

## Household Medical Expenditure Data: The Accuracy of Survey Responses for Office-Based Physician Visits

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### Abstract

Collecting complete and accurate medical expense data from household respondents can be a very daunting task. Even with the use of reporting aids such as medical bills, explanation of benefit statements from insurance companies, and medical diaries, obtaining complete and accurate information can still be difficult. Respondents may, consciously or unconsciously, omit items, report medical events and expenses reported in a previous interview round, and/or provide inaccurate medical expense amounts. To add to the potential sources of errors, in some surveys, just one person reports for every member of the household. This paper combines past findings with additional analyses to provide a comprehensive report of the completeness and accuracy of household medical expenditure responses from qualified office-based physician visits by persons that participated in the Medical Expenditure Panel Survey (MEPS). The MEPS is a nationally representative panel survey of the U.S. civilian non-institutionalized population. This study uses data from both the Household Component (HC) and the Medical Provider Component (MPC) of MEPS to assess the accuracy of complete medical payment reports. Reporting accuracy is measured by analyzing the differences between medical expense figures obtained from respondents and figures obtained from their healthcare providers. Multiple years of data are analyzed to provide a sensitivity analysis of the results.

**Key Words:** medical expense reports, response accuracy, survey quality

### 1. Introduction

Past research has shown that medical expenditures may be difficult for household respondents to report accurately. With this in mind, this study attempts to expand the knowledge of reporting tendencies by examining the accuracy of household reports of medical expenditures as well as any over-reporting and under-reporting of medical expense figures. The focus of this study is on office-based healthcare visit data collected in the Medical Expenditure Panel Survey (MEPS). These visits will be referred to as “events” in this paper. Other events collected by MEPS include: hospital emergency room, out-patient and inpatient stays; home health visits; dental visits; prescribed medicines; and medical supplies. Reporting accuracy is measured by comparing household-reported medical expenditure amounts to those amounts reported by their medical providers.

The MEPS is uniquely qualified to provide data to assess accuracy through the use of the Household Component (HC), a survey of households, and the Medical Provider Component (MPC). The MEPS-HC is a large, national probability sample survey that collects information from respondents to produce national- and regional-level estimates of health care use, health status, health conditions, medical expenditures, sources of payment, insurance coverage, and health care access for the U.S. civilian non-institutionalized population as well as for policy-relevant subgroups. The MEPS-HC is a two-year panel survey with a new panel introduced each year. Five rounds of interviews are conducted with each new panel to yield health care use and expenditure data for two calendar years. The MEPS is a sub-sample of respondents to the prior year’s National Health Interview Survey that is conducted by the National Center for Health Statistics (Ezzati-Rice, et. al., 2008).

The MEPS-MPC is a telephone survey of a sample of providers that were identified in the household survey. The MPC is conducted the year following the household data collection year and is dependent on receiving permission from the respondent to contact the medical provider and obtaining cooperation from the provider to participate in the survey.

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The views expressed in this paper are those of the authors and no official endorsement by the Department of Health and Human Services, the Agency for Healthcare Research and Quality, or Westat is intended or should be inferred.

Because the MPC is based on records from the medical provider, it is generally more complete and more accurate than information provided by the household respondents. Therefore, the medical expenditure amounts from the MPC are considered to be the “truth”.

This study uses data from the 2005 MEPS-HC and 2005 MEPS-MPC. Only matched events that had complete HC and MPC reports were included. Complete reports were those that were not missing any amounts from any relevant sources of payment. The ten potential sources of payment were:

1. family/patient out-of-pocket
2. Medicare
3. Medicaid
4. private insurance
5. Veterans Administration
6. TRICARE
7. other federal (e.g., Indian Health Service, military treatment facilities, federally funded NIH care)
8. other State (e.g., community/neighborhood clinics, state and local health departments, state programs other than Medicaid)
9. worker’s compensation
10. other sources (e.g., automobile, homeowner’s, or liability insurance payments, miscellaneous).

A particular medical event may involve just one source of payment. However, it is not uncommon for several different sources of payments to be associated with the same event. For this report, three sources of payment were analyzed: out-of-pocket, private insurance, and also the total of all sources of payments. Bivariate characteristics of over- and under-reporters are examined and multivariate models for accuracy were run to tease out which measures are associated with accurate reports. Three different years of MEPS data were examined to test the consistency of the annual data.

