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Prevalence, Health Care Spending and Comorbidities Associated with Chronic Migraine Patients

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About The Author

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Chronic migraine commonly characterized by headaches that occur on 15 or more days a month for at least three months is a disabling disease. Studies have shown that chronic migraine patients have impaired socioeconomic status, reduced quality of life and reduced workplace productivity.[i] Chronic migraine patients commonly have other comorbid conditions that complicate their medical treatment.

This paper extends this current body of research in several directions:

- First, we provide more recent prevalence estimates of chronic migraine.
- Second, we examine the medical treatment costs by source of care and the prevalence of the use of different sources of care.
- Third, we examine the prevalence of comorbid conditions and their financial treatment and workplace productivity implications.
- Finally, we examine the impact that chronic migraine has on the treatment costs of patients with both chronic migraine and other comorbid conditions.

Results

Basic Characteristics

Table 1 presents an estimate of the 2013 prevalence of chronic migraine. These most recent data estimate the prevalence of chronic migraine at 1.8 percent—some 4.2 million adults 18 and older. Chronic migraine patients have distinct geographic and personal characteristics. More than a third of migraine patients live in the south with over 82 percent residing in an urban area. One of the most notable characteristics is that 85 percent of chronic migraine patients are women. Overall, over 80 percent of chronic migraine patients are non-Hispanic whites, and primarily non-Hispanic women.

Most migraine patients have health insurance. Over 70 percent of chronic migraine patients have private health insurance while only 6 percent are uninsured. Approximately 10 percent were covered by Medicare and 8 percent through Medicaid. Most also are covered for prescription drugs (71 percent). Over 30 percent of chronic migraine patients were not employed at the time of treatment, while another 45 percent worked full time throughout the year.

Table 1. Prevalence of Chronic Migraine Adults Age 18+

	PREVALENCE	NUMBER
	1.8%	4.2 M
Northeast	16.7%	697,532
Midwest	26.1%	1,088,723
South	34.6%	1,445,125
West	22.5%	940,366
Not In Msa	17.5%	730,055
MSA	82.5%	3,441,691
Married	55.3%	2,874,620
<=HS Grad	8.1%	367,143
High School Grad	23.5%	980,061
Some College	31.0%	1,291,104
College Grad	36.7%	1,530,030
Female	85.1%	3,550,145
18-44 years old	51.0%	2,130,148
45-64	41.5%	1,729,841
65+	7.5%	312,817
NH White	80.7%	3,366,476
NH Black	8.0%	335,144
NH Other	3.1%	130,255
Hispanic	8.2%	340,931
Other Insurance	5.3%	219,355
Medicaid	8.4%	350,433
Medicare	9.7%	403,611
Private	70.7%	2,949,127
Uninsured	6.0%	250,280

	PREVALENCE	NUMBER
<100% FPL	12.6%	526,196
100-199% FPL	16.1%	671,196
200-299% FPL	16.6%	691,867
300-399% FPL	12.9%	537,285
≥ 400% FPL	41.9%	1,746,262
Non-Worker	31.4%	1,309,926
Part-time, part year	4.8%	199,416
Full-time, part year	6.7%	277,739
Part-time, full year	12.2%	510,527
Full-time, full year	44.9%	1,875,199
Prescription Drug Coverage	71.3%	2,976,363
ER Visit for Migraine	7.9%	330,799
IP Visit for Migraine	0.9%	35,520
adl help	4.3%	179,240
iadl help	8.3%	346,125
Activity Limitation	21.3%	889,604
Any Limitation	37.6%	1,557,108
	MEAN	
Age	44.2	
famszeyr	2.8	

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Table 2 outlines the most common medications used to treat chronic migraine patients. Overall, opioids accounted for 9 percent of total medications prescribed. Our analysis found that several hundred medications were linked to the treatment of migraine with no single prescription accounting for as much of three percent of the medications prescribed. The two most popular medications were topiramate and hydrocodone.

