Minnesota Health Care Spending and Projections, 2012

Minnesota Department of Health

June 2014

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Protecting, maintaining and improving the health of all Minnesotans

June 30, 2014

The Honorable Kathy Sheran
Chair, Health, Human Services and Housing Committee
Minnesota Senate
Room 120, State Capitol
75 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155-1606

The Honorable Tony Lourey
Chair, Health Care and Human Services Finance Committee
Minnesota Senate
Room 120, State Capitol
75 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155

The Honorable Tina Liebling
Chair, Health and Human Services Policy Committee
Minnesota House of Representatives
Room 367, State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
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The Honorable Thomas Huntley
Chair, Health and Human Services Finance Committee
Minnesota House of Representatives
Room 585, State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155

Dear Senator Sheran, Senator Lourey, Representative Liebling and Representative Huntley:

The 2008 Legislature required the Minnesota Department of Health (MDH) to annually estimate actual total health care spending for Minnesota residents (less Medicare and long-term care), calculate a baseline of projected health care spending, and determine the difference between actual and projected health care spending. If actual spending is less than projected spending, MDH must calculate the portion of this difference attributable to state-administered programs (Minnesota Statutes, Section 62U.10).

As required, MDH has performed this analysis for health care spending in 2012. The results from this analysis, which are contained in the enclosed report and have been actuarially certified, show that estimated *actual* total health care spending (less Medicare and long-term care) for Minnesota residents in 2012 was $27.0 billion. This is $3.0 billion (10.9%) below the projected health care spending level for 2012 ($30.0 billion). A midpoint estimate of the portion of this difference attributable to state-administered programs is about $372.1 million.

Questions or comments on the report may be directed to the Health Economics Program at (651) 201-3560.

Sincerely,

Edward P. Ehlinger, MD, MSPH
Commissioner
P.O. Box 64975
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Enclosure

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Introduction

Each year, the Minnesota Department of Health (MDH) produces an estimate of *actual* health care spending in Minnesota along with projections of future health care spending to evaluate the potential influence of Minnesota's 2008 health reform law on health care spending and meet the requirements of Minnesota Statutes Chapter 62U.10.[1] The health care spending estimate represents the total amount expended by *all* payers on health care goods and services for Minnesota residents, including individuals, businesses, and state and federal payers. The estimate is constructed from aggregated data collected from payers and largely follows the methods developed by the Centers for Medicare & Medicaid Services (CMS) to estimate and project health care spending nationally.[2,3]

This report presents detailed estimates of health care spending in Minnesota in 2012, projections of future health care spending through 2022, and a comparison of actual and projected spending for calendar year 2012. The report incorporates estimates of health care spending in the state as a result of implementing the Affordable Care Act, primarily through coverage expansions.

Key findings in 2012 include:

- Health care spending in Minnesota grew to $39.8 billion, accounting for 13.5 percent of the state's economy;
- Health care spending rose 4.0 percent from 2011, double the growth rate of recent years, but remains low in historic context;
- Per capita spending in Minnesota reached $7,403, but remains about 10 percent below national estimates;
- Private spending grew 3.4 percent, an increase from the previous two years. Public spending grew 4.7 percent, on pace with recent years;
- The net cost of insurance declined as private health insurance premiums held constant in the wake of medical loss ratio reform. This decline helped to moderate private spending growth;
- Actual health care spending in 2012, excluding Medicare and long-term care, was $3.0 billion below values projected without the impacts of 2008 reforms, or 10.9 percent below expected levels;
- Total health care spending is projected to reach $76.5 billion by 2022, 8 percent below what would be expected absent reforms or changes to the drivers of health care spending;
- Coverage and programmatic changes resulting from the Affordable Care Act are projected to result in annual health care spending that is approximately 4 percent higher by 2016. The magnitude of this change, however, is expected to diminish as other market reforms take effect.

[1] Minnesota's 2008 health reform law was designed to slow health care spending growth in the state through a variety of initiatives including the use of health care homes, payment and quality reforms, and efforts to reduce obesity and tobacco use among residents. For more information on these initiatives, visit: http://www.health.state.mn.us/healthreform/index.html.

[2] Methodology for MDH estimate is presented in Appendix C.

