcare	H	VH	VH	H	H	L	VL	H	H
Healthcare information seeking	M	M	VH	VL	H	L	VH	VH	VH
Involvement in decision-making	H	H	VH	H	H	H	VH	VH	VH
Health proactivity	L	VL	L	L	H	H	VH	VH	H
Health emphasis and involvement	M	VL	H	L	H	H	VH	VH	VH
Receptivity to healthcare advertising	M	L	H	L	H	H	H	H	M
Quality concern	VH	H	H	VH	H	H	VH	VH	H
Price concern	L	L	H	L	M	H	L	M	M

VL=Very Low; L=Low; M=Moderate; H=High; VH=Very High



Distribution of Segments	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
Current Sample	3.3%	6.5%	18.0%	3.9%	12.1%	11.9%	13.5%	5.9%	8.3%
General Population	4.9%	8.8%	17.1%	7.6%	13.4%	7.6%	10.3%	11.5%	7.8%
Variance +/-	-1.6%	-2.3%	0.9%	-3.7%	-1.3%	4.3%	3.2%	-5.6%	0.5%

PATH Relationships to Health Groups

In this study, the PATH archetypes are seen to be related to the pre-defined health groups. Consistent with past research conducted using PATH, adults with the Traditionalist and Loyalist archetype generally rate their health on the poor side, or on the high-average side. Clinic Cynic and Avoider adults show more low average health. Traditionalists, Ready Users, the Independently Healthy and Unassigned adults rate their health more highly.

PATH Archetypes	Health Groups			
	Poor Health	Low Average Health	High Average Health	Good Health
Clinic Cynic	0%	46%	23%	31%
Avoider	7%	45%	29%	19%
Generic	4%	22%	52%	22%
Traditionalist	11%	22%	56%	11%
Family Centered	7%	28%	40%	25%
Loyalist	10%	17%	61%	12%
Ready User	5%	33%	55%	8%
Independently Healthy	0%	8%	64%	28%
Naturalist	3%	34%	37%	25%
Unassigned	3%	16%	62%	19%
Total Prevalence	5%	26%	50%	19%

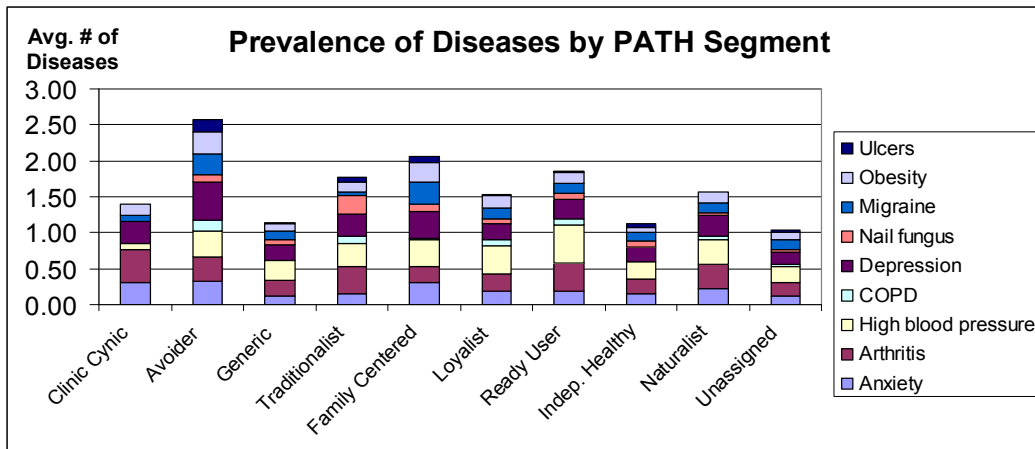
Chi Square=54.4, df=27, p<.001

Divergence Between Overall Health and PATH Segment

This study identified ten disease states that occur at different rates among the PATH segments. In the majority of cases, the diseases can be regarded as behavior-based or psychologically related, such as ulcers, migraines, depression, high blood pressure, and anxiety. Considering the prevalence of these conditions across the PATH segments, Avoiders report the highest number. This high prevalence supports the low health rating of Avoiders, and all evidence points to the conclusion that this segment is not healthy. This poor level of health should allow us to predict that Avoiders are more interested in healthcare advertising, seek information more frequently, and take action based on that information more frequently. In reality, however, the Avoider group is the LEAST likely to show



interest in any aspect of their health. This demonstrates our claim that overall health, while generally predictive, cannot match the predictive power of the multi-dimensional PATH segments.



