

## Healthcare Delivery – Deconstructing the Costs

### Summary

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### Introduction

The Health Care Delivery Policy Program at Harvard University’s John F. Kennedy School of Government’s Mossavar-Rahmani Center for Business and Government tracks spending on medical care in the United States to provide planners and policymakers with a portrait of the impact of the healthcare market on our overall economy. Statistical sources include newspapers, magazines, journals, surveys, and reports from governmental sources (Bureau of Labor Statistics, Department of Commerce, General Accounting Office, etc.), non-profit agencies (American Diabetes Association, National Association of Healthcare Purchasing Managers, American Hospital Association, etc.) and health care industry foundations and consultants (Kaiser Family Foundation, National Coalition on Healthcare, etc). Original articles and presentations by the Health Care Delivery Policy Program are included in the research.

### Who Collects the Data?

There is no single survey or process to collect or report data on healthcare spending in the United States. Data are collected by a variety of governmental and professional organizations and researchers who utilize many different methods (e.g., current prices, chain weighted 1996 base year costs, etc.) This makes it difficult to compare statistics across time periods and agencies.

**Figure 1. Major Data Collection Organizations**

| Organization   | Role   |
|--|--|
| <a href="#">Agency for Healthcare Research and Quality</a>       | Conducts the Medical Expenditure Panel Survey (MEPS)   |
| <a href="#">American Hospital Association</a>                    | Tracks hospital costs  |
| <a href="#">American Medical Association</a>                     | Tracks out of pocket spending for medical care   |
| <a href="#">Board of Governors of the Federal Reserve System</a> | Tracks banking related financial activities at the federal level   |
| <a href="#">Bureau of Economic Analysis</a>                      | Releases monthly updates of Gross Domestic Product (GDP) estimates   |
| <a href="#">Bureau of Labor Statistics</a>                       | Calculates the Consumer Price Index (CPI), Producer Price Index (PPI) and the Employment, Hours and Earnings Series (EHE)/Employment Cost Index (ECI), conducts the National Compensation Survey (NCS) |
| <a href="#">Bureau of the Census</a>                             | Supplemental surveys estimate expenditures for nursing home, home health care and services of health professionals and the government  |
| <a href="#">Centers for Medicare and Medicaid Statistics</a>     | Cost databases include the CMS-64, Medicaid Statistical Information System (MSIS), MCBS, Medicare Cost and Use file  |
| <a href="#">Congressional Budget Office</a>                      | Provides Congress with analyses needed for economic and budgetary decisions  |
| <a href="#">Department of Commerce</a>                           | Compiles and reports the Gross Domestic Product  |
| <a href="#">Federal Trade Commission</a>                         | Conducts economic research to enforce consumer and antitrust protections and contribute to governmental policy efforts   |
| <a href="#">General Accounting Office</a>                        | Reports on federal economic activities   |
| <a href="#">Institute for Supply Management</a>                  | Formerly National Association of Purchasing Managers. Calculates the Purchasing Managers Index (PMI), conducts Report on Business survey   |

| Organization (cont.)  | Role  |
|---|---|
| <a href="#">Medicare Payment Advisory Commission</a>                    | Advises Congress on economic issues affecting the Medicare program, tracks Medicare-related hospital and post-acute spending                                      |
| <a href="#">Milliman USA</a>  | Consulting firm that constructs a Health Cost Index (HCI) from publicly available and proprietary data on provider revenues gathered through surveys of providers |
| <a href="#">National Academy of Social Insurance</a>                    | Reports on state-operated worker's compensation programs  |
| <a href="#">National Institute for Healthcare Management</a>            | Tracks prescription drug costs  |
| <a href="#">National Institutes of Health</a>                           | Tracks medical research expenditures  |
| <a href="#">National Science Foundation</a>                             | Tracks medical research expenditures  |
| <a href="#">OCHAMPUS Information Systems Division Statistics Branch</a> | Collects and reports TRICARE/CHAMPUS cost data  |
| <a href="#">Treasury Department</a>                                     | Primary agency responsible for national economic security, advises the president on economic issues, manages federal finances and the public debt                 |

## Metrics Measured

### Gross Domestic Product

The Gross Domestic Product (GDP) is considered the most basic and comprehensive measure of our economy's performance. The GDP is reported by the Department of Commerce, and measures total production of all goods and services in the economy within national borders, over a specified period. The GDP is obtained by valuing outputs of goods and services at market prices (actual prices that items sell for). The figure includes sales of everything from hamburgers to multi-million dollar corporations. The Department of Commerce has to estimate values of certain goods and services, such as rental income. Some costs are omitted from the GDP, including transfer payments of Social Security and pensions. Many of the figures that go into the GDP are collected by surveys (for example, the government asks companies for details of their sales each month) and are supplemented by official documentation that may take a long time to collect and analyze.<sup>26</sup> Prior to 1991, Gross National Product (GNP) was used as the primary measure of economic performance. The GNP measured output whether production took place within the country or in foreign nations. The United States switched to the GDP because that measure became the international standard. Real GDP (also called constant price GDP) is used to adjust for inflation. Real GDP is deflated using chain-type price index, which uses formulas that take into consideration costs from a base year and the current year.