## 2. Methods

The accuracy of medical payment reports was determined using matched and complete records (Machlin and Wobus, 2006) from the 2005 HC and the 2005 MPC. For office-based physician visits (events) in the 2005 HC, the number of permission forms obtained to contact the medical provider varied by survey round but was generally better than 85 percent of the households. Once the MPC reports were obtained, each event was matched to reports from the HC using the probabilistic matching software AUTOMATCH, which utilizes the Fellegi and Sunter methodology (Winglee et al, 2000). In 2005, the match rate was 84.3 percent overall.

The number of complete and matched records for each payment source examined in this study is shown in Table 1. Flat fee records, where one fee was paid for multiple office visits, were not included in this analysis.

**Table 1** – Number of Complete and Matched Records by Source of Payment Categories, Office-based Physician Visits, 2005 MEPS

<u>Payment Source</u>	<u>Sample Size</u>
Out-of-Pocket	52,619 events
Private Insurance	5,864 events
Total of All Sources	7,339 events

For each payment source category, an event qualifies for this study if it was complete for that payment source category – even if it was missing other payment sources. For example, if we looked at an event that involved an out-of-pocket payment, if the event was complete for the out-of-pocket payment source but was not complete for the private insurance payment source, the event was still eligible for the out-of-pocket analysis. However, that same event would not be eligible for the total-of-all-sources analysis.

The criteria used to determine the accuracy of the household reports when compared to the provider reports were similar to that used in previous research based on the 1996 MEPS data (Machlin et al, 1999) and the 2003 MEPS data (Kashihara and Wobus, 2006 and 2007). The accuracy criteria developed for the 2003 MEPS data analysis was used for this 2005 analysis to ensure comparability between the results. The criteria generally reflect the relative sizes of the 2003 mean payments for the various sources (Table 2).

**Table 2** – Mean Expenses by Payment Source Category in the MEPS-HC, Office-based Physician Visits, 2003 MEPS

<u>Payment Source</u>	<u>HC Mean Expense (s.e.)</u>
Out-of-Pocket	\$ 15 (1.3)
Private Insurance	\$ 79 (5.6)
Total of All Sources	\$157 (8.8)

The accuracy criteria are summarized in Table 3. For the Out-of-Pocket payment source category, if the HC value was within \$5 or 10% of the MPC value, the report was deemed accurate. For the Private Insurance payment source, if the HC value was within \$10 or 10% of the MPC value, the payment was considered to be accurate. For the Total of All Sources payment category, if the HC payment was within \$20 or 10% of the MPC value, the report was classified as accurate.

**Table 3** – Accuracy Criteria by Payment Source Category in the MEPS-HC, Office-based Physician Visits

<u>Payment Source</u>	<u>Accuracy Criteria</u>
Out-of-Pocket	HC within \$5 or 10% of MPC
Private Insurance	HC within \$10 or 10% of MPC
Total of All Sources	HC within \$20 or 10% of MPC

The Household respondents were classified into three reporting groups: low, close (accurate), and high. The low group provided medical expense reports that were less than the figures given by their medical providers and lower than the accuracy criteria. The close (accurate) group provided reports that were close to the medical provider reports (i.e. classified as “accurate” based on the criteria in Table 3). The high group provided reports that were higher than the medical provider reports and were greater than the accuracy criteria.