Impact of PATH Segments – Motivations

Canonical correlation—a multivariate analytic technique—was employed to test the relationship between the questions used to identify the PATH segments and the questions used to measure the frequency of seeking healthcare information (Q10) and related motivations (Q11 series). The analysis revealed a strong relationship between the two sets of measures; results were statistically significant at the 99% confidence level. Further, the levels of agreement with the motivation statements vary widely between the various PATH segments. This indicates that the associations are not one directional, but bi-directional depending on the archetype being examined. Clinic Cynics, Avoiders, and Traditionalists are least likely to seek health care information to maximize their health, while adults with the Independently Healthy, Ready User, and Naturalist archetypes are more likely to have this motivation. Again, this is consistent with their known traits. The Clinic Cynic, Avoider, Generic, and Traditionalist adults tend to look for information and react to problems as they arise. The Ready User and Independently Healthy segments express a general interest in health and are more proactive. The Traditionalist segment is the most likely to admit that they don't actively look for health information. The Clinic Cynic, Avoider, and Loyalist segments are similar in that they fail to seek out health information, but also admit to ignoring it when they come across it. These findings are consistent with those of past studies and the nature of the PATH archetype profiles.



Motivations	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready user	Independently Healthy	Naturalist
I look for information about health in order to be as healthy as possible	2.83	2.31	3.86 abcdf	2.68	3.69 abcdf	3.32 bd	4.18 abcdef	4.45 abcdef	3.99 abdf
I look for information about health when I am having a problem	3.71	3.75	4.19 ab	3.96	4.12	3.97	4.21 ab	3.91	4.21 ab
I look for information about health when a friend or family member has a problem	3.67	3.29	4.13 bf	3.92 b	4.08 bf	3.73 b	4.10 bf	4.07 b	4.00 b
I look for information about health because I have a general interest in the subject	3.17 bd	1.83	3.43 bd	2.46 b	3.45 bd	3.34 bd	3.92 abcdef	3.86 abdf	3.49 bd
I notice health information such as TV ads or magazine articles when I come across it, but I don't look for it	3.20	3.06	3.35 h	3.87 bceghi	3.07	3.34 h	3.08	2.74	3.05
I never look for information about my health and I don't pay attention to it when I come across it	2.19 eghi	2.34 cdeghi	1.77 gh	1.78 g	1.57	2.12 ceghi	1.30	1.32	1.55
Base	18	35	97	21	65	64	73	32	45
Scale: 1 to 5 where 1 means Strongly Disagree and 5 means Strongly Agree									
	a	b	c	d	e	f	g	h	i

Generic, Family Centered, and Naturalist adults look two or three times a month or more.

Impact of PATH Segments – Frequency

The Ready User and Independently Healthy segments tend to look for information more frequently than the other segments, with the majority seeking information at least two to three times a month. At the other end of the scale, Clinic Cynics and Avoiders look for information rarely or never. Of the five remaining segments, Traditionalists and Loyalists look for information once a month or less, while

These findings confirm the utility of the PATH model in predicting health care information seeking behavior and demonstrate that information seeking behaviors are not linked to one single set of health care consumer traits, but multiple combinations of traits.



How often do you look for health information?	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
Daily	0%	1%	10%	0%	9%	0%	10%	6%	14% b
Two or three times a week	2%	0%	11%	6%	16%	13%	11%	17%	16%
Once a week or so	23% b	1%	23% bf	25% b	24% bf	10%	20% b	21% b	18% b
Two or three times a month	5%	12%	14%	4%	9%	22% e	32% abcdei	19%	8%
Once a month or so	18%	6%	10%	16%	11%	21% c	11%	10%	26% bceg
Two or three times a year	0%	1%	14% b	20% b	14% b	14% b	9%	20% b	12%
I rarely look for health information	44% cefg	50% cefg	14%	26% gi	18% gi	19% gi	6%	7%	5%
I never look for health information	8%	29% cdf	4%	2%	0%	1%	0%	0%	0%
Base	18 a	35 b	97 c	21 d	65 e	64 f	73 g	32 h	45 i

Impact of PATH Segments – Doctor Relationship

Canonical correlation was again used to test the relationship between all the questions used to identify the PATH segments and the questions used to assess respondents’ relationship with their doctor. Taken together, the association was found to be significant at the 99% confidence level. The four most important PATH measures that accounted for the majority of this predictive association were those focusing on seeking healthcare information, avoiding healthcare, avoiding healthcare due to expense, and trust in the competence of healthcare providers.

