

PHYSICIAN SURVEYS: RECENT DIFFICULTIES AND PROPOSED SOLUTIONS

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Introduction

The American Medical Association's Socioeconomic Monitoring System (SMS) is an annual telephone survey of non-federal patient care physicians. The SMS survey was begun in 1981, after a similar mail survey of physicians experienced a decline in response rates. The average SMS interview length is 25 minutes. Data are collected on a number of topics including: practice characteristics, number of hours and patient visits in different settings, income from medical practice, practice expenses, Medicare and Medicaid involvement, and managed care contracts. The survey response rate had been slowly declining for a number of years, but in 1998 and 1999 the situation became dramatically worse. As a result, the AMA has temporarily discontinued the SMS survey and is in the process of redesigning its data collection plans.

Background

The AMA has faced increased competition from other entities fielding surveys of physicians. A broad range of surveys are now being aimed at physicians, including many market research studies as well as consumer surveys focused on high-income individuals and families.

The AMA has lagged behind its competition in offering physicians incentives to participate in its surveys. Financial incentives have not been offered to SMS respondents, although recent experience with other AMA surveys suggests that they are useful and have not generated the expected complaints from AMA members. Outside market research studies, especially those funded by pharmaceutical companies, have led physicians to expect rather lavish rewards for participating in surveys and related activities. Difficulty in meeting response rate standards is coincident with the growth of managed care and its often stringent pressures on physicians' use of time, both in patient care and added administrative burdens. In addition, increasing numbers of physicians are employees; they are less knowledgeable about financial aspects of their practice and are frequently prohibited by their employer from responding to surveys.

In addition, it has become increasingly difficult to locate physicians. Many of the addresses and telephone numbers available from the sample frame, the AMA Physician Masterfile, are out of date.

In contrast to surveys with mainly clinical content, physicians often feel that responding to socioeconomic surveys is difficult and uninteresting. They do not understand or appreciate the benefits of participation. They seldom, if ever, see the results reported or used.

The AMA's difficulties mirror difficulties experienced by others in the physician survey field. The authors' conversations with other practitioners indicate that most are experiencing increased difficulty meeting historically established response rate standards. There is general recognition that physicians are more difficult to locate; that longer surveys are much less successful than shorter ones; that cooperation varies significantly with the content of the survey; and that incentives are increasingly necessary to elicit responses from physicians.

Recent SMS Experience

During the field periods of the 1998 and 1999 SMS surveys, a variety of problems surfaced or became significantly worse than they had been previously. Among these were:

- The number of accurate telephone numbers and mailing addresses of physicians drawn for the SMS sample from the AMA Physician Masterfile fell precipitously. This was partly due to the fact that the managers of the Masterfile instituted a policy of purging home telephone numbers, which in some cases were the only accurate numbers, from physicians' records. One can also speculate that business telephone numbers have begun to turnover more rapidly in the medical practice environment of the past several years in which many practices have been sold, bought, and consolidated. In any case, the increase in inaccurate information necessitated increased tracing effort, and the number of nonlocatable physicians was still higher than in the past.
- Physicians are busier, and less willing to cooperate with interviewers to complete surveys, especially long telephone interviews such as the SMS survey. Even though the survey can be administered in parts, interviewers can make appointments to contact physicians at specific times, physicians can call in to a toll-free number at their convenience, and physicians can designate proxies to complete some or all of the interview, some physicians refuse to set aside enough time to complete the survey. The difficulty of getting around

gatekeepers to speak to physicians has increased markedly.

- Physicians are typically less knowledgeable about the financial aspects of their medical practices. Consequently, item response rates to key survey questions on practice expenses have dropped.

In addition to a negative impact on the survey and item response rates, the problems described above precipitated a significant increase in the number of calls per completed interview as well as a significant increase in the number of interviewer hours over those originally planned for the 1998 and 1999 surveys.

Several approaches to mitigating the impact on the response rate of these problems were implemented during the 1999 survey, including the following:

- The AMA offered non-members a free trial membership in the Association for completing an interview. Over 278 trial memberships were awarded during the 1999 survey.
- Some respondents were offered a copy of *Market-driven Health Care* by Regina E. Herzlinger for completing an interview. A supply of 100 books was exhausted in the 1999 survey period.
- The field period of the 1999 survey was lengthened from 5 months to 13 months.
- A printed copy of the survey was mailed to random cases in the survey sample. These were followed-up intensely with telephone calls encouraging them to complete the survey and return it by mail. 840 mailed surveys were completed and returned.
- Several weeks before the end of the 1999 survey field period, the surveys administered by telephone were significantly shortened by deleting questions. The estimated time to complete the shortened telephone survey was 15 minutes. 242 of the 2501 completed telephone interviews were the shortened version.

