



# **People with Specific Health Conditions by Health Insurance Status: National and State-Level Estimates**

*Prepared for:*  
**Families USA**

*Prepared by:*  
**The Lewin Group**  
Randy Haught

September 1, 2011

# Table of Contents

<b>I. Introduction</b> .....	<b>1</b>
<b>II. Data Sources</b> .....	<b>1</b>
<b>III. National Estimates of People with Specific Conditions</b> .....	<b>3</b>
<b>IV. Producing State-Level Estimates</b> .....	<b>4</b>
<b>V. Reporting National and State-Level Estimates</b> .....	<b>7</b>

## I. Introduction

For this report, the Lewin Group developed national and state-level estimates of the number of people with specific health conditions that included the following: chronic lung disease, diabetes, cancer, and heart disease or stroke, as well as the insurance status of these people. The analysis also estimates the number of people with fair or poor self-perceived physical health status, fair or poor self-perceived mental health status, and the number of people with a serious physical limitation.

Heart disease and cancer include a broad range of medical conditions. For this analysis, we defined heart disease or stroke as those conditions that are included in the definition used by the Centers for Disease Control and Prevention for “Major Cardiovascular Diseases” in their *Chronic Disease Indicators* publication.<sup>1</sup> For cancer, we included all cancers except non-melanoma skin cancers, similar to the definition we used in our prior study for Families USA on uninsurable conditions. Chronic lung disease includes a range of conditions, such as asthma, chronic obstructive pulmonary disease (COPD), cystic fibrosis, tuberculosis, and pleurisy.

## II. Data Sources

The Lewin Group used the 2008 Medical Expenditure Panel Survey (MEPS) Medical Conditions File and Consolidated Household File for all conditions and health status for this analysis except for cancer, where we pooled five years of MEPS data (2004-2008) to obtain a larger sample. The Medical Conditions File contains all medical conditions that were reported by each survey respondent based on records of medical events or a reason for disability days throughout the year. The survey also asks questions about certain priority conditions that were identified using an automated process for respondents entering the survey in 2007. These priority conditions included the following:

- High blood pressure, including multiple diagnoses
- Heart disease, including coronary heart disease, angina, myocardial infarction, and other unspecified heart disease
- Stroke
- Emphysema
- Chronic bronchitis
- High cholesterol, including the age of diagnosis
- Cancer
- Diabetes
- Joint pain
- Arthritis
- Asthma
- Attention Deficit Hyperactivity Disorder/Attention Deficit Disorder (ADHD/ADD)

Priority conditions were asked in the context of “has this person ever been told by a physician or other health care provider that they have the condition.” The priority condition is identified in the Medical Conditions File only if the condition is current (i.e., linked to an event or disability day or is a condition the person is currently experiencing). The Consolidated Household File includes demographic, income, and health insurance coverage of each survey respondent throughout each year of the survey.

The MEPS data categorize medical conditions using Clinical Classification Codes (CCC) that consist of specific clinical groupings of ICD-9CM diagnosis codes. We identified the specific CCCs associated with the four conditions of interest listed above. Figure 1 lists the CCC condition codes used for the study.

### Figure 1: Proposed Condition Codes for the Study

---

<sup>1</sup> <https://apps.nccd.cdc.gov/cdi>

**Cancer:**

011 Cancer of Head and Neck  
012 Cancer of Esophagus  
013 Cancer of Stomach  
014 Cancer of Colon  
015 Cancer of Rectum and Anus  
016 Cancer of Liver and Intrahepatic Bile Duct  
017 Cancer of Pancreas  
018 Cancer of Other GI Organs, Peritoneum  
019 Cancer of Bronchus, Lung  
020 Cancer; Other Respiratory and Intrathoracic  
021 Cancer of Bone and Connective Tissue  
022 Melanomas of Skin  
024 Cancer of Breast  
025 Cancer of Uterus  
026 Cancer of Cervix  
027 Cancer of Ovary  
028 Cancer of Other Female Genital Organ  
029 Cancer of Prostate  
030 Cancer of Testis  
031 Cancer of Other Male Genital Organs  
032 Cancer of Bladder  
033 Cancer of Kidney and Renal Pelvis  
034 Cancer of Other Urinary Organs  
035 Cancer of Brain and Nervous System  
036 Cancer of Thyroid  
037 Hodgkin's Disease  
038 Non-Hodgkin's Lymphoma  
039 Leukemias  
040 Multiple Myeloma  
041 Cancer, Other and Unspecified Primary  
042 Secondary Malignancies  
043 Malignant Neoplasm without Specification  
045 Maintenance Chemotherapy, Radiotherapy

