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THE HEALTH AND RETIREMENT STUDY-AN EVALUATION AND SCIENTIFIC IDEAS FOR THE FUTURE

Medical Expenditure Measures in the Health and Retirement Study

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Abstract

This paper reviews out-of-pocket (OOP) medical expenditure measures collected in the Health and Retirement Study (HRS). Medical expenditures are an important cost of poor health. Medical expenditure measures are important for understanding retirement decisions, financial preparation for retirement, and predicting the consequences of health care reform, particularly Medicare reform. Despite the comprehensiveness of the HRS, there are always limitations to what can be learned from population interviews. To assess the quality of current HRS measures of OOP spending, we compare various measures of OOP spending across survey waves to the Medical Expenditure Panel Survey (MEPS) and Medicare Current Beneficiary Survey (MCBS), two surveys that expend considerable resources on measuring both OOP spending and total medical expenditures. Such comparisons make it possible to identify potential bias in the HRS data and to improve HRS measures of OOP. We find that the HRS produces good quality and useful data on OOP spending.

KEYWORDS: medical expenditures, HRS, MCBS, MEPS, Health and Retirement Study

1. Overview

This paper reviews out-of-pocket (OOP) medical expenditure measures collected in the Health and Retirement Study (HRS), an innovative longitudinal study of health, retirement and aging from the Institute for Social Research at the University of Michigan and supported by the National Institute on Aging and the Social Security Administration. The purpose of the HRS is to learn if individuals and families are preparing for the economic and health consequences of aging, and to identify actions, both individual and societal that can promote or threaten health and wellbeing in retirement. The HRS is unique in gathering information on multiple domains, including income and wealth, health, and labor supply, that are important for understanding the decisions that individuals and families make. The study sample is nationally representative of the U.S. population over age 50 and follows individuals and their spouses from the time of their entry into the survey until death.

Medical expenditures are an important cost of poor health. They are not however, the only cost of poor health which may also include the loss of own or spousal earnings or of a change in residence to accommodate poor health. Medical expenditure measures are important for modeling retirement decisions, assessing household income security in retirement and financial preparation for retirement, and predicting the consequences of health care reform, particularly Medicare reform. The HRS measures OOP spending on hospitals, nursing homes, home health care and special facilities, doctor visits, medication, outpatient surgery, and dentistry. The HRS minimizes non-responses by using "random-entry bracketing," an HRS innovation that elicits ranges of values from respondents who would otherwise give no information at all. Categories of OOP spending are queried differently across survey waves. For example, spending on nursing homes is included in spending on hospitals through wave 2000; thereafter, nursing home spending is asked separately.

Despite the comprehensiveness of the HRS, there are always limitations to what can be learned from population interviews. To assess the quality of current HRS measures of OOP spending, we compare various measures of OOP spending across survey waves to the Medical Expenditure Panel Survey (MEPS) and Medicare Current Beneficiary Survey (MCBS), two surveys that expend considerable resources on measuring both OOP spending and total medical expenditures. Such comparisons make it possible to identify potential bias in the HRS data and to improve HRS measures of OOP.

We investigate four categories of spending: total OOP spending, OOP spending on prescription medications, OOP spending on nursing homes, and non-drug/non-nursing home OOP spending. We analyze OOP on nursing homes

separately because it is typically covered differently from other spending, and nursing home expenditures are treated differently in many economic models.

2. Summary of Findings

- Overall the HRS produces useful data on OOP spending. We summarize the strengths and weaknesses of the measures in this section and we provide recommendations in the following section.

- Overall, 21 percent of HRS respondents do not provide an exact (continuous) amount to the value of OOP spending in at least one category of spending. Some categories, such as hospital, nursing homes, and home health care, have a high percentage of non-response among service users (over 30 percent). But most respondents respond to the unfolding brackets; thus complete non-response (no continuous value, no bracket) is below 5 percent for most categories. Nursing home and home health care are the exceptions with complete non-response rates of 12 percent. However, this represents a small number of observations because utilization of these services is low.

- Out-of-pocket spending in the HRS is highly skewed across all spending categories. High values at the 95th and 99th percentiles may be due in part to imputation methods or to measurement error, since recall on health care services and spending more generally is subject to error. Non-response and the skewed nature of the distribution call attention to the importance of understanding how imputation method affects estimates.

- HRS has no systematic bias in its estimate of mean OOP expenditures. Measures of total OOP spending of HRS respondents that are ages 66 and older are remarkably similar to OOP spending reported by respondents in MCBS and MEPS. The HRS reports relatively high values at the 99th percentile in some years on drug spending. This is not the case in more recent years (2006 and 2008). In the most recent wave (2008), mean and median values (annual for 2007) are just slightly lower than in MCBS 2006 and just slightly higher than MEPS 2007.

- Measures of total OOP spending in HRS are comparable to MCBS in part because OOP spending on non-drug and non-nursing home expenses are underestimated relative to MCBS while OOP spending on prescription medications is over-estimated in comparison to MCBS.

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- Since survey wave 2006 (perhaps due to Medicare Part D), HRS respondents' reports of OOP spending on drugs are much more comparable to those in MCBS and MEPS than they are in early years. However, in HRS survey years 2004 and 2002, mean OOP spending on drugs is substantially higher in HRS compared with MCBS, driven in part by high values at the 99th percentile.

- In 1996, the only wave in which HRS respondents were queried about total medical expenditures, HRS respondents greatly overestimated total medical expenditures compared to MCBS and MEPS. Reports utilizing brackets in the HRS (1998, 2000 and 2002) compare much more favorably with MCBS and MEPS than the continuous reports from wave 1996.

3. Recommendations

- HRS should pursue linkages with additional data sources, especially for respondents who report very high spending. Linkages could include obvious and readily available data such as Medicare claims. However, not all older Americans have Medicare or Medicare Part D. Pharmacy records and nursing home administrative data could potential provide linkages for a subset of high use populations.

- More granularity could improve response for self-reporting, especially for prescription drugs. For example, subjects could be asked about each prescription medication they take (and asked to retrieve pill bottles prior to the survey). For each medication, they could be asked to save and produce receipts and prescription bags.

- Non-response could be improved by shrinking the recall window, perhaps to 6 months. An exploratory study to assess possible bias associated with the current window would be warranted. A shorter recall period, as well as linkages to other records as discussed above, could reduce high rates of non-response in nursing home and home health care.

- A thorough assessment of the quality of the data in the right tails is warranted, either through a review of billing records or a study utilizing diaries. The linked Medicare/HRS data would enable this kind of assessment, as would links to individual insurers for respondents under age 65.

- If Medicare links were made available in a timely fashion, some HRS questions for respondents over age 65 could be dropped, thus shortening the survey. These respondents could then spend more time on questions related to utilization not always covered by Medicare, such as nursing home and home health care.

- The HRS should consider asking about the use of health savings accounts and health care reimbursement accounts, and consider using these electronic records to track spending.

