THE COMPLETENESS OF ROUTINELY COLLECTED RECORDS IN MEDICAL CARE RESEARCH

Monroe Lerner and Zili Amsel
The Johns Hopkins University

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Although household interview surveys have generally been the preferred mechanism for data collection in social science research, some question has recently been raised about the further usefulness of this mechanism. This comes about partly because at least some populations, perhaps especially residents of inner cities and university communities, may have begun to define themselves as "over-interviewed", i.e., they appear to feel that they have become too vulnerable as target populations for anybody at all who wants to do a survey on any matter of his own choosing, however irrelevant and/or inconsequential it may be to the population interviewed. As a consequence, both the resistance of potential survey respondents, and non-response rates, appear to be rising.

But in addition to this apparent increase in resistance, question arises also because of the many problems inherent in household interviews, perhaps too well-known to merit detailed repetition here. In brief, bias is inherent in the interview situation itself, it is believed, since the interview constitutes essentially a small-group interaction characterized by social-psychological dynamics, in which the characteristics of both respondent and interviewer play a role. This may be particularly true if the interview takes place in the respondent's home, with other family members present. The household interview, especially under these circumstances, becomes an "obtrusive" measure. 1

But also, it is a very expensive form of obtrusive measure, largely because of the high costs of travel, locating the respondent in his own home, the all-too-frequent necessity for numerous callbacks in order to achieve a high response rate, etc. Mail and telephone surveys, often advocated as alternative data-collection mechanisms, also raise many questions, not the least of which is the relatively low response rate of the former and the potential hazards of abuse inherent in the latter.

Conceived of for social research purposes either as an alternative or as a supplement to household interviews, routine records collected in response to the administrative needs of ongoing agencies may serve as a useful data-collection mechanism. Clearly, since social research and administration serve different purposes, information is likely to be collected in response to each need; however, the information collected should not be entirely different because, at least in some degree, these needs may overlap.

Also, some items of information are presumably useful for both types of purposes, especially because "usefulness" can be considered as a matter of degree rather than as an absolute. As one example, items relating to the socio-economic status of a user of health services (e.g., a hospital patient) may be maximally useful for social research purposes, but only minimally useful for administrative purposes; however, their usefulness for the latter is likely to be higher than zero. Many other examples of overlap of need can be cited, and in either direction, i.e., items maximally useful for social research purposes and only minimally so for administration, and items maximally useful for purposes of administration and only minimally so for social research. The questions are, how useful for social research purposes are routine records in general, and how to devise instruments for the routine collection of administrative and social-research data that will provide an optimum mix of the information required for these two purposes?

Routine data collection for administrative purposes appears to have at least one presumed major advantage over the usual household interview in that the purpose of the former is less likely to be subject to question by the respondent than the purpose of the latter. The administrative needs of an agency, especially one providing a service, are more likely to be defined as legitimate by the clients of that agency than is the case for the social research, or even the market research, needs served by household interviews. Because these needs are likely to be defined as legitimate, it seems reasonable to suppose that there would be less resistance on the part of the respondent to providing the requested information, and to providing it as accurately and as completely as possible. However, this is a proposition which should be tested.

Routine data collection for administrative purposes, like household interviews, involves the use of forms which may be self-administered or administered by interviewers. In either case, but especially in the latter, the process is subject to many of the same social-psychological problems as those which characterize the household interview, except for "resistance" by the respondent. But also, routine data collection may have these additional advantages: 1) the

information is usually collected by highly experienced interviewers who know the subject matter thoroughly, and 2) the information is obtained at much less cost. But a problem of interest to the researcher is this: How complete is the information obtained in this process, i.e., with what degree of completeness is the information called for by routine forms actually obtained?

In the present study, the authors attempted to measure completeness on a small number of hospital inpatient admission forms filled out under ordinary operating conditions in a large municipal hospital. Hospital personnel completing the forms, and patients and others providing the data, had no knowledge that a study was being, or would be, conducted and that the forms might receive anything other than routine treatment. Thus, as nearly as possible, this study represents "unobtrusive" observation of behavior in a "natural" situation.

I. STUDY BACKGROUND AND SETTING

The present study was carried out as one "by-product" of a survey of inpatient utilization. During one week in May 1968, 221 inpatient admissions took place in the ordinary course of this hospital's operations, with a fairly elaborate admitting form filled out for each patient. The patient population served by this hospital consists primarily of three types: neighborhood residents, largely white ethnic; nonwhite maternity patients from elsewhere in the city; and a much smaller number of patients admitted for specialized treatment. Patient care in this hospital is provided by a full-time house staff; unlike voluntary hospitals, no outside physicians have staff privileges within it.