Table 2. Opioid and Non-Opioid Medications Used to Treat Chronic Migraine Patients

NON-OPIOIDS

MEDICATION NAME	FREQ.	PERCENT
TOPIRAMATE	1,777	2.65
SUMATRIPTAN	1,213	1.81
CLONAZEPAM	893	1.33
SIMVASTATIN	883	1.32
LEVOTHYROXIN	870	1.3
LISINOPRIL	875	1.3
OMEPRAZOLE	834	1.24
IBUPROFEN	794	1.18
GABAPENTIN	731	1.09
AMITRIPTYLIN	719	1.07
CYMBALTA	702	1.05
METFORMIN	651	0.97
CYCLOBENZAPR	615	0.92
CITALOPRAM	609	0.91
ATENOLOL	574	0.86
TOPAMAX	529	0.79
ALPRAZOLAM	519	0.77
PROPRANOLOL	507	0.76
NEXIUM	493	0.73
LORAZEPAM	442	0.66
PREDNISONE	443	0.66
LYRICA	437	0.65
FLUOXETINE	414	0.62
FUROSEMIDE	416	0.62
HYDROCHLOROT	415	0.62
TRAZODONE	414	0.62

MEDICATION NAME	FREQ.	PERCENT
MAXALT	403	0.6
SERTRALINE	405	0.6
LEXAPRO	375	0.56
RELPAX	369	0.55
SINGULAIR	372	0.55
AZITHROMYCIN	364	0.54
ZOLPIDEM	359	0.54
ESTRADIOL	351	0.52
NAPROXEN	349	0.52
PROAIR HFA	325	0.48
AMLODIPINE	305	0.45
SYNTHROID	297	0.44
VENLAFAXINE	296	0.44
VITAMIN D	295	0.44
ALBUTEROL	280	0.42
AMOXICILLIN	273	0.41
PROMETHAZINE	**275**	0.41
RANITIDINE	266	0.4
NORTRIPTYLIN	264	0.39
VERAPAMIL	262	0.39
DIAZEPAM	255	0.38
TIZANIDINE	253	0.38
Most common non-opioids		**36.90%**
All other non-opioids		**54.30%**

Table 2. *(con't)* Opioid and Non-Opioid Medications Used to Treat Chronic Migraine Patients

OPIOIDS

MEDICATION NAME	FREQ.	PERCENT
Hydrocodone, Hydrocodone comb.	1,413	2.08
Aceta-Opioid	1038	1.53
oxycodone, oxycotin, combos	830	1.23
Tramadol	809	1.18
Butalbital combos.	701	1.04
morphine	229	0.34
FENTANYL	181	0.27
PERCOCET	129	0.19
ENDOCET	91	0.14
VICODIN	83	0.12
Lortab	74	0.09
BUTORPHANOL	55	0.08
ULTRAM	38	0.06
PROMETH VC/ CODEINE	34	0.05
OPANA	25	0.03
NORCO	24	0.04
HYDROMORPHON	23	0.03
TYLENOL/COD #3	23	0.03
OXYMORPHONE	18	0.03
PHENERGAN	18	0.03
FIORINAL WITH CODEINE	14	0.02
ROXICET	14	0.02
FIORICET	13	0.02
HYDROMORPHONE HCL	12	0.02
ULTRAM ER	12	0.02
DURAGESIC	11	0.02
BUTORPHANOL TARTRATE	9	0.01
CODEINE/PROMETHAZINE	9	0.01
MEPERIDINE	8	0.01
MEPERIDINE HCL/ PROMETHAZINE HCL	8	0.01
ORAMORPH SR	8	0.01
RYZOLT	6	0.01
TYLENOL W/CODEINE #3	6	0.01
AVINZA	4	0.01
HOMATROPINE/ HYDROCODONE (CHERRY)	4	0.01
LORCET	4	0
PENTA/APAP	4	0.01
CODEINE PHOSPHATE-GUAIFENESIN	3	0
FIORINAL	3	0
GUAIFENESIN	3	0
CODEINE SULF	2	0
GG/CODEINE	2	0
HOMATROPINE METHYLBROMIDE-HYDROCODONE	2	0
HYDROMORPHONE HYDROCHLORIDE	**2**	0
ULTRACET	2	0
CODEINE	1	0
CODEINE PHOSPHATE-PROMETHAZINE HCL	1	0
GUANFACINE HYDROCHLORIDE	1	0
Total Opioids as percent of all medications		**8.81**

Comorbidities

A substantial number of chronic migraine patients also have other medical conditions **(Table 3)**. About 37 percent of chronic migraine patients had a mental disorder, including depression and anxiety disorders. Mood disorders—major depression and bipolar disorder—and anxiety disorders were the most common comorbid mental disorders. Nearly 27 percent of chronic migraine patients had a mood disorder. Moreover, over 19 percent of chronic migraine patients had an anxiety disorder (since patients have more than 1 mental disorder these prevalence numbers will not add up to 37 percent). Arthritis was the next most common comorbidity at nearly 28 percent. Heart related comorbidities were also common among chronic migraine patients. For instance, 24 percent had hypertension, another 18 percent had hyperlipidemia, and 9 percent had coronary heart disease.

