A STUDY OF VALIDITY IN REPORTING MEDICAL CARE IN MICHIGAN

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Sampling error, bias in estimating aggregates, interviewer errors, coding errors, and tabulation errors are all under the potential control of the surveyor through sample design and training and supervision of personnel. In most cases, however, response error must remain not only beyond his control, but largely unknown as well. In some cases it is even difficult to estimate the order of magnitude of this type of error with any confidence. It is a rare occasion when independent measures are available against which survey results can be checked, even by aggregates, and the opportunity to check each observation against the actual measure being investigated is even rarer.

This paper reports four types of evidence on the reliability of information obtained from respondents in a recent survey of medical experience and health insurance coverage of the people of Michigan. This Survey was part of the larger University of Michigan Study of Hospital and Medical Economics which in turn stemmed from the Governor's Study Commission on Pre-Paid Hospital and Medical Care Plans. The Survey was conducted jointly by that Study and the Survey Research Center. The entire Study is financed by the W. K. Kellogg Foundation.

To concentrate the available time on the discussion of the validity checks, no attempt is made to summarize previous work in this area nor to discuss the objectives, survey design, interview schedule, and conclusions of the Survey, except where they are relevant to the reliability of reporting.

The Survey was carried out on a multi-stage probability sample of about 2,000 dwelling units, chosen so that every non-institutionalized Michigan family had a known probability of selection. Interest was centered on two relatively small sub-groups of the population: the aged, and families and individuals with large medical expenses. To increase the precision of estimates for these two groups without greatly enlarging the sample, a randomly selected three-quarters of the original sample was screened by "doorstep" questions, and interviews were taken only if the dwelling unit contained someone 65 years of age or older, or someone who had been hospitalized during the previous year. The remaining one-fourth of the original sample was interviewed completely as a basic probability sample. This resulted in a sample for the special sub-groups that would have required interviewing 2000 units instead of 1000 if screening had not been used to eliminate some of the young and healthy.

RELIABILITY OF DOORSTEP SCREENING

The first evidence of reliability of reporting to be discussed was a check on the effectiveness of the doorstep screening process used to reduce the proportion of young healthy families interviewed. The test involved comparing the estimates of the proportion of families of each type with presumably more accurate estimates obtained from interviewing a simultaneous, but separate, probability sample.

The results are shown in Table 1, which compares the proportions of eligible families--someone 65 or over and/or someone hospitalized within the previous year--for those families in the small sample, which were fully interviewed, with the proportion in the larger sample where determination of the two criteria was by doorstep screening questions. The question on age yielded almost identical estimates of the proportion of families with someone 65 or older in the two samples, 16.5 per cent and 16.4 per cent.[1/] The samples gave disparate estimates of the proportion of families with someone hospitalized during the year; 39.3 per cent when determined by an extensive interview, and 27.2 per cent when determined by the screening question. Even allowing for sampling variation it appeared evident that the screening question on hospitalization experience had not been entirely successful. There was apparently substantial underreporting of hospitalization experience in response to an initial brief screening question. This does not preclude the possibility that even with the full interview there was additional underreporting: a question that will be turned to later.

Working on a hypothesis that the difference in hospitalization proportions was due to respondents forgetting to report stays with certain characteristics, the two samples were compared as to length of hospital stay, number of stays during the year, and time of year stays were experienced. Only dwellings where no one was 65 or over were compared since the others were completely interviewed in both samples and there was no chance for the particular bias under discussion to arise. When the two samples are compared, as shown in Table 2, we find the discrepancies concentrated in families with a single short hospitalization during the year, but it apparently did not matter whether the stay occurred early or late in the year.

The importance of having a complete probability sample where the full interview was given to all units is that it not only permitted the screening biases of the other sample to be estimated, but also largely to be eliminated by proper weighting as shown in the last column of Table 1.

[1/] These percentages are the sum of the percentages for the 65 or over hospitalized and the 65 or over not hospitalized; similarly for the following percentages on hospitalization.

