

Health Care Expenditures

Wisconsin in the National Context

Technical Brief
December 2019

Executive Summary

Objective

To provide information on the terms, definitions, and concepts that contextualize the debate around health care expenditures.

Introduction

Health care costs are rising. The news headlines provide information on rising prescription drug prices, hospital prices, and out of pocket bills. People are feeling the effects of rising health care costs in their monthly expenditures.

Data Sources

The U.S. Centers for Medicare and Medicaid Services¹ publishes annual data presenting total national health expenditures. The estimates, termed National Health Expenditure Accounts (NHEA), are available through CMS. The NHEA represent the economic activity within the health care sector, which comprises 17.9% of the US gross domestic product (GDP).

National Health Expenditures (Years Available: 1991-2017)

The NHEA is an economic accounting construct and so it is important to thoroughly define the concepts, data sources, and methods used in creating the estimates.

The NHEA are estimates derived from a compilation of health care expenditure data sources, which allows for a complete picture of health care spending in the U.S. The individual data sources include the American Hospital Association's Annual Survey of Hospitals, the U.S. Census Bureau's Economic Census and Service Annual Survey, IMS Health's National Prescription Audit and Method of Payment Report, governmental program or budget data, and several others. A more complete description of the data sources and methods used in the NHEA is available [online](#).

The NHEA include several types of health care spending:

- Personal Health Care expenditures (PHC)
- Health Consumption Expenditures (HCE)
- National Health Expenditures (NHE)
- Government public health activity
- Government administration and the net cost of health insurance
- Investment

Personal Health Care in 2014

Wisconsin \$50.1B

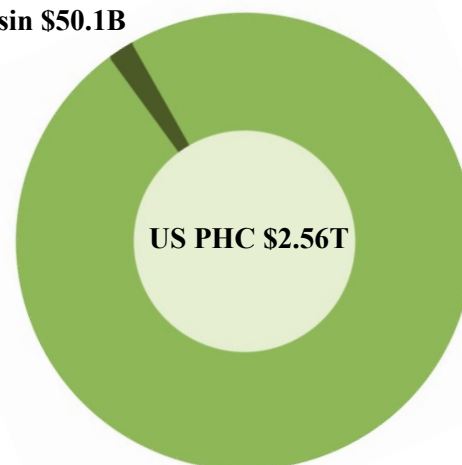


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Key Findings

State Health Expenditures (Years Available: 1991-2014)

Key Findings and Conclusions:

Wisconsin personal health care (PHC) expenditures in 2014:

- The Wisconsin total (nominal) PHC expenditures was **\$50.12 billion**, which grew by 2.1% from the previous year. The national nominal PHC in 2014 was **\$2.56 trillion**.
- The average annual nominal growth rate of PHC was 6.2% from 2001 to 2014.
- Per capita nominal PHC was \$8,702 with a 6% nominal growth from previous year.
- Total expenditures was 18.8% of gross domestic product GDP in 2014.

National health care expenditure (NHE) in 2017:

- Total real NHE was \$3.23 trillion in 2017 with a real growth of 2.2%. The real NHE was \$2.94 trillion in 2014 (index year = 2012) and a real growth of 3.5% from the previous year.
- Per capita real NHE was \$9,947 in 2017, which grew by 1.5% from the previous year.
- The annual average nominal growth rate of health care expenditures was 5.6% (real 4.1%) from 2001-2017.
- Total nominal NHE was 17.9% of GDP in 2017 and 17.7% of GDP in 2014.

From 2013 to 2014, Wisconsin experienced a growth rate of 2.1% which was lower than the national growth rate of 3.0% in total health care expenditures.

Introduction

Health care spending in the U.S. is higher than other developed countries, accounting for close to 18% of GDP in 2017. Health care expenditures in the U.S. continue to increase despite various reforms aimed at keeping costs contained. It makes sense then to take an in depth look at the precise definitions of individual pieces of health care spending. In this brief, we explore the different elements of health care expenditures of Wisconsin, and the nation as a whole, using data from the National Health Expenditure Accounts (NHEA) developed by the Centers for Medicare & Medicaid Services.

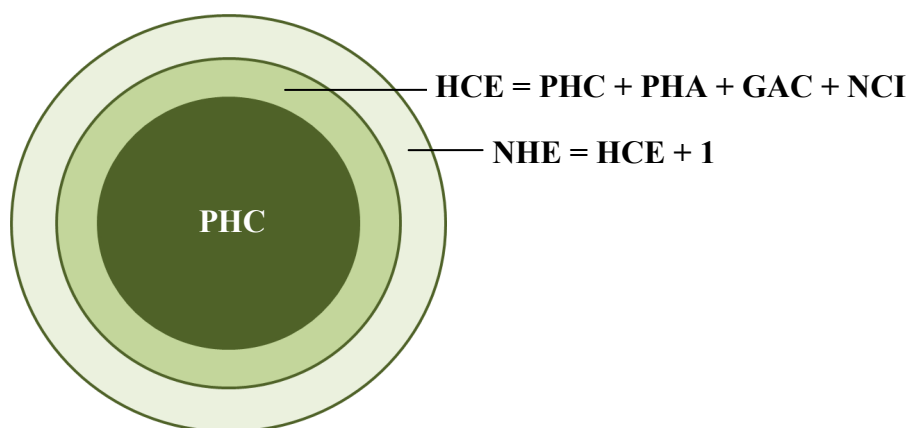
Recognizing that the national health care expenditures have many components, a precise definition of each component is provided so that state level comparisons are possible. Health care expenditure is an accounting measure, so each term accounts for a precise portion of total expenditure.