Multivariate analyses were carried out to examine the variation in accuracy for each of the three payment sources. Logistic regression models were developed with the dependent variable being “accurate” (1) or “not accurate” (0). The explanatory variables represented a wide variety of factors that might influence the accuracy of household medical expenditure reports. The explanatory variables were grouped as follows: respondent characteristics, household characteristics, person insurance coverage, office visit characteristics, survey procedure characteristics, and medical conditions. The respondent characteristics included: age, gender, health status, race/ethnicity, education, and respondent type. The household characteristics were: family poverty status, region, and MSA status. Person insurance coverage was important because it was suspected that type of insurance (or lack thereof) would have an impact on how accurately respondents would be able to report their medical expenses. For example, those in an HMO may not know exactly how much was paid to the provider for a particular event or the provider may not be paid on a per-event basis, whereas someone who was uninsured may have a better chance of providing an accurate report. The characteristics for office visits were the amount of payments as reported by the medical provider and the number of medical events in a round. The amount of payments variable was included in the model under the hypothesis that those persons with larger payments would be less likely to provide an accurate expense report of their medical events. The number of medical events in a round was included as a measure of burden on the respondent – a higher burden may contribute to a loss of accuracy due to the greater number of events. For survey procedure characteristics, the round variable was introduced into the model to control for variation in accuracy between the five rounds of data collection. The reporting aids variable was included because it had been shown in earlier research (Kashihara and Wobus, 2007) that the use of reporting aids significantly affected the quality of medical expense reports. Several medical conditions were also added to the models to see if chronic, high maintenance, and/or high expense conditions might have an impact on the reporting accuracy of medical expenses. The medical conditions used were: cancer, emphysema, hypertension, stroke, asthma, ulcers, diabetes, high cholesterol, heart attack, arthritis, gall bladder, and back pain.

### 3. Results

Based on the criteria in Table 3, the resulting accuracy rates as well as the “low” and “high” reporting rates are listed in Table 4.

**Table 4 – Matched Event Pairs Accuracy Rates for Office-based Physician Visits by Source of Payment Categories, 2005 MEPS**

<u>Payment Source</u>	<u>Low HC&lt;MPC</u>	<u>Accurate HC≈MPC</u>	<u>High HC&gt;MPC</u>
Out-of-Pocket	10.7%	75.4%	13.8%
Private Insurance	23.9%	51.5%	24.6%
Total of All Sources	19.4%	52.6%	28.1%

Not surprisingly, the accuracy rate was very high for out-of-pocket payments. People appear to be more aware of what they had to pay for a particular event. However, they seem to be much less knowledgeable of what amounts private insurance may have contributed and what the total was from all of the different sources of payments. Interestingly enough, about the same proportion of people reported higher than the accuracy criteria as lower for private insurance payments – while for out-of-pocket and the total of all sources, more people reported higher than the accuracy criteria than lower.

Looking at the bivariate results, for Out-of-Pocket, among those who under-reported (those persons who reported amounts lower on the HC than their medical providers did on the MPC), 24.3% were over 65 years of age while among those who over-reported, only 16.4% were over 65 years of age (Table 5). Among those who under-reported, 42.7% had hypertension while among those who over-reported, only 36.0% had hypertension (data not shown). Differences between the under-reporting group and the over-reporting group were also seen in the amount of payment categories. Among those who under-reported payment amounts, 96.3% under-reported amounts that should have been between zero and 50 dollars while among those who over-reported payment amounts, 80.9% over-reported amounts that should have been between zero and 50 dollars. Please note that the table provides percentages for each variable stub within each reporting classification: total (100%), low (100%), close (100%), and high (100%), where close is defined as “accurate” by the accuracy criteria.

For the Private Insurance source of payment (Table 6), among those who under-reported, 4.2% were younger people (less than 25 years of age) while among those who over-reported, only 1.7% were in the youngest age category. Among those who under-reported, 47.3% did not use any reporting aids while among those who over-reported, only 26.3% did not use any reporting aids. A difference was seen between under- and over-reporters in the Midwest as well. Among under-reporters, 27.1% lived in the Midwest while among over-reporters, 37.2% lived in the Midwest.

For the Total of All Payment Sources (Table 7), among those who under-reported, 44.6% did not use any reporting aids while among those who over-reported, only 32.1% did not use any reporting aids. Differences were also seen between the under-reporters and the over-reporters with respect to amount of payments. Among those who under-reported, 72.1% were in the smallest payment category (\$0-\$100) while among those who over-reported, only 36.5% were in the smallest payment category.

The multivariate analyses provided insight to the significant measures of reporting accuracy. For the Out-of-Pocket payment source, education, region, amount of payments, gall bladder, and ulcers were significant measures of reporting accuracy (data not shown). Looking at selected odds ratios in Table 5, those with higher amounts of payments were less likely to be accurate than those with lower amounts of payments (OR = 0.23 for \$51-\$100 and OR = 0.10 for > \$100; reference group: \$0-\$50). Also, those who used one reporting aid were more likely to report accurately than those who used memory alone (OR = 1.13). All differences between odds ratio estimates are statistically significant at the 0.05 level.