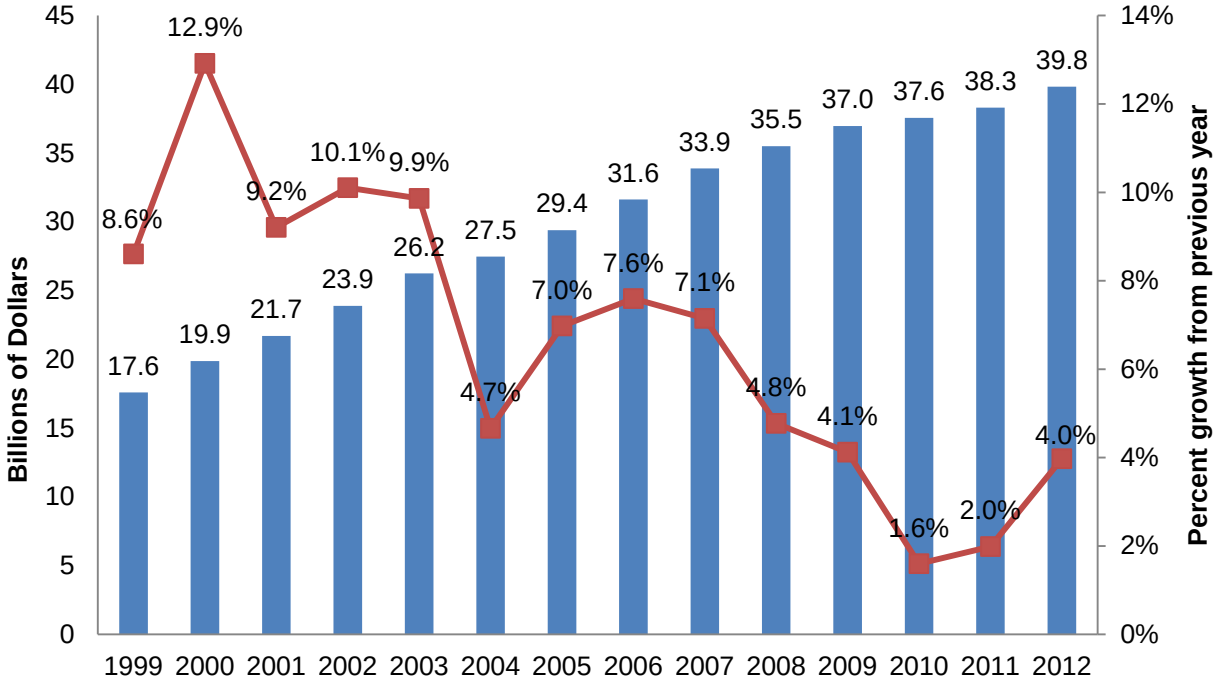
[3] Both MDH and CMS update historical data to reflect changes in the underlying health expenditure data and methodology. As a result, estimates presented in this report may differ slightly from earlier published estimates of historical health care spending.

Health Care Spending in 2012

In 2012, the pace of health care spending growth accelerated, but remained low in historic context. Total health care spending for Minnesota residents reached $39.8 billion in 2012, a 4.0 percent increase over 2011 total spending of $38.3 billion. This is double the 2011 growth of 2.0 percent. Despite this increase, 2012 represents the third lowest year-over-year change in health care spending since the mid-1990s when the Department of Health began tracking this trend for Minnesota.

As shown in Figure 1, health care spending growth has fallen substantially since the onset of the economic recession in 2007. Factors associated with the recession, such as greater unemployment and resulting lower rates of insurance coverage and loss of income and wealth, likely stifled health care utilization and prices throughout the slow economic recovery.[4] Even in 2012, Minnesota unemployment remained above pre-recession levels.[5]

Figure 1
Trends in Minnesota Health Care Spending and Rate of Growth



Source: MDH Health Economics Program

The uptick in spending growth following several years of economic recovery might substantiate the lagged relationship between health care spending and the economy that has been demonstrated in research.[6] The economic recession may be responsible for as much as three-quarters of the slowdown, according to national research.[7] However, a portion of the slowdown appears to remain unexplained by economic factors.

[4] Martin, A. el al. "National Health Spending In 2012: Rate of Health Spending Growth Remained Low For The Fourth Consecutive Year." Health Affairs, 33, no. 1 (2014):67-77.

