AN EXAMINATION OF VALIDITY AND UTILITY OF SPECIALIZED CATEGORY STUDIES: APPLICATION OF THE MARS PHARMACEUTICAL STUDY TO ENHANCE PRINT PLANNING

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Abstract

The recently released MARS Pharmaceutical Study is a new category specific media/marketing database, measuring the OTC and DTC categories in the United States. It is designed to provide a greater depth of information as a strategy and print planning data resource enabling analysis of all types of health related consumer attitudes, product purchase and media behaviors.

This paper and presentation will take the perspective of the client/agency to focus on the many issues involved in incorporating this new data source into the media process.

The investigation concentrates on an evaluation and comparison of the two major sources of print information for pharmaceutical advertisers and examines how print planning decisions can be modified and enhanced with the inclusion of the MARS data resource.

Introduction

The pharmaceutical category in the United States has seen an unprecedented rise in advertising spending as direct-to-consumer (DTC) marketers are increasingly using consumer advertising to stimulate demand for prescription brands and products. Over the last five years we have witnessed over a 250 % increase in DTC advertising, with the total now well in excess of two billion dollars.

Up to this point, standard media and print planning data resources (even with sample sizes over 25,000) simply did not have enough respondents to simultaneously examine the incidence of most disease states and specific media behavior. Existing product questions primarily addressed the over-the-counter (OTC) marketplace, and therefore did not provide insight into the purchase dynamics of prescription pharmaceuticals. As a result, scant information was available to support strategy and media plan development. Despite the enormous advertising investment, pharmaceutical marketers were essentially left in the dark regarding detailed insights about their consumers and their media usage.

Background

The MARS Pharmaceutical Study was fielded as an attempt to remedy this situation and fill some of these informational voids. It is an example of a growing list of category specific print/multimedia studies (as are Intelliquest, J.D. Power etc.) that provide advertisers in a specific category with in depth information sets to be used for advertising and media planning/buying.

The study was developed with large samples to enable thorough analysis for a wide spectrum of ailments, especially where incidence is not widespread among the population. In addition, much greater emphasis was placed on getting greater detail on product usage as well as media consumption habits related to the category. The intention was to build a database that would enable advertisers to uncover the psychological drivers behind pharmaceutical purchase habits and mindsets – and link it to media behavior.

The objectives of this paper are to:

- Provide an overview of the utility of MARS for agency/clients operating in the pharmaceutical category
- Examine the validity and reliability of this resource in determining readership levels
- Demonstrate how this information resource can change the outcomes of the planning process

As part of this exposition, we will give preliminary indications on how a special segmentation was generated using this data resource – ultimately to be used to substantiate print investments. We will also look at how we are now able to drill down deeper into media behavior characteristics to assess print titles that are health related or have a high appeal to key target groups. And finally, we will discuss implications and applications of the data for planning and buying and address the issue of establishing a currency for print when special category studies exist.

After a preliminary evaluation of the two services, we have recommended using both studies in conjunction with each other over the first year of MARS availability. As such, we are continuing to use MRI as the currency for establishing magazine CPMs, since MARS doesn't cover some very important media and product/lifestyle information measured in MRI. MARS, on the other hand, has become our primary information base for target and media insight for our major pharmaceutical brands. We will be continuing this evaluation to determine if MARS can be used to replace MRI as the primary currency database for this category in the next planning cycle.

The MARS Study

The MARS study is the first syndicated research study in the U.S. to focus solely on the needs of the Pharmaceutical Industry. It provides in-depth measures of both OTC/DTC categories including consumer attitudes and actions taken as a result of advertising. MARS was designed to have large samples (as highlighted in Appendix A) to enable detailed investigation of ailments, product usage, and media consumption habits, particularly print titles and health-related Internet sites.

To accomplish this, MARS devised an ingenious method of augmenting a random, national probability sample, with three sample lists containing potential respondents having a high likelihood to suffer from certain conditions or ailments.   While this was a clever solution to the problem of acquiring sufficient respondents for important disease states, there was also a potential for biasing the sample in some manner that would dramatically affect media audience estimates. And so, this is a key area of our investigation and evaluation.

MARS employed a mailed questionnaire to gather the data, as opposed to a personal interview utilized by the standard print resource in the U.S., MRI. Respondents were asked to identify from a list of 50 conditions which ailments they suffer from and whether these conditions were self-diagnosed or professionally diagnosed. In addition, questions were asked about the length of time they have suffered with this condition and how the ailment was treated. Further questions were directed at the influences on a respondent's decision-making and their discussions about prevention or treatment of ailments with a Doctor and Pharmacist.

The MARS methodology uses a Frequency-of-Reading question to estimate readership of the approximately 100 magazine titles most relevant to the category. New types of questions were also included, focusing on actions taken in response to advertising**.** Detailed information was collected concerning what medium conveyed the message, what actions were taken and which healthcare resources were relied upon for information.

Data Utility: A Comparison with MRI

In the U.S., MRI is the major consumer magazine measurement service -- estimating the readership of over 200 magazines. Their surveys have become the primary information resource for media planning and provide the currency from which print CPMs are established. MRI's data is collected twice a year -- producing a Spring and Fall study as well as a Doublebase release based on two years of data. MRI is also in the midst of a 5-year expansion of its sample to 30,000. Because of MRI's position as the primary print planning database, a new data resource like MARS should necessarily be compared to it as a benchmark. We will therefore highlight some of our analysis and comparison of the two services as we evaluated the information sets for use in planning our pharmaceutical brands.

MRI's primary advantage stems from the fact that it is currently at the center of the media planning process and has information on media, brands and consumer behavior outside the scope of the MARS study.   To this end, MRI measures twenty-four demographic breaks that aren't reported by MARS. MRI also has obvious advantages in other media measurement areas as they report, daily readership of newspapers, TV programs, and cable networks   These MRI advantages primarily speak to its utility as a general planning information source, as opposed to the very category specific information collected by MARS.

To this end, primarily to ensure a high number of respondents by ailment state, MARS took some innovative approaches. Since the incidence of many serious ailments are at a low level (thankfully) and many people are embarrassed or unwilling to talk about these issues, MARS decided to supplement a representative sample, with a three other non-probability samples that had a "known" level of sufferers of certain disease states. The sample frame was broken into 'silos' including the representative probability sample used as a benchmark to offer a means to weight the responses of the non-probability samples to their proper proportion in the population.

As a result, this method enables MARS to provide a richer and deeper data set for analysis of specific ailments than does MRI. Although MRI covers a broad range of OTC brands, it lacks MARS' deep list of prescription brands (for example MARS measures 132 prescription brands exclusively vs. 7 for MRI). MARS also offers information about the use of dozens of magazines, 'medizines' and websites important to healthcare advertisers. Furthermore, MARS contains a battery of questions about health care decision-making and opinions that are not readily available from any other source. Given this, a primary advantage of the MARS study is the ability to use this new data resource to uncover attitudes behind pharmaceutical purchase habits and determine how this is related to media behavior.