**Diabetes:**

049 Diabetes Mellitus without Complications  
050 Diabetes Mellitus with Complications

**Heart Disease and Stroke:**

096 Heart Valve Disorders  
097 Peri-, Endo-, And Myocarditis, Cardiomyopathy  
098 Essential Hypertension  
099 Hypertension with Complications and Secondary Hypertension  
100 Acute Myocardial Infarction  
101 Coronary Atherosclerosis and Other Heart Disease  
103 Pulmonary Heart Disease  
104 Other and Ill-Defined Heart Disease  
105 Conduction Disorders  
106 Cardiac Dysrhythmias  
107 Cardiac Arrest and Ventricular Fibrillation  
108 Congestive Heart Failure, Nonhypertensive  
109 Acute Cerebrovascular Disease  
110 Occlusion or Stenosis of Precerebral Arteries  
111 Other and Ill-Defined Cerebrovascular Disease  
112 Transient Cerebral Ischemia

- 113 Late Effects of Cerebrovascular Disease
- 114 Peripheral and Visceral Atherosclerosis
- 115 Aortic, Peripheral, and Visceral Artery Aneurysms
- 116 Aortic and Peripheral Arterial Embolism or Thrombosis
- 117 Other Circulatory Disease

**Chronic Lung Disease:**

- 001 Tuberculosis
- 056 Cystic Fibrosis
- 127 Chronic Obstructive Pulmonary Disease and Bronchietasis
- 128 Asthma
- 130 Pleurisy, Pneumothorax, Pulmonary Collapse
- 132 Lung Disease Due to External Agents

The MEPS survey asks each respondent about his or her self-perceived physical and mental health status. These questions asked the respondent to rate each person in the family according to the following categories: excellent, very good, good, fair, or poor. The MEPS survey also identifies respondents with serious limitations. A person is counted as having a “serious limitation” if he or she had any of the following limitations in any round of the survey:

- Limitations on Instrumental Activities of Daily Living (IADL): if anyone in the family received help or supervision with IADLs, such as using the telephone, paying bills, taking medications, preparing light meals, doing laundry, or going shopping;
- Limitations on Activities of Daily Living (ADL): a person who received ADL help or supervision due to an impairment or physical or mental health problem;
- Activity Limitations: indicating any limitation in work, housework, or school;
- Functional Limitations: indicating difficulty performing certain specific physical actions, such as difficulties walking, climbing stairs, grasping objects, reaching overhead, lifting, bending or stooping, or standing for long periods of time; and
- Sensory Limitations: indicating any hearing or sight impairments.

**III. National Estimates of People with Specific Conditions**

In Figure 2, we present national estimates from the MEPS data of the number of people with a specific condition. People are counted only once within each category. A person with heart disease and who also had a stroke is counted only once within the heart disease/stroke category. However, people with multiple categories of conditions are counted separately under each category of condition reported. For example, a person with diabetes and heart disease is counted once under the diabetes category and again under the heart disease/stroke category.

Our analysis of the 2008 MEPS data indicated a very small sample size for children with cancer, which resulted in a relative standard error for the estimate of more than 30 percent. Therefore, in order to increase the sample size and produce a more reliable estimate for cancer prevalence, we combined the most recent five years of MEPS data (2004-2008).