The other evidence of reliability of survey information is contained in the three remaining studies of validity which consisted of attempts to verify, from other sources, individual reports on health insurance coverage, on hospital stays and expenses, and on the type of doctor or other medical practitioner used. We take the last of these first.

RELIABILITY OF REPORT ON TYPE OF MEDICAL PRACTITIONER USED

It must be pointed out that the type of practitioner was not directly asked of the respondent, although it was noted when volunteered, and the name and address were asked in all cases. For some of the practitioner-patient contacts, the name was not clearly enough reported to enable it to be found in any medical directory. Hence the evidence of error was clean only in those cases where the name was given and could be identified properly and where information on the type of practitioner was volunteered.

Table 3 shows the results of this check for all except dental practitioners who were not verified. For about 45 per cent of practitioner-patient contacts the respondents specified the type of practitioner. Except for M.D. specialists who were frequently referred to as general practitioners, and a slight tendency to confuse M.D.'s with clinics (which may have resulted from real ambiguity of definition[2]) respondents were generally correct in the specification of practitioner where positive verification could be made. A practitioner was considered positively identified only if he could be found in some directory which specified his type and specialty.

Two other facts emerge from this table. The 55 per cent of contacts referred to only as "doctor" were positively verified in 85 per cent of the cases, and 82 per cent of all practitioner mentions were positively identified.

HEALTH INSURANCE COVERAGE

Another validation study concerned reported health insurance coverage. The respondent was asked not only the name of the insurance carrier, but policy and contract numbers and other identifying information. These were given in most cases. Over 200 insurance carrier designations were named by respondents, although about one-third of these were obviously names of groups through which the insurance was obtained (usually employers). An attempt was made to contact the insurance carrier and to determine whether the policy was effective during the survey year, and the details of the coverage it provided. This report is concerned only with the fact of coverage and its verification, not the degree.[3] Underreporting was clearly not checked in this process since it was impossible to ask all companies whether they had issued policies covering anyone in the sample. The estimates of overreporting may be exaggerated, too: A person may have had coverage, but verification might fail because of incorrect identification of carrier or failure of the carrier to identify the particular individual.

As indicated in Table 4, a little less than half of the 1507 reported policies were Blue Cross/Blue Shield, of which nearly all were verified. About one-fourth of the private policies were something other than health insurance, and no response was received from the company in respect to one-eighth. Of the balance, about three-fifths were verified leaving about 18 per cent of the total which couldn't be verified, and seven per cent where identification of the company was inadequate.

The design of the interview schedule leaned in the direction of getting too much, rather than too little, information on insurance. It is possible that some people failed to report coverage, and others named the wrong company, but it appears likely that there may be an overall net overreporting of health insurance by people who confused it with disability and other types of insurance. Higher income people were found to report other types of insurance as though they were health insurance more frequently than did low income persons. This might be because they reported, and had, more insurance of all kinds.

HOSPITALIZATION

The final, most interesting, validity check is that of hospitalizations. For all respondents reporting Blue Cross coverage, whether or not any hospital stays were reported, Blue Cross records were examined for hospital stays, so that both over- and underreporting could be found. Where Blue Cross coverage was not reported, records of the hospitals in which stays were reported were checked. In the latter case, underreporting could not be found if the person had had additional stays in other hospitals not reported by him. On the other hand, hospital stays of persons who reported Blue Cross coverage could not be found if they were not covered at the time of the stay, so the Blue Cross check may have exaggerated the estimates of overreporting. Hence, cases checked against hospital records provide a reasonably clean measure of overreporting, while those checked against Blue Cross provide a good measure of underreporting. For verified stays, however, both sources provide good checks on length of stay, size of total bill, and service received.

2/ It is difficult to determine, in some cases, whether a group of physicians practicing in one office should or should not be considered a clinic.

3/ Degree of coverage refers to the type and amount of protection provided by a policy. A discussion of the attempt made to scale the degree of coverage will be found in the report of the Michigan Study of Hospital and Medical Economics, to be published soon.