Chronic migraine patients typically had multiple additional chronic comorbid conditions **(Table 4)**.

Nearly 88 percent of chronic migraine patients had at least one additional comorbid condition while 39 percent of chronic migraine patients had 4 or more comorbid conditions. As is discussed below, the costs and treatment of chronic migraine is more expensive and complicated for those with multiple chronic health care conditions.

Over 20 percent of chronic migraine patients are disabled **(Table 4)**. Disability is defined as limitations in activities of daily living (ADL), or instrumental activities of daily living (IADL). Also included in the definition were limitations in physical functioning, work, school, housework activities, or social or cognitive functions. The likelihood that patients are disabled increases sharply with the number of comorbid chronic conditions. This is particularly true among patients with 4 or more additional chronic health conditions. Among these chronic migraine patients, 42 percent were disabled.

Table 3. Prevalence of Comorbid Condition among Chronic Migraine Patients

CONDITION	PERCENT
Mental Disorders*	4.2 M
Depression and bipolar	697,532
Anxiety disorders	37.2
26.6	1,445,125
19.1	940,366
Arthritis	27.7
Pulmonary Disease	23.8
Hypertension	24.0
Endocrine Problems	20.6
Back Problems	19.6
Hyperlipidemia	18.4
Lupus	18.1
Upper Gastrointestinal	16.9
Asthma	11.2
Heart Diseases	9.1

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

- *Since patients may have multiple mental disorder diagnoses the individual diagnoses will not add to the overall mental disorder prevalence (which is just whether a patient is diagnosed with any mental disorder)*

Table 4. Percent with Disabilities *(Limitations in activities, physical functioning, social, or cognitive or blind/deaf)*

NUMBER OF CONDITIONS	DISABLED %	NOT DISABLED %
0	3.4%	96.6%
1	2.8%	97.2%
2	5.6%	94.4%
3	14.8%	85.2%
4+	42.2%	57.8%
Total	**20.5%**	**79.5%**

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Disability defined as persistent (must be limited all MEPS survey rounds) limitations in ADL, IADL, physical functioning, work, school, housework, activities, social or cognitive abilities. Deaf or blind included as well.

Impact on Health Care Spending

We estimate that the 4.2 million chronic migraine patients spend over $5.2 billion a year—$1,251 per patient—on treatment of chronic migraine **(Table 5)**. The costs of treating chronic migraine increases sharply with the number of comorbid chronic conditions. For example, among patients with no other comorbid conditions, costs of treating chronic migraine averaged $800 a year. However, chronic migraine treatment costs nearly doubled to $1554 a year. So there is substantial interactions in the costs of treating chronic migraine and the number of additional conditions the patients is under treatment for.

While we estimate that the medical costs of treating chronic migraine patients was $5.2 billion per year this may understate their overall treatment costs. Due to their comorbid conditions, chronic migraine patients account for over $41 billion a year in health care spending to treat chronic migraine and their additional comorbid conditions. Over two-thirds of this spending was concentrated among patients with chronic migraine and 4 or more additional comorbid conditions—$28 billion.

Table 5. Total and Chronic Migraine (CM) Specific Spending (Millions) Among CM Patients by Number of Comorbid Conditions, 2015$

NUMBER OF ADDITIONAL CONDITIONS	PERCENT OF CM PATIENTS	TOTAL SPENDING	TOTAL CM SPENDING	PER CAPITA TOTAL SPENDING	PER CAPITA CM SPENDING
0	11.8%	$1,008.2	$392.9	$2,056	$800
1	18.0%	$3,865.7	$820.4	$5,143	$1,091
2	16.5%	$4,010.7	$763.5	$5,831	$1,114
3	14.7%	$4,290.3	$709.4	$6,988	$1,156
4+	39.0%	$28,001.1	$2,530.7	$17,197	$1,554
Total	100%	$41,176.1	$5,217.0	$9,870	$1,251

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Managing chronic migraine requires good primary care and when appropriate medication treatment. This is reflected in the distribution of spending across different sites of health care. For example, prescription medications account for over half the costs of treating chronic migraine patients **(Table 7)**. The per capita costs among those receiving a prescription was $683 in 2015. While approximately 1 percent of patients were hospitalized during the year they accounted for 10 percent of total migraine treatment costs. The average cost per hospital stay among these patients was $15,616. Most of the care received by chronic migraine patients was provided in a physician's office, some 43 percent, accounting for 24 percent of total chronic migraine spending.