Admission to the inpatient wards of this hospital may occur by any of the following three methods:

1. From the emergency room. On the physician's decision to admit the patient, and if the patient is able to provide the required information and to take the time to do so (or if it can be provided by persons accompanying him), the emergency room's admitting officer fills out the admitting form immediately in the emergency room and the admitting physician signs it. If the patient is admitted to the inpatient ward immediately, however (and no one else is able to provide the required information), an admitting officer subsequently visits the patient in the ward, fills out the admitting form and returns with it to the emergency room where the admitting physician signs it. Finally, if the patient is unable to provide the required information, and no one else who could provide it is present, the admitting officer is permitted to search the patient for identification; under these circumstances, the form may be filled out either in the emergency room or in the ward.

2. On a pre-planned basis, either through the emergency room, an outpatient clinic, or from elsewhere in the hospital. The "preadmission" data contained on the admitting form is filled out during the patient's pre-admission visit by an admitting officer either in the emergency room, in the outpatient clinic, or in the hospital's admitting room. The form is retained at the hospital's information desk. When the patient subsequently arrives to be admitted, he obtains the form from the information desk, and an admitting officer completes it.

3. Directly from an outpatient clinic. For clinic patients seriously ill enough to be admitted directly from the clinic, preadmission data are obtained by the clinic staff. An admitting officer obtains the remainder of the data in the clinic prior to the patient's admission to the ward.

The admitting officers in this hospital do not specialize by type of admission; any admitting officer can, and does, service any type of admission. All admitting officers must be college graduates or have the equivalent in years of clerical experience. Satisfactory performance on a civil service examination is a prerequisite for the job, and on-the-job training is provided to the newcomer by experienced admitting officers.

II. THE ADMITTING FORM

The admitting form used in this institution is quite an elaborate document; it is intended to obtain a relatively large volume of information, some of it fairly detailed and/or complex. The elaborateness of the form results from the hospital's need for a large volume of detailed information on some patients, although this same amount of information is not needed for all patients; however, the same form is used for all. The admitting officers probably understand the nature of the hospital's differential needs, but the differences are not always clear to the outsider. This is because the form itself does not make the differences clear, as could be done, for example, by having explicit instructions on the form to the individual filling it out that some questions are to be asked only of specified categories of patients or only if preceding questions result in designated responses. It is also not initially clear to the outsider, because it is not explicitly stated on the form, nor is it always observed in practice, that in some instances two or three items are intended as mutually exclusive alternative responses to a single, often implicit, question.

The form is filled out in duplicate on some items, but in sextuplicate on others. It has two sides, but only the first side was used in the present study (see Appendix I, which shows the first side). The backside of the page was excluded because it requests highly specialized information applicable

only to a very small number of patients -- i.e., items of information requested under these headings: in case of accident; if occupational injury; dead on arrival; animal bites; and communicable diseases. It also contains some "business office" information items, and space for a "plate imprintation". (Each patient served by the hospital, inpatient and outpatient alike, receives an addressograph plate containing identifying information plus a date of issue.)

III. RESULTS OF THE STUDY

Table I shows the completed-response rates, by major category, for some selected items, arranged in order of degree of completeness. An item on each form was classified as "completed" when a "usable" response was obtained, even if the information was not as detailed as requested or the answer was "no" or "none". That is, items were considered as incomplete only when they had been left blank. For a surprisingly large number of items the completed-response rate was 100 percent. These are clearly the items which provide information required on each patient as a matter of necessity by the hospital for its administrative purposes. However, the completed-response rate was less than 100 percent for a number of the items shown on the table, with 61 percent for "how brought to hospital" the lowest among those listed.

However, it should be emphasized that it was frequently not possible from the data at hand to tell whether no entry for an item meant that the answer was none; that the question was irrelevant -- i.e., that it was not applicable to, or was inappropriate to, the specific patient or the circumstances of his admission; or simply that the admitting clerk had failed to obtain, or enter if obtained, the requested information. Thus the name of the referring or family physician was entered on only 62 percent of the forms, but this may mean that the other 38 percent did not have a referring or family physician, that the question was not applicable,* or that the information was either not asked for or not entered.

This points to what is perhaps one of the fundamental difficulties in working with administrative records for social research purposes. That is, the essential aspect of the hospital's concern was not with -- a typical social research question -- whether or not the patient has a family physician who might have referred him to the hospital. What it was concerned with was the physician's name if the patient did have one, so that he might be contacted by the hospital staff physicians if this was indicated. This concern of the hospital explains the form of the question. (Not "were you referred here by a physician?" or "do you have a family physician?", but rather "what is the name of your referring or family physician?"). Nevertheless, it leaves the social researcher in the dark as to the precise meaning of "no entry" for this item.

