

Interviewing Physicians: The Effect of Improved Response Rate

MARC L. BERK, PHD

Abstract: This analysis of data from the Physicians' Practice Survey indicates that estimates made from early responders closely approximate those obtained at the conclusion of a longer field period. (*Am J Public Health* 1985; 75:1338-1340.)

Introduction

Physicians' reluctance to participate in surveys is a growing problem for researchers. The American Medical Association (AMA) has warned that "physicians are becoming weary and wary of surveys,"¹ and the response to the AMA's Periodic Survey of Physicians declined from 80 per cent in 1966 to 49 per cent in 1977.²

Response may be improved in telephone surveys if trained interviewers make many callbacks over an extended period. Response to mail surveys can be improved through remailings of the questionnaire. Such procedures are time consuming and expensive. An important question is: are higher response rates worth it?

Many researchers assume that low response indicates a biased sample; some studies have shown differences between the respondents and nonrespondents. Studies of physicians,²⁻⁶ however, suggest that non-respondents and respondents are similar on most important characteristics.

An analysis of nonresponse on the current survey indicated that most physicians who did not participate refused because they did not believe the survey merited an expenditure of their time³; only a few mentioned more ideological reasons such as privacy or distrust of government. Neither the physician's sex nor specialty was associated with differential response levels, but physicians in the West and Northeast were somewhat more likely to decline participation than physicians in the South or North Central.

Even when minor differences are found between responding and non-responding physicians, one cannot infer that higher response reduces bias. The issue is not whether non-respondents differ from respondents but rather do initial responders differ substantially from late responders. If late responders are representative of the terminal refusal population, one can assume higher response rates will reduce non-response bias. If, however, answers of late responders approximate those of early responders, the value of a high response rate may not be worth the extra cost.

Previous comparisons between early and late responders have not produced a consensus on the usefulness of high response. Some studies⁷⁻⁹ indicate little change between early and late responders while others^{10,11} suggest there are differences. However, neither these surveys, nor any of the 28 surveys reviewed by Leslie,¹² examined the physician population. In this study, I examine the value of efforts to obtain high response rates in surveys of physicians.

Methods

The data used came from the Physicians' Practice Survey (PPS), a component of the National Medical Care

Expenditure Survey (NMCES). NMCES was funded by the National Center for Health Services Research and co-sponsored with the National Center for Health Statistics. During a household interview, respondents were asked for the names and addresses of the physicians who had provided them with care, and a sample of these physicians was later selected for a 15-minute telephone interview.

Results

Early, Middle, and Late Findings

The value of efforts to increase the response in PPS was examined by comparing estimates obtained from early, middle, and late responders. We first compared demographic characteristics of the three respondent types including age, sex, income, board certification, specialty, and if the physician graduated from a foreign medical school. Six characteristics of the physician's medical practice were then examined. Finally, three measures of data quality were considered.

Physicians who responded during the last two months of the survey, compared with those interviewed during the first two months, were slightly younger and had smaller incomes. They were more likely to be board certified, to have a larger percentage of their patients on Medicaid, be associated with practices with a larger number of doctors, and to charge slightly larger fees (Table 1).

Cumulative Estimates

That late responders differ from early responders on several variables does not necessarily imply that bias would be introduced by ending the survey earlier. The consequences of accepting lower response can be examined by comparing the cumulative estimates that would be obtained if the survey were ended at various times.

Adding late responders to the sample did not substantially affect most of the estimates of key demographic variables (Table 2). A comparison of the estimates obtained after four months with those obtained at the end of the survey shows that only three of 14 estimates for key provider and practice characteristics changed more than 5 per cent and only one (# doctors in practice) changed more than 10 per cent. Seven of the estimates changed less than 1 per cent during the last two months of the survey. If the survey had ended after four months, only the average number of physicians associated with a practice would have been underestimated. Moreover, cumulative estimates show that data quality may have been better earlier in the survey.

Discussion

Late-responding physicians differ from early responders on several characteristics. However, differences in the estimates are small and usually do not affect the cumulative estimates of the demographic characteristics. Differences between estimates made after the first four months of the survey approximate those made after six months.

These findings do not imply that response bias is acceptable in physician surveys. The issue is whether response bias

Address reprint requests to Marc L. Berk, Senior Sociologist, National Center for Health Services Research, Mail Stop 3-50 Park Building, 5600 Fishers Lane, Rockville, MD 20857. This paper, submitted to the *Journal* January 4, 1985, was revised and accepted for publication May 8, 1985.