### National Debt

The National Debt is the total of all the outstanding borrowings of the United States government, including monies owed by national, state and local governments. The figure does not include debts incurred by individual citizens or private organizations.

### Consumer Price Index

The Bureau of Labor Statistics prepares the Consumer Price Index (CPI). It is not a monetary figure measured in dollars, but rather a measure of the average change in prices paid by consumers for fixed goods and services over a specified period. For example, the Bureau of Labor Statistics reported that the March 2007 CPI level of 205.352 was 2.8% higher than in March 2006.<sup>18</sup>

### National Health Expenditures

Expenditure is defined as the issuance of checks, disbursement of cash, or electronic transfer of funds made to liquidate an expense regardless of the fiscal year the service was provided or the expense was incurred.<sup>40</sup> The National Health Expenditure (NHE) measure is an estimate of the amount spent for all health services and supplies and health-related research and construction activities consumed in the United States during the calendar year.<sup>44</sup>

### Federal Budget Outlays

Government spending includes outlays by federal, state and local governments. Federal budget outlays are the amount that the centralized national government spends in a given year. The figure includes governmental spending on private sector programs (such as private health insurance) as well as government sponsored programs. It has been estimated that approximately 20% of the GDP is governmental spending.<sup>11, 67</sup>

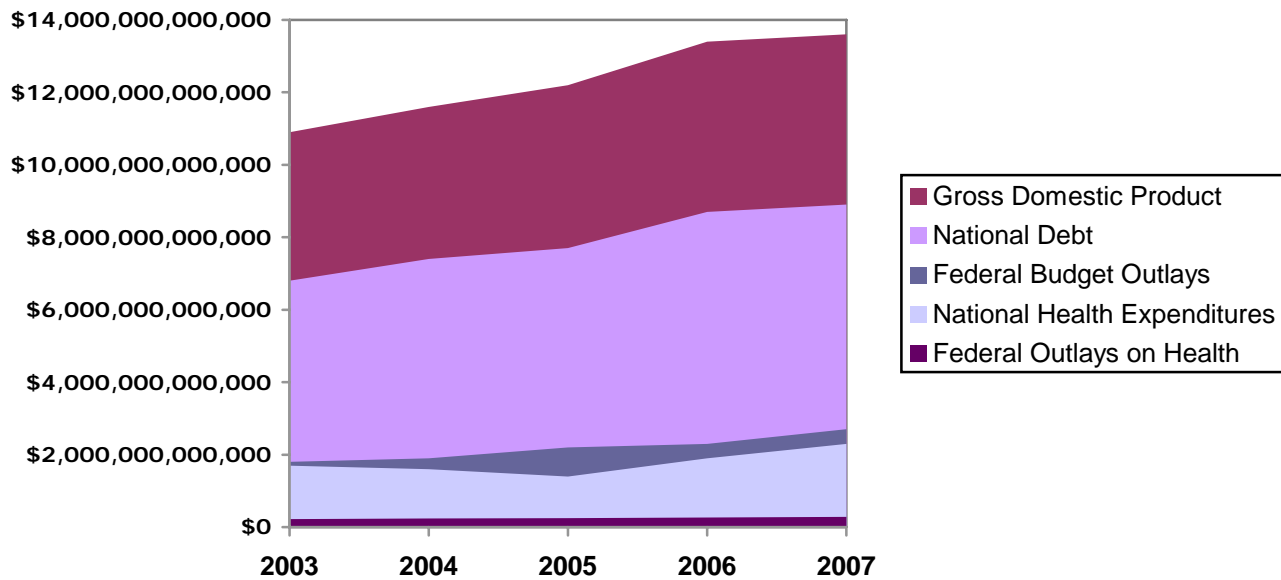
## Federal Outlays on Health

Federal outlays on health are the amount that the federal government (not state and local governments, consumers or private organizations) spends on health and medical care, services, equipment, facilities and research in a given year.