Since MARS, like most specialized segment audience research studies in the automotive, computer areas etc., uses the Frequency-of-Reading technique to measure print audiences, their audience estimates are often quite different than derived from MRI's Recent Reading method.   This being the case, our purpose here is not to propose a 'gold-standard' for print measurement. Rather, it is to suggest thoughtful ways of balancing the obvious utility of having this in-depth data resource, while making sure that innovative techniques do not result in spurious findings and data – especially as it pertains to audience readership estimates from which we base our CPMs.

Validity: Investigation and Evaluation

Before we could consider the obvious utility of these new data, we needed to validate the unique sampling procedures used by MARS and understand the effect they might have on projected media audiences. The key areas of consideration in our evaluation and comparison of the MARS healthcare study and MRI's general market study (Spring 2001 & Fall 2000) are to:

- Determine if the mixed methodology of random and non-probability samples have introduced bias, or if weighting has sufficiently compensated for the non-random components of the sample frame
- Examine issues pertaining to Recent-Reading vs. Frequency-of-Reading
- Evaluate scope of MARS data to assess if there is sufficient coverage of magazines, television and other media venues to enable use as a primary planning resource

To address the first question, the specific comparisons of MRI vs. MARS focused on analysis of sample size, response rates and differences in universe projections. Since there is a possibility the mixed method of developing the sample frames introduced a bias, MARS employed an elaborate weighting scheme to compensate for the of non-probability elements in the design.   The weights were applied to compensate for the purposeful oversampling of likely ailment sufferers to bring their proportional representation in the study in line with the probability sample. In other words, the oversampled respondents were weighted and projected to the national sample frame.

Our first cut at evaluating the effect of these procedures was to do a comparison of all commonly measured demographic elements in MARS and MRI. We placed particular emphasis on those demographic elements that were not used in the weighting process itself, to see if any distortions arose from attempting to balance multiple characteristics in the sample. We found that, overall, the composition of demographic projections were very similar in many instances between the two studies. There were, however, noticeable and large differences for several key media attributes. Where differences arose, MRI had an advantage in most cases when compared to standard industry benchmarks, as in their estimates of Premium (Pay) Cable and cable penetrations in comparison to Nielsen (Figure 1). We can speculate this is an artifact of the oversampling of those suffering from ailments, who are perhaps not as likely to be premium TV adopters.   Of course, these differences would be most important in using the data to assess multi-media mix strategies. Yet, this also may be an indication of a MARS respondent base that is not truly representative of the U.S. population, and therefore might even have an effect on the composition of print audiences. To this point, as we will discuss later, we embarked on a careful examination of print audience estimates of MARS in comparison to MRI.

Figure 1: Demographic Analysis of Selected Demographics – MARS vs. MRI

Overall, demographics of Mars and MRI reflect similar in-tab levels.
However, with certain key media metrics there are noticeable differences.

	MRI %	MARS %
Male	47.9	48.2
Female	52.1	51.8
Married	57.3	57.2
Single	23.9	23.9
Widowed/Separated/Divorced	18.9	18.9
All Cable TV HH Subscribes	64.6	55.9
Satellite Dish	13.4	16.1
Pay TV	38.0	16.3

Additionally, we have also found several significant differences in the projections of important demographic breaks, which can affect the estimates of certain magazine audience levels. For instance, the MARS study estimates a smaller number of persons living in large-size households, especially those with more than three children present. When MARS is compared to MRI, there is more than a seven percent difference in the estimate of the number of persons where children are present in the household. MARS also estimates that the Asian universe is significantly larger than does MRI. This projects to several million homes having dramatically different compositions and therefore could be a factor responsible for any disparities in estimates between the two studies.

We were particularly interested in how these differences would impact media usage and consumption. We initially hypothesized these discrepancies may be due to how the MARS sample is drawn, whereby part of it was drawn from direct mail lists which intentionally over-sampled specific disease states. In most cases, however, where Census data was available, MARS projections were close to official US Census estimates, even though these demographic elements were not used in the weighting process (Figure 2). Here the advantage when compared to the Census, perhaps

Figure 2: Comparison of Key Demographics – MARS vs. MRI vs. U.S. Census Bureau

Demographic	MARS	MRI	Mars vs. MRI	Census	Mars vs. Census	MRI vs. Census
		Projection of Demographic Universe Estimates (000)				
People in Households (2 Members)	72,241	65,574	10%	69,332	4%	-5%
People in Households (5+)	20,917	30,390	-31%			
People with Any Children in HH	80,483	86,390	-7%	71,960	12%	20%
Race: Asian	8,552	5,649	51%	10,925	-22%	-48%

surprisingly so, was with MARS. It is also interesting to note that the weighting procedures employed did not seem to result in any distortions in composition or impact on readership within certain key categories. For example, in the 'Parenting' category, where presence of children is obviously a factor influencing readership, MARS is closer to the Census estimate than MRI. Furthermore, (as shown in Appendix B) there were no discernable systematic patterns in the range and variation of audience estimates for magazines in the parenting category.

MRI vs. MARS Analysis -- Comparison of Ailments

While not totally definitive, aside from some of the media/cable penetration projections, the above demographic comparison gave some initial confidence that the unique sampling and weighting procedure did not appear to introduce an inordinate amount of bias for media/magazine evaluation purposes. We took this analysis a step further to assess whether any distortions would appear regarding estimates of ailment sufferers and incidence of disease, which is a second key area of measurement in the MARS study.

In this analysis, eighteen ailments (those for which prescription drugs are taken) were assessed that were in common to the two studies. For six of these ailments, the two studies are relatively close in the estimate of number of sufferers; while the two studies were very different in the projected number of sufferers for eight others (more than a 20% difference) (see Appendix C).

To get a better understanding of the accuracy of these projections, we consulted a number of various expert sources, including the Center for Disease Control (CDC), for benchmarks in the incidence of these conditions. The findings show that MARS is in line with most of the projections from the expert sources. Where exceptions occurred, they often were for serious diseases like heart attacks, where people suffering may not have much likelihood of participating in any type of survey.