For the Private Insurance payment source, age, education, MSA status, reporting aids, and amount of payments were significant measures of reporting accuracy (data not shown). Looking at selected odds ratios in Table 6, those between 25 and 64 years of age were less likely to report accurately than those 65 years and older (OR = 0.66). In addition, those living in a MSA were less likely to be accurate than those not living in a MSA (OR = 0.66). Those who used reporting aids were more likely to report accurately than those who relied on memory alone (OR = 2.13 for one aid and OR = 1.86 for 2+ aids; reference group: memory only). Also, those with higher amounts of payments were less likely to be accurate than those with lower amounts of payments (OR = 0.76 for \$101-\$200 and OR = 0.37 for > \$200; reference group: \$0-\$100).

For the Total of All Payment Sources, reporting aids, amount of payments, and insurance status were significant measures of reporting accuracy (data not shown). Looking at selected odds ratios in Table 7, those who used reporting aids were more likely to report accurately than those who relied on memory alone (OR = 2.03 for one aid and OR = 1.52 for 2+ aids; reference group: memory only). Also, those with insurance were less likely to report accurately than the uninsured (OR = 0.59). This might be due to the fact that the uninsured have to pay for all of their medical expenses from their own pockets;

therefore, they are probably much more aware of the total cost of their medical events than those who had insurance that paid for some or all of their medical expenses.

#### 4. Discussion

To examine how variable the findings based on 2005 data were, the same analyses were run on two additional years of MEPS HC and MPC data: 2003 and 2004. We found that the significant measures of the logistic regression models for each of the payment sources were fairly consistent from year to year. However, many of the significant odds ratios varied between years for the different subgroups in the models. Amount of payments, type of insurance, and reporting aids were significant consistently across years and across payment source models.

In summary, the reporting accuracy characteristics generally varied not only by year but also by source of payment. We did, however, see some trends such as loss of accuracy when not using any reporting aids as well as loss of accuracy for larger payment amounts. The medical conditions variables proved to be inconsistent (data not shown). Significant conditions were not very prevalent and, when they did appear, they varied by source of payment. One condition, cancer, even had a conflict between different years. In the 2004 Out-of-Pocket model, people with cancer had a tendency to report more accurately. However, in the 2003 model, the opposite was found. Still, as mentioned earlier, some measures were found to be consistent and were effective at predicting reporting accuracy.

#### References

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Table 5 - Characteristics Associated with Accuracy, Out-of-Pocket, Office-Based Physician Visits, MEPS 2005