TABLE 1—Estimates from the Physicians' Practice Survey by Month of Field Report

	Per Cent Distribution			Standard Errors		
	Months 1-2	Months 3-4	Months 5-6	Months 1-2	Months 3-4	Months 5-6
Characteristics of Provider						
Age	48.6	48.1	47.3	0.3	0.3	0.2
Annual income	53,123	49,302	45,446	965	1,121	1,058
% Board certified	71.2	74.7	76.1	1.1	1.2	1.1
% Graduate FMS	12.8	12.9	12.8	0.8	0.9	0.8
% Female	3.1	2.3	3.4	0.4	0.5	0.5
% General practitioners	26.7	23.1	24.3	1.1	1.1	1.1
% Surgical specialists	15.3	17.0	16.4	0.9	1.0	0.9
% Other medical specialists	52.4	54.4	52.5	1.2	1.3	1.3
Characteristics of Practice						
% Patients on Medicaid	12.8	12.0	14.2	0.4	0.4	0.5
# Doctors in practice	3.3	3.4	4.9	0.2	0.2	0.2
Weeks worked during year	47.4	47.3	47.0	0.1	0.1	0.1
Hours worked per week (last week)	50.1	49.9	49.0	0.4	0.7	0.4
Fee for initial office visit	24.22	25.99	26.19	0.4	0.5	0.5
# Days patient waits for appointment	7.5	7.4	8.7	0.4	0.4	0.6
Quality of Data Indicators						
% Cases with excellent cooperation when rated by interviewer	67.6	60.3	62.6	1.2	1.4	1.3
% Answering income question	79.7	71.5	75.9	1.0	1.2	0.8
% Interview completed directly with physician	78.4	63.2	56.5	1.0	1.2	1.2
Response Rate						
N	1,762	1,517	1,666			

TABLE 2—Cumulative Estimates from the Physicians' Practice Survey by Month of Field Report

	Parameter Estimates			Standard Errors		
	End of Month 2	End of Month 4	End of Month 6	End of Month 2	End of Month 4	End of Month 6
Characteristics of Provider						
Age	48.6	48.4	48.0	0.3	0.2	0.2
Annual income*	53,123	51,355	49,370	965	734	604
% Board certified	71.2	72.8	73.9	1.1	0.8	0.6
% Graduates FMS	12.8	12.9	12.8	0.8	0.6	0.5
% Female	3.1	2.7	2.9	0.4	0.3	0.2
% General practitioners	26.7	25.0	24.8	1.1	0.8	0.6
% Surgical specialists	15.3	16.1	16.2	0.9	0.6	0.5
% Other medical specialists	52.4	53.3	53.1	1.2	0.9	0.7
Characteristics of Practice						
% Patients on Medicaid	12.8	12.4	13.0	0.4	0.3	0.3
# Doctors in practice*	3.3	3.3	3.9	0.2	0.1	0.1
Weeks worked during year	47.4	47.3	47.2	0.1	0.1	0.1
Hours worked per week (last week)	50.1	50.0	49.6	0.4	0.4	0.3
Fee for initial office visit	24.22	25.04	25.41	0.4	0.3	0.3
# Days patient waits for appointment*	7.5	7.4	7.8	0.4	0.3	0.3
Quality of Data Indicators						
% Cases with excellent cooperation when rated by interviewer	67.6	64.4	63.8	1.2	0.9	0.7
% Answering income question	79.7	75.9	73.1	1.0	0.7	0.6
% Interview completed directly with physician*	78.4	71.4	66.4	1.0	0.8	0.7
Response Rate						
N	1,762	3,279	4,947			

*Difference between Month 4 and Month 6 estimates is greater than 5%.

mid-way through the field period can be decreased by raising the response rate. This analysis indicates higher response rates may not always reduce response bias.

Some caution, however, must be used in interpreting these findings. First, a reduced response rate may not yield enough cases for meaningful analysis of physician subgroups, e.g., low-income physicians or physicians in large practices. In addition, the Physicians Practice Survey focuses primarily on basic demographic data and on economic data about the physician's practice. Inferences cannot be made about the importance of high-response rates for other types of physician surveys including those that examine attitudes, health behaviors, or practices regarding patient care.

For some types of physician surveys, researchers might consider the possible merits of survey designs with larger samples but accept lower response rates. This type of survey would be more cost-effective since the cost of interviewing a reluctant or hard to locate physician greatly exceeds that of interviewing an earlier responder. In addition, it would yield more cases and thus provide more precise estimates. Finally, a shorter field period permits earlier analysis. In sum, the current emphasis on high response rates is sometimes unwarranted. Alternative strategies which reallocate resources to reduce other forms of bias should be considered.

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