Reports of hospital stays are multidimensional, involving not only whether or not a stay was experienced, but also the time and length of stay, what services were received, the amount of the bill, and the sources of payments. These factors are subject to various degrees of reporting error due to memory loss or misunderstandings, or unwillingness to report. Hypotheses were formulated that reporting error would be related to such variables as whether the respondent was reporting for himself or someone else, age, education, and whether or not covered by insurance, and they were separately tested for hospital stays checked through Blue Cross and hospital records.

Table 5 indicates quite small frequencies of under- and overreporting (about 4 per cent each), particularly if one assumes that reported hospital stays not found in Blue Cross records might be genuine (person not covered by Blue Cross at the time), and that the hospital records checked are most unlikely to reveal all underreporting. Table 5 also indicates that both under- and overreporting are more frequent when the hospitalized person was not the respondent. Table 6 presents discrepancies between reports on kinds of services received, and they seem to be more frequent for older people. There is also an interesting tendency for older respondents to overreport checkup and diagnoses, and to underreport operations, surgery and fractures somewhat more than other age groups.

Table 7 is restricted to the confirmed stays checked against Blue Cross or hospital records, and indicates that the respondents reported the correct number of days a majority of the time, and on the average tended to report stays slightly longer than they actually were. Most of the average discrepancy, however, was the result of one extreme case. Neither education of the head of the family nor whether the stay was reported by the hospitalized person or someone else made any appreciable difference in the accuracy of the report of length of stay.

Table 8 shows for verified cases a very small average overestimate of the total hospital bill (about 5 per cent of the average bill of $250 for hospitalized persons), and some tendency for bills for females to be overestimated more than those for males. The mean discrepancies, however, suggest little pattern in respect to either age or sex. It is possible that the strikingly small average overestimate of the hospital bill is due to respondents considering as hospital expenses other legitimate charges which were treated in some other way in the hospital or Blue Cross records. Examples would be blood transfusions and charges for special patient services such as television and commissary purchases. Table 9 reveals only minor differences between insured and uninsured persons, and between hospitalizations reported by the person involved or by someone else.

A companion study, conducted by the Survey Research Center in conjunction with the National Health Survey, designed to provide a measure of underreporting of hospitalizations and its causes, will be reported at some future meeting. It might be added that the interview schedule used in this study was simpler than those used by the National Health Survey and the N. O. R. C. studies of health care, expenses, and debt.

SUMMARY

In summary, this report portrays a series of validity studies of varying degrees of precision. They do not indicate substantial difficulties in accepting survey data, except in the use of doorstep screening questions to determine eligibility of respondents. Even in this case, the criterion for eligibility seems to influence the effectiveness of the process. (Similar checks in a Minnesota study of disability, using mail and telephone screening questions, found similar problems.)[4/] By the very nature of things, the more complex the data, the more difficult it is to provide a symmetrical and complete validity check. Although one must always reserve judgment while accumulating as much evidence as possible from a variety of tests, the results reported here indicate a rather close correspondence between survey results and source data, especially for simple measures which are not graduated too finely.

[4/] See Minnesota Studies in Vocational Rehabilitation. Part V. Methodological Problems in Rehabilitation Research (Bulletin 25; Minneapolis: Industrial Relations Center University of Minnesota, December 1958).

THE UNIVERSITY OF MICHIGAN

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Table 1: Age and Hospitalization Experience in Occupied Dwelling Units within Sampling Procedure

Age and Hospitalization Experience in Dwelling Unit	Unweighted Data: Completely Interviewed Sample	Unweighted Data: Doorstep Screened Sample	Unweighted Data: Total Sample	Weighted Data[1]: Total Sample
Someone in Dwelling Unit hospitalized; someone 65 or over	6.4	4.2	4.7	4.8
Someone hospitalized; no one 65 or over	32.9	23.0	25.2	32.1
One[2] hospitalization of 3 days or less	8.5	3.7	4.8	8.4
One[2] hospitalization of 4 days or more	16.2	11.9	12.9	16.0
Two or more hospitalizations	8.2	7.4	7.5	7.7
No one hospitalized; someone 65 or over	10.1	12.2	11.7	11.9
No one hospitalized; no one 65 or over	50.6	60.6[3]	58.4	51.2
Total	100.0	100.0	100.0	100.0
Number of cases	425	1468	1893	1003[3]