FIGURE 3: Comparison of Incidence of Selected Ailments and Diseases – MARS vs. Expert Sources

	In millions		
	MARS	**Benchmark**	
Allergy/Hay Fever	33.2	23.7	**- CDC**
Alzheimer's	1.1	4.0	**- Alzheimer's Association**
Arthritis (Osteoarthritis)	23.1	20.7	**- Arthritis Foundation (CDC - over 33 million**
Arthritis (Rheumatoid)	10.6	2.1	**- Arthritis Foundation have Arthritis)**
Asthma	11.6	14.5	**- CDC**
Diabetes	14.4	16.0	**- CDC**
Heart Attack/Heart Disease	10.1	21.0	**- CDC (Heart Disease cases reported annually)**
Migraine Headache	18.2	26.0	**- M.A.G.N.U.M. (Migraine Awareness Group**

While there are some notable differences between MARS and benchmark resources, this analysis gives us a reasonable assurance that MARS is at least as good, and likely better than MRI in developing a sample and projecting behavior for the universe of ailment sufferers. The comparison, therefore, offered a bit of evidence to support a conclusion that MARS weighting procedures did not introduce an inordinate amount of bias in terms of sample composition and incidence of behavior of most interest to pharmaceutical marketers.

MARS vs. MRI Estimation of Readership

Once we had concluded that MARS methods provided a sound basis for gathering information on ailments, product usage and health related attitudes, we needed to then assess how their procedures would effect media information contained within the study. In fact, since MARS is primarily a media study, it is by definition most important to assess the impact of methods on readership and other measured media.

As previously mentioned, MARS, like most category-specific media studies, uses a Frequency-of-Reading (FOR) technique. Both this method and the Recent Reading technique employed by MRI have received much scrutiny regarding the accuracy of each method in calculating average audiences. While Recent Reading is generally preferred as the standard in the U.S. to establish audience levels in consumer magazines, this technique is not without its own limitations.

In particular, MRI often struggles with volatility in their audience projections, title confusion and the difficulty in measuring a large number of titles. Adding to those concerns is the tremendous burden being placed on respondents to answer a 50-minute questionnaire. The length of the interview would be even longer, but MRI does not even ask all questions of all respondents. This means they must model or ascribe the data to fill in the missing pieces.

MRI's Recent Reading (RR) method also uses logo cards for title identification, which alone can be often be an inadequate memory prompt, as respondents can easily confuse magazines with similar names. Additionally, estimating reading within certain time frames (e.g., last month, last week) can be very difficult for the participant to recall. In the future, further debate will likely continue that will try to resolve issues with both methods. At a minimum, given this situation we can certainly acknowledge that the Frequency-of-Reading method has increasingly become an acceptable method of measuring print readership, especially for measuring niche or specialized segment audiences.

Analysis of MARS vs. MRI Magazine Audience Levels

In MRI's version of the "recent reading" technique, the respondent sorts through a logo deck magazine titles to screen-in, by confirming that they were 'sure they have read in the last 6 months'. Readership is then established over the latest publication period, (e.g. in the last week or month depending on publishing cycle) and this is what determines if he/she is considered part of a magazine's audience. MARS, on the other hand, uses a self-administered questionnaire that has small pictures of each magazine's cover along with a question asking how many of the last four issues are typically read. The audience is derived by a formula applied to responses at the different frequency of reading levels.

We have compared the results of the different readership methods in practical terms, as we examined average audience levels for the magazines common to both studies. On average, MARS reports audience levels that are in line with MRI projections. There were, however, far ranging differences that varied widely by title and publication type. Interestingly, of the magazines commonly measured, we found a fairly equal distribution (+ or -) of differences (Figure 4). It looks like a random distribution, but further examination was necessary to see if any patterns were revealed that might be considered to be validation or refutation of the accuracy of the method employed.

Figure 4: Comparison of Magazine Audience Levels – MARS vs. MRI

86 Magazines measured are common to both studies

MARS' projected Magazine Audience compared to MRI

Range	#
within 5%	15
higher 5% - 20%	20
lower 5% - 20%	22
higher 20%	16
lower 20%	13

To address this, we first established the expectations we should have for differences resulting purely from the methods used in the two techniques. A comparison of both methods by Paul Donato[1], a few years ago showed that the Frequency-of-Reading technique generally estimates audience levels at 90-95% of Recent Reading, irrespective of publication frequency, likely due to respondent difficulty in estimating the average number of issues read. Val Appel[2], on the other hand found a much more discrete pattern emerge in the effects of the methods on average reader per copy. Val said, "The recent reading method favors the less frequently published titles (the bimonthlies), and the frequency method favors those more frequently published (the weeklies)". He went on to conclude that the differences in audience levels reported by the two methods varied by publication interval and size of circulation.

We have found similar patterns to those found by Appel in our analysis of MARS and MRI (Figure 5). While there were some anomalies, notably with tri-weeklies among a small group of publications, the general direction of the differences among the major publication frequencies falls in line with the findings of Appel. Then as now, Frequency-of-Reading results in proportionately higher readership estimates for shorter publication intervals. In particular, the FOR method produced higher audience levels for weeklies and lower levels for monthlies.

This again, speaks well of the execution of the MARS methodology. Since we lack any type of true 'gold standard' to use as a benchmark, we must use our expectations of comparisons FOR with RR as a primary evaluation yardstick. The readership estimates are fairly consistent with our expectations in this area, and so at least this gives some directional indication of face validity to the MARS magazine audience estimates.

Figure 5: Variations in the Ratio of Readers Per Copy in Two Methods of Readership Measurement

Comparison of RPC Estimates
Frequency-of-Reading vs. Recent Reading Techniques

	Val Appel 1996		Current
	MRI	SMRB	MARS/MRI
	FR/RR Index	FR/RR Index	FR/RR Index
Bi Monthlies	81	81	87
Monthlies	98	95	93
Triweeklies	92	94	85
BiWeeklies	104	103	75
Weeklies	117	115	121

We attempted to look further to see what other factors are at work that might affect audience levels in our comparison of the two services. Certainly, the level and ratio of Screen-Ins is known to have a large effect on claimed readership. In our topline analysis the ratio of MARS Reads-to-Screens was 6% higher on average when compared to MRI. But when examining Screen-Ins for individual titles, these ratios were volatile across both services. No consistent or definitive patterns emerged by title or publication type other than some indications that the relative ratio (MARS vs. MRI Read/Screen) was generally higher for weeklies and lesser for those publications with older skewing audiences.

In any event, it was not evident that the variations accounted for any differences in audience levels reported by the two services. The MARS audience for a publication could just as easily be higher or lower than MRI at any given relative read-screen ratio (i.e. a MARS Read-Screen Ratio higher than MRI was not an indication that the MARS audience would be higher or lower than MRI). And so, it was beyond the scope of this analysis to come to a definitive conclusion on this, as many inter-correlated issues including title confusion, telescoping, and other factors could be simultaneously influencing the final estimates. Even the specific covers used by MARS could influence actual claimed readership vs. audiences measured with logo cards.