In terms of frequency of use, the trends follow those typically found: Clinic Cynic, Avoider, Generic, and Unassigned patients are more likely to see a physician once or less per year, while the Traditionalist, Loyalist, Ready User and Independently Healthy are more likely to see a physician two or more times per year. On the whole, the doctor relationship is weakest among the Clinic Cynic, Avoider, Generic, and Naturalist segments. It is strongest among the Family Centered,



Ready User, and Independently Healthy segments. All five relationship elements are differentiated in this way, although ease of getting an appointment is slightly

Doctor Relationship	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
I can get an appointment with my doctor when I need one	3.97	3.53	3.77	4.18 b	4.41 bci	4.10 b	4.11 b	4.42 bci	3.81
I feel comfortable asking questions about my condition	3.88	3.48	4.34 b	4.60 ab	4.55 abi	4.63 abi	4.76 abci	4.69 abi	4.15 b
My doctor is knowledgeable about my condition	3.83 b	3.13	3.87 b	4.44 bci	4.41 abci	4.32 bci	4.60 abci	4.67 abci	3.85 b
My doctor makes time to listen to my questions	3.75	3.44	4.10 b	4.40 ab	4.44 abci	4.34 ab	4.58 abci	4.77 abcfi	3.98 b
I can easily understand the information my doctor gives me	3.78	3.55	4.39 ab	4.24 b	4.42 ab	4.36 ab	4.69 abcdfi	4.66 abi	4.14 b
Base	18	35	97	21	65	64	73	32	45
	a	b	c	d	e	f	g	h	i

less differentiating than the other four.

Impact of PATH Segments – Persistence

Those in the Clinic Cynic and Naturalist segments are significantly more likely to have stopped taking medication without talking to their doctor. Their rates are 62% and 56%, respectively, compared to the average of 37%. When asked directly, both segments indicated the primary reason for discontinuing the medication was side-effects. Among the other groups, the reason for stopping treatment is more differentiating than the likelihood of having stopped. Avoiders, Traditionalists, and Independently Healthy adults cite an improvement in their condition as the primary reason for stopping treatment. Generics, Loyalists, and Ready Users most frequently cite side-effects as their primary reason for stopping. The Family Centered segment is equally split between side-effects, cost and improvement in their condition.

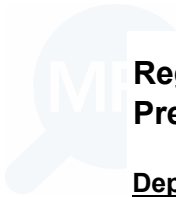


Receptivity to Prescription Drug Advertising

Comparing Predictive Power: Motivations, Behaviors and Attitudes vs. Health State and Total Diseases.

As previously discussed, both health state and the number of diseases reported predict receptivity to prescription drug advertising, but the predictive power is *less than half* the predictive power of pre-existing motivations and attitudes. The following analysis describes how that conclusion was reached:

When simple bi-variate comparisons were made, receptivity to prescription drug advertising was significantly correlated ($p < 0.001$) with fourteen of the fifteen individual PATH measures used to assess the PATH dimensions and identify membership in a given segment. To assess their predictive power, multiple regression analysis was used on these behavioral and attitudinal variables, along with the items used to assess motivations (Q11 series). Analysis showed the regression model to be both statistically significant and predictive. Six items in total (three PATH questions and three motivational questions) were shown to significantly impact receptivity to prescription drug advertising. The fact that only three of the fifteen PATH measures were significant in the regression analysis, but fourteen were significant when examined at a bi-variate level, is likely a result of the interdependencies that exist among the PATH measures. This raises the issue of multicollinearity, a somewhat common problem when using regression analysis. In spite of this limitation, however, the regression coefficients show the directionality of the impacts (only regression coefficients significant at $p < .01$ or less are reported). For example, a general propensity to avoid healthcare and lack of interest in health information have negative impacts on interest. A motivation to be healthy has a positive impact. In both cases this demonstrates, pre-existing psychologically-based dispositions shape receptivity to prescription drug advertising.



Regression Analysis: Health Rating and Total Disease to Predict Interest in Broadcast Health Information

Dependent Variable:

When you see or hear ads about prescriptions drugs on television, radio, the web, or in print, how interested are you in the information they offer?

Predictor Variables:

Health rating
Total diseases

<u>R</u>	<u>R Square</u>	<u>Sig.</u>
0.159	0.025	p<0.00

<u>Predictor Variables:</u>	<u>Unstandardized B</u>	<u>Sig.</u>
Health Rating	0.045	p=.002
Total disease	-0.100	p=.000

Regression Analysis: Health Behavior and Attitudes To Predict Interest in Broadcast Health Information

Dependent Variable:

When you see or hear ads about prescriptions drugs on television, radio, the web, or in print, how interested are you in the information they offer?

Predictor Variables:

PATH Questions
Question 11 series

<u>R</u>	<u>R Square</u>	<u>Sig.</u>
0.253	0.064	p<0.00

<u>Predictor Variables:</u>	<u>Unstandardized B</u>	<u>Sig.</u>
I have tried to save money by shopping around for healthcare	0.065	0.005
Members of my family take care of their own health.	-0.055	0.006
I do not seek help from doctors unless I am really sick or injured.	-0.101	0.000
I look for information about health to be as healthy as possible.	0.145	0.000
I look for information about health because I have a general interest in the subject.	0.088	0.003
I never look for information about my health and I don't pay attention to it when I come across it.	-0.088	0.008



Communications Tactics

Tailoring the meaning to those you want it to matter to.