[5] Bureau of Labor Statistics. Current Population Survey, Local Area Unemployment Statistics. http://data.bls.gov, accessed on April 28, 2013.

[6] See for example: Sheiner, L. "Perspectives on Health Care Spending Growth." The Future of U.S. Health Care Spending Conference. April 2014.

[7] Kaiser Family Foundation. "Assessing the Effects of the Economy on the Recent Slowdown in Health Spending." April 2013. Accessed April 30, 2014 from http://kff.org/health-costs/issue-brief/assessing-the-effects-of-the-economy-on-the-recent-slowdown-in-health-spending-2/.

Minnesota is undertaking other transformations which may have contributed to continued slow growth in 2012.

- Privately insured Minnesotans have experienced continuous increases in cost sharing over the last decade. A shift in the burden of paying for care has been demonstrated to constrain health spending growth for some.[8] Privately insured Minnesotans were responsible for 17.5 percent of their health care spending in 2012, up from 9.2 percent in 2001.[9]

- Technology is a major driver of health care spending in the U.S. and in Minnesota, accounting, by some estimates, for between 38 and 65 percent of spending growth.[10] Recent evidence suggests that slower trends in development and diffusion of new technologies in health care might also be contributing to the observed slowdown in spending growth.[11]

- In addition, Minnesota is undergoing numerous health reforms including investments in health through public health initiatives, supporting greater care coordination (e.g., Health Care Homes), implementing payment reform (e.g., shared risk or shared savings arrangements between providers and payers), making investments in Health Information Technology, pursuing value-based purchasing (combining performance payment with network design), and working towards the expansion of accountable care organizations through the federal State Innovation Model grant. While it is too early to measure the extent to which these initiatives are contributing to the modest cost growth of the past four years, early findings show promising potential.[12] A larger question is whether these initiatives have positive effects on spending and can drive structural, rather than one-time, change in the system. The analysis presented in this report is not well-suited to answer questions of this nature; further study will be necessary to decompose the impacts of these efforts.

Both public and private payers spent more on health care in 2012 than 2011, as shown in Figure 2. Private spending growth rebounded after two years of decline. [13] This trend was driven primarily by two mechanisms: per capita spending increased 2.4 percent for those enrolled in private insurance programs. This is consistent with trends seen at the national level.[14] In addition, private insurance enrollment grew as more Minnesotans gained coverage following the recession.

Public spending grew 4.7 percent in 2012, the same rate as 2011. Although rising faster than private spending, public spending growth in 2012 was three percentage points below the average annual growth in public spending for the past decade. Details of public program spending growth are discussed in greater detail later in the report.

[8] Baicker, K. and D. Goldman. "Patient Cost-Sharing and Healthcare Spending Growth." *Journal of Economic Perspectives*, 25, no.2 (2011): 47- 68. Cost sharing in general has been shown to be associated with reduction in care that is considered necessary as well as unnecessary. See for example: Kathleen N. Lohr, Robert H. Brook, Caren J. Kamberg, George A. Goldberg, Arleen Leibowitz, Joan Keesey, David Reboussin, and Joseph P. Newhouse. *Use of Medical Care in the RAND Health Insurance Experiment: Diagnosis- and Service-Specific Analyses in a Randomized Controlled Trial*. Santa Monica, Calif.: RAND Corporation, R-3469-HHS, December 1986.

[9] Based on unpublished MDH analysis of health plan data.

[10] Robert Wood Johnson Foundation. "High and rising health care costs: Demystifying U.S. health care spending." *Research Synthesis Report* No. 16. October 2008.