Since the aggregate RPC were in line with expectations, we were reasonably assured that read/screen ratios vs. MRI are not responsible for major distortions in the final audience projections or differences beyond those to be expected from each of the methodologies.

Sunday Supplements: MARS has a Better Method

While there were pros and cons with the measurement of magazines in both services, MRI is at an extreme disadvantage in measuring Sunday Supplements. Here, there are very wide discrepancies in the audience levels reported by the two services. To illustrate (Figure 6), *USA Weekend's* audience in MARS is 61% lower than it is in MRI, while *Parade's* audience is estimated to be 28% lower. In contrast, MARS audience levels for the *L.A .Times* and *NY Times Sunday Magazines* are much higher. Again, the reason appears to be the different methods employed to ascertain readership of the supplement. MARS measures readership of the specific Sunday magazines, while MRI measures readership of the Sunday paper in general and credits all readers of the newspaper to the supplement carried in that paper. These differences in audience levels have sparked debate with U.S Research Community that extends beyond the pharmaceutical category. It is clear that the MRI method of gauging readership in an indirect manner is fraught with problems. It can and should be modified to deliver a better measure of Sunday Supplements.

Figure 6: Different Methodologies Result in Varying Newspaper Audience Estimates

	Millions of Readers		% Difference
	MARS	*MRI*	*MARS vs MRI*
Parade	55.9	77.9	- 28%
USA Weekend	18.1	45.9	- 61%
LA Times Magazine	5.4	3.5	+ 54%
NY Times Magazine	8.1	3.9	+108%

Scale and Scope of MARS Data for Media Planning

What MARS brings to planning is a deepness and richness of data that can be used to better understand the category and consumers. As a print planning data resource, its strength is the insight that comes from a drill down into the information, especially about attitudes and specific behaviors. In addition, new bits of Internet information not previously available prior to the release of the study extend the utility beyond print. Yet, MRI contains a broader set of consumer products and multi-media usage (including TV) data that are lacking in MARS. In other words, where MARS has the depth, MRI has the breadth.

There are also many methodological differences between the two studies that are important considerations in selecting a primary media planning resource. For instance, some of the differences in the composition of the MARS weighted sample and projection of universe sizes initially caused concern when compared to MRI, especially as these differences would have a large effect on audience estimates across key magazine categories. While comparisons with the Census have mitigated this concern, there is still some issue with the representativeness of MARS respondents, highlighted by the large proportion without cable or Pay TV -- at levels far below the national average. In future waves of the study, we will closely monitor these and other factors to ensure that the relationship of print and TV audiences are realistic and as accurate as possible.

Another, as yet, unresolved issue is as follows. While the demographic composition of the weighted MARS universe base is in line with expectations along most demographic characteristics, we still do not know if the sampling procedures attracted a 'different' type of respondent – one that is more likely to be a reader or more responsive to advertising than the general population. Since the sample was drawn from lists of known sufferers, there may be inter-correlated effects that are displayed in audience levels of certain magazines or other media types. Initial indications are that these effects are present, but are not biasing the sample in a way that makes readership estimates look totally out of line in comparison to MRI. This is another hurdle MARS needs to pass in order to become our primary print audience currency.

So while our first introduction to MARS looks positive, we will continue to examine the methods carefully to ensure that the sampling and weighting issues are not resulting in a distortion of audience levels. Since it is such an important decision, we have taken a conservative position to assess two waves of data before making final determination on use as a currency. As such, our current policy decision is to use MARS as a strategic resource and as a supplement to MRI to establish a print audience currency today, with the potential to switch to the primary service in 2002 if the next wave provides validity and stability.

MARS as a Strategic Resource

The issues cited above notwithstanding, there is very good evidence from our analysis that MARS is a valid source of information for strategic planning and consumer insight in the category. In the short time that MARS has been available, it has taken pharmaceutical media planning from a 'dark ages' to an 'information rich' situation. Most DTC brands can now gain a deeper level of consumer understanding about product behavior, attitudes, and media than is currently available from other media/product studies. At its most basic level of usage, MARS supplies a wealth of data to improve the decision making process.

First, we are able to obtain more information, as the larger samples greatly improve the stability of magazine estimates and expand the list of titles assessed for a plan using criteria that go beyond demographic analysis. This is illustrated by an example that attempts to focus on 'Asthma Sufferers who treat with Rx drugs' (Figure 7), highlighting a common situation faced by planners. In this example, a planning approach using this ailment-state (asthma) and behavioral attributes as a key targeting component would be frustrated using MRI. As the chart below shows, many key magazines would be reported unstable due to small sample sizes in MRI, whereas MARS has sufficient sample to develop a reliable estimate of these same titles for 'Asthma Treaters'. This again is one of MARS' reasons for being, providing a new level of information and insight.

Figure 7: MARS Provides Larger Number of Magazines with Stable Audience Projections

Target: Prescription Drugs Used in Last 12 Months for Asthma

	2000 MRI FALL				MARS				
	Unwgt	(000)	Covg%	Index	Unwgt	(000)	Covg %	Index	Rank
Totals	1111	8659	4.3	100	2259	11626	5.7	100	
Soap Opera Digest	47	433 *	6.1	140	326	921	9.4	165	7
FamilyFun	19	120 *	5.2	120	140	417	9.3	162	10
Gourmet	44	270 *	5.5	127	126	378	9.1	158	11
Saturday Eve. Post	20	184 *	5.3	122	88	153	8.5	149	16
Schol Parent & Child	44	421 *	7.8	180	184	443	8.5	148	17
Working Mother	25	160 *	5.3	123	134	314	8.4	146	18
Discover	47	353 *	6.0	140	121	386	8.3	145	19
Star	47	480 *	6.4	149	379	1061	8.1	141	21
Consumers Digest	44	418 *	6.1	142	207	506	8.0	139	24
Health	46	394 *	6.5	150	153	313	7.5	131	35
Self	37	342 *	7.4	171	165	404	6.9	121	51

* Projections unstable

From a plan development standpoint, the differences in audiences reported by the two services have obvious implications in title selection. Essentially, we have two different resources, resulting in very different estimates of efficient ways to reach readers. To that end, we have developed a number of analyses that compare reach and frequency results for the two studies (highlights in Appendix E). As shown in this analysis, the implication from using MARS data would be that the average plan needs to contain 6-8% less insertions to achieve the same communication goal. Here we need to be cautious, however, as this is likely a reflection of the different methodologies in the two services. It points to the fact that the Frequency-of-Reading technique is capturing a broader set of titles read by the average respondent and therefore generates a higher reach at any given GRP level.