1/ Weighting corrects for four separate sources of potential bias:

(a) the completely interviewed sample and the doorstep screened sample have different overall response rates
(b) response rates differ according to size of place
(c) use of screening questions in the doorstep screened sample apparently led to an under-representation in this part of the sample of dwelling units where there had been only one hospitalization during the year; seriously in cases where the hospital stay was short, less seriously in cases where the stay was long
(d) dwelling units in the doorstep screened sample where no one was hospitalized and no one was aged 65 or over were not interviewed.

2/ Maternity cases counted as one hospitalization, not two.

3/ 890 dwelling units in the doorstep screened sample where it was reported that no one was hospitalized and no one was 65 or over were not interviewed, and are not included in the total weighted sample.

670:28:3:76; Weighting Sheet

Table 2: Distribution of Occupied Dwelling Units Where Someone Was Hospitalized but No One Was Aged 65 or over by Hospital Experience within Sampling Procedure

Hospital Experience in Dwelling Unit[1/]	Completely Interviewed Sample	Doorstep Screened Sample
One short early stay	12.7	8.3
One short late stay	13.4	8.0
One long early stay	23.9	24.7
Two or more short early stays	0.7	2.1
One long late stay	26.1	27.4
Two or more short late stays	1.5	3.6
Two or more long early stays	6.0	5.4
Two or more long late stays	15.7	20.5
Total	100.0	100.0
Number of cases	134	336

1/ "Short" means that the longest hospital stay in the dwelling unit was of three days or less; "early" means that the latest hospital stay was in March 1958 or earlier.

Note: This table is meant to show the reasons for the relative underreporting of hospitalization at dwelling units in the doorstep screened sample. The categories of "hospital experience" are so arranged that the types of hospitalization most likely (by hypothesis) to be underreported in the doorstep screened sample are shown first.

670:27:3:76; and hand tabulation from verified hospital records

Table 3: Verification of Medical Practitioners: Distribution of Positively Verified Types of Practitioners Seen within Type of Practitioner Reported, Excluding Dentists[1/]

Positively Verified Type of Practitioner	Reported Type of Practitioner: Total	Clinic	M.D. General Practitioner	M.D. Specialist	Osteopath	Chiropodist	Chiropractor	Doctor (not otherwise specified)
Clinic	8.8	57		1	-	-	-	-
M.D. General Practitioner	29.2	9	44	1	-	-	1	37
M.D. Specialist	31.0	6	37	75	-	-	-	35
Osteopath	10.5	1	5	1	86	-	-	11
Chiropodist	0.5	-	-	-	1	40	-	1
Chiropractor	2.3	-	-	-	-	-	82	1
Sub-total	82.3	73	86	78	87	40	83	85
Not verified	17.7	27	14	22	13	60	17	15
Total	100.0	100	100	100	100	100	100	100
Weighted per cent of sample	100.0[2/]	15.0	15.1	6.6	3.7	0.4	2.1	55.3

1/ Dentists and other dental practitioners were excluded from this table. Time limitations did not permit verification of 1,165 dental contacts, and it was felt that the error in designating type of practitioner would be small in this case, inasmuch as respondents were asked specifically about dentists. The table includes a total of 3,771 patient-practitioner contacts other than dental practitioners.

2/ Includes other practitioners reported, 0.2 per cent, and type of practitioner not ascertained, 1.6 per cent.

