



# Research Findings #27

## Health Care Expenditures for Uncomplicated Pregnancies



## ABSTRACT

This report uses data pooled from three panels (2001-02, 2002-03, 2003-04) of the Household Component of the Medical Expenditure Panel Survey (MEPS-HC) to estimate medical expenditures (in 2004 dollars) associated with an uncomplicated pregnancy and in-hospital delivery. Medical expenditures are defined in MEPS as payments to hospitals, physicians, pharmacies, and other health care providers, and include direct payments by individuals, private and public insurance plans, and other miscellaneous payment sources for services received. The report presents selected person-level estimates of average expenditures and sources of payment for 1) prenatal care, 2) inpatient hospital delivery, and 3) the combination of the two. In addition, selected estimates of prenatal care expenses are broken into three types: office-based doctor visits, prescription medicines, and everything else combined. Estimates are shown for all women, as well as for two subgroups defined by insurance status: those who had private insurance in the month of delivery and in the eight months prior, and those who had Medicaid in the month of delivery and in the eight months prior.

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The estimates in this report are based on the most recent data available at the time the report was written. However, selected elements of MEPS data may be revised on the basis of additional analyses, which could result in slightly different estimates from those shown here. Please check the MEPS Web site for the most current file releases.

Center for Financing, Access, and Cost Trends  
Agency for Healthcare Research and Quality  
540 Gaither Road  
Rockville, MD 20850  
<http://www.meps.ahrq.gov/>

## **The Medical Expenditure Panel Survey (MEPS)**

### **Background**

The Medical Expenditure Panel Survey (MEPS) provides nationally representative estimates of health care use, expenditures, sources of payment, and health insurance coverage for the U.S. civilian noninstitutionalized population. MEPS is co-sponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS), and has been conducted annually since 1996. The predecessor surveys to MEPS were the 1977 National Medical Care Expenditure Survey (NMCES, also known as NMES-1) and the 1987 National Medical Expenditure Survey (NMES-2).

MEPS is a family of three surveys. The Household Component (HC) is the core survey and also forms the basis for the Medical Provider Component (MPC). Together these two surveys yield comprehensive data that provide national estimates of the level and distribution of health care use and expenditures, support health services research, and can be used to assess health care policy implications. The third survey, the Insurance Component (IC), is a survey of private and public sector employers that provides national- and state-level estimates of employer-sponsored health insurance coverage and cost.

### **Household Component**

The MEPS-HC, a nationally representative survey of the U.S. civilian noninstitutionalized population, collects medical expenditure data at both the person and household levels. Using computer-assisted personal interviewing (CAPI) technology, the HC collects detailed data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, satisfaction with care, health insurance coverage, income, and employment.

The HC is based on an overlapping panel design in which data covering a two-year period are collected through a preliminary contact followed by a series of five rounds of interviews over a two-and-a-half-year period. Data on medical expenditures and use for two calendar years are collected from each household. This series of data collection rounds is launched each year on a new sample panel of households, and annual data are developed by combining data from the first year of the new panel with that from the second year of the previous panel.

Each year's sample for the MEPS-HC is drawn from respondents to the previous year's National Health Interview Survey (NHIS). The NHIS provides a nationally representative sample of the U.S. civilian noninstitutionalized population, with an over-sampling of Hispanics and blacks that carries over to the MEPS sample. In addition, the MEPS sample design over-samples Asians and persons in low income families.

### **Medical Provider Component**

The MEPS-MPC collects data from providers that are primarily used to supplement and/or replace information on medical care expenditures reported in the MEPS-HC. The survey contacts medical providers and pharmacies identified by household respondents and for which signed Health Insurance Portability and Accountability Act of 1996

(HIPAA) compliant permission forms have been obtained from family members who received services from the medical providers and pharmacies.

The MPC sample includes all hospitals, emergency rooms, home health agencies, outpatient departments, and pharmacies reported by HC respondents as well as all physicians who provide services for patients in hospitals but bill separately from the hospital. Office-based medical providers for which the provider is either a doctor of medicine (MD) or Osteopathy (DO), or practices under the direct supervision of an MD or DO, are included in the MPC as well.