Developing Response-oriented Media Plans

The real benefit to this information, however, lies in the new types of data captured regarding consumer attitudes, actions and receptivity to advertising messages. With this resource, we are able to define metrics and develop strategies based on reaching those who are likely to respond to the advertising. As we develop confidence in these metrics, we will have the opportunity to completely change the manner of our planning, title selection and optimization of audience levels.

We can provide a glimpse of this approach through an example using a target group that was developed using elements of response and attitudinal components measured in MARS. The study allows the examination of a number of proactive health attitudes and responses to advertising including: taking preventative health care actions, actively searching for health information and seeking specific brands or medications after ad exposure.

From this information, we developed a target that was highly likely to exhibit many of these characteristics, combining them together in a group we call, 'Responders'. These are people who are very likely to actively manage their health care regimen and are more likely to respond in some manner to advertising messages in a proactive manner. As can be seen in the chart (Appendix F), when this orientation is combined with a specific disease or ailment state, a much more highly propensed and response-oriented group emerges. For example, when we apply this orientation to those people who suffer from migraine headaches, the combined target of 'Migraine Responder' is nearly 50% more likely than the population or migraine sufferers in general to "discuss prescriptions with a doctor" or "ask doctor for a prescription they've seen in an ad".

The ability to use this proactive orientation has an also has an influence on title selection (Figure 8). The premise being that these prospects have a much higher likelihood of being motivated by advertising and therefore a media plan using this group as a key target should in fact result in a higher degree of transactional response. The readership composition rank analysis below illustrates this using a broad array of titles. Here we assess the 'Responder' target developed in MARS that is comprised of those who have the condition and are more likely to respond. The composition of magazines using these criteria in MARS is compared to an MRI ranking of composition using the best available target information (which in this case is simply people suffering from the condition since MRI does not collect response and other behavioral measures).

Figure 8: Comparison of Composition of Response-oriented Targets

Magazine Composition Analysis
MARS vs MRI
Best Available Target

Magazine List	MRI Migraine Sufferer Composition Index	Index Rank	MARS Migraine Responder Composition Index	Index Rank
First for Women	150*	46	406	1
Rolling Stone	91 *	150	397	2
Family Life	NA		392	3
Gourmet	105 *	119	386	4
Soap Opera Digest	236	1	374	5
Shape	125*	81	374	5
Self	137*	65	370	7
Star	153*	40	349	8
Rx Remedy	NA		348	9
Working Woman	155*	37	338	10
Smart Money	73*	186	336	11
InStyle	132*	69	336	11
Working Mother	190*	10	333	13
Parenting	164	27	325	14
Consumers Digest	88*	154	314	15
Healthy Kids	NA		310	16
FamilyFun	103*	124	308	17
Parents' Magazine	177	19	293	18
Arthritis Today	NA		284	19
Country Home	138	64	276	20
Fitness	*98	133	259	21

* Unstable Projection due to low sample size

The comparison highlights what would be dramatic differences in magazine selection using these new metrics, as MARS reveals a number of publications that have a much greater concentration of the key consumer target group. This has obvious implications in terms of the effectiveness and efficiency of reaching the 'real' target and in stimulating the anticipated response among those exposed to the advertising.

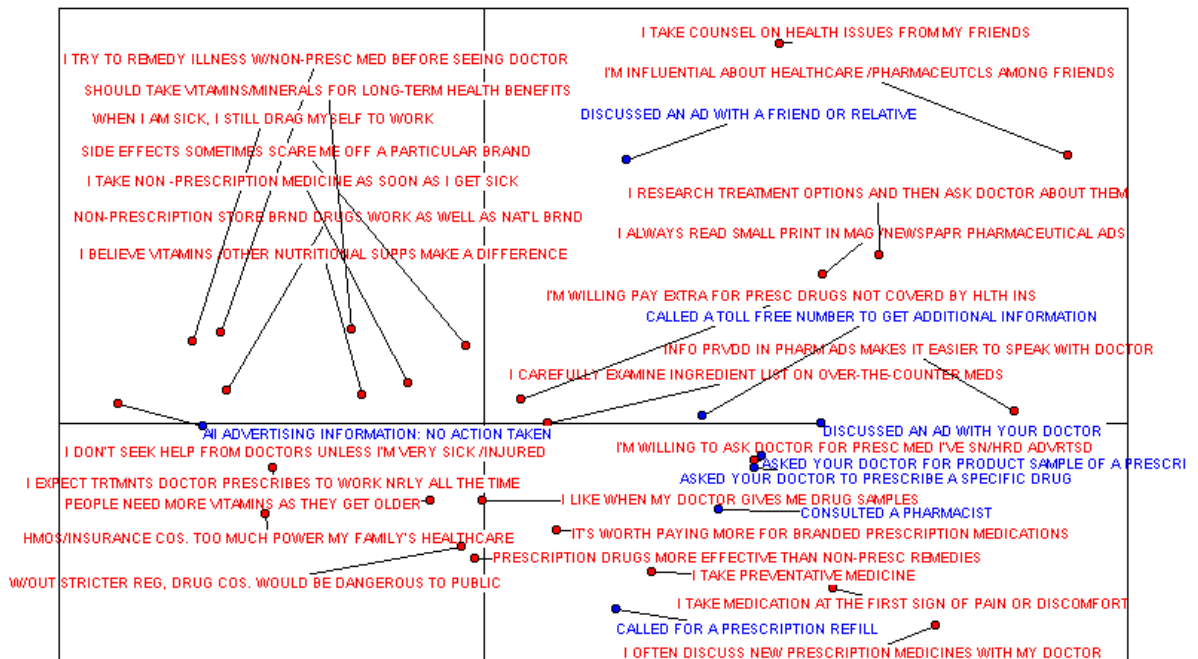**Using MARS Data to Develop a Responder Segmentation**

We have also been able to go further to develop a deeper understanding of important target consumers for DTC pharmaceutical brands through a series of segmentation analyses using MARS. We will highlight the major aspects of one of these approaches that incorporates the new attitudinal and behavioral components of the study as key elements driving the segmentation.

The first step in this analysis was to derive an overview of the behavioral/attitudinal landscape and determine the most important variables for the segmentation analysis through Correspondence Mapping.   The analysis used variables pertaining to ailments and treatments, volume potentials, and behavioral/response attributes.   In this way, we could refine our notion of response-oriented behavior, by identifying attributes of consumers having the greatest likelihood of exhibiting this trait.

The chart below (Figure 9) shows the results of the analysis that portrays variables including health-related attitudes and general responses to consumer advertising. What emerges is a two-dimensional 'consumer-scape'. On one dimension (horizontal axis), an orientation is revealed regarding the likelihood of taking an action based on exposure to advertising. These responses range from a proclivity to be passive or take no action on one extreme, to a specific set of potential actions ranging from calling a toll-free number to discussing an ad with or asking for medication from a doctor on the other.

