

OPTIMIZING THE USE OF PROXY RESPONDENTS

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I. Introduction

The American Medical Association (AMA)'s Socioeconomic Monitoring System (SMS) is an ongoing annual survey of patient care physicians, which collects data on medical practice characteristics (including hours worked, number of patient visits, managed care participation, fees, practice income and expenses). SMS is administered using computer assisted telephone interviewing (CATI).

In recent years, survey response rates have declined from a high of 70% to about 60%. This may at least be partially due to rapid changes in physician practice arrangements and the health care delivery system, e.g. trends toward employment, increasing practice size, and growth in managed care. As a result, efforts have been made to enhance response rates and make it easier for physicians to participate in the survey. In 1997, changes were made in the SMS instrument to increase the use of proxies for some portions of the interview. In this paper, we will examine the effects that proxy respondents have on the quality of survey data and survey costs to help determine whether further changes in proxy use are suggested.

Using data from the 1995-1997 SMS core surveys, we will first examine the characteristics of physicians who designate proxy respondents. We will assess the cost of using proxy respondents by examining differences between those interviews that did and did not involve proxies in terms of the number of calls and amount of time required to obtain a completed interview. Data comparability and quality for proxy versus physician respondents will also be examined.

II. Survey Description

Beginning in 1966, the AMA conducted an annual mail survey of office-based physicians, the Periodic Survey of Physicians (PSP). The PSP surveys collected information on characteristics of medical practice. The PSP program proved to be an adequate, cost-effective method to describe trends in medical practice during the 1970s. However, nearly a year elapsed from the time the questionnaire was designed until the survey results were available. There was also

a significant decline in response rates to the PSP during the last years of the program. With the prospect of rapid structural changes in the health care delivery system during the 1980s, the mail-based data collection effort was determined to be inadequate to meet the Association's need for timely and credible socioeconomic data on physicians.

The Socioeconomic Monitoring System (SMS) program was designed to address the limitations of the PSP program. The first SMS survey was conducted in the fourth quarter of 1981. The survey was conducted quarterly through 1985, then semi-annually through 1991, and annually since then. Starting in 1982 the survey has included a "Core" survey conducted in the spring/summer; it typically has had a larger number of observations (4,000), a longer field period (about 4 months) and is longer (25 minutes) than the quarterly and autumn surveys.

The SMS sampling frame is broader in coverage than the population covered by PSP surveys. The PSP included only office-based physicians, whereas the SMS also includes hospital-based physicians. SMS questions were designed to parallel those on the PSP survey. The AMA contracts with a survey firm to collect the data. Currently, Westat is the contractor. Between 1992 and 1997, RAND was the survey firm; prior to that, Mathematica Policy Research was used.

The SMS sample design is a random sample of nonfederal patient care physicians drawn from the AMA Physician Masterfile. The Masterfile contains current and historical information on all allopathic physicians in the United States, including members and non-members of the AMA. In order to provide reliable estimates of short-term changes in certain indicators, the SMS survey also includes a panel component. The panel consists of a portion of the sample who had responded to the SMS survey the previous year. Approximately one-third of the completed interviews are conducted as reinterviews with physicians who had responded to the SMS survey the previous year.

Since inadequate coverage is a potential problem for telephone surveys, the survey contractor expends considerable effort to locate sample physicians. If the Masterfile's physician location information is incomplete or incorrect, basic sources of updated information from directory assistance, state and county

medical societies, state licensing boards, and hospitals are used to locate the physician.

Field procedures developed for SMS reflect a complex effort to minimize bias from nonresponse and to accommodate the busy schedules of physicians through advance preparation and intensive follow-up efforts to complete interviews. Prior to data collection, advance packets are sent to each physician in the sample. A number of efforts have been implemented over time to ensure a high response rate:

- Interviews are scheduled at the convenience of physicians.
- A toll-free number is provided, allowing physicians to complete the interview at their convenience.
- In some years, mail questionnaires, tailored to each specialty, have been made available to physicians who indicate a preference for responding to the survey in writing.
- Repeated callbacks to nonrespondents are made before abandoning efforts to interview the physician.
- Letters encouraging participation and addressing specific objections are sent to physicians who initially refuse to be interviewed.
- Refusal conversion attempts are made by a select group of interviewers.
- The physician may name a proxy respondent to complete some or all of the interview.