Analysis

In the following analysis, four questions regarding the effect of some of these approaches are assessed: 1) Are there detectable differences between the characteristics of phone respondents vs. mail respondents? 2) Are there differences between the characteristics of respondents interviewed by telephone in 1999 and those interviewed at the end of the extended field period in 2000? 3) Are there detectable differences between the responses to the mailed questionnaire vs. the telephone interview? And 4) are there detectable differences in quality between the information gathered early in the field period vs. information gathered during the extension of the field period?

The answers to the first and second questions should show if the mixed mode approach or extension

of the field period resulted in deviations of the composition of the respondents from that which would have prevailed if the 1999 SMS had been completed solely by telephone during the original time frame. The answer to the third question should indicate whether the mailed questionnaire is an acceptable way to augment the telephone survey and lower the total cost of achieving the target number of completed surveys. The answer to the fourth should indicate whether the quality of information provided by physicians degrades with time, perhaps due to the increasing remoteness of the events that they are being asked about because of deteriorating memories or increasing difficulty of retrieving historical records as time passes.

Characteristics of Respondents

Table 1 shows the characteristics of physicians who responded to the mail vs. telephone surveys, and who completed telephone interviews in 1999 vs. 2000. Table 2 shows the result of logistic regressions to test for statistically significant differences between the characteristics of mail vs. telephone physicians, and between characteristics of 1999 vs. 2000 telephone respondents.

Comparing the frequency distributions of mail and telephone respondents shows that the only characteristic which differed significantly between the two groups was specialty. The telephone respondents in 1999 and 2000 differed along a number of dimensions, as seen in Table 1. The later respondents were more likely to be female, foreign medical graduates, and not board certified. In addition, the geographic and age distributions of the early versus late telephone respondents were different.

Table 2 presents the results of multivariate analyses. The first column reports odds ratios for the explanatory variables from the logistic regressions for “telephone”; the dependent variable has a value of 1 if the survey was completed by telephone and 0 if the survey was completed by mail. The second column contains results from the logistic regression for “late” telephone respondent; the dependent variable has a value of 1 if the telephone response was obtained in 2000, 0 if the telephone response was obtained in 1999, and is missing for the mail cases. For both regressions, the explanatory variables are age and the square of that value as well as dichotomous variables created from each of the demographic characteristics presented in Table 1. The reference category for each regression is: general/family practice, rural, male, U.S. medical graduates who are not board certified. An odds ratio of greater than 1 indicates a positive relationship between the characteristic and the dependent variable. The results are generally consistent with those in Table 1. These explanatory variables are jointly significant in predicting the probability of responding by mail vs.

phone and in predicting late vs. early response to the telephone survey.

Responses to Mail Surveys vs. Telephone Interviews

829 of the surveys were completed by mail, compared to 2512 completed by telephone. The overall response rates were 24% for the mailed survey and 49% for the telephone survey.

Two of the most important variables on the SMS survey are physicians' net income (after expenses, before taxes), and total practice expense. Both of these questions in the survey under discussion referred to 1998 as the reference period. Practice expense questions are asked only of physicians who have an ownership interest in their medical practice.

As shown in Table 3, the item response rate for income was similar for the mail and telephone cases (70% and 73%, respectively). Average net income obtained from the two modes was not statistically different at the 0.05% level, as shown in Table 4.

The item response rates for the total practice expense question were appreciably lower than those for the income question, 46% for mail and 52% for telephone. The average practice expense values obtained from the two modes were statistically different at the 0.05% level, \$321,320 for the mail survey compared to \$244,343 for the telephone survey. Some of this difference may be accounted for by the difference in specialty composition of the mail vs. telephone respondents discussed above.

Early vs. Extended Field Period Responses

We analyzed differences in responses to the telephone interviews completed in 1999 and 2000. 1664 interviews were complete by telephone in 1999, compared to 848 in 2000.

Average net income reported in 1999 interviews was \$201,700, compared to \$182,700 in 2000 interviews ($p < 0.01$). The item response rate fell appreciably from 80% in 1999 to 59% in 2000.

Average practice expense reported in 1999 interviews was not statistically different from that reported in 2000 interviews (\$248,700 vs. \$224,300, respectively). However, the item response rate fell from 59% in 1999 to 32% in 2000.

As discussed above, there were many differences in the composition of telephone respondents in 1999 vs. 2000, which could explain some of the difference in their net income.

Conclusion

The item response rates to key survey items were only slightly lower for mail respondents than telephone respondents. The area of greatest concern is the very large increase in reported total expenses in 1998 for the mail respondents compared to the telephone. It is not

possible to discern how much of this is a mode effect and how much is due to the different specialty distributions of mail and telephone respondents. Extending the field period greatly reduced item response rates to the income and expense items, and had some effect on responses to these items.

The AMA replaced a mail survey of physicians with the SMS telephone survey in 1981 in response to the deteriorating response rate to the mail survey. The response rate to the SMS has been satisfactory until recently. Because of the increasing expense of the survey and the deteriorating response rate, other approaches must be found to obtain socioeconomic information on physicians and their practices.