Table 4: Distribution of Reported Health Insurance Coverage by Result of Verification

Results of Verification:	Number of Policies			Unweighted Percentage Distributions		
	Total	Blue Cross	Private	Total	Blue Cross	Private
RECORDS CHECKED						
Policy verified as health insurance: policy is in force or lapsed during survey year	927	615	312	61.5%	94.5%	36.4%
Policy verified as health insurance: policy lapsed before survey year	14	2	12	0.9	0.3	1.4
Policy verified as not health insurance: policy is loss-of-time, accident and health or life insurance	178	-	178	11.8	-	20.8
Policy verified as not health insurance: type of policy other than those described above	8	-	8	0.5	-	0.9
Policy verified as not health insurance: type of policy not ascertained	4	-	4	0.3	-	0.5
Policy not verified: insurance company unable to identify policy (names or numbers)	183	32	151	12.1	4.9	17.6
RECORDS NOT CHECKED						
Policy judged from respondent's description to be not health insurance	26	-	26	1.7	-	3.0
Policy inadequately described by respondent: no insurance company or insurance company unidentifiable	58	*	58	3.9	*	6.8
Policy adequately identified by respondent, but no reply received from company	109	1	108	7.2	0.2	12.6
Total	1507	650	857	99.9	99.9	100.0

*Some of the policies where the companies were unidentified may be Blue Cross/Blue Shield policies, of course. In 28 cases no company was named at all, and in the remaining cases 22 different names of companies or associations were given, but the actual insurance carrier could not be positively identified.

Table 5: Distribution of Hospital Stays[1] by How Stay Reported within Type of Records Checked, Whether Hospitalized Person Was Respondent, and Length of Stay

How Stay Reported	All cases[2]	Hospitalized person was respondent: Length of stay 1-2 days	Hospitalized person was respondent: Length of stay 3-9 days	Hospitalized person was respondent: Length of stay 10 or more days	Hospitalized person was not respondent: All cases[2]	Hospitalized person was not respondent: Length of stay 1-2 days	Hospitalized person was not respondent: Length of stay 3-9 days	Hospitalized person was not respondent: Length of stay 10 or more days
Blue Cross Records Checked								
Stay reported by respondent and confirmed by records	85	81	86	83	81	74	86	74
Stay reported by respondent, records checked but stay not confirmed	13	12	12	15	12	20	9	13
Stay reported by respondent, no records checked	*	*	*	*	*	*	*	*
Stay not reported by respondent, but found from records	2	7	2	2	7	6	5	13
Total	100	100	100	100	100	100	100	100
Number of cases	261	24	169	62	204	54	86	44
Weighted per cent of hospital stays	29.9	2.8	19.5	6.9	23.0	7.2	9.3	4.4
Hospital Records Checked								
Stay reported by respondent and confirmed by records	94	94	96	87	86	89	91	84
Stay reported by respondent, records checked but stay not confirmed	3	2	2	4	6	2	3	11
Stay reported by respondent, no records checked	2	2	1	9	7	9	5	5
Stay not reported by respondent, but found from records	1	2	1	*	1	*	1	*
Total	100	100	100	100	100	100	100	100
Number of cases	253	45	159	46	158	43	72	38
Weighted per cent of hospital stays	28.8	5.0	18.6	4.9	18.3	6.0	7.7	4.1

*Less than 0.05 per cent

1/ All hospital stays excluding (a) stays of newborns who left the hospital before or at the time the mother was discharged; (b) stays which were found to be more than a year prior to date of interview.

2/ Including cases where length of stay was not ascertained.

S670:61:6:74x61x59,MH-3

Table 6: Distribution of Hospital Stays[1] by Discrepancies between Reports of Services Received within Type of Records Checked, Whether Hospitalized Person Was Respondent, and Age of Respondent