Data Sources

Personal Health Care (PHC) is the sum of:

1. Hospital care
2. Professional services
 - a. Physician and clinical services
 - b. Other professionals services
 - c. Dental services
3. Other health
4. Residential
5. Personal care
6. Home health care
7. Nursing care facilities
8. Continuing care retirement communities
9. Retail outlet sales of medical products
 - a. Prescription drugs
 - b. Durable medical equipment
 - c. Other non-durable medical products

Figure 1. Schematic Diagram of the Components of National Health Care Expenditures (NHE)



Source: [National Health Expenditure Data, Centers for Medicare & Medicaid Services.](#)

Health Consumption Expenditures (HCE) is the sum of expenditures on health care, which include the following items:

1. Personal health care (PHC).
2. Expenditures on public health activities (PHA) that are used in organizing and delivering health services for the prevention or control of illnesses.
3. Government administrative costs (GAC) of running various governmental health programs.
4. The net cost of health insurance (NCI), which equals the difference between premiums earned by insurers and claims or losses incurred.

National Health Care Expenditure (NHE) is the sum of expenditures 1-4 above plus investment (1) spending on noncommercial biomedical research, and expenditures incurred by health care establishments on medical equipment and structures.

The NHEA are estimates derived from a compilation of health care expenditure data sources, which allows for a complete picture of health care spending in the U.S. The individual data sources include the American Hospital Association's Annual Survey of Hospitals, the U.S. Census Bureau's Economic Census and Service Annual Survey, IMS Health's National Prescription Audit and Method of Payment Report, governmental program or budget data, and several others. A more complete description of the data sources and methods used in the NHEA is available [online](#).

National Health Expenditures (Years Available: 1991-2017)

Historical spending measures the annual health care spending in the U.S. by type of good or service delivered (hospital care, physician and clinical services, retail prescription drugs, etc.), source of funding for those services (private health insurance, Medicare, Medicaid, out-of-pocket spending, etc.) and by sponsor (businesses, households and governments).

State Health Expenditures (Years Available: 1991-2014)

Personal health care (PHC) expenditures by state of provider are calculated estimates of health spending by the location of health care providers in the 50 states and in the District of Columbia. These estimates are presented by the type of good or service (hospital care, physician and clinical services, retail prescription drugs, etc.) and by source of funding (Medicare and Medicaid). At the state level, CMS does not offer data on private insurance or out-of-pocket spending.

PHC expenditures by state of residence are based on state of provider estimates adjusted for the flow of residents between states in order to consume health care services. These estimates present health spending on behalf of residents in the 50 states and in the District of Columbia. Estimates of aggregate and per capita health spending by type of good or service (hospital care, physician and clinical services, retail prescription drugs, etc.) are included. Per enrollee spending for Medicare and Medicaid is presented by type of good or service, and per enrollee spending for private health insurance is presented in aggregate.

In this brief, we include historical national health expenditures and PHC expenditures for Wisconsin residents.

Key Definitions

Recessions: two consecutive quarters of negative economic growth. They can be caused by economic shocks (spike in oil prices), financial panics (bank runs during the Great Depression), rapid changes in economic expectations (the technology bubble of early 2000) or a combination of all three.

Nominal dollars: the value of dollars at the time of measurement (year) that is not adjusted for inflation.

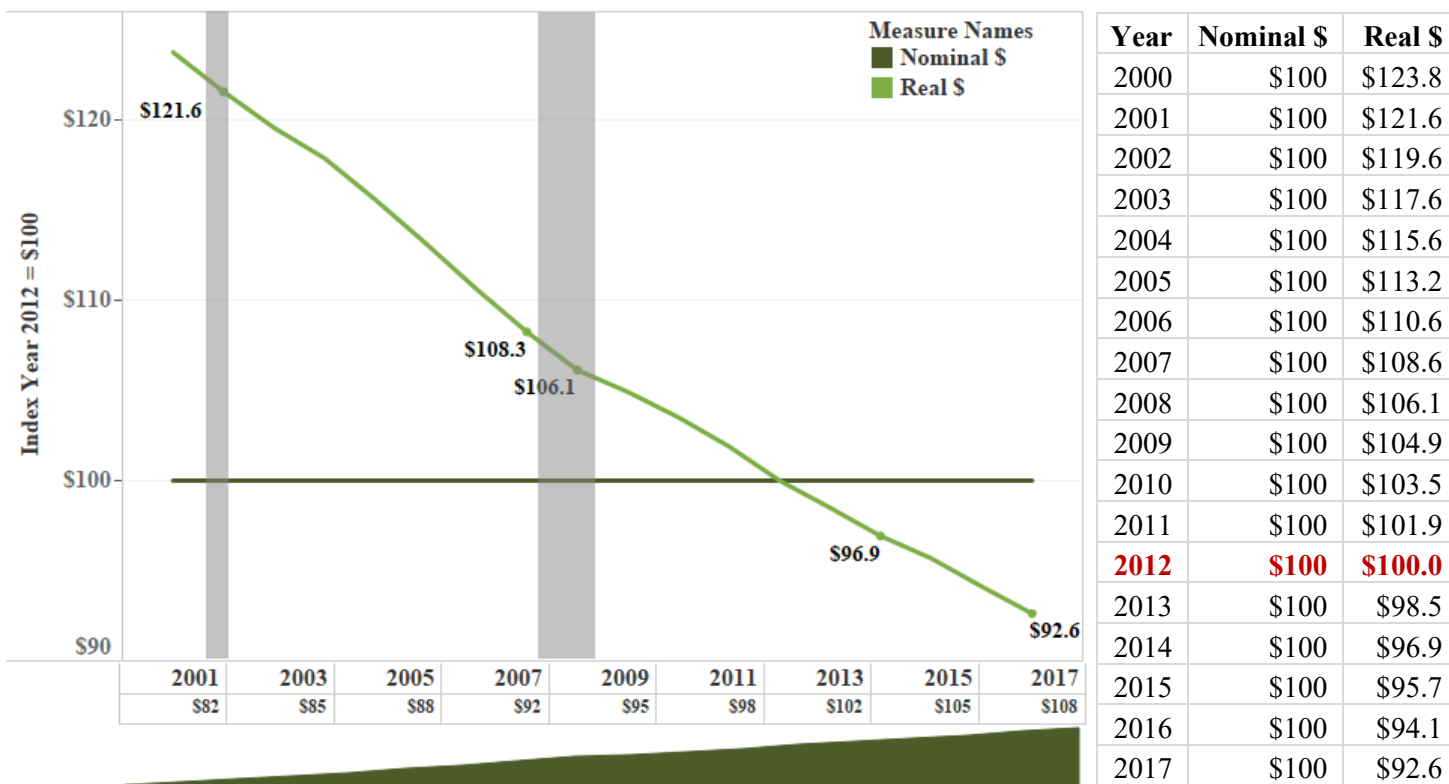
Real dollars: the value of dollars adjusted for inflation. It is usually tied to a price index (for example, GDP deflator) with a fixed index year. The index year is 2012 throughout the report.