Figure 2 displays rising economic indicators over the past five years, and compares the nation's reported national health expenditures with its overall economic performance.

**Figure 2. Selected Economic Indicators, 2003-2007**

Figures rounded to nearest billion or trillion



| COST PER YEAR                   | 2003  | 2004   | 2005   | 2006  | 2007                          |
|---------------------------------|---|--|--|---|-------------------------------|
| <b>GROSS DOMESTIC PRODUCT</b>   | \$10.9 trillion <sup>77</sup>                                 | \$11.6 trillion <sup>77</sup><br>- \$11.7 trillion <sup>41</sup>   | \$12.2 trillion <sup>77</sup><br>- 12.7 trillion <sup>41</sup>     | \$13.4 trillion <sup>41</sup>                                       | \$13.6 trillion <sup>11</sup> |
| <b>NATIONAL DEBT</b>            | \$6.8 trillion <sup>77</sup> -<br>\$7 trillion <sup>22</sup>  | \$7.4 trillion <sup>77</sup> -<br>\$7.6 trillion <sup>22</sup>     | \$7.7 trillion <sup>77</sup> -<br>\$8.2 trillion <sup>22</sup>     | \$8.7 trillion <sup>22</sup>  | \$8.9 trillion <sup>22</sup>  |
| <b>FEDERAL BUDGET OUTLAYS</b>   | \$1.8 trillion <sup>9</sup> -<br>\$2.2 trillion <sup>82</sup> | \$1.9 trillion <sup>9</sup> -<br>\$2.3 trillion <sup>82</sup>      | \$2.2 trillion <sup>9</sup> -<br>\$2.5 trillion <sup>33</sup>      | \$2.3 trillion <sup>9</sup> -<br>2.7 trillion <sup>33</sup>         | \$2.7 trillion <sup>11</sup>  |
| <b>NAT. HEALTH EXPENDITURES</b> | \$1.7 trillion <sup>1, 20, 46, 56, 61, 71</sup>               | \$1.6 trillion <sup>48</sup> -<br>\$1.9 trillion <sup>61, 72</sup> | \$1.4 trillion <sup>31</sup> -<br>\$2 trillion <sup>61</sup>       | \$1.9 trillion <sup>68</sup> -<br>\$2.2 trillion <sup>16, 61</sup>  | \$2.3 trillion <sup>61</sup>  |
| <b>FED OUTLAYS ON HEALTH</b>    | \$219.6 billion <sup>9, 33</sup>                              | \$240.1 billion <sup>9, 33</sup> -<br>\$243.5 billion <sup>9</sup> | \$250.6 billion <sup>9, 33</sup> -<br>\$252.6 billion <sup>9</sup> | \$268.4 billion <sup>82</sup> -<br>\$268.8 billion <sup>9, 33</sup> | \$280.9 billion <sup>82</sup> |

## Public Health Programs

Spending on the two major federal health insurance programs: Medicare and Medicaid, has increased over the past five years. Estimates for these expenditures have varied. Following is an example of the variation in reported Medicare costs by three federal agencies for a single year:

- The Census Bureau reported federal budget outlays on Medicare for 2006 were estimated at \$343 billion.<sup>33</sup>
- According to the Medicare Board of Trustees, Medicare expenditures were \$408 billion in 2006.<sup>2, 17</sup>
- The Congressional Budget Office projected Medicare spending to be \$382 billion in 2006.<sup>50</sup>

Medicare and Medicaid expenditure data are extracted from a variety of databases and surveys. The Medicare Cost and Use file provides complete expenditure and source of payment data on all health care services provided to Medicare beneficiaries, including those not covered by Medicare. The Medicare Current Beneficiary Survey (MCBS) is a continuous sample of about 18,000 Medicare beneficiaries that surveys participants 3 times a year for 4 years. Expenditure data from the MCBS is included in the Medicare Cost and Use file.

Medicaid Statistical Information System (MSIS) claims tapes are submitted quarterly by states to the Centers for Medicare and Medicaid Services (CMS). The data reflects bills processed during the year, rather than services used during the year. CMS-64 is a statement of expenditures for the Medicaid program that states must submit to the CMS 30 days after each quarter. Expenditures are derived from invoices, cost reports, eligibility records and other documents. CMS includes the State Children's Health Insurance Program (SCHIP) when calculating Medicaid costs.