**Figure 2**  
**2008 Estimates of the Number of People without Specific Condition**

Condition	Population with Condition	Prevalence Rate
-----------	---------------------------	-----------------

	(millions)	
Cancer <sup>a/</sup>	8.0	2.7%
Diabetes	22.0	7.3%
Heart Disease/Stroke	70.2	23.1%
Chronic Lung Disease	32.5	10.7%
Fair/Poor Health Status	34.7	11.4%
Fair/Poor Mental Health Status	17.4	5.7%
Serious Limitation	63.6	20.9%

a/ Includes data for 2004-2008.

Source: Lewin Group Analysis of 2008 MEPS data files.

#### IV. Producing State-Level Estimates

The MEPS data do not provide state identifiers, so we cannot use these data to generate state-level estimates of the number of people with these conditions. The Current Population Survey (CPS) data include all the demographic, income, health insurance, and state of residence information that is required for this analysis, except that it does not include information on specific conditions.

Therefore, we developed a probabilistic predictive model to determine the probability of having a specific condition based on a person's age, gender, race, income as a percent of poverty, health insurance status, reported health status, education level, and Census region using the MEPS data. We applied the MEPS-based model to respondents in the CPS in order to impute the probability of having each of the conditions. In order to produce reliable estimates at the state level, we pooled the three most recent years of CPS data for 2008 through 2010 to increase the sample size.

We used the MEPS data to estimate a multivariate model of the likelihood that an individual will have a condition given his or her demographic characteristics, income, health insurance status, education level, health status, and geographic region. We estimated these equations from the MEPS data, which provide extensive detail on respondent income, education level, demographic characteristics, and geographic location within the United States (i.e., Census geographic region). We used a "logit" specification, which is designed for use in predicting the likelihood of events using cross-sectional data such as the MEPS.

We estimated six separate equations for each of the above conditions. We did not develop an equation for self-reported health status because this variable is included in the CPS data, and we use it to help predict each of the other conditions.

Figure 3 summarizes the variables used for each equation. The following variables represent the characteristics of the individual in all equations:

- **Race/Ethnicity:** White-only/non-Hispanic, Black-only/non-Hispanic, Asian-only/non-Hispanic, Hispanic, all other races
- **Age:** 0-18, 19-34, 35-44, 45-54, 55-64, 65 and over
- **Sex:** male or female
- **Family Income as a Percent of the Federal Poverty Level:** <139 percent, 139-199 percent, 200-299 percent, 300-399 percent and 400 percent+. (Family income is the same for all members of a family. The poverty level used is the Federal Poverty Threshold, which is the measure typically used for statistical reporting of poverty rates.)
- **Census Region:** Northeast, Midwest, South, or West
- **Education:** For adults, we identified those with at least a college degree.

- **Health Insurance Status:** Medicare, Medicare+Medicaid, Medicaid, private, TRICARE, or uninsured.
- **Health Status:** Excellent, very good, good, fair, or poor.