GDP deflator index: a measure of price inflation determined by tracing the cost of a standard basket of goods and services over time¹.

Conversion formula: $Real \$ = (Nominal \$ * 100) / (GDP \text{ deflator index})$

Economists track expenditures over time in real, or inflation-adjusted dollars because inflation causes expenditures to go up independent of changes in costs, scarcity, and affordability (earnings tend to keep pace with inflation).

Figure 2. Conceptual Graph of Nominal versus Real Dollars



Source: U.S. Bureau of Economic Analysis, Personal consumption expenditures excluding food and energy (chain-type price index) [DPCCRG3A086NBEA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DPCCRG3A086NBEA>, April 5, 2019.

Figure 2 shows how much it would cost to purchase in constant 2012 or real dollars for the same bundle of goods and services one could purchase using a \$100 bill in each year. For example, that \$100 bill could purchase \$123.80 worth of 2012 services if spent in 2000 but only \$92.60 worth of 2012 services if spent in 2017. In other words, \$100 in 2012 had the same value as \$123.80 had in 2000, and \$92.60 had in 2017. The grey shaded regions are the recession years.

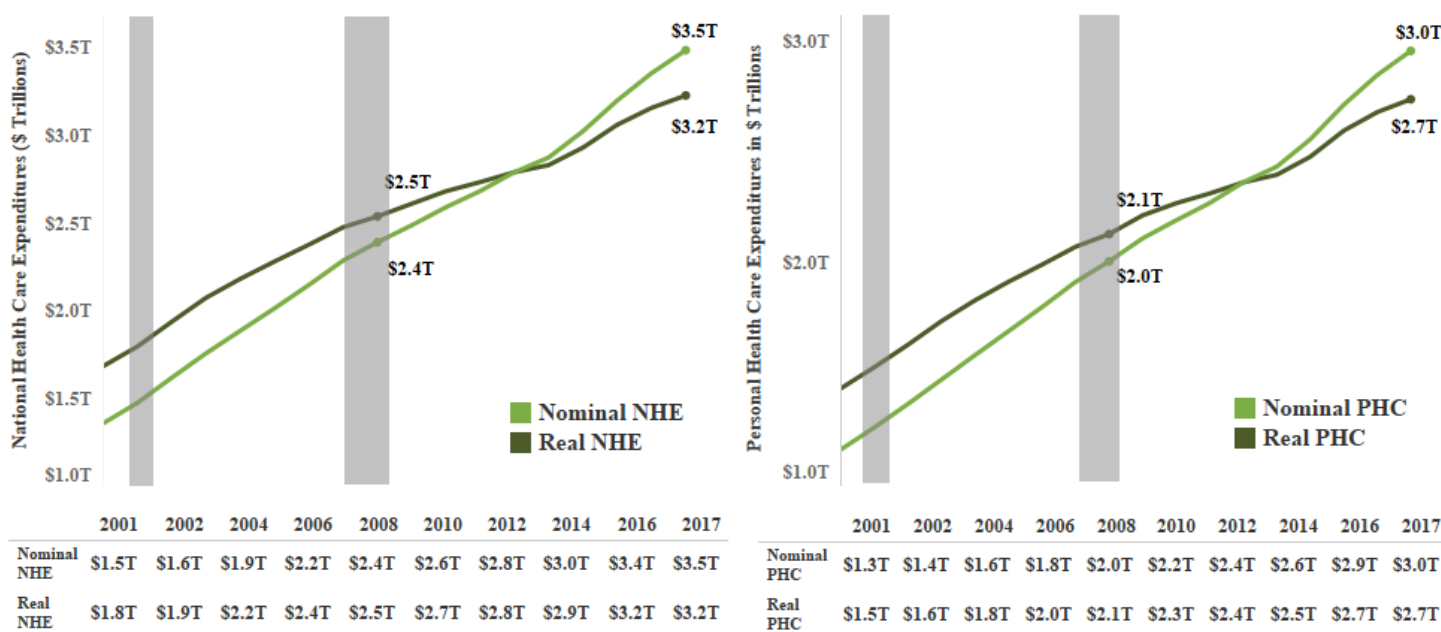
1. For national accounting it is a convention to use GDP deflator; the CMS calculates PHC deflator based on medical price index. To keep consistent with national health expenditures we use GDP deflator and note the calculations using PHC deflator are relatively straightforward.