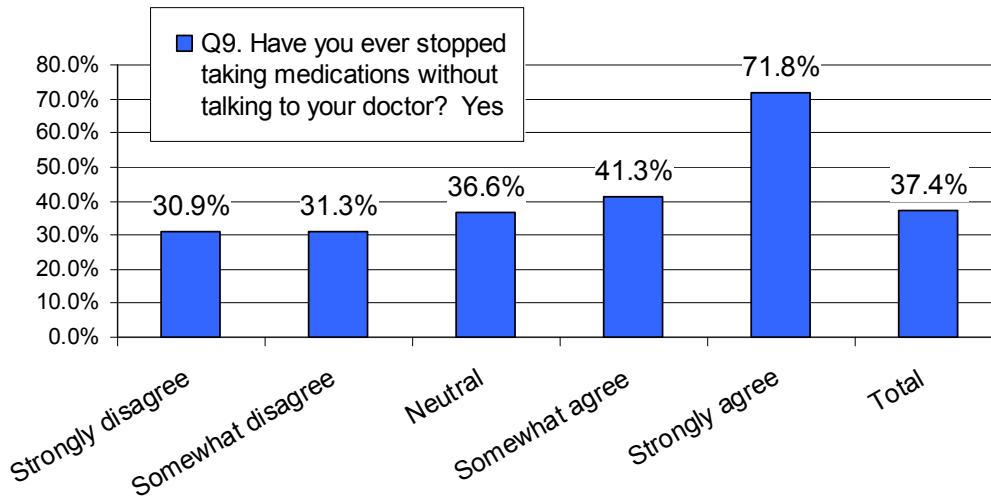
The nine healthcare consumer archetypes identified by the PATH model, and the profiles the model provides, offer rich insights into many psychological factors including pre-existing perceptual biases, learning styles, cognitive response to communications, and factors influencing decision-making (e.g., brand, price, information). The insights provided by these profiles point naturally to defining value propositions, advertising and communications tactics necessary for the greatest impact (e.g., the focus of priorities, message complexity, duration, repetition, emotional vs. rational appeals, choice of spokesperson, one-sided vs. two-sided arguments). Results from a word preference/comparison exercise discussed below provide evidence confirming the PATH model's ability to anticipate the cognitive response and perceptual biases of different healthcare consumers to different messaging themes.

Respondents in this study represent a range of PATH archetypes that generally follow the estimated distribution of them within the U.S. population.

The Effects of Undisclosed Distrust on Persistence and Adherence

As noted above, adults with the Clinic Cynic and Naturalist archetypes show much higher rates of discontinuing the taking of medications on their own compared to all of the other segments. Even though they attribute this to "side effects" when asked directly, there is clearly another undisclosed factor at work. Both Clinic Cynic and Naturalist adults display higher levels of distrust and lack confidence in the competence of health care providers. The evidence suggests that this has a profound effect on persistence and adherence. When comparing the rates of stopping a medication without talking to a doctor across the various levels of distrust, the effect is clear.

Have You Ever Stopped Taking Medications Without Talking To Your Doctor?



Most doctors and nurses are not as good at what they do as we hear they are.

As lack of faith in the competence of health care professionals increases, so does the rate of dropping medications, particularly at the most extreme levels of distrust. Discriminant analysis was used to examine the differences between those who do and those who do not drop medications across the array of PATH measures, and the physician and information statements unique to this study. The PATH measure assessing belief in the competence of medical professionals was a statistically significant predictor ($p < 0.001$) of dropping or staying on medications. Additional measures related to this theme (e.g., doctor is knowledgeable, avoiding care due to expense, avoiding care without a reason, information seeking behavior) were also found to be significant in predicting likelihood to maintain or drop medicating regimen.

A key point to recognize is that lack of trust in the competence of medical professionals is, for the most part, *an undisclosed and untreated complication* interfering with adherence and persistence. And the problem is not insignificant. Recent trends show that the lack of confidence issue can plague 17% to 33% of healthcare consumers. Left untreated, undisclosed distrust and lack of confidence will continue to play havoc with efforts to improve adherence and persistence.



Most doctors and nurses are not as good at what they do as we hear they are.