We have learned here that extending the field period is not advisable. We will employ mixed modes in future surveys, but mailed surveys will not be employed unilaterally when it would reduce the response rate or change the composition of respondents. Shortening the survey is necessary to reduce costs as well as respondent burden. In addition, we may conduct a survey of medical practices rather than physicians to obtain financial information about the practice.

TABLE 1: Respondent Characteristics

	<u>Mail</u>	<u>Phone</u>	(Phone Cases Only)	
			<u>'99</u>	<u>'00</u>
Number of Cases	829	2512	1664	848
Gender				
Male	82.7%	80.4%	81.5% ⁺	78.3% ⁺
Female	17.3	19.6	18.5	21.7
Country of Graduation				
U.S.	78.4	77.2	78.3 ⁺	75.1 ⁺
Foreign	21.6	22.8	21.7	24.9
Specialty				
General/Family Practice	15.2 ^{**}	12.5 ^{**}	12.3	12.8
Gen. Int. Med.	18.4	17.0	17.3	16.3
Int. Med. Subspec.	5.4	7.6	7.4	7.8
Gen. Surgery	5.0	3.5	3.4	3.7
Surg. Subspec.	13.3	14.6	14.5	14.7
Pediatrics	7.5	8.9	8.9	9.0
Obstetrics/Gynecology	8.3	6.1	6.3	5.7
Radiology	3.6	5.9	5.7	6.4
Psychiatry	6.5	6.3	6.4	5.9
Anesthesiology	4.4	6.0	5.8	6.6
Pathology	2.0	2.3	2.4	2.0
Emergency Medicine	4.3	3.8	3.6	4.2
Other	6.2	5.6	6.0	4.9
Census Division				
New England	5.5	6.5	6.1 [*]	7.4 [*]
Middle Atlantic	18.3	17.4	16.8	18.4
E.N. Central	15.8	13.6	14.9	11.0
W.N. Central	6.3	6.5	6.8	6.1
S. Atlantic	19.7	20.0	19.6	20.8
E. S. Central	5.9	5.1	5.2	4.8
W.S. Central	8.6	9.9	10.6	8.6
Mountain	5.4	6.4	6.6	6.0
Pacific	14.4	14.6	13.4	16.9
Board Certification				
No	21.1	23.8	22.5 [*]	26.4 [*]
Yes	78.9	76.2	77.5	73.6
Location				
Nonmetropolitan	12.2	13.5	13.7	13.1
Small Metro	33.8	31.4	30.6	33.0
Large Metro	54.0	55.1	55.7	53.8
Age				
<36 years	6.6	7.1	6.4 [*]	8.5 [*]
36 – 45	33.9	37.0	36.2	38.6
46 – 55	36.2	33.9	34.6	32.4
56 – 65	18.2	17.1	16.9	17.4
>65 years	5.1	5.0	5.9	3.2

+p<0.10 **p<0.01
*p<0.05

Results are weighted to adjust for survey nonresponse.

Table 2: Logistic Regressions

	Phone Odds Ratio	2000 Odds Ratio
Board Certified	0.911	0.820 ⁺
Age	0.947	0.961
Age ²	1.000	1.000
Middle Atlantic	0.793	0.817
E.N. Central	0.691 ⁺	0.559**
W.N. Central	0.824	0.646 ⁺
S. Atlantic	0.875	0.738
E.S. Central	0.777	0.603*
W.S. Central	1.022	0.583*
Mountain	1.094	0.690
Pacific	0.915	0.955
Gen. Int. Med.	1.123	0.816
Int. Med. Subspec.	1.837**	0.965
Gen. Surg.	0.889	1.001
Surg Subspec	1.442*	0.956
Pediatrics	1.428*	0.871
Ob/Gyn	0.914	0.849
Radiology	2.150***	1.011
Psychiatry	1.256	0.886
Anesthesiology	1.485 ⁺	0.884
Pathology	1.409	0.843
Emerg. Med.	1.187	1.137
Other	1.124	0.718
Female	1.139	1.066
IMG	1.125	1.271*
Small Metro	0.820	1.170
Large Metro	0.932	0.994
	Chi-Square 48.902** (27d.f.)	Chi-Square 47.763** (27d.f.)

⁺p<0.10 **p<0.01
*p<0.05 ***p<0.001

Table 3: Selected Item Response Rates

	<u>Mail</u>	<u>Phone</u>	<u>(Phone Cases Only)</u>	
			<u>'99</u>	<u>'00</u>
'98 net income	70%	73%	80%	59%
'98 total expenses	46%	52%	59%	32%

**Table 4: Comparisons of Response to Selected Items Mean (Standard Error)
(Phone Cases Only)**

	<u>Mail</u>	<u>Phone</u>	<u>'99</u>	<u>'00</u>
'98 net income	203,200 (4972)	196,700 (3033)	201,700** (3557)	182,700 (5756)
'98 total expenses	321,300** (22,311)	244,300 (8782)	248,700 (9579)	224,300 (21,821)

**p<0.01