III. Motivation and Analysis

Recognizing that survey response rates have been declining and that physician employment arrangements are changing, the use of proxy respondents is expected to become increasingly important. Physicians who are employees of institutions or managed care organizations as well as those in large practices may have little control over the allocation of their time. For example, employee physicians may not have the same flexibility as solo physicians to schedule time to complete the survey. Also, because employee physicians are not involved with certain business aspects of their practice, they may be unable to answer survey questions concerning fees, reimbursements, and other financial details of the practice.

While the use of proxy respondents has always been allowed in this survey, the proportion of cases where a proxy has been used to complete some or all of the interview has been increasing steadily. Some slight changes were made in 1997 to further encourage certain types of physicians to designate proxies for several sections of the questionnaire. Employees were asked at the beginning of the section on fees and

reimbursements whether they had this information or if there was another person in the practice who was more knowledgeable. At the beginning of the section on practice expenses, physicians in large practices (25 or more physicians) were asked if they had the information or would prefer to assign a proxy. Finally, at the beginning of the managed care section, physicians in large practices were given the opportunity to designate a proxy. Several different proxy variables are used in the analysis – proxies may be used for any portion of the interview, the section on fees, the income and expense section, the managed care section, or the entire interview.

The objective of this study is to evaluate the effects of proxy respondents on the survey quality and costs so that we can make informed decisions about expanding the use of proxy respondents in future rounds of the survey. First, we examine demographic and practice characteristics of physicians who designate proxy respondents. The costs of using proxy respondents are also examined; the number of calls and amount of time required to complete the interview are examined for cases where proxy respondents were used.

Additional analyses were conducted that are not presented in tables, due to space constraints. These analyses examined data quality and comparability between proxies and physicians. T-tests were performed comparing physician and proxy responses to key survey variables. We also examined item nonresponse and the distribution of responses to key items for physician versus proxy respondents.

IV. Results

In 1995, proxy respondents were used for some part of the interview in 18.0% of the completed interviews; in 1997, this proportion rose to 23.5%. The entire interview was done by a proxy respondent for 8.9% of the cases in 1995 and for 19.5% of the cases in 1997.

Table 1 pools survey respondents for 1995 through 1997 and shows the pattern of use of proxies broken out by various demographic and practice characteristics of the sampled physician. Cases using a proxy respondent for the following portions of the survey: any section of the interview, fees, income and expenses, managed care, and the entire interview are separately examined. A number of relationships between physician characteristics and the use of a proxy were found to be significant. For example, office-based physicians were more likely to designate a proxy than were hospital-based physicians. Contrary to our expectation, physicians who were employees were less likely to use proxies than were

owners and independent contractors. The busiest physicians (as indicated by number of hours spent in medical and administrative activities per week) were most likely to use proxy respondents. Generally, the same patterns were observed regardless of which proxy designation was used.

Table 2 compares the costs for completed interviews involving proxies with those not involving proxies measured in terms of mean total calls, total time, and interview time for each year and for the three years combined. In every comparison presented, completed interviews involving proxies required significantly more calls and more time than those not involving proxies. In general, at least 50% more calls were required for interviews using proxies than for interviews completed entirely by the physician. In terms of interview time, proxies added 4 to 5 minutes; the difference in time between proxy and physician cases was much smaller in 1997, however. Thus, while the use of proxy respondents may be necessary to maintain survey response rates and minimize the burden on physicians, we should be conscious of the additional survey costs involved in using proxies. The standard errors of the mean number of calls and time were consistently larger for proxy respondents than for physicians.

In comparisons not shown in the tables, we found that proxies had higher item response to the fee and reimbursement items than did physician respondents; the proxies' proportion of missing values to these items was approximately half that for physicians. However, proxy respondents had consistently lower item response rates to the expense items (except professional liability premiums) than did physicians.