Disabled chronic migraine patients cost substantially more than non-disabled patients **(Table 6)** even when controlling for the number of additional chronic conditions. Overall, the cost of treating chronic migraine is 62 percent higher ($1796 vs $1110) among disabled compared to non-disabled patients.

Table 7. Distribution of Chronic Migraine Spending by Source of Care, 2013

	% OF TOTAL CM PATIENTS	% OF TOTAL CHRONIC MIGRAINE SPENDING	PER CAPITA CM SPENDING BY SOURCE OF CARE
Inpatient Hospital	0.8%	9.8%	$15,616
Outpatient	2.8%	3.2%	$1,440
Office-Based	43.2%	24.0%	$693
Emergency Room	7.5%	8.4%	$1,405
Prescription Drugs	100%	54.6%	$683
Total		**100%**	**$1,251**

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Table 6. Total Health Expenditures and Migraine Specific Expenditures for Adults (18+) with Chronic Migraine (Migraine with Rx)

NOT DISABLED

NUMBER OF CHRONIC CONDITIONS	HEALTH EXP TOTAL $	HEALTH EXP PER CAPITA $	MIGRAINE SPECIFIC EXP TOTAL $	MIGRAINE SPECIFIC EXP PER CAPITA $
None	968,506,795	2,041	377,873,933	797
1	3,702,008,998	5,069	772,738,117	1,058
2	3,232,387,240	4,976	639,659,086	985
3	3,396,028,358	6,495	557,272,994	1,066
4+	12,795,159,444	13,597	1,334,639,919	1,418
Overall	24,094,090,835	7,261	3,682,184,050	1,110

DISABLED

NUMBER OF CHRONIC CONDITIONS	HEALTH EXP TOTAL $	HEALTH EXP PER CAPITA $	MIGRAINE SPECIFIC EXP TOTAL $	MIGRAINE SPECIFIC EXP PER CAPITA $
None	39,705,055	2,377	15,030,237	900
1	163,707,584	7,661	47,616,817	2,228
2	778,316,026	20,358	123,888,939	3,240
3	894,299,277	9,819	152,165,994	1,671
4+	15,205,989,523	22,127	1,196,093,449	1,740
Overall	17,082,017,465	19,988	1,534,795,436	1,796

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Impact of Chronic Migraine on Other Chronic Conditions

The cost of treating chronic migraine is higher among patients with multiple chronic health conditions. Using a regression analysis, we also examined the impact that patients with chronic migraines had on the total costs of treating other chronic conditions. An example of one of the regression results for diabetes patients is highlighted in the Appendix. We examine the impact of chronic migraine on total annual treatment costs of patients with diabetes, mental disorders, arthritis, pulmonary disease, hypertension, endocrine disorders and heart disease. For each condition, treatment costs for these other conditions were higher among patients with chronic migraines. These incremental treatment costs were similar across conditions, ranging from a low of a 34 percent increase among patients with pulmonary disease to 46 percent higher costs among heart disease patients.

Table 8. Impact of Chronic Migraine Treatment on Total Spending Among Patients with a Chronic Health Care Condition

CONDITION	% INCREASE IN TOTAL SPENDING
Diabetes	37%
Mental Disorders	35%
Arthritis	35%
Pulmonary Disease	34%
Hypertension	39%
Endocrine Disorders	43%
Heart Disease	46%

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

Patient Characteristics and Chronic Migraine Health Care Spending

Finally, we examined the impact of a variety of patient characteristics and their impact on chronic health care spending using another regression analysis. Spending varied dramatically by race and ethnicity. Relative to white chronic migraine patients, Hispanic patients spent 32 percent less on treatment, African Americans spent 10 percent less and all remaining minorities nearly 60 percent less on treating chronic migraine.

Spending also varied by source of health insurance coverage. Chronic migraine Medicaid patients spent 40 percent less on treatment compared to privately insured patients. Uninsured patients spent 43 percent less on treatment compared to privately insured patients. Finally Medicare patients spent 42 percent more on chronic migraine treatment compared to those with private health insurance.

Medical spending on chronic migraine increased with income. Adults with income between 300 and 400 percent of poverty spent 54 percent more on chronic migraine treatment than those living in poverty. Adults in families with income over 4 times the federal poverty line spent 47 percent more on chronic migraine treatment than those living in poverty.

