Economic Costs of Diabetes in the U.S. in 2012

AMERICAN DIABETES ASSOCIATION

OBJECTIVE—This study updates previous estimates of the economic burden of diagnosed diabetes and quantifies the increased health resource use and lost productivity associated with diabetes in 2012.

RESEARCH DESIGN AND METHODS—The study uses a prevalence-based approach that combines the demographics of the U.S. population in 2012 with diabetes prevalence, epidemiological data, health care cost, and economic data into a Cost of Diabetes Model. Health resource use and associated medical costs are analyzed by age, sex, race/ethnicity, insurance coverage, medical condition, and health service category. Data sources include national surveys, Medicare standard analytical files, and one of the largest claims databases for the commercially insured population in the U.S.

RESULTS—The total estimated cost of diagnosed diabetes in 2012 is $245 billion, including $176 billion in direct medical costs and $69 billion in reduced productivity. The largest components of medical expenditures are hospital inpatient care (43% of the total medical cost), prescription medications to treat the complications of diabetes (18%), antidiabetic agents and diabetes supplies (12%), physician office visits (9%), and nursing/residential facility stays (8%). People with diagnosed diabetes incur average medical expenditures of about $13,700 per year, of which about $7,900 is attributed to diabetes. People with diagnosed diabetes, on average, have medical expenditures approximately 2.3 times higher than what expenditures would be in the absence of diabetes. For the cost categories analyzed, care for people with diagnosed diabetes accounts for more than 1 in 5 health care dollars in the U.S., and more than half of that expenditure is directly attributable to diabetes. Indirect costs include increased absenteeism ($5 billion) and reduced productivity while at work ($20.8 billion) for the employed population, reduced productivity for those not in the labor force ($2.7 billion), inability to work as a result of disease-related disability ($21.6 billion), and lost productive capacity due to early mortality ($18.5 billion).

CONCLUSIONS—The estimated total economic cost of diagnosed diabetes in 2012 is $245 billion, a 41% increase from our previous estimate of $174 billion (in 2007 dollars). This estimate highlights the substantial burden that diabetes imposes on society. Additional components of societal burden omitted from our study include intangibles from pain and suffering, resources from care provided by nonpaid caregivers, and the burden associated with undiagnosed diabetes.

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Diabetes imposes a substantial burden on the economy of the U.S. in the form of increased medical costs and indirect costs from work-related absenteeism, reduced productivity at work and at home, reduced labor force participation from chronic disability, and premature mortality (1,2). In addition to the economic burden that has been quantified, diabetes imposes high intangible costs on society in terms of reduced quality of life and pain and suffering of people with diabetes, their families, and friends.

Improved understanding of the economic cost of diabetes and its major determinants helps to inform policymakers and to motivate decisions to reduce diabetes prevalence and burden. The previous cost of diabetes study by the American Diabetes Association (ADA) estimated that there were nearly 17.5 million people living in the U.S. with diagnosed type 1 or type 2 diabetes in 2007, at an estimated cost of $174 billion in higher medical costs and lost productivity (2).

The percentage of the population with diagnosed diabetes continues to rise, with one study projecting that as many as one in three U.S. adults could have diabetes by 2050 if current trends continue (3). In this updated cost of diabetes study, we estimate the total national economic burden of diagnosed diabetes in 2012 reflecting continued growth in prevalence of diabetes and its complications; changing health care practices, technology, and cost of treatment; and changing economic conditions.

RESEARCH DESIGN AND METHODS

—This study follows the methodology used in the 2002 and 2007 costs of diabetes studies by the ADA, with modifications to refine the analyses where appropriate (1,2). A prevalence-based approach is used to estimate the medical costs by demographic group, health service category, and medical condition. One difference from earlier studies is that for some analyses we now include race/ethnicity as a demographic dimension. We analyze the prevalence of diagnosed diabetes, utilization and costs attributable to diabetes by age-group (under 18, 18–34, 35–44, 45–54, 55–59, 60–64, 65–69, and over 70 years of age), sex, race/ethnicity (non-Hispanic white, non-Hispanic black, non-Hispanic other, and Hispanic), and insurance status (private; government including Medicare, Medicaid, Children's Health Insurance Program, and other government-sponsored coverage; and uninsured). State-specific estimates of prevalence and costs are pro-