Variable	Category	Total			Low			Close			High			Close vs Other
		Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Odds Ratio
Total		52,619	100.0	0.0	4,849	100.0	0.0	41,211	100.0	0.0	6,559	100.0	0.0	5.193
Age	<25	3,073	5.3	0.4	228	4.8	0.6	2,600	5.7	0.5	245	3.7	0.5	1.099
	25-64	36,502	67.9	1.3	3,402	70.9	1.8	27,886	65.2	1.5	5,214	79.9	1.2	0.976
	65+	13,044	26.8	1.3	1,219	24.3	1.7	10,725	29.1	1.6	1,100	16.4	1.1	1.000
Gender	Male	12,147	26.4	1.4	1,150	25.1	1.5	9,417	26.7	1.6	1,580	26.1	1.6	1.050
	Female	40,472	73.6	1.4	3,699	74.9	1.5	31,794	73.3	1.6	4,979	73.9	1.6	1.000
Health	Fair/poor	15,820	26.0	1.2	1,110	19.7	1.5	13,173	27.9	1.5	1,537	20.6	1.7	1.038
	Other	36,799	74.0	1.2	3,739	80.3	1.5	28,038	72.1	1.5	5,022	79.4	1.7	1.000
Race/Ethnics	White	33,763	77.7	1.1	3,555	82.1	2.3	25,679	76.8	1.2	4,529	79.4	1.3	0.941
	Black	6,656	9.0	0.7	393	5.5	0.7	5,504	9.7	0.8	759	8.0	0.9	1.057
	Asian/Others	2,523	4.8	0.7	330	6.7	2.5	1,875	4.6	0.6	318	4.7	0.6	0.684
	Hispanics	9,292	8.4	0.7	541	5.7	0.6	7,821	8.9	0.7	930	8.0	0.9	1.000
Education	<HS/Unknown	19,893	30.1	1.0	1,215	21.3	1.5	16,891	32.5	1.2	1,787	24.0	1.5	1.507
	HS/GED graduates	24,256	49.2	1.2	2,521	53.2	2.3	18,307	47.9	1.4	3,428	53.5	1.6	0.942
	College graduates	8,470	20.6	1.2	1,113	25.5	1.7	6,013	19.6	1.5	1,344	22.5	1.4	1.000
Poverty	Poor/Near	15,709	20.0	1.1	771	12.1	2.8	13,939	22.9	1.3	999	10.4	1.3	1.349
	Low	8,467	14.2	0.7	640	10.9	1.0	6,844	14.8	0.8	983	13.1	1.5	1.067
	Middle	12,994	28.7	1.1	1,391	29.6	2.1	9,564	27.8	1.2	2,039	33.1	1.8	1.012
	High	15,064	37.1	1.1	2,017	47.4	2.4	10,532	34.5	1.2	2,515	43.3	1.8	1.000
Region	Northeast	8,603	18.9	1.1	589	13.9	1.5	7,016	20.1	1.2	998	16.5	2.0	1.128
	Midwest	11,328	23.7	1.3	1,201	26.4	2.2	8,644	23.0	1.4	1,483	25.4	1.9	0.774