The second dimension (vertical axis) uncovers a personal health care management orientation whereby the different extremes of the axis describe degrees of 'Health Concern'. The underlying factors for this dimension pertain to where the respondent looks for sources of health information/consul seeking and a propensity for taking proactive steps for care and prevention of illness. This dimension shows a range of attitudes regarding sources of advice, information, care and prevention. As an example, some respondents have a greater reliance on friends or relatives vs. professionals/doctors when seeking advice about health care. Those that rely on personal associates are often self-medicators as opposed to having an expert-driven health perspective. Conversely, those falling in the latter category are much more likely to take prescription medications for a condition and are therefore much more important candidates for many DTC brands and products.

Figure 9: Correspondence Analysis Highlighting Response Orientation

I TAKE COUNSEL ON HEALTH ISSUES FROM MY FRIENDS

I'M INFLUENTIAL ABOUT HEALTHCARE /PHARMACEUTCLS AMONG FRIENDS

I TRY TO REMEDY ILLNESS W/NON-PRESC MED BEFORE SEEING DOCTOR

DISCUSSED AN AD WITH A FRIEND OR RELATIVE

SHOULD TAKE VITAMINS/MINERALS FOR LONG-TERM HEALTH BENEFITS

WHEN I AM SICK, I STILL DRAG MYSELF TO WORK

SIDE EFFECTS SOMETIMES SCARE ME OFF A PARTICULAR BRAND

I TAKE NON-PRESCRIPTION MEDICINE AS SOON AS I GET SICK

I RESEARCH TREATMENT OPTIONS AND THEN ASK DOCTOR ABOUT THEM

I ALWAYS READ SMALL PRINT IN MAG /NEWSPAPR PHARMACEUTICAL ADS

NON-PRESCRIPTION STORE BRND DRUGS WORK AS WELL AS NAT'L BRND

I BELIEVE VITAMINS /OTHER NUTRITIONAL SUPPS MAKE A DIFFERENCE

I'M WILLING PAY EXTRA FOR PRESC DRUGS NOT COVERD BY HLTH INS

CALLED A TOLL FREE NUMBER TO GET ADDITIONAL INFORMATION

INFO PRVDD IN PHARM ADS MAKES IT EASIER TO SPEAK WITH DOCTOR

I CAREFULLY EXAMINE INGREDIENT LIST ON OVER-THE-COUNTER MEDS

All ADVERTISING INFORMATION: NO ACTION TAKEN

I DON'T SEEK HELP FROM DOCTORS UNLESS I'M VERY SICK /INJURED

DISCUSSED AN AD WITH YOUR DOCTOR

I'M WILLING TO ASK DOCTOR FOR PRESC MED I'VE SN/HRD ADVRTSD

ASKED YOUR DOCTOR FOR PRODUCT SAMPLE OF A PRESCRI

ASKED YOUR DOCTOR TO PRESCRIBE A SPECIFIC DRUG

I EXPECT TRTMNTS DOCTOR PRESCRIBES TO WORK NRLY ALL THE TIME

PEOPLE NEED MORE VITAMINS AS THEY GET OLDER

I LIKE WHEN MY DOCTOR GIVES ME DRUG SAMPLES

CONSULTED A PHARMACIST

HMOS/INSURANCE COS. TOO MUCH POWER MY FAMILY'S HEALTHCARE

IT'S WORTH PAYING MORE FOR BRANDED PRESCRIPTION MEDICATIONS

PRESCRIPTION DRUGS MORE EFFECTIVE THAN NON-PRESC REMEDIES

W/OUT STRICTER REG, DRUG COS. WOULD BE DANGEROUS TO PUBLIC

I TAKE PREVENTATIVE MEDICINE

I TAKE MEDICATION AT THE FIRST SIGN OF PAIN OR DISCOMFORT

CALLED FOR A PRESCRIPTION REFILL

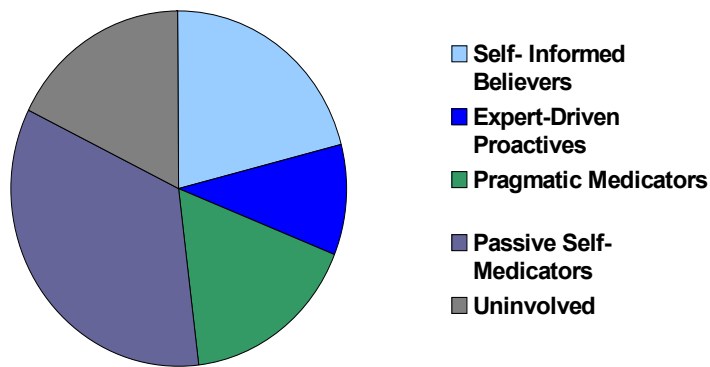I OFTEN DISCUSS NEW PRESCRIPTION MEDICINES WITH MY DOCTOR

When the magazines contained within the MARS study are plotted on these dimensions, a qualitative picture emerges regarding titles most associated with the specific attitudes and mindsets correlated with key consumer behavior. This adds another level of insight by pointing out ways of making connections with consumers by using media environments that potentially have a greater appeal or affinity important attitudinal drivers in the category.

The correspondence analysis also lays the groundwork for selecting which variables should be to be used to fine-tune target descriptions through a statistical cluster analysis. In this approach, we were able to derive mutually exclusive target groups based primarily on behaviors and attitudes. This enabled us to essentially distill the multi-faceted aspects of all the health-related attitudes and response orientation factors we have been discussing into a few key segments.

Given the direction resulting from the correspondence analysis, our goal was to define cluster groups driven by the two dimensions of health-care response orientation and health-care management described above. The key variables shown to be psychographic drivers of response were incorporated into the cluster analysis to isolate groups exhibiting varying (Figure 10) aspects of these tendencies. As a result, five distinct segments emerged from the analysis, shown in the chart below.

Figure 10: Responder Segmentation

MARS Segmentation Overview

☐ **Self- Informed Believers**

☐ **Expert-Driven Proactives**

☐ **Pragmatic Medicators**

☐ **Passive Self- Medicators**

☐ **Uninvolved**

The segments that were generated covered the entire range of attitudes and behaviors defined in the previous analysis. Each of the five groups were given names that best revealed their health care tendencies in a succinct manner. For instance, one of the most important groups for pharmaceutical advertisers, *Expert-Driven Proactives* , are very likely to take some sort of action as a result of seeing a DTC advertisement. They look to doctors, and professionals for advice and information for managing their health care and use advertising as a stimulus for discussing medication and treatment.