Data are collected on medical and financial characteristics of medical and pharmacy events reported by HC respondents. These data include dates of visit, diagnosis and procedure codes, charges, and payments. These data allow records to be matched with household events to facilitate expenditure imputation. The MPC was not designed as a stand-alone survey to generate national estimates. The MPC data are collected from sampled providers through an initial screening telephone contact to verify provider eligibility, a mailed or faxed questionnaire, and a phone call to collect the data. Many providers prefer to send electronic, fax, or hard copies of records from which the necessary information can be abstracted. To supplement abstraction, telephone calls are placed to providers to clarify items, obtain critical information that may be missing, and follow up on nonresponse.

## **Insurance Component**

The MEPS-IC collects data on health insurance plans obtained through private and public sector employers. Data obtained in the IC include the number and types of private insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, eligibility requirements, and employer characteristics.

Establishments participating in the MEPS-IC are selected through two sampling frames:

- A U.S. Census Bureau list frame of private sector business establishments.
- The Census of Governments from the U.S. Census Bureau.

Data from these two Census Bureau sampling frames are used to produce annual national and state estimates of the supply and cost of private health insurance available to American workers and to evaluate policy issues pertaining to health insurance. National estimates of employer contributions to group insurance from the MEPS-IC are used in the computation of Gross Domestic Product (GDP) by the Bureau of Economic Analysis.

The MEPS-IC is an annual survey. Data are collected from the selected organizations through a prescreening telephone interview, a mailed questionnaire, and a telephone follow-up for nonrespondents.

## **Survey Management**

MEPS-HC data are collected under the authority of the Public Health Act. Data are collected under contract with Westat, Inc. Data sets and summary statistics are edited and published in accordance with the confidentiality provisions of this Act and the Privacy Act. NCHS provides consultation and technical assistance.

MEPS-IC data are collected under the authority of the Public Health Service Act and under the authority provided in Title 13, United States Code (U.S.C.). The data are collected under an interagency agreement with the U.S. Census Bureau. Data sets and summary statistics are edited and published in accordance with the confidentiality provisions of this Act, Title 13 U.S.C., and the Privacy Act.

As soon as data collection and editing are completed, the MEPS survey data are released to the public in staged releases of summary reports, microdata files, and tables via the MEPS Web site: [www.meps.ahrq.gov](http://www.meps.ahrq.gov). (MEPS-IC microdata files are confidential and are only accessible for approved research projects at the Census Bureau's Research Data Centers.) Selected data can be analyzed through MEPSnet, an online interactive tool designed to give data users the capability to statistically analyze MEPS data in a menu-driven environment. Additional information on MEPS is available from the MEPS project manager or the MEPS public use data manager at the Center for Financing Access and Cost Trends, Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850 (301) 427-1406.

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## Health Care Expenditures for Uncomplicated Pregnancies

Steven R. Machlin and Frederick Rohde, Agency for Healthcare Research and Quality

### Introduction

Although there have been more than 4 million births each year in the United States since 2000,<sup>1</sup> there is little information in the literature regarding the average medical expenditures generated over the course of a pregnancy. This analysis uses data pooled from three panels of the Household Component of the Medical Expenditure Panel Survey (MEPS-HC) to estimate medical expenditures (in 2004 dollars) associated with an uncomplicated pregnancy and in-hospital delivery. Medical expenditures are defined in MEPS as payments to hospitals, physicians, pharmacies, and other health care providers, and include direct payments by individuals, private and public insurance plans, and other miscellaneous payment sources for services received.

This report presents selected person-level estimates of average expenditures and sources of payment for 1) prenatal care, 2) inpatient hospital delivery, and 3) the combination of the two. In addition, selected estimates of prenatal care expenses are broken into three types: those for office-based doctor visits, those for prescription medicines, and those for everything else combined. Estimates are shown for all women, as well as for two subgroups defined by insurance status: those who had private insurance in the month of delivery and in the eight months prior, and those who had Medicaid in the month of delivery and in the eight months prior.

### Methods

MEPS-HC collects data from a nationally representative sample of households through an overlapping panel design. A new panel of sample households is selected each year, and data for each panel are collected for two calendar years.<sup>2</sup> Due to the very small sample size of women in a panel who are in the survey for the course of a full-term pregnancy, we pooled data across three panels (2001-02, 2002-03, and 2003-04) for the analysis. Women from these panels who met each of the following three criteria were included: 1) had an inpatient event where the reported reason for the hospitalization was “to give birth,” 2) the Clinical Classification Code (CCS)<sup>3</sup> for the event was 196 (“normal pregnancy and delivery”), and 3) were in the survey for at least 38 consecutive weeks (period of a full-term pregnancy) prior to the date of delivery. This definition necessarily excluded all non-inpatient deliveries as well as all inpatient deliveries with complications; e.g., hypertension or diabetes complicating childbirth; early labor or prolonged delivery; and malpositioned, obstructed, or forceps deliveries. Deliveries by Caesarean section are included in the analysis unless they had been coded as a complication of birth (CCS code of 195).