For purposes of analysis, seven items were selected from among those with completed-response rates of less than 100 percent. The items and rates are: occupation, 93; father's name, 90; length of residence, 86; previous admission, 85; name of spouse, 82; previous address, 75; and referring or family physician, 62 percent. (For four of these items, the completed-response rate was computed from a base of 221 forms, while for the other three it was computed from a smaller base.) The completed-response rate for the 7 items combined was 82 percent, and the question was, how account for their lesser degree of completeness? Special cross-tabulations were run for these items by: the demographic characteristics of the patients (color-sex and age); the pay status of the patient; the direct source of the information to the admitting clerk (i.e., patient or a surrogate as informant); the source of referral for impatient admission (route of the patient within the hospital to the admitting office); whether the information had been secured at an interview prior to the admission or at the admission itself; and whether the admission was for a maternity or other type of case.*

The special cross-tabulations

Relatively little variation was found by demographic characteristics of the patient. The completed-response rate was almost identical for each sex (83 percent for males and 82 percent for females). It was higher for white patients than for nonwhite patients (84 percent against 81 percent). Considering each of the four color-sex groups among patients separately, white males had the highest completed-response rate (86 percent) and non-white males the lowest (80 percent). None of these differences were of the magnitude that might have been expected.

By age, not much in the way of a consistent pattern was evident. Completed-response rates were highest for patients aged 70-79 (88 percent) and 30-39 (87 percent). They were lowest for the eight patients aged 80 and over (62 percent), but except for this group, the completed-response rates for all of the age-groups were fairly close to the mean,

*This would have been the case, for example, for inpatient maternity cases referred by a Health Department Clinic.

*Because of space limitations, the present discussion is limited only to the data from the cross-tabulations by demographic characteristics of the patient and by the direct source of the information.

with the lowest being the 40-49 year age-group (79 percent).

Some variation in the completed-response rates was evident in accordance with the direct source of the information provided to the admitting clerk, i.e., whether by the patient himself (which occurred in 130 of the 221 cases, or 59 percent of the total), or by a surrogate for him. For present purposes these surrogates were divided into 3 major categories -- a member of the patient's immediate family, i.e., mother, father, wife, husband, son, or daughter; an "other informant", often a friend, other relative, ambulance driver or policeman, etc.; and an "unknown" informant.

A member of the patient's immediate family provided information for 66 of the 221 patients, or 30 percent of the total. The largest category among these immediate family members consisted of the mother of the patient (25 of the 66), the wife (11), and the husband (10). The father, son, or daughter of the patient provided information to the admitting clerk in smaller numbers of cases (8, 4, and 8, respectively). The category of "other informant" accounted for 19 of the 221 cases, about 9 percent of the total, while an "unknown informant", i.e., identity of the informant not indicated on the form, provided the information for 6 cases, about 3 percent of the total.

Somewhat surprisingly, the completed-response rate was lower when the patient was the informant (82 percent, exactly at the mean for the entire experience), than when the informant was an immediate family member (86 percent). Among the immediate family members, the completed-response rate was highest for wife of the patient (95 percent), and lowest for daughter (81 percent) and mother (82 percent). Although lower than for an immediate family member, the completed-response rate was relatively high for the category of "other informant" (83 percent). The category of "unknown informant", as would be expected, resulted in the lowest completed-response rate, only 53 percent. It is possible that this might have been the failure of the admitting clerk, in not noting the identity of the informant, also to fail to record other information about the patient.

IV. CONCLUSIONS

Social researchers intending to work with administrative records are likely, on the basis of the present study, to find high completed-response rates for most of the items contained in these records. However, investigators will have to be fully familiar with the administrative needs served by the records and with the settings in which the information is obtained if the records are to be maximally useful for social research purposes.

REFERENCES

1 Webb, Eugene J. et.al., Unobtrusive Measures: Nonreactive Research in the Social Sciences. Chicago: Rand-McNally, 1966.

[redacted] ADMISSION ☐ OUT PATIENT ☐ [redacted]