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Major data sources analyzed include National Health Interview Survey (NHIS), American Community Survey (ACS), Behavioral Risk Factor Surveillance System (BRFSS), Medical Expenditure Panel Survey (MEPS), OptumInsight's de-identified Normative Health Information database (dNHI), the Medicare 5% sample Standard Analytical Files (SAFs), Nationwide Inpatient Sample (NIS), National Ambulatory Medical Care Survey (NAMCS), National Hospital Ambulatory Medical Care Survey (NHAMCS), National Nursing Home Survey (NNHS), National Home and Hospice Care Survey (NHHCS), and Current Population Survey (CPS). We use the most recent year's data available for each of these data sources, though for certain analyses we combine 3 years of data to achieve sufficient sample size. To estimate medical costs for less common health service categories such as hospital inpatient care, emergency care, home health, and podiatry, we combine 5 years of MEPS data to reduce variance in utilization and cost. The demographics of the U.S. population in 2012 with diabetes prevalence, epidemiological data, health care cost, and economic data are then combined into a Cost of Diabetes Model. Supplementary Table 1 describes how these data sources are used, along with their respective strengths and limitations, pertinent to this study. All cost and utilization estimates are extrapolated to the projected U.S. population in 2012 (4), with cost estimates calculated in 2012 dollars using the appropriate components of the medical consumer price index or total consumer price index (5).

Estimating the size of the population with diabetes

To estimate the number of people with diagnosed diabetes in 2012 we combined U.S. Census Bureau population numbers with estimated prevalence of diabetes by age-group, sex, race/ethnicity, insurance coverage, and whether residing in a nursing home.

Combining the 2009, 2010, and 2011 NHIS data produced a sample sufficient to estimate diabetes prevalence by demographic and insurance coverage ($n = 123{,}185$). Prevalence is based on respondents answering "yes" to the question, "Have you EVER been told by a doctor or health professional that you have diabetes or sugar diabetes?" We exclude gestational diabetes mellitus from the prevalence estimates. Previous research finds that self-report of a physician diagnosis is a reliable method for estimating prevalence of diagnosed diabetes (6).

For the 2007 cost study, the estimated prevalence of diagnosed diabetes among the institutionalized population (24%) came from an analysis of the 2004 NNHS. There has been no update of the NNHS since 2004. Nearly one in three (32.8%) nursing home residents has diagnosed diabetes based on a nationally representative study that analyzed medical charts, minimum dataset records, and prescription claims files to identify people with diabetes (7). On the basis of this updated information on diabetes prevalence among nursing home residents, we estimate age-group–, sex-, and race/ethnicity–specific prevalence using the same distribution of the population demographic variables as shown in the 2004 NNHS survey data among the 1.6 million nursing home residents in 2012. Few data exist regarding the prevalence of diabetes among the noncivilian population or the institutionalized populations other than those in nursing homes (e.g., in prisons). We assume that the noncivilian population and the institutionalized populations other than those in nursing homes have diabetes prevalence similar to the noninstitutionalized population, controlling for demographics, based on the limited evidence available (8,9).

Combining the NHIS and NNHS data, we estimate the prevalence of diagnosed diabetes among population subgroups (by age-group, sex, race/ethnicity, and insurance coverage). Supplementary Table 3 shows that prevalence of diabetes increases with age, is somewhat higher for males than for females, and is highest among non-Hispanic blacks. Reflecting the high prevalence among the elderly population, 13.4% of the population with government-sponsored medical insurance (e.g., Medicare, Medicaid) has diagnosed diabetes as compared with 4.6% among the privately insured and 3.7% among the uninsured populations.

State-specific estimates of diabetes prevalence (Supplementary Table 11) come from combing the 2010 ACS, the 2009 and 2010 BRFSS, and the 2004 NNHS. We applied a statistical matching procedure that randomly matches each person in the 2010 ACS with a similar person either in the BRFSS (if not living in a nursing home) or in the NNHS (if living in a nursing home). Each noninstitutionalized person in the ACS is matched with a person in the BRFSS in the same race/ethnicity, household income level (eight levels), and insured/uninsured status. Each person in the ACS in a nursing/residential facility is matched with a person in the NNHS in the same sex, age-group, and race/ethnicity. Our state prevalence estimates are slightly different from those reported by the U.S. Centers for Disease Control and Prevention (CDC) for 2010, which are based solely on the BRFSS (10).

