

INCREASING PHYSICIAN SURVEY RESPONSE RATES WITHOUT BIASING SURVEY RESULTS

Lorayn Olson, Ph.D., Mindy Schneiderman, Ph.D., Ruth V. Armstrong, Ph.D.,
American Medical Association, 515 North State St, Chicago, Illinois

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As difficult as it sometimes is to achieve high response rates on general population surveys, it is even more difficult on physician surveys. In this paper we will look at several tests of methods to increase physician survey response rates. We will consider the effects of sponsorship, personalization, and use of incentives on response rates and data quality.

In designing a survey, it is important to consider the effects on data quality of any methodologies used to increase the response rate. For example, sponsorship may determine how cooperative respondents are in reporting certain types of information. Respondents may be more reluctant to report sensitive information such as income or questionable behavior to some sponsors than to others. At the same time sponsorship that might encourage a high response rate could also produce biased results, since individuals especially sympathetic to the goals of a particular organization might be more likely to participate in a study being conducted by that organization. The responses of sympathizers might be quite different from those of nonsympathizers, and the resulting differential response rates of the two groups could cause biased results.

The same kinds of concerns apply to the use of incentives and personalization. Personalization used in an effort to encourage response could result in skepticism about confidentiality. While incentives may induce a response, the data collected using the incentive might not be as good as the data collected without an incentive.

Findings

Sponsorship

A survey was conducted by the American Medical Association to analyze the readership of *Archives of Surgery*, a journal published by the American Medical Association (AMA), in comparison with readership of other journals targeted at surgeons. *Archives of Surgery* is a general surgical journal. Since more specialized

journals are aimed at various surgical subspecialties, the questionnaires were tailored to each of the five groups of surgeons so that a questionnaire asking about journals appropriate for that subspecialty was used for each of five groups of surgeons.

Within each specialty group, two random samples were drawn. One treatment group was sent a questionnaire, a cover letter signed by the AMA's Vice President of Publishing on AMA letterhead stationary, and a business reply envelope, in an AMA outer envelope. Under blinded sponsorship, the other treatment group was sent a questionnaire, a cover letter containing the same information printed on Business Decisions Research letterhead stationary and signed by the marketing research consultant, and a stamped return envelope, in a Business Decisions Research outer envelope. The first mailing was sent March 15, 1985. A follow-up mailing to nonrespondents was sent April 15, 1985. The field period ended May 3, 1985.

The first part of the questionnaire consisted of readership questions about four to ten journals appropriate for that group of surgeons. The second part consisted of questions regarding practice characteristics: number of surgical procedures performed, number of diagnostic procedures performed, number of nonoperative patient visits per average month, and type of practice. In addition, information regarding AMA membership and major professional activity was merged from the AMA Physician Masterfile.

We examined differences by sponsorship of the survey with respect to response rates, results regarding the journals, and practice characteristics of the respondents. Since the AMA, as a national organization representing physicians, lends credibility and importance to a study, we would expect that the response rate for the AMA survey would be higher than for the survey conducted using Business Decisions Research letterhead stationary. The response rate for the AMA survey overall is 11.2 percentage points higher than the response rate for the blinded survey (32.4% vs. 21.2%).¹

Given that an AMA-sponsored survey is able to produce a higher response rate, the next consideration is whether the results of the two studies differ. Using chi-squares (and Fisher's exact test where small cell sizes made this necessary) and t-tests, we looked at whether or not there were differences in responses to the questions regarding journal readership by sponsorship. We analyzed the number of statistically significant differences between the AMA and Business Decisions Research results for the six questions regarding the surgical journals. The analysis shows that of the 210 comparisons between the results of the AMA-sponsored survey and the blinded survey, 3.8% showed statistically significant differences.

Since we are comparing an AMA survey with a blinded survey, results regarding the AMA journal *Archives of Surgery* are of particular interest. If AMA sponsorship did bias the results of the AMA survey, this difference would be more likely to show up with respect to an AMA journal. Thirty of these 210 questions concern *Archives of Surgery*. The results of only one of these 30 showed a statistically significant difference by sponsorship of the survey. In this case, contrary to what one might have expected, a higher percentage of orthopedic surgeons in the blinded survey than in the AMA survey responded that they saved *Archives of Surgery* for future reference.

Next, we looked at differences in practice characteristics of the respondents in the two surveys. There are statistically significant differences between the respondents with respect to number of surgical procedures, diagnostic tests, and nonoperative patient visits. With the exception of the urological surgery sample, respondents to the AMA-sponsored survey had higher overall numbers of surgical procedures and diagnostic procedures. Among all five groups, respondents to the blinded survey had higher overall numbers of nonoperative patient visits. Since, contrary to expectations, there was no difference in response rate on the AMA survey by AMA membership status, this does not provide an explanation for these differences. Neither were there any differences with respect to type of practice (solo versus partnership or group) or major professional activity.