National Health Care Expenditures

Key Points

- In 2017, the national health care expenditures (NHE) in the U.S. were \$3.5 trillion, or 17.9% of national GDP. Personal health care expenditures (PHC) accounted for 83-85% of the total NHE.
- Real growth of NHE from 2012 to 2017 was 14.2%.
- Real NHE was \$2.9 trillion and PHC was \$2.5 trillion for the U.S. in 2014.
- NHE and PHC trends were the same for years 2000—2014 and so the PHC trend is a good proxy for total health care expenditures in Wisconsin for 2000 to 2014.
- Figure 3 illustrates how real and nominal NHE and PHC move together.

Figure 3. National Health Care Expenditures, 2000-2017



Source: National Health Expenditure Data, Centers for Medicare & Medicaid Services

Note: Index Year 2012

The U.S. Economy

If we examine only the nominal NHE in Figure 3, we are tempted to conclude that health care costs are rising linearly. Without accounting for inflation, we cannot know if the real health care expenditure has actually been steady across years or going down. For example, nominal \$3.5T spent on NHE in 2017 may indeed be the same value as nominal \$2.8T spent on NHE in 2012. We must adjust for fluctuations in the price level so that we can make more accurate comparisons. To calculate real NHE we use the GDP deflator with an index year. We follow standard convention and use the Federal Reserve Economic Research (FRED) data on GDP deflator and set index year 2012 = 100. We find that total real NHE in 2017 had gone up by 16% since 2012. To illustrate the difference between real and nominal values, we provide a brief table showing both values for NHE. Because Wisconsin data is only available from 2000-2014 we examine total NHE in 2014 and note that real NHE went up by 3% in 2014 compared to the previous year.

Placing PHC and NHE trend graphs side by side we can see they both grow identically and indeed PHC is approximately 85% of NHE across years. Because PHC forms a consistent portion of NHE, we can infer that the PHC trend for Wisconsin (shown on the following pages) is the same as total health care expenditure for Wisconsin.

National Personal Health Care Expenditures by Type

Key Points

- Hospital care was 38.6% of national PHC with a nominal growth rate of 4.6% from 2016.
- Physicians and clinical services accounted for 23.4% of national PHC with a real growth rate of 4.2% from 2016.
- Medicaid accounted for 17.6% of national PHC as compared to out of pocket health care expenditures, which were 12.3% of total PHC.
- Wisconsin real PHC grew by 4.6% from 2013 to 2014.
- Wisconsin prescription drug real expenditures grew by 7.3% from 2013 to 2014.
- Wisconsin hospital care real expenditures grew by 5.9% from 2013 to 2014.

Table 2: PHC by Type of Expenditure

Expenditure Type 2017	% of total PHC	% Change from 2016 to 2017
Hospital Care	38.6%	4.6%
Physician and Clinical Services	23.4%	4.2%
Prescription Drugs	11.3%	0.4%
Other Health Care	6.2%	5.6%
Nursing Care Facilities	5.6%	2.0%
Dental Services	4.4%	3.2%
Other Medical	4.0%	4.2%
Home Health	3.3%	4.2%
Other Professional Services	3.3%	4.5%

Table 2 shows PHC by type of expenditures, and reveals noteworthy spending patterns. For payer type, other health insurance programs increased 5.8% from 2016 to 2017 as compared to Medicaid, which grew 3.4% during the same time period.

The types of health care expenditures with the largest increases from 2016 to 2017 were in other health care expenses at 5.6%, hospital care at 4.6%, and other professional services at 4.5%. Physicians and clinical services accounted for 23.4% of total national PHC in 2017 and hospital care accounted for 38.6%. These percentages are consistent with the historical percentages for type of health care expenditure. Spending on physicians and clinical services increased by a nominal percent of 4.2% in 2017. Similar to Wisconsin, national prescription drug expenditures were just above 10% of total PHC. Lower spending in out-of-pocket and private health insurance expenditures could have contributed to a slowing down of nursing care expenditures, which accounted for 5% of total PHC in 2017.