Estimating the direct medical cost attributed to diabetes

We estimate health resource use among the population with diabetes in excess of resource use that would be expected in the absence of diabetes. Diabetes increases the risk of developing neurological, peripheral vascular, cardiovascular, renal, endocrine/metabolic, ophthalmic, and other complications (see Supplementary Table 2 for a more comprehensive list of comorbidities) (2). Diabetes also increases the cost of treating general conditions that are not directly related to diabetes (2,11–13). Therefore, a portion of health care expenditures for these medical conditions is attributed to diabetes.

As elaborated in the 2007 study, the approach used to quantify the increase in health resource use associated with diabetes was influenced by four data limitations: *1*) absence of a single data source for all estimates, *2*) small sample size in some data sources, *3*) correlation of both diabetes and its comorbidities with other factors such as age and obesity, and *4*) under-reporting of diabetes and its comorbidities in certain data sources. Because of these limitations we estimate diabetes-attributed costs using one of two approaches for each cost component.

For cost components estimated solely from the MEPS (ambulance services, home health, podiatry, diabetic supplies, and other equipment and supplies), we use a simple comparison of annual per capita health resource use for people with and without diabetes controlling for age, sex, and race/ethnicity. For nursing/residential facility use (which is not captured in the MEPS) and for cost components that rely on analysis of medical encounter data (hospital inpatient, emergency care, and ambulatory visits), we use an attributed risk methodology often used in disease-burden studies that relies on population etiological fractions (2,14). Etiological fractions estimate the excess use of health care services among the diabetic population relative to a similar

Both approaches are equivalent under a reasonable set of assumptions, but the first approach cannot be used with some national data sources analyzed (e.g., NIS) that are visit/hospital discharge level files, which might or might not identify the patient as having diabetes even if the patient does indeed have diabetes (2,14).

The attributable fraction approach combines etiological fractions (ε) with total projected U.S. health service use (U) in 2012 for each age-group (a), sex (s), medical condition (c), and care delivery setting (H)—hospital inpatient, emergency departments, and ambulatory visits (physician office visits combined with hospital outpatient/clinic visits):

$$\text{Attributed health resource use}_H = \sum_{\text{age}}\sum_{\text{sex}}\sum_{\substack{\text{medical}\\ \text{condition}}} \varepsilon_{H,a,s,c} \times U_{H,a,s,c}$$

The etiological fraction is calculated using the diagnosed diabetes prevalence (P) and the relative rate ratio (R):

$$\varepsilon_{H,a,s,c} = \frac{P_{a,s} \times \left(R_{H,a,s,c} - 1\right)}{P_{a,s} \times \left(R_{H,a,s,c} - 1\right) + 1}$$

The rate ratio for hospital inpatient days, emergency visits, and ambulatory visits represents how annual per capita health service use for the population with diabetes compares to the population without diabetes:

$$R_{H,a,s,c} = \frac{\text{annual per capita use for people with diabetes}_{a,s,c}}{\text{annual per capita use for people without diabetes}_{a,s,c}}$$

Diabetes and its comorbidities are correlated with other patient characteristics (e.g., demographics and body weight). To mitigate bias caused by correlation, we estimate age/sex/setting–specific etiological fractions for each medical condition. The primary data sources for calculating etiological fractions are OptumInsight's dNHI data (a consolidation of the Ingenix Research Data Mart and MCURE databases used in the 2007 study) and the 2010 5% sample Medicare SAFs. The dNHI data contains a complete set of medical claims for over 23 million commercially insured beneficiaries in 2011 and allows patient records to be linked during the year and across health delivery settings. This allows us to identify people with a diabetes ICD-9 diagnosis code (250.xx) in any of their medical claims during the

contain claims data filed on behalf of Medicare beneficiaries under both Part A and Part B, and like the dNHI we identify people with diabetes based on diabetes ICD-9 diagnosis codes. The large size of these two claims databases enables the generation of age/sex/setting–specific rate ratios for each medical condition, which are more stable than rates estimated using the MEPS.