	This study	National Survey, 2000	Pacific Northwest Community Survey, 2004	Multi-Region Hospital Patient Sample, 2005
Strongly disagree	17%	14%	31%	18%
Somewhat disagree	29%	23%	23%	31%
Neutral	30%	37%	14%	34%
Somewhat agree	17%	17%	18%	14%
Strongly agree	7%	8%	15%	3%

Sample Size

546

64,371

2,000

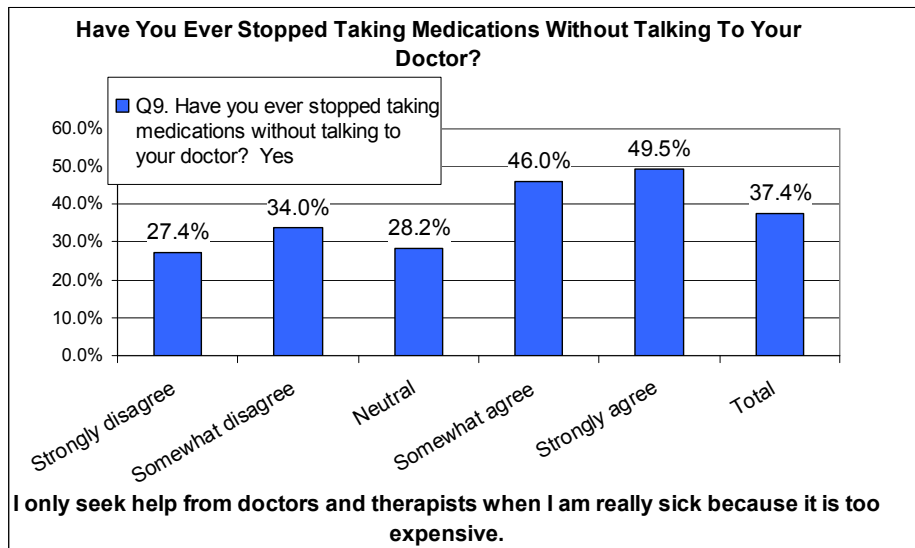
11,474

PATH Trends Database

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Expense as a Complication

Healthcare consumers who avoid seeking care due to the expense are also more likely to discontinue taking a prescription medication without talking to their doctor. For those who say they avoid seeking medical care due to the expense, 46% to 50% say they have stopped taking a medication without talking to their doctor. The statistical relationship is highly significant (Chi square=19.4, df=4, p=0.001). Intuitively, this makes sense. Why pay money you may not have to ask someone (the doctor) about something you want to (or have to) do anyway, especially if you think they will disapprove?



The issue of expense is being addressed by some pharmaceutical companies, as evidenced by the message in many AstraZeneca ads which tell consumers who may be having trouble paying for their medications that the company may be able to help. But the issue of costly medication is not likely to go away, and based on

the PATH measures, the propensity to avoid seeking medical care due to the expense is a factor effecting adherence and persistence for approximately 40% of adults.

The Interactive Effect of Distrust and Avoiding Due To Expense on Persistence/Adherence

Unfortunately, patterns of behavior and attitudes do not exist in a vacuum. The results of the canonical correlation cited earlier showed that many information seeking and health care behavior issues interact—they do not exist or operate independently. The same is true for the propensity to avoid seeking healthcare due to the expense, and the conviction that healthcare professionals are not competent. Examining the bivariate correlation between these measures confirms their relationship ($r=0.31$, $p<0.001$). One factor affects the other. What is their combined affect on predicting non-adherence? More severe. Eighty (80%) percent of those patients who are at the extremes of avoiding healthcare due to the expense and believing that health care professionals are not competent, admit to discontinuing to take a medication without talking to their doctor.

Impact of PATH Segments – Information Uses

The Loyalist, Ready User, Independently Healthy, and Naturalist segments are more likely than the others to have spoken with their doctors about information they found. The Avoider segment is the least proactive, being only half as likely to have spoken with their doctor. This behavior is consistent with their other patterns.

There are few differences between the segments based on asking a doctor for a specific medication; only the Naturalists are significantly more likely to have done so than the other groups. There is evidence that physicians do differentiate between the segments, however, granting the request for a specific medication less frequently to the Clinic Cynic and Family Centered segments.

Uses of Health Information	Clinic Cynic	Avolder	Generic	Traditionalist	Family Centered	Loyalist	Ready user	Independently Healthy	Naturalist
Have you spoken to your doctor about information you found?	49%	32%	69% b	72% b	85% abc	91% abcd	87% abc	77% ab	78% ab
Have you ever asked your physician to prescribe a specific medication?	25%	32%	43%	44%	50%	51%	44%	40%	57% ab
Did your doctor give you the prescription you asked for?	49%	88%	87% a	91%	75%	97% ae	88% a	96% a	89% a
Base	18	35	97	21	65	64	73	32	45
% Yes	a	b	c	d	e	f	g	h	i

Impact of PATH Archetypes – Openness to Advertising

Adults who are the most interested in ads for prescription drugs are those with the Ready User, Loyalist, Independently Healthy, and Generic archetypes. This is consistent with their high receptivity to healthcare advertising, which is a trait directly assessed with the PATH model. Of those segments, though, only the Independently Healthy segment has good recall of the product named in the last ad they remember seeing.