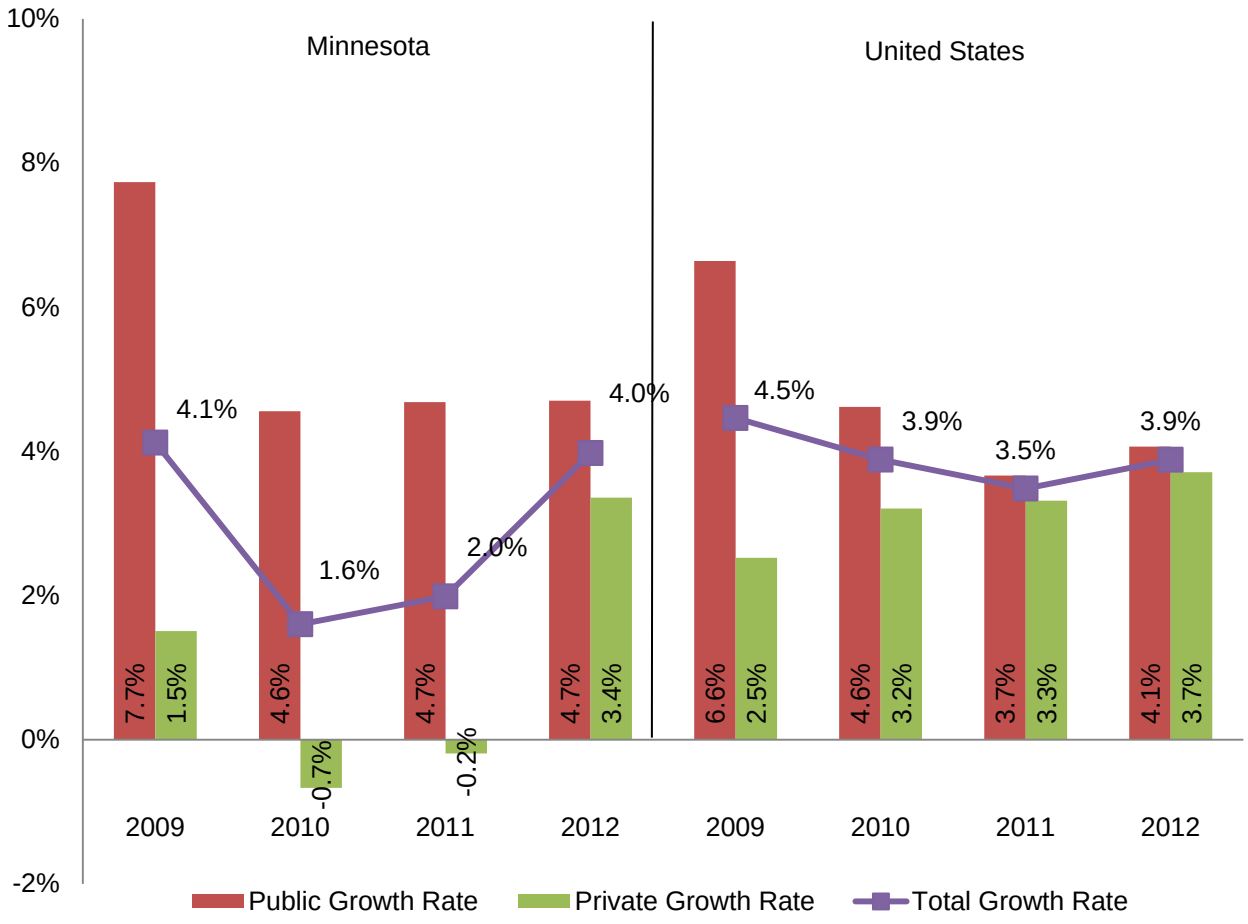
[11] Chandra, A. J. Holmes, and J. Skinner. "Is This Time Different? The Slowdown in Healthcare Spending." Fall 2013 Brookings Panel on Economic Activity. September 2013.

[12] Wholey, D. et al. *Evaluation of the State of Minnesota's Health Care Home Initiative.* January 2014. Accessed April 29, 2014 from http://www.health.state.mn.us/healthreform/homes/outcomes/documents/evaluationreports/evaluationhch20102012.pdf.

[13] See Appendix C for explanation of payers grouped as public and private.

[14] Health Care Cost Institute. *2012 Health Care Cost and Utilization Report*. September 2013.

Figure 2
Minnesota and U.S. Health Care Spending Growth



Source: MDH Health Economics Program, Centers for Medicare & Medicaid Services.

National spending has also experienced historically low growth over the last several years. In 2012, Minnesota and national spending grew at virtually the same rate. Like in Minnesota, public spending continues to grow more quickly than private spending; however, the pace of growth between the sectors is much closer at the national level.

2012 was the third consecutive year in which total economic growth outpaced health spending growth in Minnesota. This differential growth resulted in health spending consuming a *smaller* portion of the economy in 2012 (13.5 percent) than 2011 (13.7 percent). This declining share is reflected in Table 1.