Personalization

For the pretest of an AMA survey regarding satisfaction with the service received by persons who call the AMA, a test of the impact of personalization was conducted. While the sample

included nonphysicians as well as physicians, in looking at the effect of personalization we have included only physicians.

The pretest was conducted by sampling callers to the Association. In one condition the top of the questionnaire showed the date and time of the call and department called; the cover letter was personalized; and the mailing was sent in a window envelope. The response rate for this condition after one month was 45.3% compared with 27.5% when there was no personalization (with the cover letter and questionnaire being mailed in a closed envelope using an address label).

Since the responses on the survey are specific to the caller's satisfaction with the service received during one particular telephone call to the AMA, we were not able to evaluate respondent bias. When looking at data completeness, however, we found that there was no difference between the two groups of respondents in terms of the number of questions left unanswered.

In a 1993 mail survey of international medical graduates (graduates of a medical school outside the United States or Canada practicing in the United States), we split the sample of 3,000 randomly into one group that was sent the cover letter, questionnaire, and business reply envelope in a personalized outer envelope and another group that was sent the mailing with a mailing label on the outer envelope. After seven weeks, the response rate for both groups was 29.8%. As for data completeness, there was no difference between the two tests with respect to the number of unanswered questions, with one exception. On the personalized questionnaire, for the questions regarding experience with different types of discrimination there was a slightly higher percentage ($p=.0690$) of unanswered questions. To the extent that these questions could be considered threatening or sensitive, this finding is consistent with previous studies indicating that personalization could be detrimental with respect to cooperation in answering threatening questions.

Incentives

Charity Incentives

The AMA, as a membership organization, typically has not used survey incentives. Given the lack of published information about the impact of charity incentives among professionals and the mixed results among consumers, we decided to put this alternative to the test, in conjunction with other known response-enhancing measures.

Between December 1990 and March 1991, a blinded readership survey of physicians was conducted in order to profile and compare *The Journal of the American Medical Association (JAMA)* with other medical/scientific journals, and determine reader satisfaction. The AMA Physician Masterfile and Publishing File served as the sampling frame for this study. The stratified sample of 5,500 physicians included resident, patient care, and academic physician recipients and non-recipients of *JAMA*.

Half the sample in each stratum was offered a \$1 charity incentive for participation. Eight charities were prelisted for check-off.² The charity incentive was offered to randomly selected physicians as a token of appreciation for the respondent's time and effort. Version A of the survey ended with the charity incentive question, and each cover letter/interview contact made reference to it. The Version B survey and cover letter/scripts never mentioned an incentive. Otherwise the surveys and cover letters/contact information were identical.

Two mailings of the six-page questionnaire were conducted, followed by telephone follow-up. Either self-administered or by telephone, the survey averaged about 10 minutes to complete.

Special measures were taken to maximize response rates. The questionnaires and outer and return envelopes were typeset for a professional appearance, and clearly showed Mathematica Policy Research (MPR) as the firm conducting the research. A 10 by 13-inch outer envelope was addressed with a pressure-sensitive mailing label and bore first class postage. A 9 by 12-inch business reply envelope was provided for returns. The initial and follow-up cover letters were printed on MPR letterhead, and the inside address and salutation were personalized. Cover letters were signed by the Project Director at MPR, and questions were directed to the Project Manager at MPR's toll-free 800 number.

After the second mailing wave, telephone contacts among nonrespondents extended for two months. Over this period, physicians were contacted up to ten times to complete the survey over the telephone, or else to agree to complete and return another mailed questionnaire. In all, 2,415 questionnaires were completed; about two-thirds (1,704) were returned by mail, and the balance (711) were completed by telephone.

The overall response rate was 50.8%. By strata, residents responded at 66.3%, academics at 55.5%, and patient care physicians at 38.5%.

Nonrecipients of *JAMA* responded to the survey at levels similar to physicians receiving *JAMA* (i.e., academic *JAMA* recipients at 55.6% and nonrecipients at 55.4%; patient care *JAMA* recipients at 36.5% and non-recipients at 40.6%).

While there were notable response rate differences by major professional activity, there were no meaningful differences in response to the \$1 charity incentive (Table 1). The incentive had no impact on data completeness, as measured by the number of unanswered questions. It had at best a neutral impact on survey response.

Research Summaries and Catalog Discount Coupons

Given this response to the charity incentive, other motivational devices were investigated among physicians. Two very different incentives were bundled to capture the interest and participation of as many physicians as possible: *Research Brief*, from the AMA Division of Market Research—a one-page/two-sided, desk-top published summary of previous research results relevant to the survey being fielded; and a \$10-off coupon good toward a purchase from the American Medical Association's Product Catalog. To keep costs to a minimum, these incentives were promised to physicians only upon the return of each survey.