Openness to Advertising	Clinic Cynic	Avolder	Generic	Traditionalist	Family Centered	Loyalist	Ready user	Independently Healthy	Naturalist
How interested are you in ads for prescription drugs? (Scale of 1 to 5)	2.56	2.15	3.01 bd	2.26	2.76 b	3.06 bd	3.21 abde	3.03 bd	2.99 bd
What was the product named in the last ad you remember seeing? (% saying Don't Remember)	56% h	43% h	42% h	48% h	48% h	47% h	47% h	16%	40% h
Do you think that ads for prescription drugs are helpful or harmful? (% saying Helpful)	7%	10%	18%	16%	17%	29% b	25%	30% b	13%
Base	18	35	97	21	65	64	73	32	45
	a	b	c	d	e	f	g	h	i

PATH Segments Response to Word Preference Exercise

In Phase 2, respondents were asked to state their preference between several combinations of two words. The word pairs included items such as: “nutritional” versus “tasty,” “healthcare” versus “medical,” and “illness” versus “disease.” Seven of the word pairings showed statistically significant differences in preference across the PATH archetypes. In every case, the preference for the word chosen was consistent with the healthcare priority profile defined by the PATH model. For example, adults with the Ready User, Independently Healthy, and Naturalist archetypes preferred the word “nutritional” over “tasty,” which is consistent with their greater focus on health and nutrition. Adults with the Avoider archetype, however, showed a much greater preference for the word “tasty,” which is consistent with their lack of interest in health issues. It may also suggest that adults with the Avoider archetype are generally more concerned with the hedonic, pleasurable aspects of food and give less thought to their contribution to nutrition. Preference for the word “family” over “individual” was predictably much stronger among adults with the Family Centered archetype, again confirming the PATH model’s ability to identify “hot buttons” or key words that register more meaning for adults with any given archetype. Finally, there was a marked preference for the word “illness” over “disease” among adults with the Avoider or Naturalist archetype. This is consistent with each archetype’s profile and is reflective of how these adults want to think about healthcare problems; an “illness” is potentially less harsh and less well defined in terms of known effects and outcomes; a disease, on the other hand, is more often “medically” defined with expected outcomes and recommended treatments.



Word Preferences by PATH Archetypes

PATH Archetypes	Word Preference 1		Word Preference 2		Word Preference 12		Word Preference 13	
	"Nutritional"	"Tasty"	"Individual"	"Family"	"Healthcare"	"Medical"	"Medication"	"Remedy"
Clinic Cynic	44%	56%	33%	67%	35%	65%	71%	29%
Avoider	22%	78%	33%	67%	37%	63%	37%	63%
Generic	59%	41%	40%	60%	62%	38%	54%	47%
Traditionalist	51%	49%	35%	65%	47%	53%	55%	45%
Family Centered	57%	43%	21%	79%	61%	39%	64%	36%
Loyalist	48%	52%	32%	68%	59%	41%	67%	33%
Ready User	61%	39%	34%	66%	60%	40%	71%	29%
Independently Healthy	75%	25%	42%	58%	75%	25%	66%	34%
Naturalist	63%	37%	40%	60%	64%	36%	54%	46%
Total Population	58%	42%	35%	65%	60%	40%	62%	38%
Chi Square significance =	p<0.000		p=0.11		p=0.003		p=0.005	

PATH Archetypes	Word Preference 17		Word Preference 22		Word Preference 32	
	"Clinic"	"Hospital"	"Older"	"Elderly"	"Illness"	"Disease"
Clinic Cynic	44%	56%	83%	17%	56%	44%
Avoider	63%	37%	56%	44%	82%	19%
Generic	61%	39%	62%	38%	63%	37%
Traditionalist	46%	54%	80%	20%	59%	41%
Family Centered	44%	56%	63%	37%	59%	41%
Loyalist	35%	66%	56%	45%	64%	36%
Ready User	48%	52%	66%	34%	66%	34%
Independently Healthy	53%	47%	71%	29%	60%	44%
Naturalist	55%	45%	70%	30%	75%	25%
Total Population	49%	51%	66%	34%	64%	36%
Chi Square significance =	p=0.006		p=0.037		p=0.060	

PATH Segments Response to Learning Style Exercise

In this part of the research, respondents were exposed to a description of the physiology of an allergic reaction, a moderately complex topic. The information was presented in three different forms: as a written description; as a graphical interactive object; and as an audio recording of a doctor explaining the information to a patient. After reading, viewing, or listening to the content, respondents were asked to answer a series of questions about the content.