- The cut-off points in random-entry brackets have not changed over time. The cut-off points may need to be revisited given general inflation and medical care cost increases.

4. Details of Data Analysis

HRS Measures of Health Expenditures

Out-Of-Pocket Medical Expenditures. HRS measures OOP spending on hospital, nursing homes, home health care and special facilities, doctor visits, medication, outpatient surgery, and dentist visits. The survey questions on OOP non-drug spending ask about spending since the last interview or over the past two years and take the form: About how much did you pay out-of-pocket for [type of spending] since [previous wave/in the last two years]?

The survey questions on OOP drug spending ask about average monthly spending; for regular users of prescription drugs, the questions take the form: On average, about how much have you paid out-of-pocket per month for these prescriptions since [previous wave/in the last two years]?

Beginning in 2006 (wave 8), HRS collects information about Medicare Part D spending. Two questions ask respondents covered by Part D if their use or costs of prescription drugs changed. If the answer to either of these questions is yes, then two average monthly OOP amounts are collected, one for the 12 months prior to coverage under Part D and the other for the time after Part D coverage began. If the respondent is not enrolled in Part D or did not report any change, no other question about OOP drug spending is asked.

Figure 1 shows average annual OOP spending on prescription drugs for two survey waves before Medicare Part D (2002 and 2004), one survey year in which at least part of the year includes Medicare Part D coverage (2006), and

survey wave 2008 (after Part D began) by age for ages 66 and older.[1] Both the mean level of OOP spending and variance is reduced in survey waves after 2004.

Differences in categories of OOP spending reported across waves create challenges for some panel analyses. For example, OOP expenditures on nursing homes were not queried until 2002. Between 1995 and 2000, nursing home OOP expenditures were included with OOP spending on hospital stays. Generally, from 2002 forward, all OOP expenditures are queried separately.

Table 1 shows the distribution of OOP spending for each category of spending and across survey waves. Questions about OOP spending asked to the birth cohort born 1923 and earlier and surveyed in 1993 and 1995 differed from other waves on recall period and who responded. For this birth cohort and for survey wave 1993, OOP spending was asked for the prior 12 months and only one person in a coupled household was queried – the self-designated 'financial' respondent.

Total Medical Expenditures. After reporting OOP, respondents in 1996 were asked to estimate total medical costs (OOP plus covered expenditures). This is the only wave in which total expenditure amounts were queried. From 1998 to 2002, respondents were directed immediately into unfolding bracket questions to report total medical expenditure; from 2004 forward, respondents were not asked about total medical expenditures. In Section 4 below, we briefly review the HRS data on total medical expenditures and compare them to MCBS and MEPS.

How Health Expenditures Are Measured in the HRS

For each category of OOP expenditure, respondents are directed to provide the amount of OOP spending for the category, and non-responders are directed into unfolding brackets. Table 1 shows the percent non-response for total OOP and for each category of expenditure by wave, and the percent complete non-response, where complete non-response is the percent of respondents who do not report a continuous value or bracketed amount. Non-response on total OOP across survey waves averages 21 percent, ranging from 16 percent to 29 percent. Some categories, such as hospital, nursing home and home health care, have a high percentage of non-response (on average across waves 30, 36 and 34 percent respectively). Fortunately, most respondents respond to the unfolding brackets; thus complete non-response is below 5 percent for most categories with the exception of nursing home and home health care. Complete non-response is about 12 percent for nursing home and home health care. However, because of the low utilization of these services, this represents a small number of observations.

[1] For those enrolled in Part D and whose use or cost changed, the average monthly costs for both before and after Part D are reported or imputed. The number of months after Part D to the current interview is estimated using January 2006 as the month Part D begins.

Table 1 shows the distribution of OOP spending for years 1995 through 2008 for total OOP and for each category of spending. The data are conditional on utilization. We base our discussion of the distribution using imputed values for non-response from St. Clair et al. (2010), which describes the imputation methods.[2] The skewed nature of OOP spending is well-documented[3] and reflected in Table 1 by high mean-to-median ratios and 95th (99th) to median ratios for all OOP spending and across spending categories (note that the numbers are not CPI adjusted). The high values at the 95th and 99th percentiles may be due in part to measurement error: recall on health care services and spending more generally is subject to error. High values may also be due to imputation methods. However, Hurd and Rohwedder (2009)[4] assess imputation as an explanation for extreme values and conclude that "imputation may contribute to the large outliers in spending but they are not primarily responsible for them (pg. 7)." Spending on medication is lower in 2006 and 2008 than in other years, particularly at the 95th and 99th percentiles as a result of Medicare Part D.

Reporting error is particularly problematic when assessing changes in spending over time at the individual level. One option for assessing the extent to which high values are errors is to collect better measures by asking respondents to keep a diary; diaries are still considered the most accurate way to collect expenditure information.

A minor point relates to bracket values. The cut-off points in bracket values have not changed over time and may need to be reassessed in view of inflation and increasing costs of medical care.

HRS Compared with MCBS and MEPS

We compare OOP spending as reported in HRS, MCBS and MEPS. MCBS is a rotating four-year panel survey of individuals enrolled in Medicare Part A, B or both. Reported expenditures on health care may be of higher quality in MCBS than in HRS reports because respondents utilize calendars to record medical events and are asked to save Medicare Explanation of Benefits forms and receipts from insurance companies. They are also asked to save receipts, prescription bags etc. provided by the pharmacy. MEPS has a 2.5 year long overlapping panel design that facilitates continuous estimates throughout the year for the U.S. civilian and non-institutionalized population. MEPS collects data on health status,

[2] St. Clair, Patricia et al. 2010. *RAND HRS data documentation,* version J. Santa Monica, CA: RAND Corporation, Center for the Study of Aging.

[3] Goldman, Dana and Julie Zissimopoulos. 2003. "High Out-of-Pocket Health Care Spending by the Elderly," 22(3) 194-202.

[4] Hurd, Michael and Susann Rohwedder. 2009. "The Level and Risk of Out-of-Pocket Health Care Spending. Michigan Retirement Research Center WP2009-218.

health care utilization, health care expenditures, payment sources and amounts, and health insurance coverage of individuals and families. It does not include nursing home residents, and sample sizes for middle and older age individuals are small. Like MCBS, it expends considerable resources on the collection of medical expenditure data; thus MEPS data are considered to be high quality.

HRS non-drug OOP spending covers a two-year recall period. We divide by two for an approximate annual amount and use the middle of the two years as the approximate year for comparability to MCBS and MEPS. HRS respondents that regularly use prescription medications report drug OOP on an average monthly basis. Thus, we multiply HRS respondents' amounts by 12 for an approximate annual amount. Figures 2 and 3 show OOP non-drug spending for years 1997 (HRS survey wave 1998, MCBS 1997) and 2006/2007 (HRS survey wave 2008 and MCBS 2006 – latest wave available). Average non-drug OOP spending in the HRS is slightly lower than reported in MCBS, but average levels are remarkable similar in both data sets through age 80. In both data sets, OOP non-drug spending trends up with age.