Finally, the costs of treating chronic migraines were impacted by other chronic comorbid conditions. For instance, patients with 4 or more chronic conditions spent 46 percent more on chronic migraine treatment compared to patients with 0 or 1 additional chronic condition.

Table 9. Patient Characteristics and Impact on Chronic Migraine Spending

CHARACTERISTIC	% IMPACT ON CHRONIC MIGRAINE SPENDING
Relative to Non-Hispanic White	
Black	-9.9%
Hispanic	-32%*
All Other	-58%*
Relative to Privately Insured	
Medicaid	-40%*
Medicare	42%*
Uninsured	-43%*
Relative to Those Living in Poverty	
100 – 199%	6
200 – 299%	32
300 – 399%	54*
400%+	47*
Relative to Those with 1 Comorbid Condition	
2	8%
3	11%
4+	46%*

Source: *Tabulations from the 2008-2013 Medical Expenditure Panel Survey*

**significantly different from zero p<=.05*

Conclusions and Future Research

This paper has expanded on previous research examining issues around the prevalence, costs and characteristics of chronic migraine patients. In particular:

- **We find substantial interactions between chronic migraines and the costs of treating other chronic health conditions.** Moreover, the costs of treating chronic migraine patients rises substantially when they have one or more additional chronic health care conditions.
- **These interactions increase the financial role that chronic migraine assumes in our health care system**. We estimate that the medical costs of treating chronic migraine exceeded $5.4 billion in 2015. However, these patients collectively spent over $40 billion on treating their entire range of conditions including chronic migraines.
- **Nearly 90 percent of chronic migraine patients have at least one additional chronic comorbid condition.** This raises the issues of how best to treat they entire range of conditions using a team based care approach.
- **Effective management of other chronic conditions is likely to reduce the costs of treating migraine and potentially provide better outcomes.** Providing "whole-person" care to chronic migraine treatment is likely to provide substantial health dividends.

The analysis highlighted the interaction between patients with chronic migraine and their impact on the total costs of treatment among patients with multiple chronic conditions. These findings raise several issues that could be the subject of future research. For instance, what impact does chronic migraine have on treatment patterns of patients with other chronic health care conditions?

Of particular interest is how the treatment of chronic migraine and some of the most prevalence comorbid chronic conditions (such as depression and anxiety disorders) differ compared to patients who do not have chronic migraine. These interactions in treatment for patients with multiple chronic conditions are an important area for future research.

Providing "whole-person" care to chronic migraine treatment is likely to provide substantial health dividends.

Data and Methods

Pooled 2008 through 2013 Medical Expenditure Panel Survey, Household Component (MEPS-HC) were used in the study.[ii] These surveys, conducted by the Agency for Healthcare Research and Quality (AHRQ), provide nationally representative estimates of health care spending among the noninstitutionalized civilian U.S. population. In particular, we used the MEPS consolidated data file, medical conditions file, and event files (inpatient, outpatient, emergency department, office-based visits, prescriptions, and home health) were used. From the medical conditions files, survey respondents self-reported medical conditions that were then professionally coded into ICD-9 diagnosis codes. Clinical classification software was then used to collapse the ICD-9 codes into mutually exclusive clinical classification categories (CCC). Chronic migraine was defined as ICD-9 code "346" with at least one prescribed medicine for that condition. We also examined codes 346.7-346.73 and the results were similar. We present results on the larger set of migraine codes. Migraine specific expenditures were determined from the event files. Expenditures from events (inpatient, outpatient, emergency department, office-based visits, and prescriptions) that had an ICD-9 code of "346" were summed to get total migraine specific expenditures. Mental disorders (650-663), arthritis (201-204), pulmonary disease (127, 129-134), hypertension (98, 99), endocrine problems (48, 51, 52, 54-59), back problems (205), hyperlipidemia (53), lupus (210, 211), upper gastrointestinal (138-141), asthma (128) and heart disease (96, 97, 100-108) were defined by the CCC. A person is not considered to have a chronic condition if he/she self-reported a condition, but there are no associated healthcare events with expenditures. A person was classified as disabled if they were blind or deaf or had persistent social, physical, cognitive, IADL, or ADL limitations.

We used Stata 13 survey commands to account for the complex survey design of MEPS. Because we pooled six years of data we adjusted the analytic survey weight by dividing it by five. We used the GDP deflator to express expenditures in 2015 dollars.