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<sup>1</sup> National Center for Health Statistics. Health United States, 2006. Hyattsville, Md.: 2006.

<sup>2</sup> See [http://www.meps.ahrq.gov/mepsweb/survey\\_comp/hc\\_data\\_collection.jsp](http://www.meps.ahrq.gov/mepsweb/survey_comp/hc_data_collection.jsp).

<sup>3</sup> The CCS was developed by AHRQ to collapse the 13,000 individual ICD-9 condition and 3,700 individual ICD-9 procedure codes into smaller sets of clinically meaningful categories. For more information, go to <http://www.hcup-us.ahrq.gov/toolsoftware/ccs/ccs.jsp>.

The delivery expenditures are those associated with the woman's inpatient event and include payments both to the facility and to any separately billing doctors. Prenatal care expenditures were obtained by compiling the medical events from other event types (office-based, prescription medicines, hospital outpatient, hospital inpatient [excluding the delivery event], home health, and other medical) that linked to a normal pregnancy and delivery condition on the inpatient event record for the delivery. This method insured, for instance, that expenditures for any prescription drugs related to the pregnancy (e.g., prenatal vitamins) were included while expenditures for other drugs that were taken to treat a separate condition (e.g., a diuretic to treat an existing hypertension condition) were not included. The expenditures for events that linked to both the normal pregnancy and delivery condition and some other condition were considered pregnancy related and included.

Using detailed information collected in MEPS about the type of insurance carried by each sample person in any month of the year, each woman's insurance status was classified according to the type of insurance she carried in the month of delivery and in the eight months prior to the delivery event. If she had private insurance or Armed Forces–related coverage (TRICARE) the entire period, then she was classified as privately insured. If she was covered by Medicaid the entire period, then she was classified as having Medicaid coverage.

MEPS longitudinal panel weights are designed for estimates across a consecutive two-year period and were used to develop all estimates in this report.<sup>4</sup> Expenditures for events that occurred prior to 2004 were adjusted to 2004 dollars using the Producer Price Index (PPI) and the Consumer Price Index (CPI).<sup>5</sup> All differences discussed in the text are statistically significant at the .05 level.

## Highlights

- The average total expenditure for prenatal care services during pregnancy and an inpatient hospital delivery combined was about \$7,600 (in 2004 dollars). Expenses for prenatal care (office visits, prescribed medicines, and other services) were substantially smaller than for the hospital delivery.
- While average expenses for prenatal care were similar for privately insured women and women on Medicaid, average expenses for hospital delivery were about \$2,000 more for privately insured women.
- On average, women who were privately insured paid substantially higher proportions of prenatal care expenses and delivery expenses out of pocket than women on Medicaid.

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<sup>4</sup> The unweighted sample sizes for this analysis are 774 women overall, 341 privately insured women, and 164 women on Medicaid. A small number of pregnancies were excluded from the analysis because survey data were not complete on date of admission for the hospital delivery or it was the first of two pregnancies for a woman during the survey period.

<sup>5</sup> All hospital-related expenditures (from inpatient, outpatient, or emergency room visits) were adjusted to 2004 dollars using the PPI; all other expenditures (office-based, home health, prescribed medicines, or other medical visits) were adjusted to 2004 dollars using the CPI. Go to <http://www.bls.gov/ppi> for more information about the PPI and <http://www.bls.gov/cpi> for more information about the CPI.

- Over 90 percent of women had expenses for office-based visits during pregnancy. However, mean total expenses for office visits were on average about \$500 higher for privately insured women than for women on Medicaid.

## Findings

Table 1 shows selected characteristics of women with a normal pregnancy that both began and concluded (with a normal hospital delivery) within a two-year interval spanning January 1 through December 31 of the subsequent year (across three periods pooled for this analysis: 2001-02, 2002-03, and 2003-04). Over half of the women (53 percent) were age 25–34, about two-thirds were married, and about two-thirds were neither Hispanic nor black non-Hispanic (i.e., mainly white non-Hispanic). Compared to privately insured women, those on Medicaid were more likely to be under 25 years of age (53 percent versus 16 percent), not married (72 percent versus 13 percent), and have family income below the Federal poverty line (66 percent versus 6 percent).