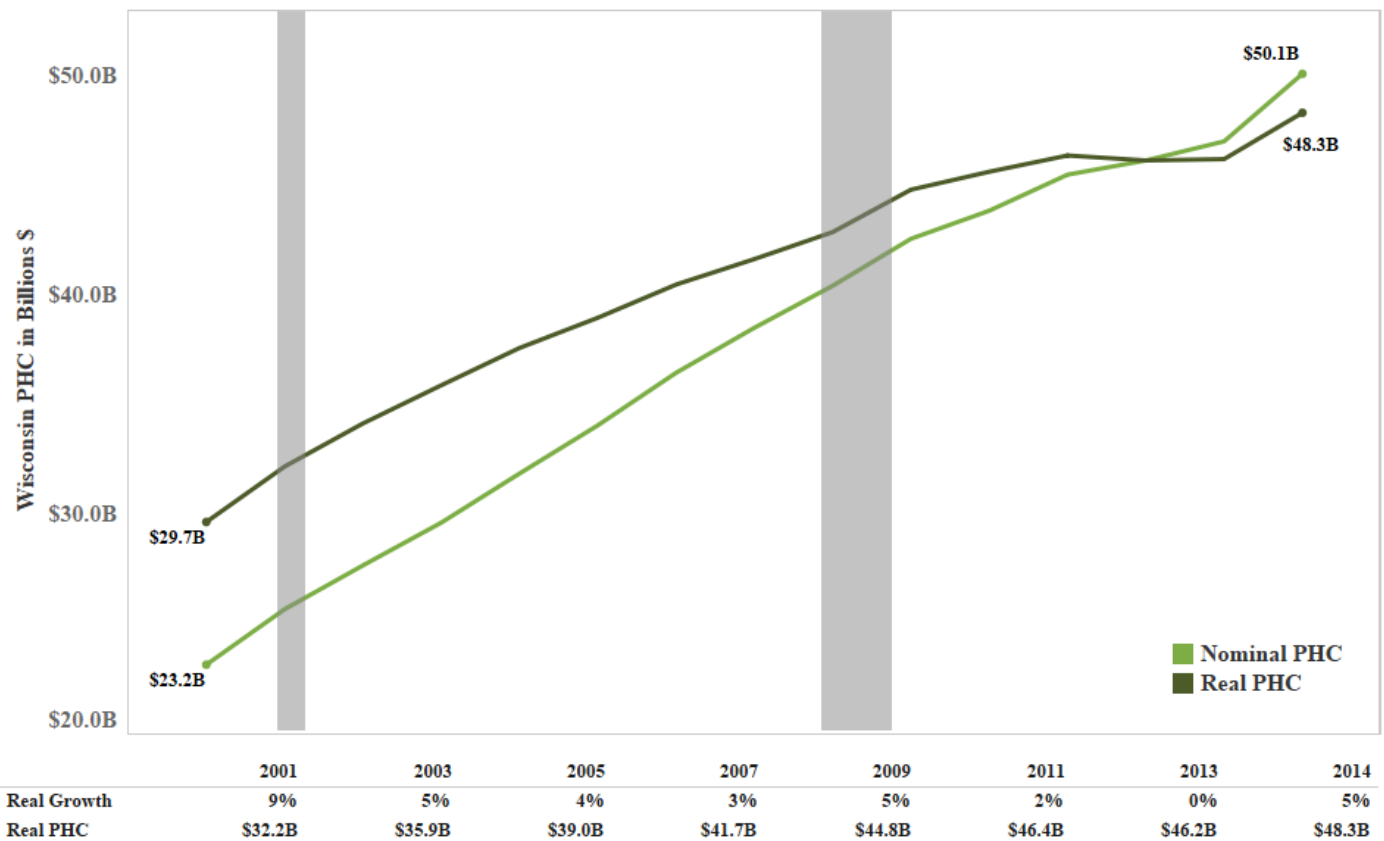
The Wisconsin health care expenditures presented have two noteworthy limitations compared to the national expenditures. First, the most recent health expenditure data disaggregated at the state level is for 2014. Second, at the state level, the type of payer is only broken into three categories: Medicaid, Medicare, and all other sources (including private health insurance) are grouped into one category.

Wisconsin Personal Health Care Expenditures

Key Points

- In 2014, Wisconsin’s nominal PHC spending was \$50.1 billion, which accounted for 2% of national PHC expenditures.
- Wisconsin real PHC expenditure grew by an average of 1.63% annually from 2000 to 2014.
- The recession and ACA did cause a slowdown in real health care expenditures for Wisconsin.
- Wisconsin had the lowest PHC spending among the Great Lakes states.
- In Wisconsin, hospital care, physician and clinical services, and prescription drugs made up 77% of total PHC expenditures in 2014.

Figure 4. Wisconsin PHC in billions of dollars, 2000-2014



Source: National Health Expenditure Data, Centers for Medicare & Medicaid Services