Average OOP spending on prescription drugs is about twice as large in HRS than in MCBS at all ages in 1997 (Figure 4). In 2006/2007 the differences in OOP spending on prescription drugs in HRS and MCBS is smaller (Figure 5). The higher average annual OOP on drugs in the HRS may result from multiplying the respondent's report of monthly OOP in the HRS by 12 to obtain an annual amount.

In both the HRS and MCBS, mean OOP spending on drugs does not vary much with age. In contrast, when we compare OOP spending on drugs in HRS and MEPS for year 2007 (Figure 6), average spending by age is more similar than the HRS and MCBS comparison. For this comparison, we exclude nursing home residents from the HRS values. There is some evidence that since 2006 (perhaps due to Medicare Part D), HRS reports of OOP spending on drugs are much more consistent with data in MCBS and MEPS.

Tables 2 through 6 compare HRS and MCBS on four categories of spending: total OOP spending, OOP spending on prescription medications, OOP spending on nursing home, and non-drug/non-nursing home OOP spending. The tables report total OOP spending in the HRS and MCBS for HRS survey waves 2000 to 2008 and MCBS years 1999 to 2006. We report mean values, deciles and the values at the 95^{th} and 99^{th} percentile of the distribution. In addition, we compare the distribution of total OOP in HRS and MEPS for years 1999-2008.

Total OOP Spending. Total OOP spending among respondents age 66 and older in the HRS is on average similar to that reported in MCBS (Table 2). In HRS survey year 2004, the average value is higher than in the MCBS due to particularly high values at the 99^{th} percentile. In other years, average OOP in HRS is slightly lower than in MCBS. Thus, it does not appear to be the case that

total OOP spending in HRS is systematically exaggerated as has been stated in a recent working paper[5].

In general, values at the 95th and 99th percentile of the HRS vary across years much more so than values at those percentiles in the MCBS. Including current nursing home residents increases total OOP values particularly at the 95th and 99th percentile in both the HRS and MCBS. At the 99th percentile values in the MCBS vary across years more widely than in the HRS.

Table 3 compares the distribution of total OOP from MEPS to HRS and MCBS (exclusive of nursing home residents). Average total OOP spending is lower in MEPS than in either HRS or MCBS but not by large amounts. MEPS values at the median are in line with HRS and MCBS but are lower at the 99th percentile.

In sum, measures of total OOP spending of HRS respondents ages 66 and older are remarkably similar to those reported by respondents in MCBS and MEPS. A caveat to this generalization is a tendency in the HRS to have reports of high values at the 99th percentile in some years but not in the more recent years (2006, 2008), driven in the most part by high OOP expenditures on drugs reported in early years and not in later years of the survey (post Medicare Part D).

*OOP Spending on Prescription Medication***.** As we saw in Figures 4, 5 and 6, OOP drug spending in the HRS is generally higher than in the MCBS. Table 4 shows that this is true across all years 1998 through 2008, with the exception of year 2006, and at all points in the distribution. Reports of OOP spending on prescription medication in HRS are much more similar to MCBS in years 2006 and 2008 than in earlier years. In HRS survey years 2002 and 2004, mean OOP spending on drugs is substantially higher in HRS compared to MCBS driven in part by high values at the 99th percentile. There is some evidence that since 2006 (perhaps due to Medicare Part D), recording of OOP spending on drugs by HRS respondents improved. That is, it compares much more favorably with MCBS (and MEPS as seen in Figure 6).

*OOP Spending on Nursing Homes***.** There are few reports of nursing home utilization in the HRS. In 2008, fewer than 3 percent of respondents reported nursing home expenditures. At the 99th percentile, OOP spending on nursing homes is $17,000 or more (2006 wave), much less than OOP nursing home expenditures at the 99th percentile of the MCBS in a comparable year ($33,000). Nursing home expenditures are an important part of medical spending for some households, so fewer reports of OOP spending on nursing homes (in terms of percent reporting) and lower levels of reported expenditures in HRS compared with MCBS merit further investigation.

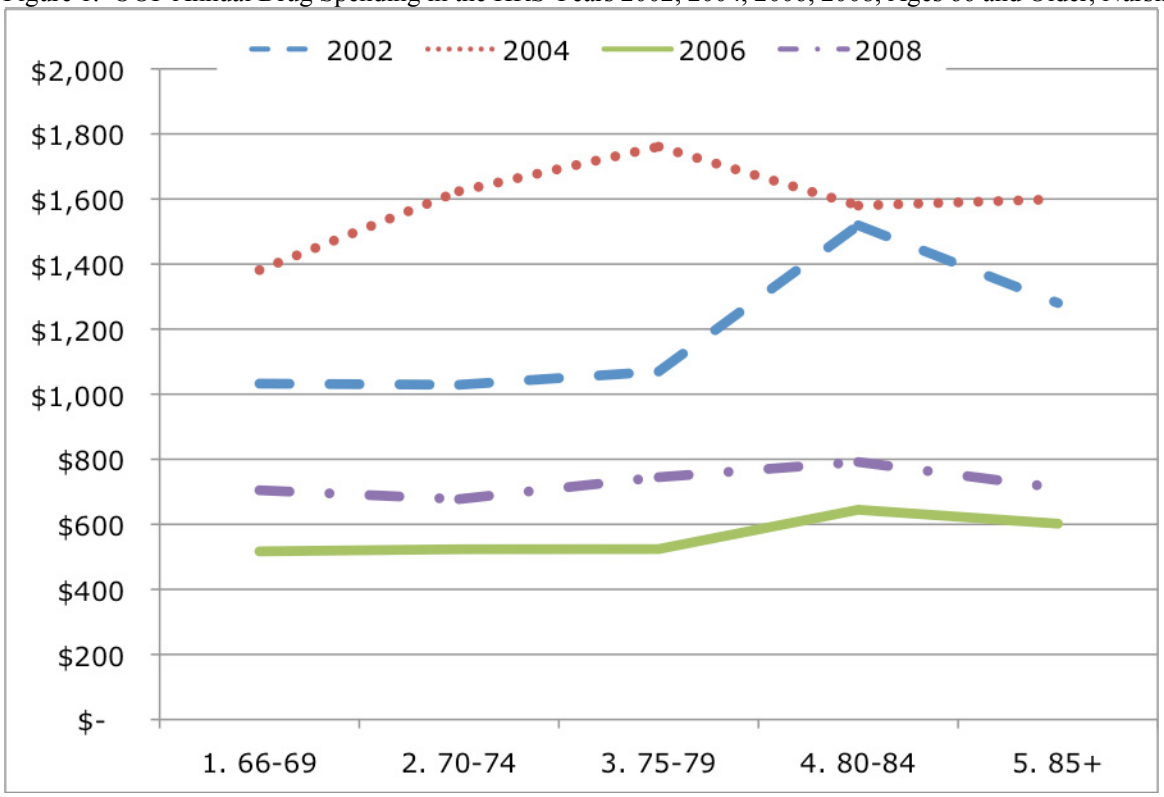
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[5] Hurd, Michael and Susann Rohwedder. 2009. "The Level and Risk of Out-of-Pocket Health Care Spending. Michigan Retirement Research Center WP2009-218.