Unlike the MEPS, the dNHI data and Medicare 5% claims data do not contain race/ethnicity and select patient characteristics that could affect both patients' health status and health seeking behaviors. For the 10 medical conditions—cataract, cellulitis, conduction disorders and cardiac dysrhythmias, general medical condition, heart failure, hypertension, myocardial infarction, other chronic ischemic heart disease, renal failure and its sequelae, and urinary tract infection—which are the largest contributors to the overall cost of diabetes, we estimated two multivariate Poisson regressions, using data from the MEPS, to determine the extent to which controlling only for age and sex might bias the rate ratios. First, we estimated a naïve model that produces diabetes-related rate ratios for hospital inpatient days, emergency visits, and ambulatory visits controlling for age and sex only. Then, we estimated a full model that includes diabetes status as the main explanatory variable and various known predictors of health service utilization including age, sex, education level, income, marital status, medical insurance status, and race/ethnicity as covariates. For the full model our focus is not on the relationship between health care use and the covariates (other than diabetes), but rather these covariates are included to control for patient characteristics not available in medical claims data that could be correlated with both medical conditions and health-seeking behavior. The full model omits indicators for the presence of coexisting conditions or complications of diabetes (e.g., hypertension), since including such variables could bias low the estimated relationship between diabetes and health care use for each of the 10 medical conditions. The rate ratio coefficients for the diabetes flag variable in the naïve and full models are then compared. The findings suggest statistically significant overestimates of the rate ratios for emergency visits when using the naïve model for five condition categories. For inpatient days, we found significant over-

condition categories. For ambulatory visits, only hypertension was found to have a significantly higher rate ratio by comparing the MEPS-based naïve model and the full model.

To remedy the relative risk overestimation for these condition categories, we scaled the rate ratios estimated from dNHI and Medicare 5% sample using the regression results from the MEPS analysis by applying a scalar (with the scalar calculated as the full model rate ratio divided by the naïve model rate ratio) (2). For emergency department visits, claims-based rate ratios were scaled down for myocardial infarction (scale = 0.94), other chronic ischemic heart disease (0.93), hypertension (0.71), cellulitis (0.72), and renal failure (0.95). For inpatient days, claims-based rate ratios were scaled down for hypertension (0.62), cellulitis (0.93), and renal failure (0.90). Physician office visits were scaled down for hypertension (0.89). We did not find a significant overestimate of the rate ratios for general medical conditions for any of the three health service delivery settings comparing the MEPS-based naïve model and the full model. However, a comparison of the claims-based rate ratios with the rate ratios calculated from the MEPS-based naïve model found that the claims-based rate ratios for general conditions were significantly higher than the MEPS-based rate ratios for emergency department visits, hospital inpatient days, and ambulatory visits, respectively. Therefore, to be conservative in our cost estimates, we downward adjusted claims-based rate ratios for emergency department visits (0.70), hospital inpatient days (0.68), and ambulatory visits (0.66) for the general condition group by applying a scalar calculated as the MEPS-based naïve model rate ratio divided by the claims-based rate ratio.

Estimates of health resource use attributed to diabetes were combined with estimates of the average medical cost per event, in 2012 dollars, to compute total medical costs attributed to diabetes. For hospital inpatient days, office visits, emergency visits, and outpatient visits, we use average cost per visit/day specific to the medical conditions modeled. We combined the 2008–2010 MEPS files to estimate the average cost per event, except that for less common conditions or cost categories we combined the 2006–2010 MEPS files to obtain a larger sample and thereby produce more precise cost estimates. Although the MEPS contains expenditures and the NIS contains only facility charges (which are converted to costs using hospital-specific cost-to-charge ratios), the NIS has a much larger sample ($n = \sim 8$ million discharges in 2010) and also contains 5-digit diagnosis codes. Therefore, we use the 2010 NIS to estimate inpatient facility costs and the combined 2008–2010 MEPS to estimate the cost for professional services. The average costs per event or day by medical condition are shown in Supplementary Table 4.

Utilization of prescription medication (excluding insulin and other antidiabetic agents) for each medical condition is estimated from medications prescribed during physician's office, emergency department, and outpatient visits attributed to diabetes. The average number of medications prescribed during a visit for each age-sex-race stratum was estimated from 2008–2010 NAMCS and 2007–2009 NHAMCS data. We calculated the total number of people with diabetes that use insulin and other antidiabetic agents by combining diabetes prevalence and rate of use for these antidiabetic agents obtained from the 2009–2011 NHIS. The average cost per prescription filled, insulin, and oral and other antidiabetic agents were obtained from the combined MEPS 2008–2010. We combined the utilization of these medications with the average cost per prescription to estimate the cost by age, sex, race/ethnicity, and insurance status. The average per capita cost for diabetic supplies by age-sex-race stratum was calculated from the MEPS 2008–2010. Over-the-counter medications were not included owing to the lack of data on whether diabetes increases the use of such medications.