Means and standard errors of key variables were also compared for physicians and proxies (Tables not presented here.) The mean values reported by proxy versus physician respondents were not significantly different. However, mean expenses were consistently higher when reported by a proxy than by a physician. It may be that recall bias differs between the physician and the proxy respondents, and the degree and direction of the bias varies by survey section. Alternatively, those physicians who designate proxies to answer for them may have different responses to some survey items, given their different demographic and practice characteristics.

We also examined the distribution of responses to key questions for physician versus proxy respondents. Generally, proxy respondents had somewhat tighter distributions, with less variability in the upper tail of the distribution, on the fee and reimbursement items. For the expense items, the proxy responses are more variable than physician responses.

V. Conclusion

Certain types of physicians are more likely to use proxies; among the most important findings are that busier physicians are more likely to use proxy respondents. We have not seen the expected pattern of proxy use by employee physicians or by those in large practices. However, it is clear that allowing the use of proxies has not only enabled us to maintain survey response rates but also allowed us to obtain data from certain types of physicians who otherwise would have been missed. The apparent higher cost of using proxy respondents is of concern, but is probably warranted in order to minimize nonresponse bias.

Data quality (in terms of item response rates) and comparability for some survey items such as fees and reimbursements are similar for proxies and physicians. However, proxies have lower response rates to expense items and report significantly higher expenses, when they are able to answer the items. It is likely that the expenses in these cases are actually higher, since we have found that busier physicians are more likely to designate a proxy. Given the dispersion found in proxy responses, further analysis is needed, including identifying the most appropriate respondent for the expense section of the survey.

In 1998, we are obtaining more information on exactly who responded to each section of the interview. This will enable us to make informed decisions about possible changes in proxy procedures for future rounds of the survey.

Table 1
 Characteristics of Respondents Who Designate Proxies –
 Demographic and Practice Characteristics
 1995-1997 Combined

	<u>Any Section</u>	<u>Fees</u>	<u>Expense & Income</u>	<u>Managed Care</u>	<u>Whole Interview</u>
Major Professional Activity					
Office-Based	21.5***	14.3***	16.4***	18.9***	13.3***
Hospital-Based	13.9	7.3	8.0	9.9	6.8
Employment Status					
Owner/Independent Contractor	24.7***	18.8***	22.4***	24.8***	17.8***
Employee	14.3	4.9	4.1	6.7	4.0
Practice Size					
<25 MDs	21.7***	14.4***	16.4***	18.9***	13.4***
25+ MDs	9.7	4.0	6.1	7.9	3.5
Total Hours/Week					
≤45 hours	20.3***	11.6***	13.4***	15.8***	10.8***
46-55	18.0	12.4	14.1	16.6	11.3
56-65	19.3	13.2	14.9	17.2	12.2
>65	25.4	17.3	19.8	22.3	16.1
Interview Type					
Reinterview	19.8*	13.3	15.6	17.9	12.5
Initial	21.4	13.9	15.7	18.2	12.8
Age					
<40 years	17.3%***	9.7%***	11.0%***	13.9%***	8.7%***
40-45	22.0	14.2	16.0	18.4	13.2
46-55	23.0	15.5	17.8	20.2	14.7
56-65	21.6	14.9	17.6	19.9	13.9
>65	17.0	13.0	14.6	16.6	12.0
AMA Member					
No	19.8**	12.3***	13.7***	16.2***	11.4***
Yes	22.2	15.3	18.0	20.4	14.3
Sex					
Male	21.7***	14.4***	16.5***	18.9***	13.4***
Female	16.4	9.9	10.8	13.9	8.9
Location					
Large Metropolitan	19.4***	13.1	14.3***	16.8**	12.1
Rural	22.7	14.5	17.7	20.2	13.9
Small Metropolitan	22.3	14.3	16.9	19.2	13.1

Table 1 (Continued)
 Characteristics of Respondents Who Designate Proxies –
 Demographic and Practice Characteristics
 1995-1997 Combined