OOP Spending on Non-Drug and Non-Nursing Home Services. HRS reports of OOP spending on non-drug, non-nursing home expenditures do not appear to be plagued by particularly high outliers. Mean values in the HRS are lower than in MCBS and so are values at all points in the distribution. Total OOP spending in HRS compared to MCBS compares favorably in part because OOP spending on non-drug and non-nursing home expenses are underestimated relative to MCBS while OOP spending on prescription medications is over-estimated compared with MCBS.

Total Medical Expenditures. Questions in the HRS about total medical expenditures have been discontinued; 1996 is the only year in which we have a continuous report. We briefly compare total medical expenditure data for that year to reports in MCBS and MEPS among 65 year olds. Table 7 shows that HRS respondents widely overestimate total medical expenditures compared with MCBS and MEPS. Table 8 shows the percent distribution across brackets for the years in which only unfolding brackets were used (1998, 2000 and 2002). HRS reports using brackets compare much more favorably with MCBS and MEPS reports than do continuous reports from wave 1996.

Figure 1. OOP Annual Drug Spending in the HRS Years 2002, 2004, 2006, 2008, Ages 66 and Older, Nursing Home Residents Excluded



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Figure 2. Annual Non-Drug OOP spending by Age in HRS and MCBS, Includes Nursing Home Residents

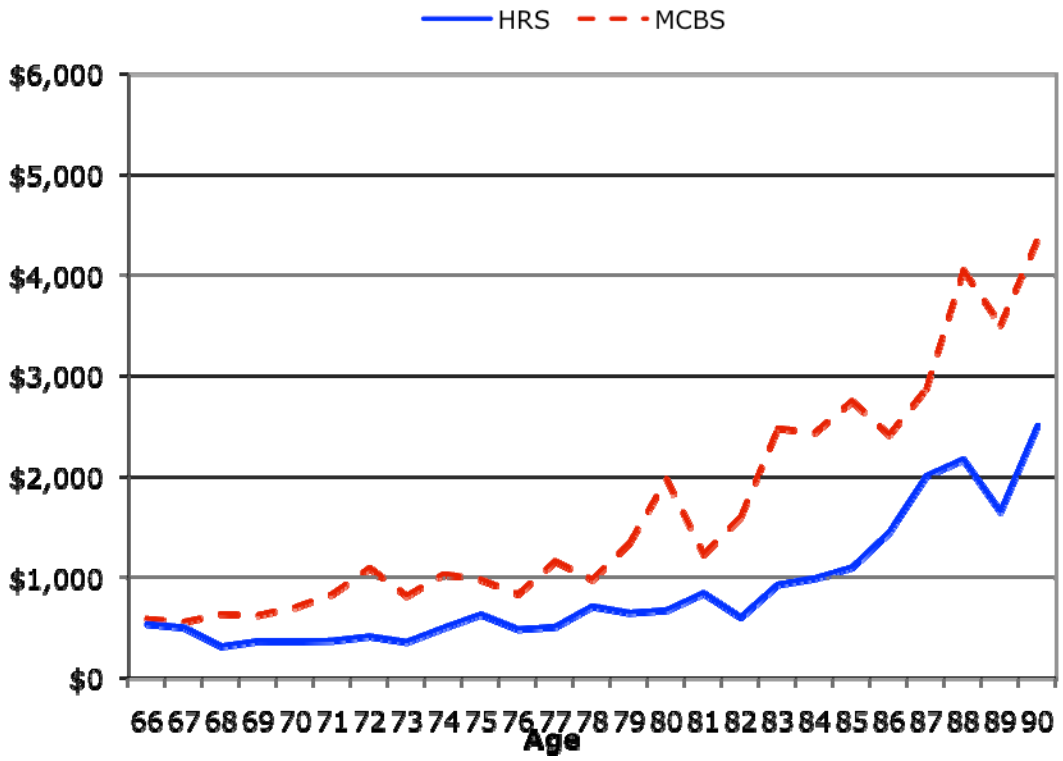
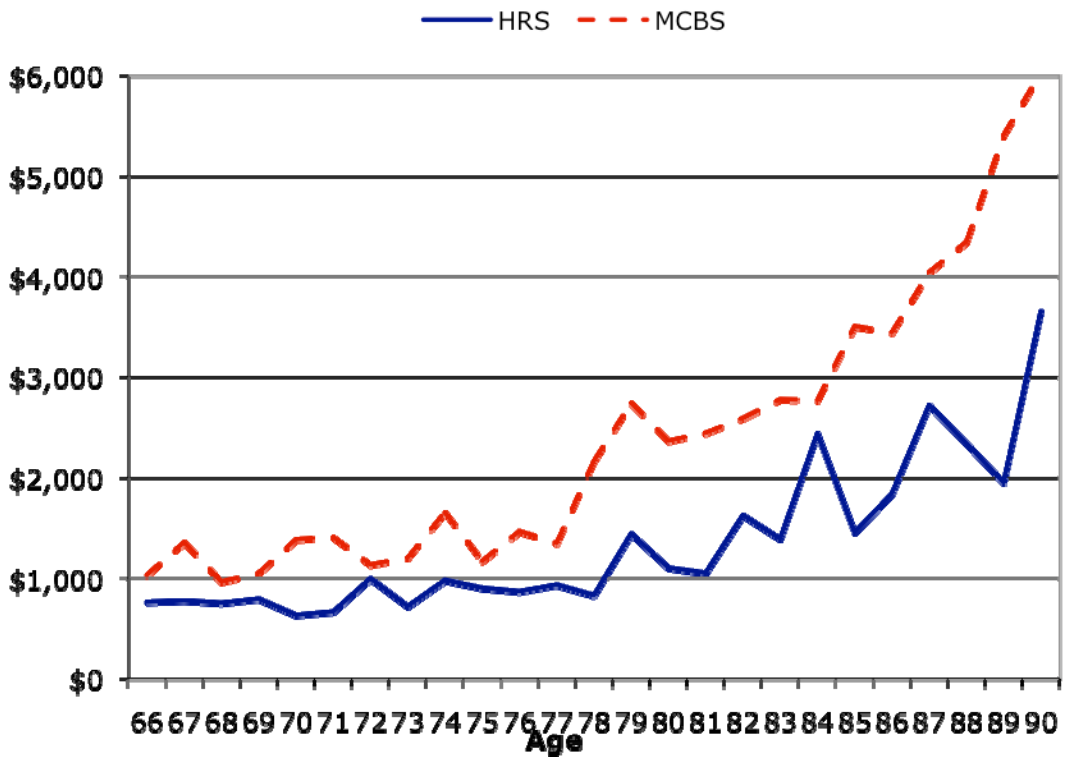