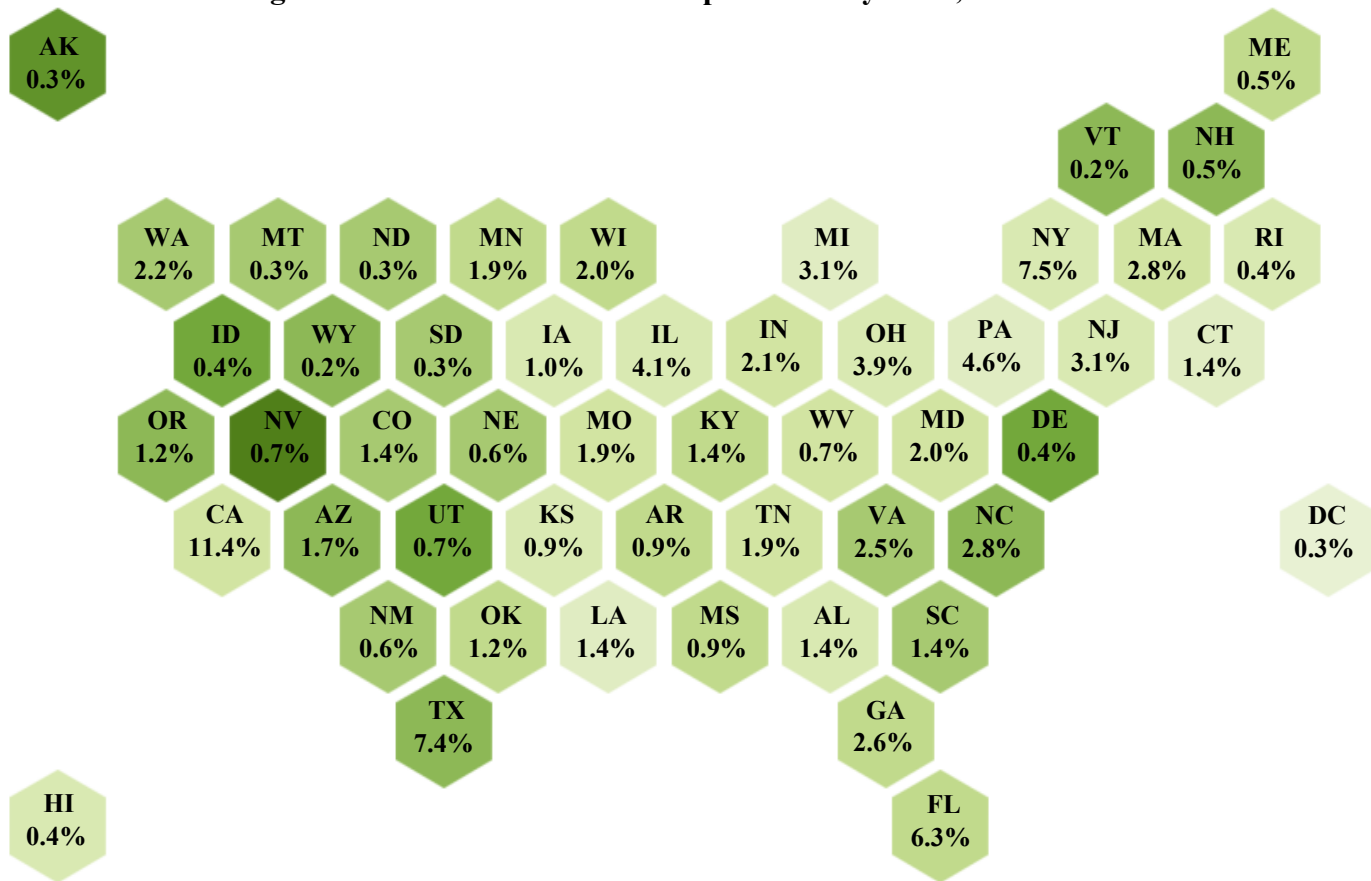
Note: The national estimates are available through 2017, but Wisconsin estimates are only available through 2014.

Wisconsin’s PHC real expenditures in 2014 were \$48.3 billion as compared to \$29.7 billion in 2000. From 2000 to 2014, the average growth of PHC expenditures for Wisconsin was 1.63% in constant 2012 dollars. The annual real growth rates have been declining steadily since 2001 with the largest slow downs in growth occurring after 2008. In 2011 and 2012 there was zero growth and there is positive growth between 2013 and 2014.

PHC expenditures are available for each state. Figure 5 maps 2014 nominal dollars as the percent of total national PHC. We can see that Wisconsin accounts for simply 2.0% of national PHC. In 2014, the per capita national PHC spending was \$8,045 and the per capita Wisconsin PHC was \$8,702. The NHEA data divides up the states in eight distinct regions: New England, Mideast, Great Lakes, Plains, Southeast, Southwest, Rocky Mountains, and Far West. Wisconsin is part of the Great Lakes region along with Illinois, Indiana, Michigan, and Ohio. Wisconsin, being the least populous of the Great Lake states, has the lowest share of national PHC expenditures and Illinois, being the most populous, has the highest expenditures at 4.1% of total national PHC expenditures.

The top three sources of PHC expenditure in 2014 were hospital care (40.2%), physicians and clinical care (24.9%), and prescription drugs (12.7%). The nominal annual growth rate for PHC has been 6.2%, which was in line with the national nominal growth rate of 6%. If we just focus on nominal PHC, then the recession of 2008 plus the ACA effect of 2010, shows a slight slowdown, and picks up again in 2014.

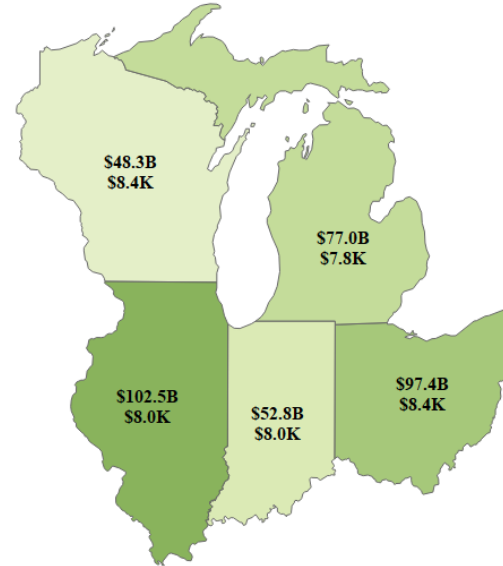
Figure 5. Percent of total PHC Expenditure by State, 2014



Source: National Health Expenditure Data, Centers for Medicare & Medicaid Services

Figure 6 shows the PHC real expenditures for the Great Lakes states. In this grouping of states, Illinois and Ohio have the highest PHC real expenditures of \$102.5 billion and \$97.4 billion, respectively, and Wisconsin ranks the lowest in PHC real expenditures with \$48.3 billion for 2014. However, if we look at per capita PHC in these same comparison states, we notice Wisconsin and Ohio have the highest per capita PHC at \$8.4K and Michigan has the lowest per capita PHC at \$7.8K.