**Figure 3**  
**Variables Used for Logistic Regression Equations from MEPS**  
**Predicting Health Conditions**

	Cancer	Diabetes	Heart Disease/ Stroke	Chronic Lung Disease	Fair/Poor Mental Health Status	Serious Limitation
Intercept	-3.2608 *	-3.1449 *	-2.6126 *	-1.2877 *	-2.3915 *	-2.0071 *
Black	-0.1817 *	0.1912 *	0.1470 *	-0.1754 *	-0.1104 *	-0.2414 *
Asian	-0.2378 *	0.1169 *	-0.2358 *	-0.5250 *	-0.1186	-0.4518 *
Hispanic	-0.3299 *	0.1426 *	-0.1415 *	-0.3121 *	-0.3300 *	-0.4401 *
Other Races	-0.1049 *	0.3010 *	0.1579	0.2049 *	-0.1067	0.0264
Age 19-34	0.8529 *	0.3984 *	0.4718 *	-0.3047 *	0.2295 *	0.5863 *
Age 35-44	0.9933 *	0.8673 *	1.0755 *	-0.3134 *	0.2626 *	0.7413 *
Age 45-54	1.1204 *	1.1649 *	1.5539 *	-0.2309 *	0.2445 *	1.1206 *
Age 55-64	1.4829 *	1.5405 *	2.0358 *	-0.2020 *	0.1468	1.3910 *
Age 65+	1.7082 *	1.4648 *	2.3349 *	-0.3021 *	-0.2168 *	0.8566 *
Male	-0.0726 *	0.0448	0.0352	-0.1048 *	0.0475 *	-0.0304 *
138-199% FPL	0.0185	0.0181	-0.0119	-0.1161 *	-0.0403	-0.0493
200-299% FPL	0.0238	0.0283	0.0266	-0.0484	-0.1163 *	-0.2047 *
300-399% FPL	0.0393	0.0397	0.0155	-0.1021	-0.0886 *	-0.1794 *
400% FPL & above	0.0855 *	-0.0345	0.0185	-0.0618	-0.1843 *	-0.2322 *
Northeast Region	-0.0521 *	-0.0177	0.0019	0.1029 *	-0.0258	-0.0173
South Region	-0.0840 *	-0.0156	0.1362 *	0.0119	-0.0625	-0.0570
Midwest Region	-0.1016 *	-0.0071	0.0094	0.0155	-0.1129	0.0366 *
College Degree	0.1401 *	-0.0892 *	-0.0658	-0.0344	-0.1020 *	-0.1086 *
Medicare	0.1421 *	0.2410 *	0.3044 *	0.1427 *	0.4038 *	1.0788 *
Medicare+Medicaid	0.0858 *	0.3829 *	0.4147 *	0.2612 *	0.9281 *	1.5477 *
Medicaid	0.1597 *	0.1313 *	0.2131 *	0.1268 *	0.4710 *	0.4678 *
Tricare	0.1901	0.1960	0.1830	-0.0854	0.1358	0.1850 *
Uninsured	-0.1830 *	-0.2128 *	-0.2861 *	-0.2438 *	0.1187	0.0675
Good/very good health status	0.1345 *	0.5782 *	0.5020 *	0.4283 *	0.5225 *	0.4007 *
Fair/poor health status	0.5121 *	1.0763 *	1.0574 *	0.9973 *	1.7018 *	1.2807 *

\* Indicates significance at 95%

Source: Lewin analysis of 2008 MEPS data (estimates for cancer prevalence used 2004-2008 MEPS data).



## V. Reporting National and State-Level Estimates

The Lewin Group produced estimates of the number of people with each of the conditions by state, health insurance status, age, gender, race/ethnicity, and family poverty level. CPS respondents were categorized into the following groups based on information in the CPS survey:

- **Race/Ethnicity:** White-only/non-Hispanic, Black-only/non-Hispanic, Asian-only/non-Hispanic, Hispanic and all other races
- **Age:** 0-18, 19-64, and 65 and over
- **Sex:** male or female
- **Family Income as a Percent of the Federal Poverty Level:** <139 percent, 139-400 percent, and 400 percent or higher. (Family income is the same for all members of a family. The poverty level used is the Federal Poverty Threshold, which is the measure that is typically used for statistical reporting of poverty rates.)
- **State:** the state of residence of the household.

**Health Insurance Status:** The primary focus of the analysis was to estimate the prevalence of the diseases in the Medicaid enrollee population. Therefore, we identified all people in the CPS data who reported having Medicaid coverage at some time during the year. For all others, we categorized them by their primary health insurance status. For people aged 65 and older, we categorized primary health insurance coverage using the following hierarchy: Medicare, private, TRICARE, and uninsured. For people under age 65, we categorized primary health insurance coverage using the following hierarchy: private, Medicare, TRICARE, and uninsured. Children under age 19 who reported having Medicare coverage were recoded to Medicaid. (We assumed that this was a mistake by the respondents, since Medicare eligibility for children is extremely limited.)