Rising Medicare and Medicaid costs have been a cause for concern for policymakers and advocacy groups. "Today the Medicare program faces a long-range and fundamental financing problem driven by known demographic trends and projected escalation of health care spending beyond general inflation," stated David M. Walker, Comptroller General of the United States. "From the perspectives of the program, the federal budget, and the economy, Medicare in its present form is not sustainable."<sup>84</sup> Factors in spending fluctuation include legislature, such as the Medicare Modernization Act of 2003, which increased payments to providers and resulted in higher premiums (Medicare Part B monthly premiums increased 17.4% to \$78.20 in 2004)<sup>78</sup>

**Figure 3. Reported Medicare and Medicaid Costs, 2003-2007**

Figures Rounded to the nearest billion

| COST PER YEAR   | 2003   | 2004   | 2005   | 2006   | 2007  |
|-----------------|--|--|--|--|---|
| <b>Medicare</b> | \$249.4 billion <sup>9, 33</sup> - \$534 billion <sup>39</sup> | \$269.4 billion <sup>9, 33</sup> - \$367.8 billion <sup>53</sup> | \$294.2 billion <sup>9</sup> - \$328 billion <sup>63</sup> | \$342 billion <sup>37</sup> - \$408 billion <sup>2, 17</sup> | \$389.2 billion <sup>76</sup> - \$428 billion <sup>43</sup> |
| <b>Medicaid</b> | \$160.1 billion <sup>46</sup> - \$284 billion <sup>14</sup>    | 274.8 billion <sup>1</sup> - \$309 billion <sup>14</sup>         | \$300 billion <sup>58</sup> - \$330 billion <sup>85</sup>  | \$325 billion <sup>34</sup> - \$338 billion <sup>62</sup>    | \$350 billion <sup>34</sup>                                 |

In addition to Medicare and Medicaid, the US government sponsors health insurance programs for various sectors, such as children from low-income families, Native Americans, military personnel/veterans and their dependents and federal workers. These programs comprise a smaller share of the market than Medicare/Medicaid, and cost proportionally less overall. Between 2003-2007, annual spending has been estimated for the following federal programs: military health care (\$36-\$50 billion),<sup>21, 86</sup> Federal Employees Health Benefits Fund (\$29.6-\$35 billion),<sup>74</sup> veterans' medical services (\$35 billion),<sup>38</sup> State Children's Health Insurance Program (\$6.8 billion),<sup>29</sup> and Indian Health Services (\$2.9-\$3.1 billion).<sup>74</sup>

## Health Services and Resources

### Hospital Care and Physician and Clinical Services

The cost of hospital care is measured using the Producer Price Index (PPI) for hospital services. The Bureau of Labor Statistics (BLS) randomly selects hospital patient bills for a predetermined set of Diagnosis Related Groups (DRGs) and records the full price paid for the services received. The BLS returns in future periods to obtain new price quotes and attempts to reprice the original patient bills. Payroll costs for hospitals are obtained from the BLS Employment, Hours and Earnings Series (EHE). This data excludes nonsalaried health professionals, such as workers contracted through temporary agencies. The American Hospital Association also tracks hospital spending. CMS updates expenditures estimates and projections as new data and analyses are available.

Expenditures for services of health professionals (doctors, nurses, chiropractors, etc.) are estimated from data from the Census Bureau's Annual Survey and quinquennial (once every five years) Census of Service Industries and data from the CMS.

**Figure 4. Reported Cost of Hospital Care and Physician and Clinical Services, 2003-2007**

Figures rounded to nearest billion

| COST PER YEAR                          | 2003   | 2004   | 2005   | 2006                        | 2007                          |
|--|--|--|--|-----------------------------|-------------------------------|
| <b>Hospital Care</b>                   | \$502 billion <sup>56</sup> -<br>\$518 billion <sup>74</sup>   | \$515.9 billion <sup>65</sup> -<br>\$963.9 billion <sup>59</sup> | \$565 billion <sup>56</sup> -<br>\$589 billion <sup>74</sup> | \$624 billion <sup>74</sup> | \$697.5 billion <sup>77</sup> |
| <b>Physician and Clinical Services</b> | \$356.8 billion <sup>46</sup> -<br>\$370 billion <sup>74</sup> | \$387 billion <sup>74</sup> -<br>\$397 billion <sup>74</sup>     | \$412 billion <sup>74</sup> -<br>\$426 billion <sup>74</sup> | \$454 billion <sup>74</sup> | \$474.2 billion <sup>77</sup> |

### Personal Health Care Expenditures

Personal health care expenditures are outlays for goods and services relating directly to patient care. This measure is derived from the total national health expenditures minus expenditures for research, construction, health insurance administration and governmental public health activities. Personal health care expenditures were projected by CMS as \$1.8 trillion in 2007. <sup>77</sup>