Figure 11: Highlights of Key Segments

MARS Segmentation Overview

Self-Informed Believers	Expert- Driven Proactives	Passive Self- Medicators	Pragmatic Medicators
•Take Preventative Steps •Information Seekers	•Relies on Doctor •Consul Seekers •Ad Responder	•Self-Reliant •Non-RX Drugs	•Knowledgeable about Healthcare •Rx Medication
Educated HHI $40K+ Married Exec/Managerial Mid Sized Comp.	Less Educated HHI <$40K Married Retired Ethnic Propensity	Highly Educated HHI $50K+ Married/ with kids Exec/Managerial Prof. Specialty	Highly Educated HHI $30-$75K Married/ with kids Exec/Managerial Prof. Specialty

Uninvolved
•Do not take action steps
Educated
HHI <$30K
Sep/Wid/Div & Ethnic Propensity
Employed Part Time

They are also most likely to take medication either as part of a preventive regimen or as prescribed by their doctor to treat illness. Highlights of each of the five segments are illustrated in the chart above (Figure 11).

This information can be translated readily into media insights by comparing and contrasting the behavior of the key groups to develop strategic foundations for a media plan. This is demonstrated in the categorization (Figure 12) highlighting three of the groups. As might be expected, the *Expert-Driven Proactives,* are likely to be drawn to health-oriented print titles and other media as they continually look for the latest advice from experts. On the other hand*, Self-Informed Believers***,** are news-oriented consumers across all media types, as they seek information to use in their lives among a wide range of interests and needs.

Figure 12: Selected Media Affinities of Key Segments

TV TYPES		Magazine Types		Radio Formats	
Self- Informed Believers		Self- Informed Believers		Self- Informed Believers	
POLITICAL	128	Travel & Leisure	145	NEWS/NEWS TALK	118
WESTERNS	120	Modem Maturity	136	EASY LISTENING	111
NATIONAL/WORLD NEWS	119	NY Times Magazine	136		
NEWS MAGAZINES	119	Saturday Eve. Post	135		
HOME & GARDEN	116	LA Times Magazine	133		
Expert Driven Pro Actives		Expert Driven Pro Actives		Expert Driven Pro Actives	
CRIME SHOWS	176	Arthritis Today	356	LATIN/ETHNIC	145
REAL-LIFE COURT DRAMAS	164	Diabetes Forecast	320	GOLDEN OLDIES	133
HEALTH/NUTRITION	162	Remedy	304	EASY LISTENING	125
WESTERNS	152	More	287		
HOME SHOPPING	142	Working Woman	254		
Pragmatic Medicators		Pragmatic Medicators		Pragmatic Medicators	
HEALTH/NUTRITION	153	Oprah	173	CLASSICAL	129
HOME SHOPPING NETWOR	140	New Choices	165	SOFT ROCK	108
NIGHTTIME TALK SHOWS	119	FamilyFun	164	JAZZ	107
POLICE DOCU-DRAMAS	119	First for Women	162		
CLASSIC FILMS	117	Parent & Child	159		

Beyond title selection, the dispositions and behaviors of the consumers in the various segments can help us tremendously to assemble the strategic and tactical elements of the media plan. For example, *Expert-Driven Proactives* have identified themselves as being "plugged in" to health media.   As they are more prone to look for health editorial, it makes sense to advertise in the health sections of magazines. But since they are also more receptive to advertising, it doesn't seem to be necessary to reach them as many times. If the message is relevant to them, they will read the ad, thus reducing the frequency of message required to get the point across. On the other hand, a strategy for reaching the less health-oriented *Pragmatic Medicator* would potentially be different.   The lack of a strong focus on health concerns would suggest trying to reach them in the best-read sections of the magazine with greater frequency to maximize the opportunity of getting the message through.

Our real objective in this analysis is to see if we can use the new data sets to develop plans that deliver greater numbers of those who will see and respond to the advertising in some manner. As an exercise, we can demonstrate how well we can potentially accomplish this using a comparison of two hypothetical print plan examples. The titles comprising each list of magazines were drawn from the best available targeting descriptions contained in MARS and MRI respectively.   We used the same criteria for the targets as in our earlier examination of title selection (Figure 8); the MARS list included a 'Migraine Responder' component, whereas the MRI target was again simply a 'Migraine sufferer'.

The analysis compares the two prospective magazine schedules in their ability to reach greater numbers of a specific type of desired response – those who have indicated that they are "willing to ask their doctor for a prescription I've seen in an ad" at a fixed budget. Each plan was optimized using a publicly available optimization algorithm and used the same constraints of budget for the appropriate target developed within the MARS (Migraine Responder) and MRI (Migraine Sufferer) databases. In other words, two magazine lists were developed in a manner that would represent an attempt to achieve communication goals vs. a target representing an approximation of a person who suffers from the ailment and would take action upon seeing an ad.

The comparison shows that, a planner would likely come up with very different magazine schedules using the best available information in each source to derive this type of target. It is not surprising, since each list was put together using a different data source and different specific characteristics to approximate the target.   We can also see that MARS offers a more direct method of analyzing our ability to deliver impressions against a group of prime prospects – those who are highly likely to respond by contacting the doctor. To the extent we can have faith in the validity and reliability of the MARS data, we can demonstrate that this data source allowed the attainment nearly 10% greater reach against the response-oriented target at the same budget (See Appendix G).

While one could argue with some of the findings, this analysis and segmentation shows how valuable the insights can be if one goes beyond simply assessing demographics or the incidence of a condition as the basis for a media plan. Having the new MARS data provides a step in the right direction with a great potential to move media planning toward a response-orientation as its foundation.

Summary and Conclusions

The MARS study is a valuable new tool for analyzing the health care marketplace. In addition to providing demographics for a long list of ailments and prescription drugs, it also asks in-depth questions about health care practices and opinions respondents have about health care-related issues. And further, MARS measures a large number of health-oriented magazines and 40 healthcare-oriented websites. Given this and examples of its application, there is not much doubt about the utility of MARS data for analyzing consumer product and media behavior in this category.

Our analysis and comparison of the MARS data set vs. the current standard print planning resource, also gives us favorable indications regarding the validity and reliability of the audience estimates. The findings of our assessment point to values within the range of expectations for a Frequency-of-Reading methodology. At the moment, we are taking a conservative approach as we continue our evaluation of the two services and will potentially begin using MARS as a 'currency' for CPM estimation after the release of the next wave of data. In addition, we will look to MARS to shore up any shortcomings in the method and manner of measuring other media including newspapers and the absence of TV viewing data at the program or cable network level.

From a strategic standpoint, we have already incorporated that usage into our planning process. The MARS study is a valuable new tool for analyzing the health care marketplace and is starting to introduce the capability to develop a response-oriented media implementation program. A 'Responder Segmentation', based upon Health Concern and Responsiveness to Advertising, was made possible by the richness of the attitudinal and psychographic information that is available in MARS.
The custom segmentation generated using this data resource has the potential to go even further, ultimately by giving direction in the substantiation of print investments on a transactional basis.