Consistent with the 2007 study, total nursing/residential facility days attributed to diabetes were estimated by combining the average length of stay and the nursing/residential facility population. Using 2004 NNHS, we calculated the number of residents with diabetes in each age-sex stratum, which was adjusted using the 32.8% diabetes prevalence estimate among nursing home residents, obtained from literature (7). Nursing/residential facility use attributed to diabetes was estimated using an attributable risk approach where the prevalence of diabetes among residents was compared with the prevalence of diabetes among the overall population in the same age-sex stratum. The analyses were conducted separately for facility residents to estimate total days of care. Similar to the 2007 study, cost per day was obtained from a geographically representative cost of care survey for 2012 (15).

Hospice days attributed to diabetes represents a combination of length of stay and diabetes prevalence among hospice residents. The 2007 NHHCS was used to calculate the number of hospice residents with diabetes and those that have a primary diagnosis of diabetes along with the average length of stay for each age-sex-race stratum. Cost per resident per day obtained from the Hospice Association of America was combined with hospice days attributed to diabetes to estimate the total cost of hospice care attributed to diabetes.

The 2006–2010 MEPS files were combined to increase the sample size to analyze the use of home health, podiatry, ambulance services, and other equipment and supplies. These cost components are estimated by comparing annual per capita cost for people with and without diabetes, controlling for age. Due to small sample size, sex and race/ethnicity were not included as a stratum when calculating costs per capita.

Estimating the indirect cost attributed to diabetes

The indirect costs associated with diabetes include workdays missed due to health conditions (absenteeism), reduced work productivity while working due to health conditions (presenteeism), reduced workforce participation due to disability, and productivity lost due to premature mortality (16–18). Productivity loss occurs among those in the labor force as well as among the nonemployed population. To estimate the value of lost productivity, we calculate the number of missed workdays resulting from absenteeism, reduced work productivity due to presenteeism, workforce participation reductions associated with chronic disability, and work years lost resulting from premature mortality associated with diabetes. This approach mirrors the one used in the 2007 study, with the exception of adding race/ethnicity as a dimension. More recent data sources were used with per capita productivity loss calculated by combining the estimates derived from the 2009–2011 NHIS and the average annual earnings from the 2011 CPS. Earnings were inflated to 2012 dollars using the overall consumer price index, and per capita estimates with diabetes by age-group, sex, and race/ethnicity.

- **Absenteeism** is defined as the number of workdays missed due to poor health, and prior research finds that people with diabetes have higher rates of absenteeism than the population without diabetes (16–18). Estimates of excess absenteeism associated with diabetes range from 1.8 to 7% of total workdays (17,19–22). Ordinary least squares regression with the 2009–2011 NHIS shows that self-reported annual missed workdays are statistically higher for people with diabetes. Control variables include age-group, sex, race/ethnicity, diagnosed hypertension status (yes/no), and body weight status (normal, overweight, obese, unknown). Diabetes is entered as a dichotomous variable (diagnosed diabetes = 1; otherwise 0), as well as an interaction term with age-group. Controlling for hypertension and body weight produces more conservative estimates of the diabetes impact on absenteeism as comorbidities of diabetes are correlated with body weight status and a portion of hypertension is attributed to diabetes. Workers with diabetes average three more missed workdays than their peers without diabetes, with excess missed workdays varying by demographic group.
- **Presenteeism** is defined as reduced productivity while at work, and is generally measured through worker responses to surveys. These surveys rely on the self-reported inputs on the number of reduced productivity hours incurred over a given time frame. Multiple recent studies report that individuals with diabetes display higher rates of presenteeism than their peers without diabetes (19,21,22). The rate of presenteeism among the population with diabetes exceeds rates for their colleagues without diabetes—with the excess rates ranging from 1.8 to 38% of annual productivity (17,19–22). These estimates comparing presenteeism for employees with diabetes versus those without diabetes, however, fail to control for other factors that may be correlated with diabetes (e.g., age and weight status). Consequently, we model productivity loss associated with diabetes-attributed presenteeism using the estimate (6.6%) from the 2007 study that controls for the impact of factors correlated with

Table 1—***Health resource use in the U.S. by diabetes status and cost component, 2012 (in millions of units)***

	Population with diabetes					
	Attributed to diabetes		Incurred by people with diabetes			
Health resource	Units	% of U.S. total	Units	% of U.S. total	Incurred by population without diabetes	U.S. total*
Institutional care						
Hospital inpatient days	26.4	15.7%	43.1	25.7%	124.9	168.0
Nursing/residential facility days	101.3	16.4%	198.4	32.2%	418.0	616.4
Hospice days	0.2	0.3%	9.3	12.8%	63.1	—
Outpatient care						1,026.7
Physician office visits	85.7	8.3%	174.0	16.9%	852.8	128.7
Emergency department visits	7.3	5.7%	15.3	11.9%	113.5	100.7
Hospital outpatient visits	7.8	7.8%	15.0	14.9%	85.6	279.7
Home health visits	25.7	9.2%	64.9	23.2%	214.7	72.4
Medication prescriptions	361.4	11.8%	673.1	22.1%	2,377.9	3,051.1

Data sources: NIS (2010), NNHS (2004), NAMCS (2008–2010), NHAMCS (2007–2009), MEPS (2006–2010), and NHHCS (2007). *Numbers do not necessarily sum to totals because of rounding.