### Private Expenditures

Private expenditures are outlays for services provided by or paid for by nongovernmental sources (such as consumers, insurance companies, private employers, etc.) The Census Bureau projected private expenditures of \$1 trillion for 2005-2007. <sup>74, 77</sup>

Private expenditures can be broken down in many ways. For example, expenditures on government administration and net cost of private health insurance were estimated at \$123.9 billion <sup>46</sup> and spending by private individuals and health plans was estimated at \$913 billion in 2003. <sup>36</sup> The first figure describes the cost of commercial health plans and the governmental plans that interface with them, but not the amount consumers pay to utilize the plans. The second figure describes spending by private health insurers and plan participants.

Data on out-of-pocket spending (direct consumer payments for medical care not covered by health insurance) are gathered from a variety of sources, including: the Census Bureau's Annual Survey, the Bureau of Labor Statistic's Consumer Expenditure Survey, Kaiser/HRET's Annual Employer Health Benefits Survey, the Association for Healthcare Research and Quality's National Medical Expenditure Panel Survey, and surveys conducted by the American Hospital Association, American Medical Association, American Dental Association and other organizations. The Census Bureau reported out-of-pocket costs for 2004: physician office visits were estimated at \$29 million, dentist visits at \$34 million, hospital care at \$32 million and nursing and residential care facilities at \$31 million. <sup>74</sup> The AHRQ MEPS found that 19% of all health care costs were out-of-pocket expenses in 2004. <sup>59</sup>

### Diagnostic Testing and Medical Equipment

Durable and nondurable medical equipment expenditures are based on data prepared by the Bureau of Economic Analysis, BLS's Consumer Expenditure Survey, the National Medical Expenditure Survey, AHRQ's Medical Expenditure Panel Survey and the CMS. Private organizations involved in the testing and equipment fields have also estimated costs - for example, the Blue Cross Blue Shield Association estimated that the United States would spend \$96 billion on diagnostic imaging in 2005. <sup>55</sup>

### Long Term Care

Expenditures for nursing home and home health care are estimated from the Census Bureau's Annual Survey and quinquennial (every five years) Census of Service Industries. The CMS counts only freestanding nursing home and home health care facilities (services provided in hospital-based facilities are counted as hospital care). Nursing home spending includes assisted living facility revenues

only if an on-site nursing facility is part of the assisted living facility's services. Some revenues from nursing services are counted under "other professional services". Temporary services received through nurse registries are counted in government statistics under "temporary help agencies" and are excluded from the counts. The Census Bureau estimated that nursing home care expenditures were \$123.2 billion<sup>74</sup> and the Congressional Budget Office estimated that total long-term-care expenditures were \$135 billion in 2004.<sup>35</sup>

**Medications**

Prescription drug expenditures estimates use retail sales as the primary metric. Intercontinental Marketing Services reported \$192 billion in drug sales in 2003.<sup>69</sup> The Census Bureau reported expenditures on prescription drugs of \$179 billion for 2003, and projected expenditures of \$201 billion for 2004, \$224 billion for 2005 and \$249 billion for 2006.<sup>74</sup> These figures do not take into account over-the-counter non-prescription medications (such as Tylenol, Tums, etc.), vitamins, dietary supplements and alternative medicines (such as Echinacea, flaxseed oil, etc.) and "medicated" products (such as medicated shampoos, bandaids or baby powders).

**Additional Medical Services**

The CMS, Census Bureau and other organizations track expenditures for various health care services, such as ICU care and rehabilitation.

**Figure 5 – Reported Expenditures by Service, 2003-2007**

Figures rounded to nearest billion or trillion

| SERVICE              | Range of Expenditures Reported                               |
|----------------------|--|
| Diagnostic Testing   | \$96 billion <sup>55</sup> - <\$100 billion <sup>23</sup>    |
| Emergency Care/ICU   | \$142 billion <sup>54</sup> - \$180 billion <sup>57</sup>    |
| Long Term Care       | \$132.1 billion <sup>46</sup> - >\$200 billion <sup>73</sup> |
| Medical Equipment    | \$18.4 billion <sup>46</sup> – \$74 billion <sup>23</sup>    |
| Medications          | \$140.6 billion <sup>46</sup> - \$234 billion <sup>74</sup>  |
| Personal Health Care | \$1.2 trillion <sup>46</sup> - \$1.4 trillion <sup>46</sup>  |
| Rehabilitation       | \$0.8 billion <sup>74</sup>                                  |

**Research**

Commercial research on drugs by pharmaceutical companies is assumed to be part of the price charged to the product by the Centers for Medicare and Medicaid Services, and is not included in expenditure summaries for national health accounts. Noncommercial medical research (nonpharmaceutical research) expenditures are developed from data collected by the National Institutes of Health and the National Science Foundation. The Census Bureau estimated private expenditures of \$3.4 billion and public expenditures of \$35.6 billion on medical research in 2004.<sup>74</sup>

**Additional Costs**

Other costs of healthcare include personnel and overhead, administration, building construction, facilities maintenance, marketing and planning, information technology, provider education and industry regulation.