	<u>Any Section</u>	<u>Fees</u>	<u>Expense & Income</u>	<u>Managed Care</u>	<u>Whole Interview</u>
Specialty					
General Practice/Family Practice	15.3%***	16.5%***	17.5%***	20.0%***	15.4%***
Internal Medicine	26.5	17.5	18.6	20.9	16.3
Surgery	28.5	21.7	24.1	26.7	20.3
Pediatrics	15.1	9.3	10.2	12.3	8.5
Obstetrics/Gynecology	24.0	17.0	18.0	21.9	15.4
Radiology	8.0	1.4	5.6	8.1	1.4
Psychiatry	10.0	2.0	7.0	7.4	2.0
Anesthesiology	10.7	3.4	9.0	11.2	3.4
Pathology	1.2	0.0	0.6	3.9	0.0
Other	15.2	10.1	10.6	13.7	9.1
Region					
North East	19.3***	12.4**	14.2***	16.5***	11.6**
North Central	21.4	13.5	15.1	17.9	12.4
South	22.9	15.3	17.9	20.4	14.4
West	18.6	12.5	19.3	16.4	11.5

*Within-category differences are statistically significantly at p=0.05.

** Within-category differences are statistically significantly at p=0.01.

*** Within-category differences are statistically significantly at p=0.001.

Table 2
Costs of Using Proxy Respondents^a

	Total Calls				Total Time (in minutes)				Interview Time (in minutes)			
	Mean (Std. Error)				Mean (Std. Error)				Mean (Std. Error)			
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>All</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>All</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>All</u>
Respondent - Fees												
Physician	13.0 (0.16)	15.4 (0.21)	13.8 (0.18)	14.1 (0.11)	78.6 (0.65)	69.9 (0.63)	70.9 (0.69)	73.3 (0.38)	25.5 (0.18)	21.3 (0.15)	20.1 (0.15)	22.4 (0.10)
Proxy	21.1 (0.51)	26.0 (0.67)	24.3 (0.43)	24.0 (0.31)	114.8 (2.01)	106.0 (1.98)	105.1 (1.43)	107.7 (1.01)	33.3 (0.66)	28.3 (0.51)	22.9 (0.34)	27.0 (0.30)
Respondent – Expense & Income												
Physician	12.9 (0.16)	15.2 (0.21)	13.8 (0.18)	13.9 (0.11)	77.6 (0.66)	69.1 (0.64)	70.6 (0.68)	72.6 (0.38)	25.2 (0.18)	21.2 (0.15)	20.1 (0.15)	22.3 (0.10)
Proxy	20.2 (0.45)	25.6 (0.59)	24.4 (0.42)	23.6 (0.28)	113.4 (1.73)	104.3 (1.76)	105.6 (1.44)	107.3 (0.94)	33.1 (0.62)	27.5 (0.53)	23.0 (0.35)	27.2 (0.30)
Respondent – Managed Care												
Physician	12.7 (0.16)	15.2 (0.21)	13.7 (0.19)	13.9 (0.11)	76.6 (0.66)	68.7 (0.65)	70.4 (0.69)	71.9 (0.38)	25.2 (0.17)	21.1 (0.15)	20.0 (0.15)	22.2 (0.10)
Proxy	19.8 (0.41)	24.1 (0.56)	23.5 (0.41)	22.6 (0.27)	112.4 (1.60)	108.9 (1.62)	103.4 (1.40)	105.2 (0.89)	32.1 (0.57)	27.1 (0.49)	22.9 (0.33)	26.9 (0.28)
Respondent – Entire Interview												
Physician	13.1 (0.16)	15.5 (0.20)	13.8 (0.18)	14.2 (0.11)	79.0 (0.65)	70.3 (0.63)	71.1 (0.69)	73.6 (0.38)	25.5 (0.18)	21.3 (0.15)	20.1 (0.15)	22.5 (0.10)
Proxy	21.2 (0.53)	26.7 (0.71)	24.6 (0.43)	24.4 (0.32)	114.4 (2.08)	107.3 (2.12)	105.6 (1.45)	108.1 (1.04)	33.5 (0.69)	28.7 (0.62)	22.9 (0.35)	27.0 (0.31)

^aIncludes only completed interviews

Note: All differences between proxy and physician respondents were significant at p=0.001.