Overall, respondents answered more questions correctly when exposed to the audio version of the content. Those who were given a written description scored next highest, while those who were shown the graphic interactive learned the least.

Questions Answered Correctly	Audio	Text	Graphic
Mean	11.43 bc	11.07 c	10.60
Std. Dev.	2.10	1.92	1.81
Base	199	290	263
	a	b	c



The ability to understand health information varied by PATH segment. Surprisingly, Avoiders scored highest, followed by Ready Users, and the Independently Healthy and Family Centered segments. Loyalists, Clinic Cynics, and Traditionalists scored lowest.

Questions Answered Correctly	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
Mean	10.61	11.52	10.72	10.67	11.14	10.60	11.28	11.17	11.14
Std Dev	2.17	1.72	2.00	1.95	1.80	1.88	1.88	1.99	1.98
Base	18	27	100	51	103	112	134	93	114
	a	b	c	d	e	f	g	h	i

The table below shows the mean score for each PATH segment across the three different formats. When exposed to the audio format, all segments did well, and Naturalists did the best. When exposed to text, however, only the *interested* segments scored well: Family Centered, Ready User, and Independently Healthy. The graphic interactive format was only successful in communicating to the Avoider and Independently Healthy segments.



Questions Answered Correctly by Format	Clinic Cynic	Avoider	Generic	Traditionalist	Family Centered	Loyalist	Ready User	Independently Healthy	Naturalist
Audio									
Mean	11.00	11.20	10.83	11.31	11.41	11.13	11.67	11.29	11.94 c
Std Dev	2.16	2.15	2.53	1.60	1.99	2.29	2.04	2.39	1.80
Base	4	10	24	13	27	15	42	28	36
Text									
Mean	10.50	11.83	10.95	11.40	11.43 f	10.40	11.41 f	11.28 f	11.07
Std Dev	2.27	1.47	1.84	1.88	1.69	1.89	1.95	1.94	2.06
Base	10	6	40	15	40	57	51	29	42
Graphic Interactive									
Mean	10.50	11.64 cdi	10.39	9.83	10.61	10.68	10.71	11.00 d	10.42
Std Dev	2.52	1.50	1.76	1.90	1.71	1.70	1.90	1.85	1.78
Base	4	11	36	23	36	40	41	36	36
	a	b	c	d	e	f	g	h	i

Information Sources

Sources – Comparing across all Measures

The understanding of an individual’s overall health, when combined with knowledge of their health priorities, attitudes and prior behavior, allows one to predict how likely it is that certain segments can be influenced by information and enables marketers to identify their target segments and tailor their communication tactics. Channels for supplying the information can then be chosen by evaluating the reach, frequency, credibility and demonstrated success at motivating behavior.

The table below shows how well each source did on each of these measures:

Information Sources	Reach	Frequency	Most Frequently Used	Trust	Spoke to Doctor	Asked for Rx
Internet	81%	4.03	49%	3.67	62%	34%
Doctor	70%	4.10	30%	4.38	NA	NA
Family or Friends	51%	3.68	5%	3.65	76%	33%
Pharmacy/Pharmacist	47%	3.46	2%	4.25	60%	27%
Magazines	38%	3.54	3%	3.42	44%	12%
Books	36%	3.60	2%	3.70	57%	4%
Television	30%	3.46	3%	3.19	61%	31%
Other Health Professionals	29%	3.61	1%	3.96	81%	17%
Health Insurance Plan/Program	27%	3.59	2%	3.71	63%	7%
Newspaper	20%	3.46	2%	3.30	61%	3%
National/Advocacy Organization	16%	3.36	0%	3.88	53%	7%
Radio	9%	3.12	0%	3.06	43%	4%
Telephone Support Lines	8%	3.42	0%	3.94	35%	2%
In-Person Support Groups	4%	3.96	0%	3.79	94%	4%
Measurement	% Who have used	1-5 Scale	% Choosing	1-5 Scale	% Yes	% Yes

Insights into Communications Tactics

The word pair exercise examined across the PATH archetypes provides evidence that the value of certain words is dependent on the values or priorities of the individual. This is predicted by the psychological principle of perceptual bias and *psychological set*. People pay attention to subjects or topics which interest them or are important to them. They will likewise tune-out subjects or messages that don't interest them. Avoiders don't want to hear about nutritional food; they want to hear about tasty food. Ready User adults are more open to learning about "disease," and less interested about the vagaries of "illness." It is really about understanding the "meaning" people are looking for.