Discrepancies between Reports of Services Received During Hospital Stay[2]	Blue Cross Records Checked						Hospital Records Checked					
	Hospitalized person was respondent			Hospitalized person was not respondent			Hospitalized person was respondent			Hospitalized person was not respondent		
	Age of respondent			Age of respondent			Age of respondent			Age of respondent		
	Under 35	35-54	55 & over	Under 35	35-54	55 & over	Under 35	35-54	55 & over	Under 35	35-54	55 & over
Respondent reports services not mentioned by records:												
Checkup, diagnosis	6.2	7.5	13.2	5.5	6.8	12.9	2.9	11.9	13.1	3.9	16.7	13.4
Pregnancy, delivery	*	*	*	*	*	*	1.0	*	*	*	*	*
Operation, surgery, fracture	3.6	5.4	1.7	*	1.1	*	1.0	1.5	2.7	1.3	*	4.5
Treatment, other services	7.4	11.4	11.9	4.4	2.9	4.6	2.2	2.7	1.3	*	*	18.3
Records report services not mentioned by respondent:												
Checkup, diagnosis	1.0	*	*	*	*	*	1.0	7.0	1.3	*	*	*
Pregnancy, delivery	2.5	2.8	*	*	2.0	*	0.7	*	*	*	*	*
Operation, surgery, fracture	2.6	6.2	10.4	3.1	4.9	8.7	2.4	4.4	4.0	1.3	5.4	18.3
Treatment, other services	2.6	2.9	6.6	8.9	14.2	4.6	0.7	11.2	9.2	2.6	11.5	13.4
No discrepancy between reports	74.5	51.6	48.9	62.2	38.8	50.6	86.4	62.9	68.6	80.2	66.1	54.9
No services reported either by respondent or by records[3]	10.7	25.7	19.2	18.0	39.2	23.2	5.5	8.3	10.4	15.9	17.2	8.9
Total	111.1	113.5	111.9	102.1	109.9	104.6	103.8	109.9	110.6	105.2	116.9	131.7
Number of cases	110	94	57	81	101	22	114	65	74	69	68	21
Weighted per cent of hospital stays	12.4	11.0	6.1	9.2	11.6	2.2	13.6	7.6	7.6	7.9	8.2	2.3

*Less than 0.05 per cent

1/ All hospital stays excluding (a) stays of newborns who left the hospital before or at the time the mother was discharged; (b) stays which were found to be more than a year prior to date of interview.

2/ Columns add to more than 100 per cent because some stays involved more than one type of discrepancy.

3/ Including cases where (a) reports about hospital stay from both respondent and records existed, but one or the other was N.A. as to services received; (b) hospital stay was reported by respondent but not by records, and vice-versa.

S670:63:6:74x75x44,MH-4

Table 7: Discrepancy between Reports of Length of Hospital Stay within Whether Hospitalized Person Was Respondent and Education of Head

Discrepancy between Reports of Length of Stay	All Confirmed Stays 1/	Hospitalized Person Was Respondent — Education of Head: Grammar school or less	High School 2/	College 3/	Hospitalized Person Was Not Respondent — Education of Head: Grammar school or less	High school	College
Mean discrepancy in number of days between respondent's and record's report of length of stay 4/	0.6 (0.3)	-	-	2 (0)	1	-	-
Per cent of stays for which respondent overestimated length of stay	24.1	25	29	19	19	22	24
Per cent of stays for which respondent correctly estimated length of stay	52.6	53	53	55	42	52	63
Per cent of stays for which respondent underestimated length of stay	14.3	15	15	15	9	16	8
Per cent of stays for which either respondent or records did not give length of stay	9.0	7	3	11	29	10	5
Total	100.0	100	100	100	100	100	100
Number of stays	734	131	221	86	78	171	47
Weighted per cent of stays 5/	84.0	14.3	26.2	9.9	8.6	19.2	5.7

1/ This table shows only those stays which were reported by the respondent and confirmed by hospital or Blue Cross records. Of the confirmed stays it does not show (a) stays of newborns who left the hospital before or at the time the mother was discharged (b) stays which were found to be more than a year prior to date of interview, (c) stays for which education of head was not ascertained.

2/ Includes cases where high school was not completed, also high school plus non-college, grammar school plus non-college.

3/ Includes cases where college was not completed.

4/ Positive means indicate respondents overestimated length of stay. Means in brackets excludes one case with a discrepancy of 151 days.