	South	19,580	34.6	1.4	1,983	38.9	2.9	15,086	33.6	1.4	2,511	36.3	1.8	0.811
	West	12,723	22.8	1.6	1,046	20.8	1.7	10,133	23.3	1.9	1,544	21.8	1.6	1.000
MSA	MSA	41,990	82.5	1.5	3,971	83.1	1.8	32,674	82.3	1.5	5,345	82.7	1.8	1.022
	NonMSA	10,629	17.5	1.5	878	16.9	1.8	8,537	17.7	1.5	1,214	17.3	1.8	1.000
Respondent	Self reporting	31,152	59.9	1.0	2,958	59.7	2.0	24,168	59.9	1.2	4,026	60.4	1.5	1.082
	Family/Proxy	21,467	40.1	1.0	1,891	40.3	2.0	17,043	40.1	1.2	2,533	39.6	1.5	1.000
Data collection	Round 1	6,426	11.7	0.3	598	12.7	0.9	5,113	11.9	0.4	715	10.1	0.6	1.077
	Round 2	13,300	24.8	0.7	1,173	23.8	1.8	10,627	25.4	0.8	1,500	22.6	1.3	1.128
	Round 3	11,155	20.8	0.4	1,016	20.4	0.9	8,721	20.9	0.5	1,418	20.9	1.0	1.034
	Round 4	13,531	26.5	0.7	1,367	28.7	1.5	10,358	25.8	0.7	1,806	28.8	1.6	0.924
	Round 5	8,207	16.1	0.5	695	14.3	1.0	6,392	16.1	0.6	1,120	17.5	1.1	1.000
Event count	1 event	6,879	12.2	0.3	689	13.7	0.8	5,211	11.7	0.3	979	13.9	0.6	1.148
	2 events	6,596	12.5	0.3	685	14.4	0.9	4,960	11.8	0.3	951	14.4	0.8	1.023
	3-5 events	14,400	27.1	0.6	1,320	26.6	1.4	11,123	26.8	0.7	1,957	29.5	1.2	1.118
	6+ events	24,744	48.2	1.0	2,155	45.4	2.4	19,917	49.8	1.1	2,672	42.1	1.8	1.000
Out-of-pckt payment	\$0-50	50,361	95.1	0.3	4,674	96.3	0.4	40,385	97.5	0.2	5,302	80.9	0.9	1.000
	\$51-100	1,254	2.7	0.2	122	2.5	0.3	508	1.5	0.1	624	9.5	0.7	0.229
	>\$100	1,004	2.2	0.1	53	1.2	0.2	318	1.0	0.1	633	9.6	0.6	0.098
Insurance	Uninsured	3,230	5.4	0.4	367	6.5	0.9	2,273	4.9	0.5	590	7.3	0.6	1.000
	Insured	49,389	94.6	0.4	4,482	93.5	0.9	38,938	95.1	0.5	5,969	92.7	0.6	1.119
Reporting aids	Memory only	31,469	58.8	1.4	2,904	58.8	2.3	24,798	59.1	1.5	3,767	57.3	1.8	1.000
	One aid only	15,531	30.9	1.1	1,383	29.4	1.8	12,085	30.9	1.2	2,063	32.0	1.4	1.131
	Two plus aids/ UK	5,619	10.3	0.7	562	11.8	1.6	4,328	10.0	0.7	729	10.8	1.0	1.084