While these data sets bring a whole new realm of data to pharmaceutical marketers, it is only a beginning, as we start to incorporate metrics this type of response orientation into media planning and analysis of the consumer marketplace. Someday, the potential will exist to utilize these applications along with other 'fused' resources for the purposes of print and multi-media planning and optimization systems. In this way, MARS has built a foundation for new approaches that will bring productivity assessment into the on-going media process and provide a greater ability to analyze media and advertising return-on-investment in this category.

REFERENCES

1.   Paul Donoto and Bill Deneen, *The Instrument Effect,* Advertising Research Foundation 1997

2.   Valentine Appel, Frequency vs. Recency: Frequency of Reading Estimates and Their Relationship to Syndicated Study Estimates, Advertising Research Foundation 1996

APPENDIX

Appendix A

Highlights of the MARS Study

- Sample:

  - Probability Sample of 20,174
  - Supplemented with Auxiliary Sample of 20,746 from direct mail lists to oversample ailment and disease states

- Method:

  - Mailed 20 page questionnaire with $5 incentive
  - Respondent: Most recent birthday
  - Readership: Frequency of Reading with 6-month screen

- Response:
  - Intab: 23,705
  - Rate: 62%
  - Successfully obtained sufficient sample to measure ailments

- Data:
  - Demographics
  - Product Usage
    - Healthcare Resources
    - Ailments and Treatments
    - OTC/DTC Products and Frequency of use
  - Media
    - 100 Magazine Readership questions
    - 25 Health related websites
    - TV show types and TV Dayparts
    - Radio formats
    - Newspaper Supplements
  - Psychographics, Opinions, Actions Taken

Appendix B

COMPARISON OF 'PARENTING' MAGAZINE AUDIENCE LEVELS

	MARS	MRI	MARS vs. MRI
	Aud.(000)	Aud (000)	% Diff.
Baby Talk	7006	5385	30%
Parenting	11836	10953	8%
Parents	13213	13838	-5%
Child	4627	4898	-6%
American Baby	8220	6806	21%
Schol Parent/Chld	5220	5925	-12%

Appendix C

EXAMINATION OF AILMENT STATES: MARS vs. MRI

	Sufferers In Millions		% Difference
	MARS	MRI	MARS Vs MRI
Body/muscle aches	7.5	14.2	- 47%
Heartburn	6.6	11.9	- 44
Allergy/hay fever (seasonal)	13.7	22.5	- 39
Constipation	2.1	3.2	- 37
Osteoporosis	2.7	3.7	- 28
Sinus congestion/headache	15.6	17.3	- 10
Migraine headaches	6.6	7.3	- 10
Anxiety/panic disorder	6.7	7.1	- 6
Depression	9.4	9.9	- 5
Asthma	8.3	8.7	- 4
Hypertension/High Blood Pressure	23.9	24.7	- 3
Menopause/estrogen replacement	8.7	8.9	- 3
Yeast infections	5.3	5.2	+ 3
High cholesterol	14.3	13.0	+10
Diabetes	10.0	8.3	+19
Arthritis	15.5	12.3	+26
Backache	16.6	12.7	+30
Urinary tract infections	8.5	6.4	+32

Appendix D

COMPARISON OF READERS PER COPY: MARS vs. MRI CIRCULATION LEVEL ANALYSIS

	MRI SPRING 2001	MARS 2001		
	RPC	RPC	DIF	% DIF
LESS THAN 1 MILLION	5.62	5.36	(0.26)	-5%
1 MILLION - 2 MILLION	5.12	5.39	0.27	5%
2 MILLION - 3 MILLION	5.41	5.41	(0.00)	0%
3 MILLION +	3.72	3.71	(0.02)	0%
Grand Total	4.51	4.54	0.03	1%

Appendix E

Reach and Frequency Analysis: MARS vs. MRI

Built 6 hypothetical print schedules designed to address 'ailment target', using 8-11 magazines for each.
Monthlies received 3 insertions, weeklies 10.
In every case MARS schedules provided more reach, from 2 to 8 reach points higher.
MARS GRPs were higher in 5 of 6 of the schedules, on average delivering about 8% more than MRI.

	MARS		MRI	
Ailment	R/F	GRPS	R/F	GRPS
High Cholesterol	71.6/5.7	409	69.5/5.9	411
Allergy/Hay Fever	78.6/7.3	570	73.6/7.4	545
Asthma	81.4/8.8	716	75.7/8.3	629
Osteoporosis	81.2/6.9	556	73.2/7.2	524
Arthritis	70.5/6.0	421	67.5/6.1	408
Hypertension	65.3/5.2	337	60.0/5.1	308

Appendix F

Attitudes of Migraine Sufferers and Responders from MARS

	A 18+	Migraine	Migraine Responder
Take Preventive Medicine	36%	37%	45%
Use Brands Dr. Recommends	52%	50%	60%
Read Small Print in Ads	33%	38%	52%
Info in Pharm Ads. Helps to speak with Dr.	33%	37%	59%
Discuss New Prescriptions with Dr.	41%	49%	67%
Research Treatment Options to ask Dr. about	30%	35%	49%
Influential about Healthcare among Friends	21%	25%	36%
Feel Good When Pharm. Co. is mentioned in Ad.	24%	25%	37%
Prescription Medicine is more effective than Non-Presc.	45%	47%	51%
Willing to ask Dr. for Prescription I've seen in an ad	47%	51%	66%

Appendix G

Reach Efficiency Analysis – Which magazine list delivers the response-oriented consumer?

Magazine lists 'Best Available Target' derived from MARS and MRI

	Mars List	MRI List
Cosmopolitan	1	3
Ebony	1	1
Family Circle	1	1
First for Women	1	0
Glamour	0	1
Gourmet	1	0
Modern Maturity	1	0
National Enquirer	1	1
Parenting	3	0
Parents' Magazine	0	1
People	3	3
Reader's Digest	0	1
Rolling Stone	1	0
Smart Money	1	0
Soap Opera Digest	1	0
Southern Living	1	0
Star	2	0
Time	1	0
TV Guide	1	3
Woman's Day	1	3
Woman's World	1	0
Total Inserts	23	18
Total Cost	$2.6 million	$2.6 million

Target : Migrain Action Taker *

Reach Percent	94.34	86.13
CPM Reach	1103.79	1203.46
Eff. Reach Percent: 3+	67.95	60.32

* WILLING TO ASK DOCTOR FOR PRESC MED I'VE SEEN ADVRTSD AND SUFFER FROM MIGRAINES

Source : MARS 2001 OTC/DTC Study