Figure 6. Great Lakes States Real PHC, 2014

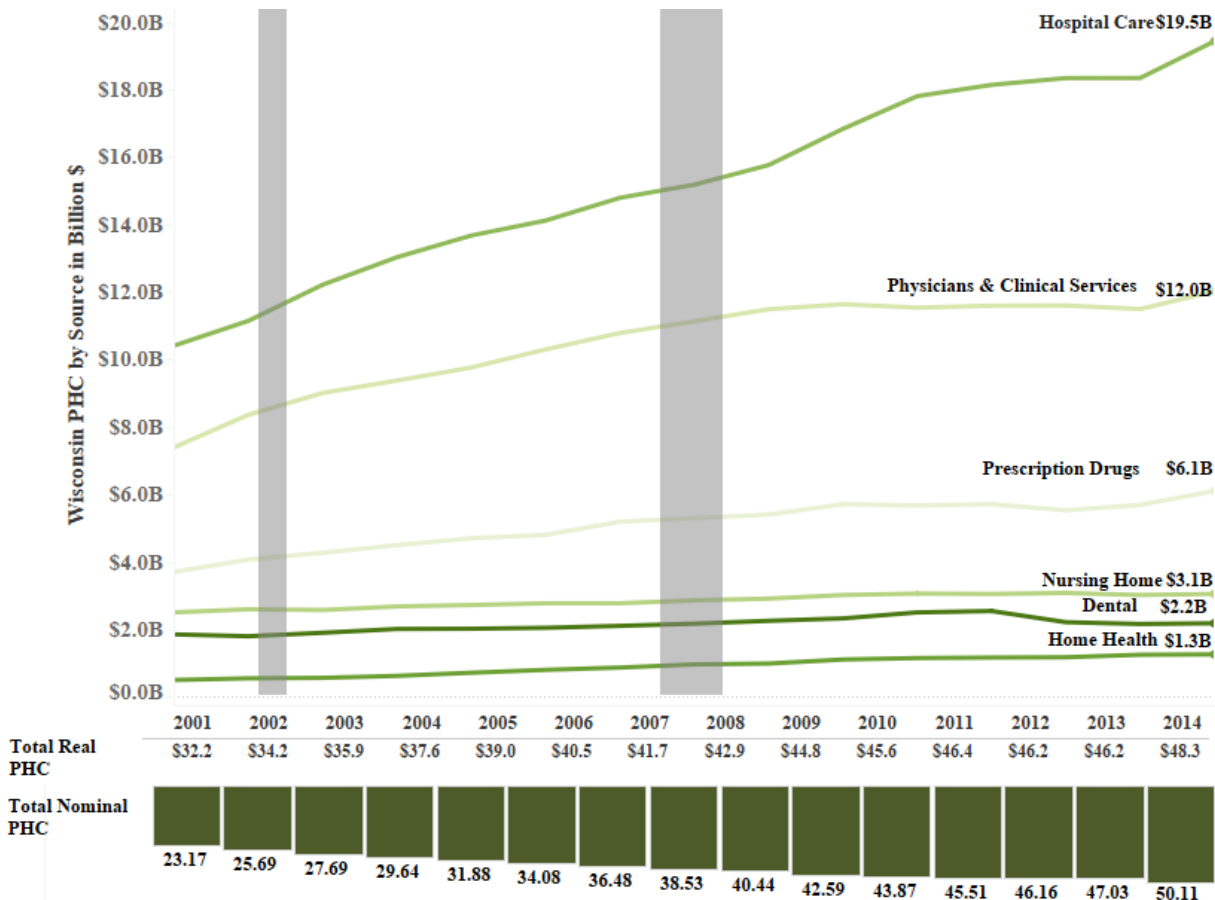


Source: National Health Expenditure Data, Centers for Medicare & Medicaid Services

Wisconsin Personal Health Care (PHC) Expenditure Individual Components

PHC expenditures include physicians and clinical services, prescription drugs, hospital care, dental services, durable medical products, home health, nursing home care, other professional services, and other health and personal care.

Figure 7. Wisconsin Real PHC by Source of Expenditure, 2000-2014



Source: National Health Expenditure Data, Centers for Medicaid & Medicare Services.

Figure 7 shows the breakdown of PHC expenditures by source of spending for Wisconsin. In 2008, the Wisconsin health care nominal spending for hospital care grew by 8%; physician and clinical services grew by 7%. In 2014, real PHC expenditure, for Wisconsin, was \$48.3 billion.

Some concepts and definitions

Health Care Expenditure, ACA and 2008 Recession

Demand side effects- People expected to choose to spend less on health care, because

- of less generous insurance policies.
- providers decreased investments.
- of budgetary cuts on Medicaid and other health programs.

Supply side effects- to the extent a recession can create financial difficulties. We would expect labor supply in the health care industry to go up. For example, nurses and other support staff may choose to work additional hours to compensate for shortages in income from a laid-off household member. This, in turn, leads to lower wages and lower health care expenditure. Thus, both demand and supply channels predict a lowering of health care expenditure during recessions.

Wisconsin Recession Effect: There was a slow down in real PHC expenditure (not captured in nominal terms) from 2009 to 2013 in Wisconsin some of it due to the recession in 2007-2008.

ACA Effect: The ACA was passed in 2010 by the 111th Congress and signed by President Obama. So some of the slow down in real PHC from 2009-2013 could come from this major reform in U.S. health care.