Figure 3. Non-Drug OOP spending by Age in HRS and MCBS, Includes Nursing Home Residents



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Figure 4. Drug OOP spending by Age in HRS and MCBS, Includes Nursing Home Residents

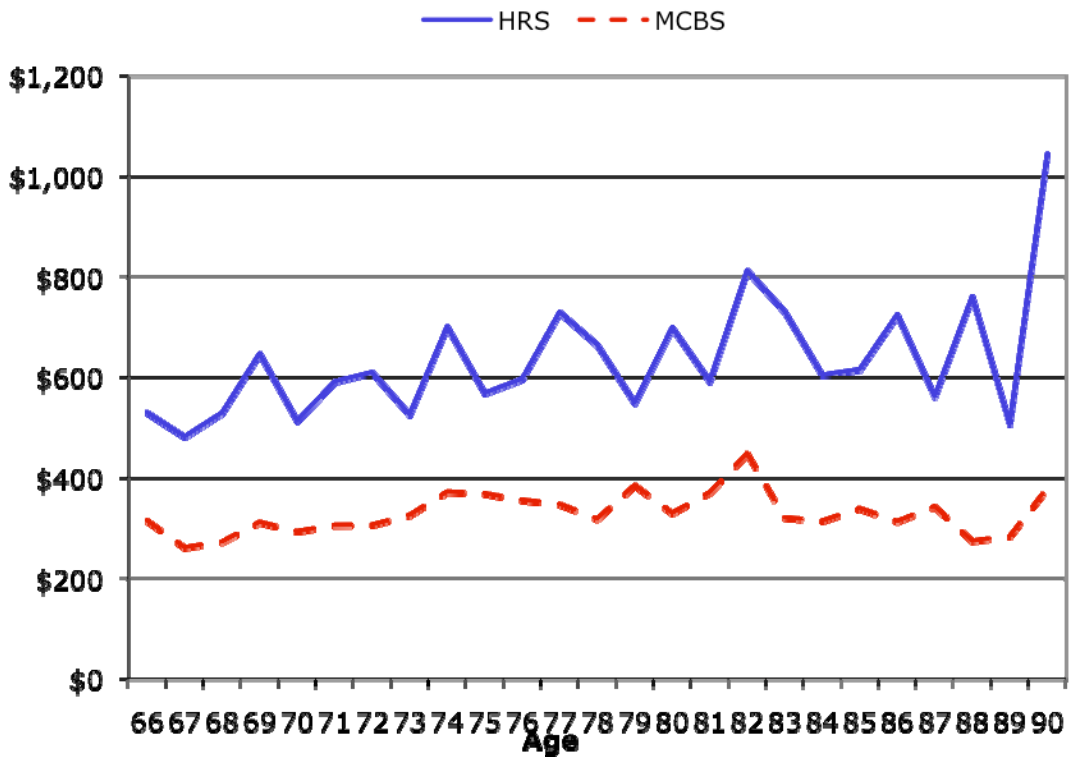
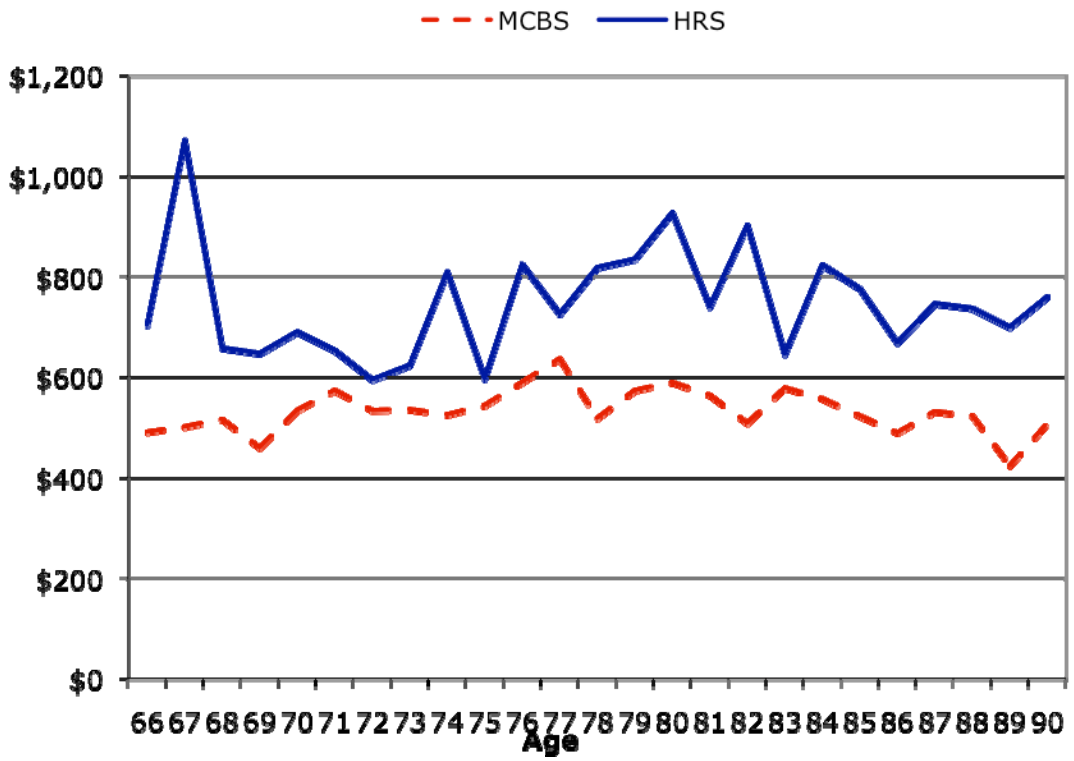


Figure 5. Drug OOP spending by Age in HRS and MCBS, Includes Nursing Home Residents



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Figure 6. Drug OOP spending by Age in HRS and MEPS, Excludes Nursing Home Residents