We ran two sets of regression models. The first model examined total per capita health care spending among patients with the most prevalent chronic conditions that were and were not treated for chronic migraine. These models were designed to estimate the impact of chronic migraine on total health care spending among diabetes and patients with other chronic conditions. The dependent variable in this model was log total health care spending and controls included insurance status, demographics, income, body mass index, the number of chronic comorbid conditions and whether the patient was treated for chronic migraine. The second model was designed to identify demographic and other factors associated with a chronic migraine diagnosis and their relationship to total chronic migraine spending. Controls for this model were similar to those used in the model described above.

NOTES

[i] See for example, WF Stewart et al. " A Case Study for Calculating Employer Costs for Lost Productive Time in Episodic and Chronic Migraine" JOEM 53(10) 2011: 1161-1171 , D. Serrano et al. "Costs and Predictors of Lost Productive Time in Chronic Migraine and Episodic Migraine: Results from the American Migraine Prevalence and Prevention Study" Value in Health 16 (2013):31-38 and A Manack Adams et al. "The Impact of Chronic Migraine: The Chronic Migraine Epidemiology and Outcomes (CaMEO) Study methods and baseline results" Cephalalgia 35(7): 2015:563-578

[ii] At http://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp

Appendix 1. Impact of Chronic Migraine on Total Health Care Spending Among Diabetic Patients

Logged Total Health spending regressions: diabetes

(running regress on estimation sample)

Survey: Linear regression

Number of strata = 165

Number of PSUs = 372

Number of obs	=	213,220
Population size	=	308,850,285
Subpop. no. obs	=	13,785
Subpop. size	=	21,019,165.8
Design df	=	207
F(27, 181)	=	121.33
Prob > F	=	0.0000
R-squared	=	0.3159

LINEARIZED

LTOTEXP	COEF.	STD. ERR.	t	P>|t|	[95% Conf.	Interval]
female	-.0303701	.0284059	-1.07	0.286	-.086372	.0256318
age3544	-.1399371	.0915563	-1.53	0.128	-.3204396	.0405653
age4554	-.1566894	.0781866	-2.00	0.046	-.3108336	-.0025452
age5564	-.0734873	.0767792	-0.96	0.340	-.2248568	.0778822
age6574	-.262541	.0808085	-3.25	0.001	-.4218542	-.1032277
age75	-.2178516	.081665	-2.67	0.008	-.3788533	-.0568499
black	-.0568126	.0364436	-1.56	0.121	-.1286609	.0150356
hisp	-.1934124	.0390358	-4.95	0.000	-.270371	-.1164538
othrace	-.270486	.0569245	-4.75	0.000	-.382712	-.15826
lths	-.0283518	.0397769	-0.71	0.477	-.1067716	.0500679
somecoll	.0502517	.036166	1.39	0.166	-.0210493	.1215527
collgrad	.1009336	.0427877	2.36	0.019	.016578	.1852892
mcaid01	-.0870919	.055054	-1.58	0.115	-.1956302	.0214465
mcare01	.0121616	.0367664	0.33	0.741	-.0603229	.0846461
unins	-.808995	.0619432	-13.06	0.000	-.9311154	-.6868746
othins	-.3486399	.072344	-4.82	0.000	-.4912654	-.2060145
underwt	.3981537	.1850979	2.15	0.033	.0332351	.7630724
overwt	-.0877979	.041325	-2.12	0.035	-.1692698	-.006326
obese	-.0464074	.0367869	-1.26	0.209	-.1189324	.0261177
pov100199	-.0197955	.0445669	-0.44	0.657	-.1076587	.0680677
pov200299	-.0864582	.044706	-1.93	0.054	-.1745957	.0016794
pov300399	-.0801863	.049717	-1.61	0.108	-.1782028	.0178302
pov400	-.0388991	.0436439	-0.89	0.374	-.1249426	.0471443
migrainerx	.4138134	.0911049	4.54	0.000	.234201	.5934257
cond2	.6226061	.052501	11.86	0.000	.5191009	.7261112
cond3	1.021485	.0562885	18.15	0.000	.9105128	1.132457
cond4	1.799131	.0529524	33.98	0.000	1.694735	1.903526
_cons	7.716323	.0989944	77.95	0.000	7.521157	7.91149

(running mean on estimation sample)

LIST OF VARIABLES IN REGRESSION

1. Gender
2. Age categories
3. Race
4. Education level
5. Source of health insurance
6. Body mass index categories
7. Poverty levels
8. Patient with chronic migraine
9. Number of additional chronic conditions

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