5/ As a percentage of all stays except those of newborns and those which took place more than a year prior to date of interview.

Table 8: Discrepancy between Reports of Total Hospital Bill within Age and Sex of Hospitalized Individual

Discrepancy between Reports of Total Bill	All Confirmed Stays 1/	All Males' Confirmed Stays	All Females' Confirmed Stays	Age and Sex of Hospitalized Individual: Males Under 5	Males 5-14	Males 15-44	Males 45-64	Males 65-69	Males 70 & over	Females Under 5	Females 5-14	Females 15-44	Females 45-64	Females 65-69	Females 70 & over
Mean discrepancy between respondents' and record's reports of total bill 2/	$14 ($12)	$7	$17 ($15)	$11	$-6	$26	$-29	$10	$33	$22	$-1	$15 ($11)	$28	$65	$4
Per cent of stays for which respondent overestimated total bill	28.2%	25.8	29.5	21	15	33	22	35	29	17	29	33	23	31	32
Per cent of stays for which respondent correctly estimated total bill	15.0%	12.4	16.3	6	14	18	12	8	4	23	13	15	18	19	19
Per cent of stay for which respondent underestimated total bill	19.7%	18.8	20.1	25	18	12	19	31	21	27	10	22	14	25	24
Per cent of stays for which either respondent or records did not give total bill	37.1	43.1	34.1	48	53	37	47	26	46	33	48	30	45	25	25
Total	100.0	100.0	100.0	100	100	100	100	100	100	100	100	100	100	100	100
Number of stays	762	261	501	35	38	79	59	26	24	30	50	287	93	16	25
Weighted per cent of stays 3/	86.9	29.4	57.4	3.9	4.8	8.9	6.8	2.6	2.4	3.1	5.9	34.1	10.3	1.6	2.5

1/ This table shows only those stays which were reported by the respondent and confirmed by hospital or Blue Cross records. Of the confirmed stays, it does not show (a) stays of newborns who left the hospital before or at the time the mother was discharged, (b) stays which were found to be more than a year prior to date of interview.

2/ Positive means indicate respondent overestimated total bill. Negative means indicate respondent underestimated.

3/ As a percentage of all stays except those of newborns and those which took place more than a year prior to date of interview.

( ) Means shown in bracket are figured without one case with a discrepancy of $1136.

S670:62:6:77x78x50,51-53,MH-20

Table 9: Discrepancy between Reports of Total Hospital Bill within Whether Hospitalized Person Was Respondent and Whether Has Verified Insurance

Discrepancy between Reports of Total Bill	All Confirmed Stays 1/	Hospitalized Person Was Respondent			Hospitalized Person Was Not Respondent		
		Has no insurance 2/	Has verified insurance	NA whether has health insurance 3/	Has no insurance 2/	Has verified insurance	NA whether has health insurance 3/
Per cent of stays for which respondent overestimated total bill	28.2	25	30	49	21	23	33
Per cent of stays for which respondent correctly estimated bill	14.9	9	16	13	19	15	17
Per cent of stays for which respondent underestimated total bill	19.7	26	21	18	22	15	15
Per cent of stays for which either respondent or records did not give total bill	37.2	40	33	20	38	47	35
Total	100.0	100	100	100	100	100	100
Number of stays	761	100	306	51	50	227	27
Weighted per cent of stays 4/	86.9	11.1	35.7	5.7	5.6	25.5	3.3

1/ This table shows only those stays which were reported by the respondent and confirmed by hospital or Blue Cross records. Of the confirmed stays it does not show (a) stays of newborns who left the hospital before or at the time the mother was discharged, (b) stays which were found to be more than a year prior to date of interview.

2/ Reported no insurance, or all reported insurance verified as not health insurance or lapsed.

3/ Respondent reported insurance, no verification possible; also per cent of coverage N.A.

4/ As a percentage of all stays except those of newborns and those which took place more than a year prior to date of interview.

S670:82:6:73x69x50,MH-24