Table 2 shows the conditional<sup>6</sup> average (mean and median) expenditures in 2004 dollars for a normal pregnancy and delivery. The conditional mean amount for a normal pregnancy (prenatal care and delivery) was \$7,564. Mean expenses for the delivery (\$5,850) were just over three-quarters of the mean for the combined total. On average, delivery expenses were almost \$2,000 more for privately insured women than for women on Medicaid (\$6,520 versus \$4,577), but the means were similar for prenatal care expenses (about \$2,000).

Table 3 shows the mean of the person-level percent of the expenditures paid by the various sources. On average across all women, private insurance paid for 52 percent and Medicaid paid for 34 percent of total expenses for prenatal care and delivery. The remaining portions were paid out of pocket (6 percent on average) and by miscellaneous other sources<sup>7</sup> (8 percent on average). Among women who were privately insured, private insurance paid an average of 88 percent of the delivery and 80 percent of the prenatal care expenses, while an average of 7 percent of the delivery expenses and 16 percent of the prenatal care expenses were paid out of pocket. Among women who were on Medicaid, Medicaid paid for an average of 92 percent of total expenses for prenatal care and delivery (the difference in proportions paid by Medicaid for delivery versus prenatal care was not statistically significant). Women on Medicaid paid an average of 4 percent of prenatal care expenses and less than 1 percent of delivery expenses out of pocket.

Table 4 shows the conditional average expenditures for prenatal care, broken down into those for office-based visits, those for prescription medicines, and those for all other categories of expenses. About 9 of every 10 women had expenses for office-based visits regardless of type of insurance coverage. However, conditional mean expenses for office visits were an average of \$547 higher for privately insured women than for women on Medicaid (\$1,474 versus \$927). Only 22 percent of women had some prescription drug

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<sup>6</sup> The conditional average expenditure is the average expenditure among just the women with an expense. Less than 1 percent of women had no expenses for the hospital delivery (i.e., nothing was paid to the hospital).

<sup>7</sup> Includes sources such as community and neighborhood clinics, State and local health departments, State programs other than Medicaid, and Federal sources such as the Indian Health Service and military treatment facilities.

expenses associated with their pregnancy. The large difference between the conditional mean (\$1,784) and median (\$640) values for these expenses indicate that a small proportion of women had extremely large expenses.<sup>8</sup> About three-quarters of the drug expenditures were for prescription nutritional products (such as prenatal vitamins), about 10 percent was for analgesics, and the remaining expenditures were spread out among the various therapeutic categories (estimates not shown in tables). About two-thirds of the women (67 percent) had other types of expenditures during pregnancy, but the level of these expenses was small (overall conditional mean of \$224) compared to that for office visits and prescribed medicines. As with prescribed medicine expenditures, the large difference between the mean and median value (\$224 and \$59, respectively) for other expenses indicates that a small proportion of cases had relatively high expenditures. Medians for the other expenditure category were not significantly different for privately insured women (\$66) versus women on Medicaid (\$75).

### **Data Source**

The estimates in this analysis are based on data obtained from all MEPS annual full-year consolidated person-level and annual event-level files for 2001-2004. These files are available at [http://www.meps.ahrq.gov/mepsweb/data\\_stats/download\\_data\\_files.jsp](http://www.meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp).

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<sup>8</sup> The average amount spent for prescribed medicines is not shown in the table for the privately insured and Medicaid subgroups due to small sample sizes and large standard errors.

**Table 1. Selected characteristics of women with uncomplicated pregnancies, by insurance status**

Population subgroup	All women <sup>a</sup>		Privately insured		Medicaid	
	Percent	SE <sup>b</sup>	Percent	SE <sup>b</sup>	Percent	SE <sup>b</sup>
<b>Overall</b>						
Overall	100.0	0.0	100.0	0.0	100.0	0.0
<b>Age category</b>						
<25	32.7	1.8	16.1	2.0	52.9	4.8
25-34	53.3	1.9	64.6	2.5	41.9	4.7
35+	14.0	1.5	19.3	2.2	5.3	1.6
<b>Race/ethnicity</b>						
Hispanic	18.8	1.6	10.6	1.7	20.0	3.2
Black non-Hispanic	12.9	1.3	6.7	1.4	24.5	3.6
Other non-Hispanic	68.3	2.0	82.7	2.1	55.5	5.1
<b>Marital status</b>						
Married	67.4	1.9	86.7	1.9	28.3	4.9
Not married	32.6	1.9	13.3	1.9	71.8	4.9
<b>Poverty level category<sup>c</sup></b>						
Below Federal poverty line	26.9	1.8	5.7	1.1	65.6	4.6
At or above Federal poverty line	73.1	1.8	94.3	1.1	34.4	4.6

<sup>a</sup>Includes women who were insured for some but not all months of the pregnancy and those with coverage types other than private insurance or Medicaid (in addition to women covered by private insurance or Medicaid throughout their pregnancy).