**Table 6 - Characteristics Associated with Accuracy, Private Insurance, Office-Based Physician Visits, MEPS 2005**

Variable	Category	Total			Low			Close			High			Close vs Other	
		Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Odds Ratio	
Total		5,864	100.0	0.0	1,468	100.0	0.0	2,971	100.0	0.0	1,425	100.0	0.0	2.336	
Age	<25	204	3.4	0.5	60	4.2	0.9	116	3.8	0.7	28	1.7	0.6	1.099	
	25-64	4,201	73.3	2.3	1,046	73.6	3.0	2,040	69.6	3.0	1,115	80.8	2.5	0.659	
	65+	1,459	23.3	2.2	362	22.3	2.9	815	26.5	2.9	282	17.5	2.4	1.000	
Gender	Male	1,497	27.4	2.1	374	26.4	2.9	729	26.2	2.8	394	30.7	3.3	0.916	
	Female	4,367	72.6	2.1	1,094	73.6	2.9	2,242	73.8	2.8	1,031	69.3	3.3	1.000	
Health	Fair/poor	844	14.7	2.3	280	19.5	3.8	390	13.6	2.4	174	12.3	2.0	0.780	
	Other	5,020	85.3	2.3	1,188	80.5	3.8	2,581	86.4	2.4	1,251	87.7	2.0	1.000	
Race/Ethnics	White	5,150	91.8	0.9	1,211	88.7	1.5	2,690	93.4	0.9	1,249	91.3	1.4	1.313	
	Black	252	3.0	0.5	99	4.7	1.1	92	2.1	0.4	61	3.4	0.8	0.887	
	Asian/Others	152	2.2	0.4	49	2.9	0.7	61	1.9	0.5	42	2.0	0.7	0.916	
	Hispanics	299	3.0	0.6	107	3.7	0.8	119	2.6	0.7	73	3.3	0.8	1.000	
Education	<HS/Unknown	1,294	21.1	1.8	266	16.5	1.7	708	23.1	2.5	320	21.4	2.8	1.015	
	HS/GED graduates	2,909	49.6	2.2	830	56.8	3.0	1,376	46.2	2.8	703	49.9	3.1	0.692	
	College graduates	1,661	29.3	1.9	372	26.7	2.4	887	30.7	2.6	402	28.7	2.5	1.000	
Poverty	Poor/Near	332	4.4	0.7	122	6.4	2.0	149	3.8	0.7	61	3.7	0.8	0.805	
	Low	570	8.2	1.1	150	8.3	1.4	272	7.4	1.3	148	9.6	2.0	0.839	
	Middle	1,779	30.3	1.9	418	27.5	2.4	928	31.5	2.9	433	30.6	3.0	1.013	
	High	3,172	57.1	2.4	776	57.7	3.1	1,613	57.3	3.1	783	56.1	3.6	1.000	
Region	Northeast	612	10.5	1.4	151	10.8	1.6	344	11.6	1.9	117	8.1	1.4	1.137	
	Midwest	1,829	30.6	2.2	409	27.1	2.7	893	29.1	2.6	527	37.2	3.7	0.807	
	South	2,052	34.7	2.2	546	37.2	3.1	1,053	34.5	2.7	453	32.7	3.2	0.903	
	West	1,360	24.2	2.4	360	24.9	3.6	672	24.9	3.1	328	22.0	2.6	1.000	
MSA	MSA	4,571	79.3	2.2	1,208	83.7	2.2	2,235	76.2	2.8	1,128	81.5	2.4	0.656	
	NonMSA	1,293	20.7	2.2	260	16.3	2.2	736	23.8	2.8	297	18.5	2.4	1.000	
Respondent	Self reporting	3,500	59.3	1.9	946	64.4	2.5	1,711	56.4	2.6	843	60.4	2.4	0.835	
	Family/Proxy	2,364	40.7	1.9	522	35.6	2.5	1,260	43.6	2.6	582	39.6	2.4	1.000	
Data collection	Round 1	598	10.1	1.0	187	12.4	1.4	259	8.8	1.1	152	10.5	1.9	0.614	
	Round 2	1,219	20.3	1.3	289	19.7	2.0	628	20.3	1.6	302	20.7	2.0	0.869	
	Round 3	1,288	21.7	1.2	344	22.2	2.5	624	21.1	1.4	320	22.8	2.0	0.803	
	Round 4	1,612	28.0	1.5	363	25.8	2.6	850	28.7	1.8	399	28.9	3.1	0.878	
	Round 5	1,147	19.9	1.8	285	20.0	3.3	610	21.2	2.1	252	17.1	1.9	1.000	
Event count	1 event	759	12.4	0.7	186	11.2	1.2	376	12.3	0.9	197	13.6	1.4	1.145	
	2 events	836	13.8	0.8	198	13.3	1.3	421	13.4	1.0	217	14.9	1.4	1.033	
	3-5 events	1,692	29.0	1.3	412	29.0	2.3	857	29.1	1.7	423	28.7	2.0	1.037	
	6+ events	2,577	44.9	2.1	672	46.5	3.3	1,317	45.1	2.5	588	42.7	3.1	1.000	
Private payment	\$0-100	4,623	78.1	1.5	1,355	90.8	1.4	2,547	85.0	1.6	721	51.2	2.5	1.000	
	\$101-200	695	12.2	0.7	68	5.1	0.7	259	9.0	0.8	368	25.9	1.9	0.756	
	>\$200	546	9.7	1.2	45	4.1	1.0	165	5.9	1.3	336	22.9	1.8	0.371	
Reporting aids	Memory only	1,831	29.6	2.0	712	47.3	3.1	748	22.9	2.0	371	26.3	3.0	1.000	
	One aid only	2,660	46.3	2.1	494	35.6	2.6	1,510	51.7	2.6	656	45.4	2.8	2.127	
	Two plus aids/ UK	1,373	24.2	2.4	262	17.1	3.3	713	25.4	2.5	398	28.3	3.3	1.860	