## The “Cost of Disease”

Figures 6 and 7 display reported costs for the top priority 15 chronic conditions defined in the IOM’s *Crossing the Quality Chasm*.<sup>49</sup>

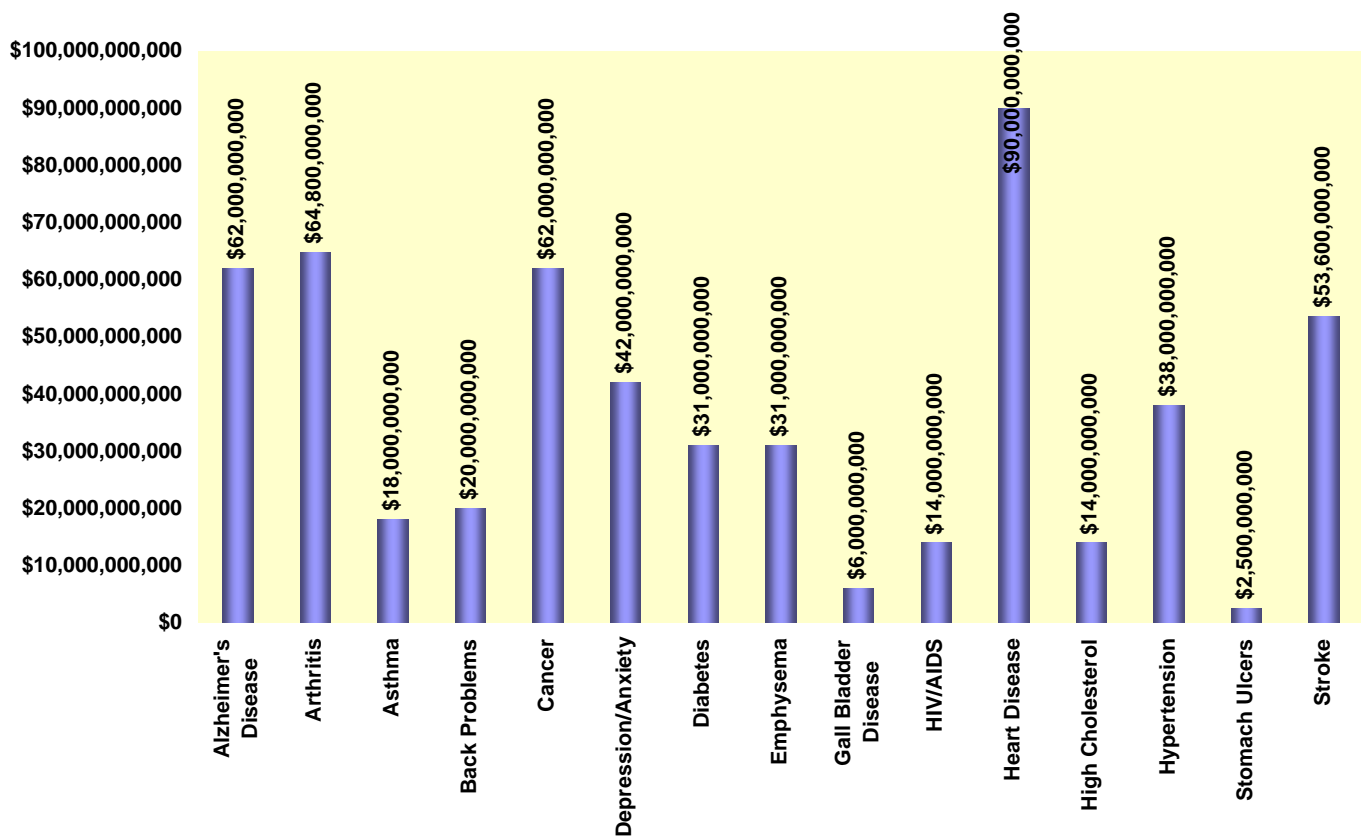
**Figure 6 - Ranges Identified for Costs of Disease, 2003-2007**