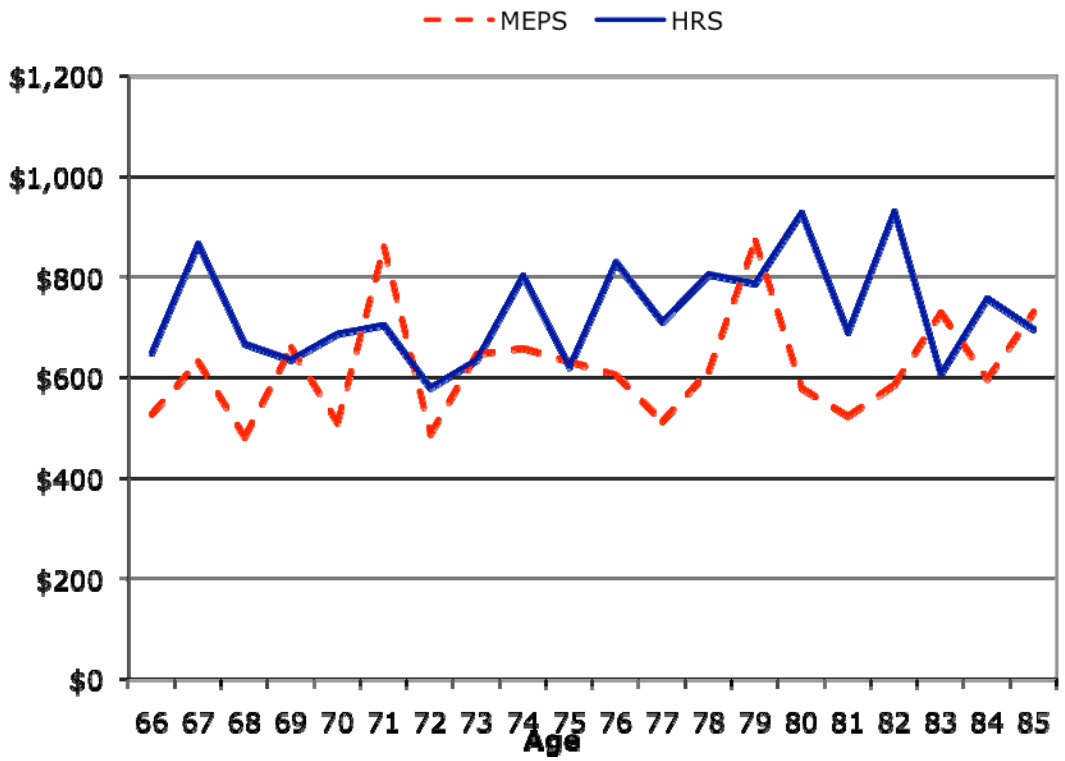


Table 1. Two-year OOP Spending Amounts in the HRS by Survey Wave and Spending Item
Unweighted, All Respondents- All Ages, Conditional on Utilization of Service(s)

ALL OOP	**1995**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**
% non-response	28.59%	19.75%	17.69%	15.80%	23.12%	20.03%	21.29%	19.76%
N	7027	10964	21384	19579	18167	20129	18469	17217
mean	2723	2015	2240	2492	3830	4478	3584	3502
median	840	650	780	940	1200	1400	1430	1360
95th	9266	7400	7600	8400	12800	14400	11700	12010
99th	39200	23120	25144	24800	50000	57600	39600	38300
P10	0	0	0	0	0	0	0	0
P20	100	100	100	150	200	210	240	260
P30	280	240	300	360	480	530	576	575
P40	500	421	500	600	790	920	960	940
P50	840	650	780	940	1200	1400	1430	1360
P60	1244	1000	1145	1350	1800	2070	2071	1920
P70	1920	1500	1700	2000	2640	3000	2900	2700
P80	2900	2400	2610	3000	4140	4700	4300	4000
P90	5300	4440	4800	5240	7400	8364	7400	7200
P100	286463	255350	203539	230800	1206575	840000	289210	601000

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Table 1 continued.

Medication OOP	**1995**	**1996**	**1998**	**2000**	**2002**	**2004**	**2006**	**2008**
% non-response	16.75%	9.39%	8.31%	7.28%	10.90%	10.04%	9.60%	10.12%
% complete non-response	1.31%	0.78%	1.09%	1.20%	1.73%	1.63%	2.16%	1.92%
N	4519	5903	13195	13078	12842	13965	10787	12455
mean	102	73	67	73	118	153	79	79
median	39	20	25	30	40	50	40	40
95th	300	240	200	250	400	500	250	250
99th	1200	1000	540	500	1046	1919	550	600
P10	6	5	5	6	8	10	8	8
P20	10	8	10	10	15	19	15	15
P30	20	10	15	16	20	25	20	20
P40	25	15	20	24	30	36	30	30
P50	39	20	25	30	40	50	40	40
P60	50	30	36	45	58	70	50	50
P70	75	40	50	60	90	100	75	75
P80	100	62	80	100	125	150	100	100
P90	200	120	150	170	240	300	175	175
P100	11932	9800	5500	9600	50000	35000	12000	24000

Table 1 continued

Hospital OOP	**1995***	**1996***	**1998***	**2000***	**2002**	**2004**	**2006**	**2008**
% non-response	46.05%	28.71%	27.83%	24.65%	33.05%	26.42%	25.11%	24.57%
% complete non-response	4.93%	2.39%	3.93%	4.66%	5.37%	4.16%	4.32%	4.09%
N	912	1132	2415	2061	2012	2305	2222	2153
mean	4334	2835	4599	5127	2914	2832	2373	2695
median	700	1100	900	800	700	700	500	600
95th	18000	10000	20000	25815	15000	11000	10000	12000
99th	62400	22000	65195	84000	40000	39000	30000	35000
P10	0	25	0	0	0	0	0	0
P20	77	200	100	100	100	100	50	100
P30	200	500	300	300	200	250	200	240
P40	500	800	500	500	500	500	350	450
P50	700	1100	900	800	700	700	500	600
P60	1000	2000	1500	1250	1000	1000	900	1000
P70	2000	2100	2200	2000	1500	1500	1200	1500
P80	4000	4000	4000	4000	3000	2500	2100	2500
P90	10000	6000	9500	10000	6500	6000	5000	5000
P100	130000	67139	199387	163023	162606	270000	135410	250000

*Includes Nursing Home in Hospital OOP

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Table 1 continued.

Doctor Visits OOP	**1995***	**1996***	**1998***	**2000***	**2002**	**2004**	**2006**	**2008**
% non-response	27.81%	19.42%	16.35%	14.59%	21.61%	17.27%	17.75%	17.39%
% complete non-response	1.40%	0.87%	1.23%	1.56%	2.75%	2.40%	2.27%	2.29%
N	4851	8872	16674	15235	10944	12343	11236	10184
mean	724	934	879	936	736	697	651	689
median	300	450	400	400	175	180	200	200
95th	2600	3500	3000	3500	3000	3000	2500	3000
99th	5100	7000	8000	8000	10000	7500	7500	8500
P10	50	60	50	55	20	21	30	30
P20	100	120	100	120	50	50	60	60
P30	192	200	200	200	80	80	100	100
P40	200	300	300	300	100	110	120	150
P50	300	450	400	400	175	180	200	200
P60	500	600	500	500	240	240	250	300
P70	600	850	800	800	400	400	400	500
P80	1000	1200	1000	1200	600	600	600	700
P90	1600	2000	2000	2000	1560	1500	1500	1605
P100	45000	45101	40749	50000	100000	303000	85000	40000