**Table 7 - Characteristics Associated with Accuracy, Total of All Sources, Office-Based Physician Visits, MEPS 2005**

Variable	Category	Sample	Total			Low			Close			High			Close vs Other Odds Ratio
			Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct	Sample	Col Pct	SE CPct		
Total		7,339	100.0	0.0	1,452	100.0	0.0	3,770	100.0	0.0	2,117	100.0	0.0	0.825	
Age	<25	272	3.7	0.5	51	3.2	0.8	140	3.8	0.6	81	4.0	0.9	0.922	
	25-64	5,203	71.3	1.8	1,015	71.8	3.0	2,703	71.6	2.3	1,485	70.5	2.3	0.958	
	65+	1,864	24.9	1.8	386	25.0	3.0	927	24.6	2.2	551	25.5	2.1	1.000	
Gender	Male	1,808	27.0	1.9	390	29.8	2.8	880	25.6	2.3	538	27.8	2.4	0.903	
	Female	5,531	73.0	1.9	1,062	70.2	2.8	2,890	74.4	2.3	1,579	72.2	2.4	1.000	
Health	Fair/poor	1,317	16.9	1.8	309	20.8	2.9	618	15.9	2.0	390	16.3	1.7	0.849	
	Other	6,022	83.1	1.8	1,143	79.2	2.9	3,152	84.1	2.0	1,727	83.7	1.7	1.000	
Race/Ethnics	White	6,062	89.5	0.9	1,161	88.0	1.3	3,190	90.7	1.0	1,711	88.1	1.4	1.256	
	Black	369	3.4	0.5	101	4.4	0.8	165	2.9	0.5	103	3.5	0.7	1.088	
	Asian/Others	217	2.7	0.5	43	2.7	0.5	99	2.4	0.5	75	3.2	0.8	1.093	
	Hispanics	675	4.5	0.6	143	4.9	0.8	305	4.0	0.7	227	5.2	0.9	1.000	
Education	<HS/Unknown	1,830	22.2	1.5	328	18.5	1.6	967	23.7	2.1	535	21.8	2.1	0.984	
	HS/GED graduates	3,778	52.3	1.8	801	56.5	2.6	1,893	50.5	2.4	1,084	52.6	2.4	0.900	
	College graduates	1,731	25.5	1.6	323	25.0	2.0	910	25.7	2.2	498	25.5	2.0	1.000	
Poverty	Poor/Near	866	8.0	0.8	169	7.3	1.0	404	7.7	1.1	293	9.0	1.2	0.882	
	Low	923	10.4	1.1	196	10.9	1.3	462	9.7	1.3	265	11.2	1.6	0.903	
	Middle	2,203	31.3	1.8	432	29.8	2.3	1,162	32.6	2.6	609	30.0	2.3	0.996	
	High	3,331	50.3	2.3	651	52.0	2.7	1,731	50.0	2.8	949	49.8	2.7	1.000	
Region	Northeast	752	10.7	1.2	143	10.8	1.2	421	11.3	1.5	188	9.5	1.7	1.066	
	Midwest	2,094	28.9	1.8	400	28.0	2.8	1,052	28.3	2.3	642	30.8	2.4	0.922	
	South	2,788	37.0	2.0	574	37.5	3.0	1,452	37.2	2.4	762	36.5	2.7	0.997	
	West	1,689	23.3	1.9	331	23.8	3.0	834	23.2	2.6	524	23.2	2.0	1.000	
MSA	MSA	5,641	78.9	2.3	1,145	82.0	2.2	2,839	77.2	2.6	1,657	79.7	2.8	0.798	
	NonMSA	1,698	21.1	2.3	307	18.0	2.2	931	22.8	2.6	460	20.3	2.8	1.000	
Respondent	Self reporting	4,514	61.1	1.6	948	64.0	2.5	2,272	59.9	2.1	1,294	61.3	1.9	1.013	
	Family/Proxy	2,825	38.9	1.6	504	36.0	2.5	1,498	40.1	2.1	823	38.7	1.9	1.000	
Data collection	Round 1	800	10.4	0.8	178	11.5	1.3	399	10.1	1.0	223	10.3	1.3	0.986	
	Round 2	1,604	21.3	1.2	295	19.4	1.7	835	21.5	1.5	474	22.2	1.6	1.131	
	Round 3	1,554	20.8	1.0	300	20.1	1.7	798	20.5	1.3	456	21.9	1.6	0.996	
	Round 4	2,011	28.1	1.5	402	28.2	2.5	1,039	28.7	2.0	570	26.8	2.1	1.075	
	Round 5	1,370	19.3	1.3	277	20.9	2.6	699	19.1	1.6	394	18.7	1.4	1.000	
Event count	1 event	1,083	13.5	0.6	213	13.4	1.4	573	13.7	0.9	297	13.3	0.9	1.156	
	2 events	1,091	13.9	0.7	205	13.1	1.1	582	14.3	0.8	304	13.8	1.1	1.165	
	3-5 events	2,175	29.8	1.1	418	28.3	1.9	1,104	29.8	1.6	653	31.0	1.6	1.097	
	6+ events	2,990	42.7	1.7	616	45.2	2.8	1,511	42.2	2.3	863	41.9	2.1	1.000	
Total payment	\$0-100	4,681	62.5	1.4	1,075	72.1	2.1	2,789	72.9	1.5	817	36.5	2.3	1.000	
	\$101-300	2,068	29.3	1.1	303	22.3	2.0	810	22.2	1.1	955	47.5	1.8	2.410	
	>\$300	590	8.2	0.8	74	5.6	1.1	171	5.0	1.1	345	16.0	1.2	0.878	
Insurance	Uninsured	1,098	11.6	0.9	184	10.1	1.3	606	12.6	1.2	308	10.7	1.3	1.000	
	Insured	6,241	88.4	0.9	1,268	89.9	1.3	3,164	87.4	1.2	1,809	89.3	1.3	0.592	
Reporting aids	Memory only	2,456	31.6	1.9	673	44.6	3.0	1,069	26.6	2.0	714	32.1	2.3	1.000	
	One aid only	3,245	45.7	1.7	514	36.6	2.4	1,872	51.2	2.2	859	41.9	2.0	2.030	
	Two plus aids/ UK	1,638	22.6	2.0	265	18.8	2.8	829	22.3	2.2	544	26.0	2.3	1.524	