There are many communication tactics available to marketers and communicators that go beyond the medium being used. They include positioning, the value proposition, use of key words and phrases, focus on information or entertainment, level of complexity, duration, repetition, emotional vs. rational, use of fear, use of



humor, types of argument, authority figure, and choice of spokesperson. The majority of these tactics are not media dependent.

The choice of any of these tactics, and in what combinations, can only be driven by knowledge of the target customer, an understanding of their readiness to hear the message, and an understanding of what meaning they are looking for.

If you want to talk to someone about something they are not interested in, you need to keep them entertained.

In the case of adults who lack interest in health care issues and who are not expected to be motivated and be passive learners on health topics such as adults with the Avoider archetype, the optimum tactics look something like this: Use value propositions that resonate with the meaning Avoider adults seek, entertain them first and inform them second, keep the message simple, keep the message short, repeat the message often, persuade them with emotion—not information, use a little fear, use a healthy dose of humor, and make the authority figure or spokesperson someone like them.

If you want to talk to someone about a topic that interests them, just start talking.

In the case of adults who have interest in health care issues and who are expected to be motivated and active learners on health topics such as adults with the Ready User archetype, the optimum tactics look something like this: Use value propositions that resonate with the meaning Ready User adults seek, inform them, make the message detailed, use a longer message, repeat the message less frequently, persuade them with information, refrain from using fear, use minimal or no humor, make the authority figure a medical professional or spokesperson someone like them.



Appendix 1 - The IMC Companies

Informed Medical Communications

Informed Medical Communications (IMC) is a healthcare education and marketing company partnering with biotechnology and pharmaceutical clients to deliver integrated programs targeting patients and medical professionals. A privately held company, IMC is the parent company of HealthTalk, Inc. (patient education), The Peer Group (physician education), RxDialogue (brand marketing) and MRxHealth (customized market research). IMC's management team has extensive experience in healthcare marketing, technology, pharmaceutical client services and program delivery. IMC is headquartered in New York City, with operating divisions in Edison, N.J. (The Peer Group) and Seattle, Wash. (HealthTalk, RxDialogue, and MRx Health).

MRxHealth

MRxHealth is an integrated research and analytics consulting group that partners with pharmaceutical brand teams to support strategic brand planning and decision making through customized market research. MRxHealth offers a unique combination of attributes, including access to hundreds of thousands of responsive patients in multiple disease-specific networks with whom we have built relationships, advanced marketing research expertise and state-of-the-art online MR infrastructure. These attributes combine to make possible fast-turnaround, highly targeted market research delivering valuable insights and actionable results.



HealthTalk, Inc.

HealthTalk is an independent, trusted information resource and online community for patients and caregivers facing serious chronic diseases and health conditions. Through live and recorded programs delivered at in-person events, by telephone and over the Web on HealthTalk.com, we educate and empower our members to actively and effectively manage their chronic illnesses. In addition to third-party education programs, HealthTalk offers coverage of major medical conferences, clinical trial awareness programs and research capabilities through our access to hundreds of thousands of responsive members across multiple disease networks.



RxDialogue

RxDialogue is a marketing company offering a unique set of relationship marketing and promotional programs for both patient and healthcare professional audiences. Through our access to hundreds of thousands of patients across multiple chronic disease networks, as well as outreach to other targeted patient audiences, we





deliver a variety of live and recorded brand and disease awareness, compliance and persistency and clinical trial recruitment programs delivered via in-person events, on the telephone and on HealthTalk.com or client Web sites. On the HCP side, we offer key opinion leader relationship management services using state-of-the-art Web technology.

The Peer Group, Inc.

The Peer Group team is a physician education company that has pioneered and perfected the use of dinner meetings and other moderated peer discussion forums to educate and influence hospital and office-based physicians, specialists and other healthcare professionals.

The Peer Group created the first moderator-led promotional dinner meetings (MAPs™) and its electronic counterpart, TeleMAPs™, a forum to bring together physicians from around the country with a moderator via the telephone. The Peer Group also offers XMAPS speaker programs in which the moderator works closely with an expert speaker, and local representative-driven Lunch & Learn.

Corporate Partner

PATH Institute Corporation

The PATH Institute Corporation is one of the foremost leaders in understanding and modeling the behavior and attitudes of adults in a healthcare consuming context. The Profiles of Activities and Attitudes Toward Healthcare (PATH)™ model is slowly becoming the healthcare industry standard for revealing the complex, multi-dimensional nature of healthcare consumer behavior, its impact on a wide range of healthcare outcomes we see including disease prevalence, utilization of medical services, medical claims, response to communications, compliance, adherence, loyalty and satisfaction, .