ARRIVAL DATE TIME A.M. P.M. | NAME—LAST FIRST MIDDLE OR MAIDEN

DISPOSITION DATE TIME A.M. P.M. | STREET ADDRESS HOW LONG

OCCUPATION | SOC. SECURITY NO. | CITY OR COUNTY ZIP CODE CODE TELEPHONE

BIRTHPLACE | CITIZEN YES ☐ NO ☐ | BIRTH DATE | AGE-YRS. | RACE | SEX M ☐ F ☐ | RELIGION | MARITAL STATUS | PLATE

SPOUSE NAME LIVING ☐ DEAD ☐ | FATHER'S NAME | BIRTHPLACE | MOTHER'S MAIDEN NAME | BIRTHPLACE

NEXT OF KIN OR RESPONSIBLE PERSON | RELATIONSHIP | ADDRESS ZIP CODE | TELEPHONE

RELATIVE (NAME) | ADDRESS (OTHER THAN ABOVE) ZIP CODE | HOW LONG | TELEPHONE

HOW BROUGHT TO HOSPITAL | BROUGHT BY WHOM | ADDRESS | TELEPHONE

AMBULANCE NO. AND CO. | PATIENT'S COMPLAINT: | REFERRING PHYSICIAN OR FAMILY PHYSICIAN

POLICE DISTRICT AND NO. | ADDRESS | TELEPHONE

PROVISIONAL DIAGNOSIS AND TREATMENT RENDERED: | ASSIGNED TO | ADMITTED FROM

ADMIT. TO ACUTE ☐ CHRONIC ☐

ROOM # _____ BED # _____

ADMITTED OR TREATED BY

(1) DR.

(2) DR.

(3) DR.

PREVIOUS ADDRESS (RESIDENCE MUST COVER 1 FULL YEAR) ZIP CODE | HOW LONG | NO. OF DEPENDENTS IN FAMILY ADULTS CHILDREN

SOURCE OF INCOME PATIENT | EMPLOYER | ADDRESS | EARN PER $ | SOCIAL SECURITY NO.

OTHER | EMPLOYER | ADDRESS | EARN PER $ | SOCIAL SECURITY NO.

OTHER | EMPLOYER | ADDRESS | EARN PER $ | SOCIAL SECURITY NO.

INSURANCE GROUP ☐ INDIVID. ☐ | CARRIER OR UNION | SUBSCRIBER | VETERAN YES ☐ NO ☐

BLUE CROSS ☐ BLUE SHIELD ☐ | STATE | SUBSCRIBER | MEMBERSHIP NO. | SERVICE CONNECTED DISABILITY YES ☐ -C # NO ☐

CHECK ONE → IF APPLICABLE COMPLETE NECESSARY FORMS | TITLE X YES ☐ NO ☐ NO. | TITLE XVIII YES ☐ NO ☐ A - B NO. | TITLE XIX YES ☐ NO ☐ NO.

ACUTE ADMISSION	RATES	CHRONIC ADMISSION—NURSING
$ PER DIEM	OASI ☐ $	
$ DELIVERY	OTHER ☐ $	
$ ALLOWANCE	PTS. FUND ☐ $	
$ PROFESSIONAL FEE	FULL VENDOR ☐ $	
DESCRIPTION	PARTIAL VENDOR ☐ $	
	TOTAL $	

PREVIOUS ADMISSION TO [redacted] ACTIVE DPW

YES ☐ DATE NO ☐ YES ☐ NO ☐

INFORMATION GIVEN BY:

PRE-ADMISSION BY: DATE

ADMISSION BY: DATE

INCOME: ☐ COUNTY ☐ NON-RES. ☐ INS. ☐ W.C. ☐

SPECIFY

OTHER ☐

RATE CHANGED TO $ PER DIEM ☐ DELIVERY ☐ REASON BY DATE

Knowing that it is to be relied on by [redacted] for determining hospital charges and for other purposes, I/we hereby certify that the information contained above and on the reverse hereof is true and correct to the best of my/our knowledge and belief. In consideration of the admission and/or treatment of the above patient I/we agree to pay to [redacted] the applicable hospital charges and professional fees each week as accrued and to pay the balance in full, or assign to the Hospitals insurance benefits and submit necessary claim papers to cover the amount due, or to obtain a State-Aid certificate by the time of discharge.

Date_____ Seal _____ Seal

GUARANTOR

TABLE I. COMPLETED-RESPONSE RATES FOR SELECTED ITEMS BY ITEM

Item	Base	Completed-Response Rate
Name	221	100
Address	221	100
Birthdate	221	100
Age	221	100
Sex	221	100
Race	221	100
Patient's Complaint	221	100
Provisional Diagnosis and Treatment Rendered	221	100
Wing to Which Assigned	221	100
Source of Payment*	221	100
Source of Income*	221	100
Arrival and/or Disposition Date	221	100
Arrival and/or Disposition Time	221	100
Name of Interviewer (Preadmission and/or Admission)	221	100
Religion	221	99
Marital Status	221	98
Birthplace	221	95
Number of Dependents in Family	221	95
Occupation**	150	93
Father's Name	221	90
Length of Residence	221	86
Previous Admission	221	85
Admitted From	221	83
Name of Spouse	125	82
Previous Address	53	75
Referring or Family Physician	221	62
How Brought to Hospital	221	61

* This question is not specifically asked. However, all forms contain this information somewhere on the form.

** This information is given either for the patient or for some member of the patient's family.