- **Inability to work** associated with diabetes is estimated using a conservative approach that focuses on unemployment related to long-term disability. The CDC estimates that roughly 65,700 lower-limb amputations are performed each year on people with diabetes (23). These amputations and other comorbidities of diabetes can make it difficult for some people with diabetes to remain in the workforce or to find employment in their chosen profession (22,24). To quantify diabetes-related disability, we identify people in the 2009–2011 NHIS between ages 18 and 65 years who receive Supplemental Security Income (SSI) payments for disability. Using logistic regression, we estimate the relationship between diabetes and the receipt of SSI payments controlling for age-group, sex, race/ethnicity, hypertension, and weight. The results of this analysis suggest that people with diabetes have a 2.4 percentage point higher rate of being out of the workforce and receiving disability payments compared with their peers without diabetes. The diabetes effect increases with age and varies by demographic—ranging from 0.7 percentage points for non-Hispanic white males aged 65–69 years to 7.4 percentage points for non-Hispanic black females aged 55–59 years. Modeling disability-related unemployment is a conservative approach to modeling the employment effect of diabetes; regression analysis of the NHIS suggests that people with diabetes have actual labor force participation rates averaging approximately 10 percentage points lower than their peers without diabetes. The average daily earnings for those in the workforce are used as a proxy for the economic impact of reduced employment due to chronic disability. SSI payments are considered transfer payments and therefore are not included in the social cost of not working due to disability.
- **Reduced productivity for those not in the workforce** is included in our estimate of the national burden. This population includes all adults under 65 years of age who are not employed (including those voluntarily or involuntarily not in the workforce). The contribution of people not in the workforce to national productivity includes time spent providing child care, household activities, and other ac- community. Prior estimates of reduced productivity for those not in the workforce were based on estimates of "bed days" (which is defined as a day spent in bed because of poor health). The NHIS no longer collects data on bed days. Therefore, we use per capita absenteeism estimates for the working population as a proxy for reduced productivity days among the nonemployed population in a similar demographic. Whereas each workday lost due to absenteeism is based on estimated average daily earnings, there is no readily available measure of the value of a day lost for those not in the workforce. Studies often use minimum wage as a proxy for the value of time lost, but this will underestimate the value of time. Using average earnings for their employed counterparts will overestimate the value of time. Similar to the 2007 study, we use 75% of the average earnings for people in the workforce as a productivity proxy for those under 65 years of age not in the labor force (which is close to the midpoint between minimum wage and the average hourly wage earned by a demographic similar to the unemployed under 65 years of age).

Table 2—***Health resource use attributed to diabetes in the U.S. by age-group and type of service, 2012 (in thousands of units)***

	Age (years)			
Health resource	<45 (*n* = 3.3 M)	45–64 (*n* = 10.2 M)	≥65 (*n* = 8.8 M)	Total* (*N* = 22.3 M)
Institutional care				
Hospital inpatient days	1,879 (<1%)	7,969 (37%)	16,535 (63%)	26,383
Nursing/residential facility days	1,456 (<1%)	18,587 (20%)	81,288 (80%)	101,331
Hospice days	0 (0%)	17 (9%)	168 (91%)	186
Outpatient care				
Physician office visits	8,077 (9%)	28,437 (33%)	49,212 (57%)	85,726
Emergency department visits	1,608 (22%)	2,589 (36%)	3,084 (42%)	7,280
Hospital outpatient visits	1,233 (16%)	3,241 (41%)	3,342 (43%)	7,817
Home health visits	3,249 (13%)	10,409 (40%)	12,076 (47%)	25,734
Medication prescriptions	27,839 (8%)	118,493 (33%)	215,105 (60%)	361,437

Data sources: NIS (2010), NNHS (2004), NAMCS (2008–2010), NHAMCS (2007–2009), MEPS (2006–

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