Figures rounded to nearest billion.

| Disease              | Cost Ranges  |
|----------------------|--|
| Alzheimer’s Disease  | \$62 billion <sup>81</sup> - 148 billion <sup>6</sup>            |
| Arthritis            | \$64.8 billion <sup>30A</sup> – \$215 billion <sup>30B</sup>     |
| Asthma               | \$18 billion <sup>7</sup> - \$80 billion <sup>79</sup>           |
| Back Problems        | \$20 billion <sup>75</sup> - >\$90 billion <sup>64</sup>         |
| Cancer               | \$62 billion <sup>79</sup> - \$263.3 billion <sup>13</sup>       |
| Depression/Anxiety   | \$42 billion <sup>25</sup>                                       |
| Diabetes             | \$31 billion <sup>79</sup> - \$132 billion <sup>10, 24, 45</sup> |
| Emphysema            | \$31 billion <sup>28</sup>                                       |
| Gall Bladder Disease | \$6 billion <sup>3</sup>   |
| HIV/AIDS             | \$14 billion <sup>44</sup> - \$19.7 billion <sup>51</sup>        |
| Heart Disease        | \$90 billion <sup>79</sup> - \$431.8 billion <sup>45</sup>       |
| High Cholesterol     | \$14 billion <sup>47, 83</sup> - \$20 billion <sup>47</sup>      |
| Hypertension         | \$38 billion <sup>79</sup> – 66.4 billion <sup>45</sup>          |
| Stomach Ulcers       | \$2.5 billion <sup>66</sup>                                      |
| Stroke               | \$62.7 billion <sup>45</sup>                                     |

**Figure 7 – Lowest Reported Initial Costs of Disease, 2003-2007**

Figures rounded to nearest billion



## Determining the Cost of Disease - Issues and Challenges

No single data repository representing the entire population contains all of the information necessary to estimate costs of chronic disease, so it is necessary to draw upon a multitude of disparate data sources. Some nationally representative surveys, such as the Medical Expenditure Panel Survey (MEPS), track the cost of selected chronic diseases, such as diabetes. Various governmental and nonprofit organizations and researchers from private institutions have initiated and constructed their own studies. Many researchers have used the average annual cost per person with a chronic disease and the national disease prevalence to make estimates, while others have analyzed hospital, insurance company and prescription drug spending data. Numerous researchers include “unpublished data” from within their own institutional archives in their estimations.

Following are examples of the diversity of agencies involved in data collection and reporting costs of chronic disease:

- Federal spending for HIV-related activities was compiled with data from the Office of the Assistant Secretary for Budget, Technology and Finance, Office of the Treasury, DHHS and unpublished data.<sup>44</sup>
- A study funded by the Arthritis Foundation and the National Institutes of Arthritis and Musculoskeletal and Skin Diseases researched annual costs of arthritis and rheumatic diseases.<sup>52</sup>
- The Alzheimer’s Association senior public policy staff used their unpublished analyses of federal budget documents to report federal government estimates on Alzheimer’s Disease spending.<sup>6</sup>

It is difficult to extract statistics on specific disease costs, since many conditions are interrelated and people with one chronic condition often have additional medical conditions that require care. For example, the National Institute of Mental Health estimated that anxiety-related disorders cost the United States \$42 billion a year in work-related medical losses in 2004.<sup>25</sup> The DSM-IV classifies the following disorders under anxiety disorders: acute stress disorder, agoraphobia, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobias and posttraumatic stress disorder. Many individuals with anxiety disorders also suffer from depression. How can the researchers discern which costs occurred due the anxiety versus depression or another condition?

Additional data collection challenges arise from differences in definitions for identifying people with various chronic diseases. The NHLBI estimated 2006 costs of *heart disease* at \$258.5 billion and *coronary heart disease* at \$142.5 billion.<sup>45</sup> Standardization of classification regarding disease nomenclature is necessary to achieve meaningful statistics on disease costs.

### Direct vs. Indirect Costs

It is easier to collect data on tangible facets of health care, such as inpatient stay or diagnostic testing, which are considered among the “direct costs” of treating a chronic condition, than intangible “indirect costs”, such as absenteeism from work. Some indirect costs, such as quality of life, are subjective and have been the topic of debate in the research community for many years.