<sup>b</sup>Standard error

<sup>c</sup>Poverty status is based on the ratio of the family's income to the Federal poverty thresholds, which control for the size of the family and the age of the head of the family (see the 2004 U.S. Department of Health and Human Services Poverty Guidelines at <http://aspe.hhs.gov/poverty/04poverty.shtml> for more details).

**Table 2. Conditional average expenditures (2004 dollars) per woman, by insurance status throughout pregnancy**

	Prenatal care and delivery (combined)		Prenatal care		Delivery	
	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>
<b>All women</b>						
Percent with an expense			92.9	1.1		
Conditional mean (dollars)	7,564	191.2	1,852	94.2	5,850	157.9
Conditional median (dollars)	6,542	205.2	1,159	53.7	5,027	154.9
<b>Privately insured</b>						
Percent with expense			93.9	1.5		
Conditional mean (dollars)	8,366	278.0	1,962	119.4	6,520	235.7
Conditional median (dollars)	7,625	244.3	1,315	121.3	5,872	256.0
<b>Medicaid</b>						
Percent with expense			91.6	2.1		
Conditional mean (dollars)	6,540	484.1	2,142	391.8	4,577	282.6
Conditional median (dollars)	5,242	323.8	963	125.2	3,928	244.3

<sup>a</sup>Standard error

-- Over 99 percent of women had expenses for the hospital delivery (i.e., nothing was paid to the hospital for less than 1 percent of deliveries).

**Table 3. Mean percentage of expenditures per woman paid by various sources, by insurance status throughout pregnancy**

	Prenatal care and delivery (combined)		Prenatal care		Delivery	
	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>
<b>All women</b>						
% paid by private insurance	52.2	2.1	49.0	2.1	52.9	2.1
% paid by Medicaid	33.8	2.1	30.4	2.0	34.9	2.1
% paid out of pocket	6.3	0.4	13.3	1.0	4.9	0.5
% paid by other sources	7.6	0.9	7.3	1.0	7.2	1.0
<b>Privately insured</b>						
% paid by private insurance	87.0	1.3	80.1	1.6	88.1	1.3
% paid out of pocket	7.9	0.7	15.7	1.3	6.6	0.7
% paid by other sources	5.2	1.1	4.2	1.0	5.3	1.2
<b>Medicaid</b>						
% paid by Medicaid	91.5	2.1	87.3	2.8	93.1	2.1
% paid out of pocket	0.8*	0.3	4.2*	1.7	0.4*	0.3
% paid by other sources	7.8	2.1	8.6	2.3	6.5*	2.0

<sup>a</sup> Standard error

\*Relative standard error > 30 percent

**Table 4. Average expenditures (2004 dollars) per woman for pregnancy-related office-based visits, prescription medicines, and other expenses, by insurance status throughout pregnancy**

	Office-based visits		Prescription medicines		Other expenses	
	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>	Estimate	SE <sup>a</sup>
<b>All women</b>						
Percent with expense <sup>b</sup>	91.9	1.2	22.0	1.8	67.3	1.9
Conditional mean (dollars)	1,281	56.2	1,784	281.8	224	35.8
Conditional median (dollars)	907	43.5	640	72.8	59	4.2
<b>Privately insured</b>						
Percent with expense <sup>b</sup>	92.5	1.6	23.2	2.6	70.6	2.5
Conditional mean (dollars)	1,474	86.8	*	*	186	40.2
Conditional median (dollars)	1,080	71.7	*	*	66	5.4
<b>Medicaid</b>						
Percent with expense <sup>b</sup>	90.1	2.6	20.0	3.7	61.6	4.6
Conditional mean (dollars)	927	67.5	*	*	585**	182.5
Conditional median (dollars)	660	92.4	*	*	75	14.8

<sup>a</sup>Standard error

<sup>b</sup>Women without expenses include those with no service as well as those who received services for which no payments were made by any source.

\*Estimates not shown due to small sample size.

\*\* Relative standard error > 30 percent