*Includes Dentist and Outpatient OOP in Doctor Visits OOP

Table 1 continued

Special Facilities OOP	**1995***	**1996***	**1998***	**2000***	**2002**	**2004**	**2006**	**2008**
% non-response	20.94%	14.26%	13.38%	11.54%	18.58%	17.57%	16.05%	17.14%
% complete non-response	2.62%	2.96%	3.41%	3.21%	3.44%	5.91%	3.21%	2.50%
N	726	540	1674	1464	436	575	592	560
mean	840	548	627	673	763	574	825	808
median	0	0	0	0	120	200	250	200
95th	1800	2518	2200	1896	3000	2000	3000	3410
99th	18720	5300	10000	10969	8000	9240	10400	12000
P10	0	0	0	0	4	10	15	12
P20	0	0	0	0	30	40	50	40
P30	0	0	0	0	50	75	100	90
P40	0	0	0	0	90	120	180	120
P50	0	0	0	0	120	200	250	200
P60	0	50	20	6	200	300	350	300
P70	50	200	100	100	300	500	500	475
P80	210	500	325	300	600	710	800	700
P90	1000	1500	1000	800	1200	1200	1200	1434
P100	90000	40000	100000	136127	49715	15000	31200	24000

*Includes Home Health Care in Special Facilities OOP

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Table 1 continued

Nursing Home OOP	**2002**	**2004**	**2006**	**2008**
% non-response	36.36%	37.70%	31.15%	35.66%
% complete non-response	12.67%	13.87%	10.99%	9.88%
N	363	382	382	415
mean	25302	27014	26267	25256
median	7500	10000	6310	5600
95th	100000	120000	110000	81400
99th	160000	144000	160000	192000
P10	0	0	0	0
P20	535	500	500	500
P30	1299	1868	1698	1200
P40	4500	5000	3000	3000
P50	7500	10000	6310	5600
P60	16000	17280	15000	18400
P70	24100	31200	30000	28000
P80	50000	50000	50000	40000
P90	72000	84000	81000	70000
P100	213000	150000	217500	464000

*Nursing Home OOP was Included in Hospital OOP in Waves 1995 to 2000

Table 1 continued

Outpatient surgery OOP	**2002**	**2004**	**2006**	**2008**
% non-response	28.10%	21.69%	19.94%	20.34%
% complete non-response	4.80%	4.42%	3.61%	3.42%
N	1605	1969	1911	1785
mean	871	1085	1117	967
median	250	250	300	300
95th	4000	4400	5000	4000
99th	10000	10000	11000	10000
P10	10	8	15	20
P20	41	50	50	70
P30	100	100	100	100
P40	150	175	200	200
P50	250	250	300	300
P60	400	400	500	500
P70	570	600	700	600
P80	1000	1000	1000	1000
P90	2000	2000	2500	2000
P100	27800	300000	150150	47000

*Outpatient Surgery OOP was Included in Doctor Visits OOP in Waves 1995 to 2000

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Table 1 continued

Home Health Care OOP	**2002**	**2004**	**2006**	**2008**
% non-response	37.65%	32.17%	35.65%	30.65%
% complete non-response	10.93%	13.29%	12.62%	11.46%
N	247	286	317	323
mean	2468	3908	2368	2907
median	135	120	150	150
95th	22000	24115	11000	21293
99th	32000	64263	29022	36000
P10	0	0	0	0
P20	0	0	0	0
P30	7	10	30	12
P40	90	75	60	80
P50	135	120	150	150
P60	240	200	300	350
P70	500	500	720	500
P80	1000	1500	2000	1800
P90	5000	8052	7680	9600
P100	35456	144000	72000	102000

*Home Health Care OOP was Included in Special Facilities OOP in Waves 1995 to 2000

Table 1 continued

Dentist Cost OOP	**2002**	**2004**	**2006**	**2008**
% non-response	11.20%	9.48%	8.77%	7.56%
% complete non-response	1.82%	1.81%	1.39%	1.39%
N	9470	11045	10121	9494
mean	804	881	951	1085
median	300	400	400	400
95th	3000	3000	3400	4000
99th	6000	6600	7368	10000
P10	50	60	75	80
P20	100	100	150	150
P30	200	200	200	200
P40	240	280	300	300
P50	300	400	400	400
P60	500	500	500	600
P70	700	800	800	1000
P80	1000	1200	1400	1500
P90	2000	2000	2300	2500
P100	44000	30000	40000	35000

*Dentist OOP was Included in Doctor Visits OOP in Waves 1995 to 2000

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Table 2. Total Annual OOP Spending in HRS and MCBS 1997-2008: Excluding and Including Current Nursing Home Residents, Ages 66+

	HRS Excludes Nursing Home Residents					HRS Includes Nursing Home Residents				
Year	2000	2002	2004	2006	2008	2000	2002	2004	2006	2008
Mean	1,194	1,800	2,280	1,667	1,477	1,535	2,204	2,669	2,085	1,940
p(10)	0	0	10	20	25	0	0	0	0	0
p(20)	100	125	170	176	180	82	108	144	144	150
p(30)	216	280	350	350	330	200	252	320	320	300
p(40)	360	465	555	545	500	350	437	527	520	485
p(50)	525	685	818	795	720	530	670	795	780	705
p(60)	751	1,010	1,200	1,145	990	776	1,008	1,200	1,130	990
p(70)	1,120	1,450	1,670	1,566	1,348	1,170	1,490	1,700	1,580	1,360
p(80)	1,648	2,310	2,480	2,260	1,950	1,750	2,400	2,550	2,363	2,048
p(90)	2,800	3,740	4,200	3,725	3,236	3,100	4,200	4,800	4,000	3,660
p(95)	4,200	6,000	6,600	5,520	5,000	4,860	7,300	8,375	6,500	6,440
p(99)	8,995	18,150	25,320	12,950	12,638	22,300	30,190	36,008	26,875	23,400
	MCBS Excludes Nursing Home Residents					MCBS Includes Nursing Home Residents				
Year	1999	2001	2003	2005	2006	1999	2001	2003	2005	2006
Mean	1,108	1,336	1,568	1,686	1,769	1,945	2,285	2,406	2,561	2,709
p(10)	67	88	117	126	149	70	94	121	130	152
p(20)	186	232	299	314	331	197	246	311	325	340
p(30)	310	386	478	486	516	326	410	505	510	538
p(40)	444	556	656	675	716	469	593	695	717	761
p(50)	604	756	870	916	959	659	816	935	983	1,023
p(60)	819	1,015	1,147	1,188	1,262	906	1,116	1,246	1,291	1,381
p(70)	1,112	1,343	1,518	1,543	1,668	1,257	1,521	1,685	1,712	1,853
p(80)	1,570	1,836	2,083	2,153	2,341	1,883	2,164	2,411	2,529	2,766
p(90)	2,498	2,844	3,211	3,491	3,932	3,509	4,155	4,276	4,636	5,257
p(95)	3,649	4,313	4,662	5,193	5,855	6,635	7,725	7,866	8,892	9,343
p(99)	7,553	8,520	10,973	12,954	12,148	29,830	34,042	34,959	33,474	39,086

Notes: Non-drug OOP spending in HRS is divided by 2 and OOP drug spending is multiplied by 12 for approximate annual amounts.