**Figure 8 – Direct and Indirect Costs of Chronic Conditions**

| Direct Costs  | Indirect Costs  |
|---|---|
| Doctor’s office visits  | Absenteeism of employees who care for family members  |
| Diagnostic testing  | Care provided by nonpaid caregivers                   |
| Durable and nondurable medical products                         | Cessation of work                                     |
| Hospital, nursing home and home health care services            | Consumer health education                             |
| Medications, immunizations                                      | Financial assistance to persons with chronic disease  |
| Physicians and other professionals                              | Household allergy control measures                    |
| Treatment of general medical conditions attributed to condition | Housekeeping assistance needed because of disease     |
|   | Loss of productivity at work                          |
|   | Pain and suffering, quality of life                   |
|   | Research and construction of healthcare facilities    |
|   | Restricted activity days                              |
|   | Transportation to and from healthcare visits          |
|   | Unpaid household labor resulting from premature death |
|   | Value of lost future earnings from paid market        |

Following are examples of direct and indirect costs of disease:

- *Health, United States* estimated federal spending on HIV as \$16,677,000,000, while federal spending for HIV for medical care only was estimated at \$10,222,000,000 in 2003.<sup>44</sup>
- In 2004, the National Institutes of Health estimated overall annual costs for cancer: total cost: \$189.8 billion, direct medical costs: \$69.4 billion, indirect morbidity costs: \$16.9 billion and indirect mortality costs: \$103.5 billion.<sup>13</sup>
- The cost of cardiovascular diseases and stroke in 2004 was estimated to be \$368.4 billion, according to the American Heart Association and the NHLBI. The authors of the report added, "This is only the economic cost. The true cost in human terms of suffering and lost lives is incalculable."<sup>15</sup>

Many of the indirect costs are extremely difficult to quantify financially, and it is probably unrealistic to assume that precise data collection systems can be constructed to track a metric like *restricted activity days due to chronic disease* at a national level.

## Discussion

Why are health care costs so difficult to collect and understand? Part of the challenge lies in the complex nature of economics as a discipline. Researchers, analysts and writers reporting on costs really need to have a firm grasp of the intricacies of economic principles and formulas.

It often takes teams of researchers years of data extraction and analysis to prepare cost estimates based on numerous documents and surveys; it is not uncommon for a study published in 2006 to have finally completed their evaluation of costs for 1996! For example:

- In 2005, the Depression and Bipolar Support Alliance reported that depression and mood disorders cost \$43 billion each year, based on articles published in 1990 and 1993.<sup>42</sup>
- In *Statistical Abstract of the States 2006*, data for 2004 were listed as summary, while data from 2005 onward were listed as projections.<sup>74</sup>
- For fiscal year 2005, Congress appropriated about \$31.5 billion for all of VA's medical programs, using model projections based on fiscal year 2002 data.<sup>27</sup>

However, online technologies have changed the face of publishing, so many statistics can be updated in a timelier fashion. The online version of *Health United States, 2004* updated 15 tables between October 2004 and April 2005, including data on employers' costs per employee-hour worked for total compensation, wages and salaries, and health insurance.<sup>44</sup>

A myriad of factors can influence health care costs and spending, from inflation to unemployment to legislation to relations with other nations. Short term cost comparisons may present an unreliable picture because short-lived regulatory changes or management techniques can alter findings from year to year.<sup>8</sup> Inflation of all goods and services is a key factor in fluctuating spending patterns.

Health care spending can increase as the general population rises and people live longer lives. A University of Pennsylvania study found that costs per year increased with the time since diagnosis for Alzheimer's Disease<sup>81</sup> and the American Health Assistance Foundation estimated the yearly cost of caring for one Alzheimer's patient as \$18,400 for mild symptoms, \$30,100 for moderate symptoms, and \$36,132 for advanced symptoms.<sup>19</sup>

Health care costs and spending vary widely across geographic areas, sociodemographic groups (age, ethnicity, education, income level, etc.) Health care disparities have been the focus of much discussion and many reform proposals. The HCDP *Deconstructing the Costs* project plans to look at costs and spending from some of these various perspectives. There have also been variations in the financing of and outlays for public and private health care delivery. An analysis published in *Health Affairs* comparing Medicare and private insurers stated that it can be misleading to compare Medicare and private insurance expenditures because covered benefits and use of services in the two sectors vary considerably.<sup>8</sup>

The 21<sup>st</sup> Century is a pivotal time for health care, with new technologies, products, proposals and legislation arriving on the scene at a breakneck speed. The Health Care Delivery Policy Program at Harvard University's John F. Kennedy School of Government's Mossavar-Rahmani Center for Business and Government will continue to *deconstruct the costs* and provide recommendations to researchers and policymakers on how to best track and interpret data on health care costs and spending.

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