Key Points

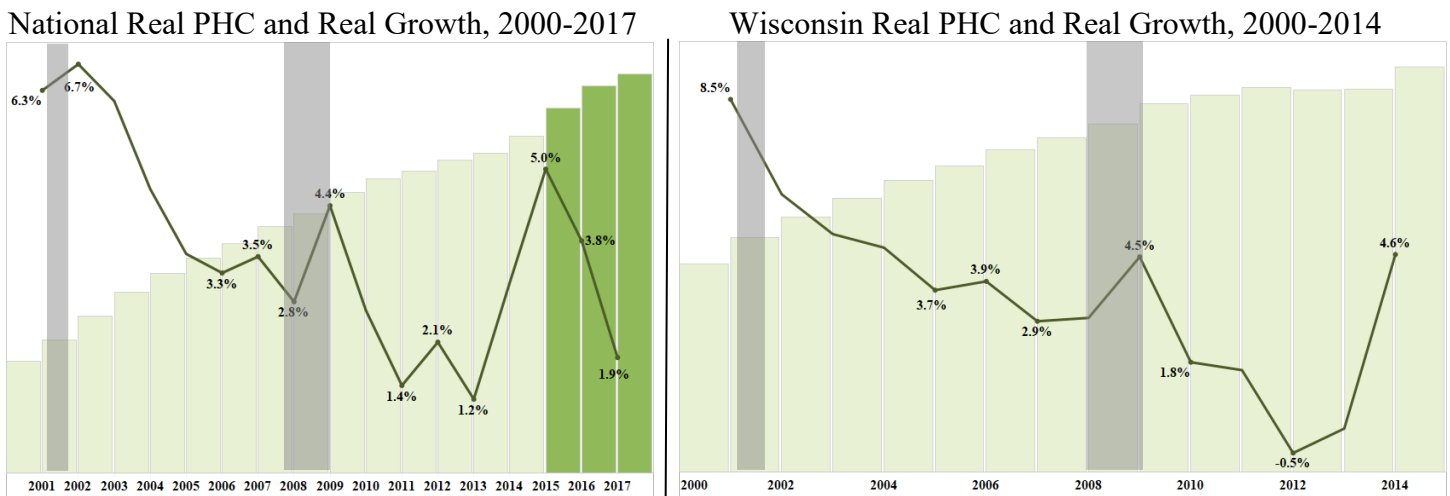
- National and Wisconsin real PHC growth have gone down since 2000.
- The combination of 2008 recession and ACA meant Wisconsin experienced negative real growth of PHC in 2012 and rebounded to 4.6% in 2014.

Growth in National and Wisconsin PHC

Figure 8 illustrates how PHC expenditures have grown over time. Nationally, there was a steady decline in the rate of PHC growth from 2002 to 2013 (except for a one-year increase in 2009), followed by a spike in PHC growth of 5.0 % in 2015, and then growth returned to 1.9% in 2017. The slower growth can be broken down into groupings:

1. The pure 2008 recession effect is evidenced by a slowdown in growth of real PHC expenditures from 2008 to 2010.
2. The additional slowing of real PHC growth in 2012 could be due to ACA.
3. The slow down of real PHC growth post 2014 could potentially be explained by a decrease in the use of health care services and/or a reduction of private health care usage stemming from increased participation in the health care exchange.

Figure 8. Growth in National and Wisconsin PHC



Source: National Health Expenditure Data, Centers for Medicare & Medicaid Services

Note: The national estimates are available through 2017, but Wisconsin estimates are only available through 2014. The shared time period of 2000-2014 is indicated with green columns on both graphs.

In Wisconsin, there was a steady decline in real growth of PHC expenditures from 2001 to 2008, a brief increase in 2009, another downward trend to -0.5% real growth in 2012, and another spike to 4.6% real growth in 2014. The general trend in PHC growth in Wisconsin was very similar to the national trend during the same time period.

References and Notes

1. Centers for Medicare & Medicaid Services (2017). Health Expenditures by State of Residence. Retrieved (date accessed) at <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/resident-state-estimates.zip>
2. Organization for Economic and Co-operative Development.stat. <https://stats.oecd.org/Index.aspx?DataSetCode=SHA>
3. Anne B. Martin, Micah Hartman, Benjamin Washington, Aaron Catlin and the National Health Expenditure Accounts Team. National Health Spending: Faster Growth In 2015 As Coverage Expands And Utilization Increases. Health Affairs. 36, no.1 (2017):166-176 doi: 10.1377/hlthaff.2016.1330 originally published online December 2, 2016
4. David Lassman, Andrea M. Sisko, Aaron Catlin, Mary Carol Barron, Joseph Benson, Gigi A. Cuckler, Micah Hartman, Anne B. Martin and Lekha Whittle. Health Spending By State 1991-2014: Measuring Per Capita Spending By Payers And Programs. Health Affairs published online June 14, 2017
5. National Health Expenditure Accounts: Methodology Paper, 2015 Definitions, Sources, and Methods. Access online at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/DSM-15.pdf> on September 14, 2017
6. Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group. National Health Expenditure Data: Health Expenditures by State of Residence, June 2017, the Kaiser Family Foundation: State Health Facts. <http://www.kff.org/state-category/health-costs-budgets/>, and U.S. Bureau of Economic Analysis <https://www.bea.gov/regional/index.htm>
7. Federal Reserve Economic Research Data. FRED GDP Deflator <https://fred.stlouisfed.org/series/GDPDEF>
8. Medical Expenditure Panel Survey. https://meps.ahrq.gov/about_meps/Price_Index.shtml

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