This incentive package was tested within the AMA's 1991-1992 Physician Survey Panel. Drawing from the AMA Masterfile as the sampling frame, U.S. practicing physicians were recruited by telephone to the Panel in a manner that ensured demographic representation. Three times annually a new survey was fielded to over 600 physicians concerning the various communications they used.

Consistent with the process described for the *JAMA* study, response-enhancing methods were applied, including: sending advance letters prior to the initial telephone contact; carefully scripting the recruitment call; enclosing, with each survey, customized cover letters and envelopes to continuing, new, and rerecruited physicians; and sending premium packages to survey participants containing a thank-you letter, an AMA Product Catalog, a \$10 Discount Coupon, and a *Research Brief*.

Consistently high response rates were attained for each of the three survey waves in 1992: 70.4%, 65.1%, and 69.7%. For 1992, the response rate across survey waves was 68.1%.

In all, 1269 \$10-off coupons were distributed to physician-respondents to apply toward an AMA Product Catalog purchase; 301 were redeemed, for

an overall redemption rate of 23.7%. Encouragingly, as Table 2 shows, coupon redemption held steady across the three waves, suggesting that motivation to participate was fairly even across the year.

An evaluation of the Panel incentive program was conducted within the Summer 1992 Survey Wave. Panel participants were asked to rate the Catalog Coupon, *Research Brief*, and other features, each on a 4-point scale.

The *Research Brief* was considered even better than the \$10 Discount Coupon (70.9% versus 59.9% "excellent" and "good" ratings combined) in making the Physician Panel participants feel that they were getting something in return for their help. These data suggest that both were well-regarded.

The Survey Panel itself was additionally well-rated for being relevant. More than four physicians in five rated the Panel as "excellent" or "good" in the way it explored interesting topics (87.9%), and provided a mechanism for input into the AMA (82.3%). Also, more than 71.7% believed that the Panel results would have an "excellent" or "good" chance of being put to use. These levels of conviction about the Panel's relevance exceeded the levels recorded for either the *Research Brief* or the \$10 Discount Coupon. Thus, in this survey effort, being perceived as relevant may have had an even greater impact than either of the incentives in convincing physicians to respond.

Discussion

The role of sponsorship was tested using a split sample for an AMA survey of surgeons regarding their opinions of various surgical journals, including an AMA surgical journal. For half the sample, AMA sponsorship was identified; the other half was completed using Business Decisions Research letterhead with the same questionnaire and appeal in the cover letters. Thus, the two studies differed only in their sponsorship. As anticipated, the AMA survey produced a higher response rate. There were only minor differences between the two test groups in how the questions were answered.

Considering the identification of the AMA as the publisher of *Archives of Surgery*, these results are striking. We conclude that it is possible for an organization to conduct a survey and obtain unbiased results regarding one of its own communications. Even so, in some cases it may be advisable to have a more neutral organization conduct the study for the sake of minimizing any impression of possible bias.

The fact that personalization resulted in an increased response rate for the Caller Satisfaction Study and had no effect for the International Medical Graduates Study may be due to the fact that for the Caller Satisfaction Study the respondent initiated the contact with the AMA and was expecting a response from the AMA, while for the International Medical Graduates Study the AMA initiated the contact with the physician. Also, the purpose of the studies and the types of questions asked were very different for the two studies. In the Caller Satisfaction Study, the respondents were rating their satisfaction with the service they received when they called the AMA, whereas in the IMG Study the respondents were indicating their opinions of the AMA and their personal experiences of discrimination. Additionally, the type of personalization in the two studies was very different. Despite the costly nature of the Caller Satisfaction Study personalization when compared with personalization costs in the International Medical Graduates Study, it was concluded that this personalization was cost-effective. In some cases, the cost of personalization could be offset by lessening the need to conduct extensive follow-up mailings.

Data quality for the questions on discrimination was negatively affected on the IMG Study, but not any of the other questions in the survey. Data quality was not affected in the Caller Satisfaction Study. These results suggest that the interaction of the personalization and the sensitive nature of the questions was the reason why some respondents did not answer the discrimination questions in the International Medical Graduates Study.

The findings of this research suggest that personalization should not be used in all cases. The purpose of the study, the questions being asked, and the type of respondents being surveyed should be evaluated when considering the use of personalization. That is, the appropriateness of personalization for the specific study must be examined to determine whether personalization is counter to a respondent's desire for anonymity.