Table 3. Total Annual OOP Spending in HRS, MCBS, MEPS 1999-2008, Excluding Current Nursing Home Residents, Ages 66+

Year	2000	2002	2004	2006	2008
Mean	1,194	1,800	2,280	1,667	1,477
p(20)	100	125	170	176	180
p(50)	525	685	818	795	720
p(80)	1,648	2,310	2,480	2,260	1,950
p(95)	4,200	6,000	6,600	5,520	5,000
p(99)	8,995	18,150	25,320	12,950	12,638
	MCBS				
Year	1999	2001	2003	2005	2006
Mean	1,108	1,336	1,568	1,686	1,769
p(20)	186	232	299	314	331
p(50)	604	756	870	916	959
p(80)	1,570	1,836	2,083	2,153	2,341
p(95)	3,649	4,313	4,662	5,193	5,855
p(99)	7,553	8,520	10,973	12,954	12,148
	MEPS				
Year	1999	2001	2003	2005	2007
Mean	1,013	1,251	1,534	1,550	1,254
p(20)	132	175	254	238	175
p(50)	551	674	845	860	689
p(80)	1,470	1,808	2,165	2,357	1,769
p(95)	3,442	4,025	5,012	5,162	4,240
p(99)	6,829	7,696	9,315	10,866	10,230

Notes: Non-drug OOP spending in HRS is divided by 2 and OOP drug spending is multiplied by 12 for approximate annual amounts.

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Table 4. Annual OOP DRUG Spending in HRS and MCBS, Excludes Current Nursing Home Residents, Ages 66+

HRS	1998	2000	2002	2004	2006	2008
Mean	625	734	1,148	1,588	552	718
p(10)	0	0	0	0	0	0
p(20)	0	0	0	0	0	0
p(30)	0	36	84	120	0	96
p(40)	84	120	216	240	0	240
p(50)	180	240	360	420	120	360
p(60)	300	360	540	600	288	480
p(70)	480	600	840	1,020	480	600
p(80)	840	1,080	1,200	1,500	720	960
p(90)	1,464	1,800	2,400	3,000	1,440	1,680
p(95)	2,400	3,000	3,744	4,800	2,400	2,400
p(99)	6,000	6,000	12,000	18,000	6,000	6,000
MCBS	1997	1999	2001	2003	2005	2006
Mean	343	406	501	555	580	559
p(10)	0	0	1	8	13	26
p(20)	19	36	52	75	85	99
p(30)	59	86	117	154	166	174
p(40)	107	147	188	241	258	256
p(50)	166	218	283	343	366	355
p(60)	245	311	403	461	486	476
p(70)	356	440	559	624	651	630
p(80)	538	645	799	865	902	859
p(90)	865	1,045	1,238	1,339	1,378	1,264
p(95)	1,250	1,481	1,739	1,852	1,922	1,792
p(99)	2,429	2,605	3,083	3,268	3,403	3,497

Notes: MCBS OOP spending is reported as a one-year amount. HRS OOP spending on prescription medication is average over one month and is multiplied by 12 for approximate annual value reported in table.

Table 5: Annual OOP Spending on Nursing Home HRS and MCBS, Includes current nursing home residents, Ages 66+

	HRS			
	2002	2004	2006	2008
Mean	433	462	465	475
p(90)	0	0	0	0
p(95)	0	0	0	0
p(99)	14,400	18,000	17,000	17,000
	MCBS			
	2001	2003	2005	2006
Mean	952	844	884	954
p(90)	0	0	0	0
p(95)	3,203	1,046	760	252
p(99)	31,387	28,985	29,771	33,647

Notes: MCBS OOP spending is a one-year amount.
OOP in HRS is reported over 2-years if first time reporting or since the last wave (approximately 2 years).
Nursing Home OOP spending in HRS is divided by 2.

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Table 6. Annual OOP Spending on NON-DRUG and NON-Nursing Home Spending, Excludes current nursing home residents, Ages 66+

HRS	1998	2000	2002	2004	2006	2008
Mean	440	461	608	658	1,068	720
p(10)	0	0	0	0	0	0
p(20)	0	0	0	0	10	0
p(30)	24	25	20	33	75	50
p(40)	75	70	65	90	150	105
p(50)	105	115	125	150	275	200
p(60)	200	200	205	250	495	300
p(70)	300	300	350	400	825	500
p(80)	500	500	600	700	1,445	875
p(90)	1,000	1,000	1,300	1,400	2,700	1,650
p(95)	1,750	1,750	2,500	2,462	4,350	2,980
p(99)	5,000	5,000	8,550	7,500	10,486	8,300
MCBS	1997	1999	2001	2003	2005	2006
Mean	632	702	835	1,013	1,106	1,210
p(10)	1	1	5	10	6	10
p(20)	40	37	53	66	69	75
p(30)	93	90	118	135	142	163
p(40)	154	155	189	218	228	261
p(50)	229	237	286	336	342	391
p(60)	328	355	426	483	494	578
p(70)	487	526	626	731	742	875
p(80)	800	860	1,035	1,170	1,170	1,444
p(90)	1,483	1,659	1,862	2,180	2,382	3,002
p(95)	2,344	2,835	3,166	3,608	4,167	4,827
p(99)	5,784	6,518	7,670	9,773	12,300	11,430

Notes: MCBS OOP spending is a one-year amount. OOP in HRS is reported over 2-years if first time reporting or since the last wave (approximately 2 years). Annual values reported in table. Non-drug Non-nursing home OOP spending in HRS is divided by 2 for an approximate annual amount.

Table 7. Distribution of Total Medical Expenditures Year 1996 in HRS, MCBS, MEPS, Excludes Nursing Home Residents, Age 65 only

Distribution	HRS	MCBS	MEPS
Mean	7,778	2,631	3,635
p(10)	100	12	66
p(20)	250	94	467
p(30)	500	263	717
p(40)	750	430	1,075
p(50)	1,000	727	1,320
p(60)	1,600	1,161	1,793
p(70)	3,000	1,833	3,558
p(80)	6,000	3,188	4,530
p(90)	15,000	6,933	7,671
p(95)	30,000	13,231	12,658
p(99)	60,000	27,859	50,368

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Table 8. Total Medical Expenditures Years 1998, 2000, 2002 in HRS, MCBS, MEPS, Excludes Nursing Home Residents
Percent distribution

	1998			2000			2002		
Bracket	HRS	MCBS	MEPS	HRS	MCBS	MEPS	HRS	MCBS	MEPS
0-1000	26.72	22.79	31.8	23.24	17.51	29.45	17.88	13.78	20.07
1001-5000	33.48	44.99	41.25	33.11	44.62	44.06	27.79	42.36	43.09
5001-25000	24.20	26.30	21.71	25.07	30.98	22.01	28.12	34.77	30.48
25001-100000	8.63	5.69	5.01	10.12	6.62	4.36	13.28	8.72	6.14
100001+	1.45	0.23	0.24	1.69	0.26	0.11	4.00	0.38	0.23
missing	5.52			6.77			8.93		

*missing indicates HRS respondent did not enter a complete bracket with upper and lower bound.