Finally, three different types of incentives were tested among physician respondents in two different survey contexts. In one survey, sponsorship was blinded, and only half the sample was promised a \$1 charity incentive versus a non-incentive control. Response rate results showed this nominal charity incentive had a neutral impact, at best.

Anecdotal information suggests some reasons why the charity incentive did not have the intended effect. Some physicians considered the \$1 contribution a disincentive to participate. Expressed through comments, letters, and notes on the questionnaire, some physicians considered this amount insignificant, even when pooled with monies from other respondents. Other physicians viewed this incentive in the realm of "economic exchange," feeling that their time was worth more than the amount of the incentive. It was quite possible that had the sponsor been clearly identified as the American Medical Association, the promise of the charity incentive may have carried more weight, or engendered less skepticism.

In a second survey effort, participants in a Physicians' Survey Panel were promised a *Research Brief* and a Discount Coupon for an AMA Catalog order each time they returned a completed survey. Three surveys were fielded annually among Panel members. Evaluation results revealed that while these incentives were appreciated, they did not seem quite as important to physicians as the *belief* that the surveys were relevant. Additionally, the evidence suggests that an informational incentive carries more weight with physicians than a monetary one. This implies that when incentives for physicians or other professional/commercial respondents are chosen, information incentives should be seriously considered in preference to monetary forms. Another reason for experimenting with informational incentives is cost. While investment of staff time should not be taken lightly in figuring costs, staff time can be minimized by adapting summary points from Executive Summaries or Abstracts, which are becoming standard sections in research reports and articles. Through desktop publishing techniques, professionally prepared summaries can be produced economically. Costs can be minimized further by enclosing informational incentives with advance letters or survey booklets.

Conclusion

Tests of sponsorship, personalization, and incentives on physician survey response rates and data quality found the following. Unless there is a potential for bias from identifying the sponsor, there is no need to blind a survey, given that the response rate on a blinded survey can be substantially lower. Personalization proved effective in increasing the response rate on a survey that followed up physicians' telephone calls to the

AMA, but not on a survey that included some potentially sensitive questions. Results on the use of incentives among physicians showed that nominal charity incentives have a neutral impact at best. Discount coupons or informational incentives, while appreciated, did not seem quite as important to physicians as the belief that the survey was relevant and that the results would be used.

Clearly more research, particularly experimental research, is needed on the use of discount coupons and informational incentives vis-a-vis monetary incentives. Ideally, the design also should test the effects of sponsorship and personalization versus a no-enhancement control condition, allowing comparison against incentive conditions.

Whether personalization, sponsorship, or incentives are used to enhance physician survey response rates, emphasizing the survey's relevance appears necessary in order for any enhancement to have an effect. This is where the survey research basics make a difference. That is, in cover letters, scripts, and follow-up communications, it is critically important to make the topic relevant, inform respondents how the information will be used, and/or communicate how past research results have been used. When these basics are skillfully implemented, using sponsorship and personalization in the right context, and developing appropriate incentives such as newsletters and briefs, may be the right tactics to incrementally enhance survey response rates among physicians and other professionals.

Footnotes

¹The one difference in data collection between the two surveys (a stamped return envelope in the blinded survey versus a business reply envelope in the AMA survey) would have worked to the advantage of the blinded survey. Despite this, the response rate for the AMA survey was considerably higher than the response rate for the blinded study.

²The eight charities included: American Cancer Society, American Diabetes Association, American Heart Association, American Lung Association, American Red Cross, March of Dimes Birth Defects Foundation, National Kidney Foundation, and The Salvation Army.

Table 1. Response Rates on General Medical Journal Survey

	<u>Incentive</u> %	<u>No Incentive</u> %	<u>Total</u> %
Patient Care Physicians	37.8	39.1	38.5
<i>JAMA</i> Recipients	33.2	39.8	36.5
<i>JAMA</i> Nonrecipients	43.0	38.3	40.6
Resident Physicians	68.6	64.0	66.3
Academic Physicians	54.2	56.9	55.5
<i>JAMA</i> Recipients	53.7	57.6	55.6
<i>JAMA</i> Nonrecipients	54.6	56.2	55.4

Table 2. Response Rates and Coupon Redemption Rates for 1992 Physician Survey Panel

	<u>Total</u> <u>Mailout</u>	<u>Number of</u> <u>Returns</u>	<u>Response</u> <u>Rate</u>	<u>Coupons Returned</u> <u>from 1992 Surveys</u>	<u>Coupon</u> <u>Redemption</u> <u>Rate</u>
	N	N	%	N	%
Spring Wave	611	426	70.4	100	23.4
Summer Wave	624	405	65.1	109	26.9
Fall Wave	629	438	69.7	92	21.0
Total	1,754	1,269	68.1	301	23.7