Table 1
Minnesota and U.S. Health Care Spending, Per Capita and as Share of Economy

	2008	2009	2010	2011	2012
Per Capita Spending:					
Minnesota	$6,713	$6,973	$7,071	$7,163	$7,403
U.S.	$7,421	$7,689	$7,919	$8,136	$8,389
Health Care Spending as a Share of the Economy:					
Minnesota	13.5%	14.3%	14.0%	13.7%	13.5%
U.S.	15.3%	16.4%	16.4%	16.3%	16.2%

Source: MDH Health Economics Program, Centers for Medicare & Medicaid Services, U.S. Department of Commerce

Minnesota continues to see a smaller portion of its economy devoted to health spending and lower per capita spending than the nation overall. In 2012, Minnesota per capita spending was $7,403, a 3.4 percent increase from 2011. National health spending grew 3.1 percent to $8,389 per capita, about 13 percent higher than in Minnesota.[15]

Sources of Funds

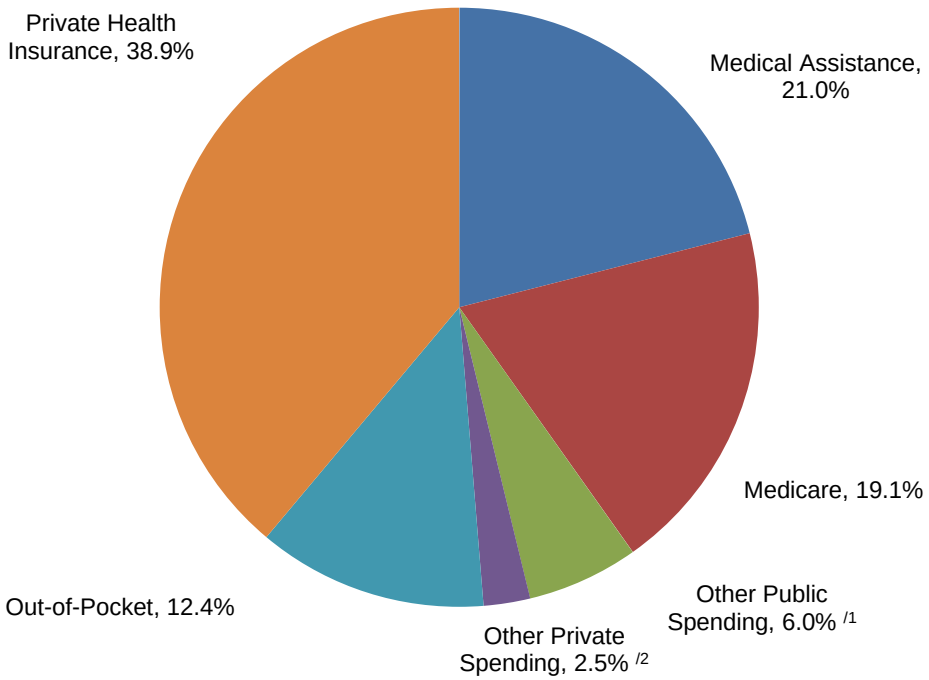
The source of funding for health care is an important factor to consider when analyzing trends in health care spending. Shifts in health care financing over time highlight potential budgetary pressures to both public and private payers. The following analysis divides spending into categories based on the *payer* or *program* responsible for purchasing a health care good or service. It also provides a breakout of public and private payers.[16]

In 2012, the majority of Minnesota's health care spending (53.8 percent) came from private funds. Private health insurance provided the largest share (38.9 percent of total spending). Patients contributed 12.4 percent of total spending out of pocket. The remaining 2.5 percent of private spending came from other sources, such as workers' compensation and auto medical insurance.

[15] Per capita spending comparisons between Minnesota and the nation overall are made somewhat difficult because of differences in data and methodologies. For this analysis, MDH used national estimates categorized as "health consumption expenditures," which are most directly comparable to Minnesota's analytic focus in this report. The estimate includes some costs not considered in Minnesota's analysis, e.g., government costs associated with the administration of public health programs and payments made by philanthropy. In the national context, these expenditures make up approximately 5 percent of health consumption expenditures. When taken into account, national per capita spending remains almost 9 percent higher than Minnesota per capita spending (instead of 13 percent).

[16] Medicare Advantage is a public program administered by private payers. As a result spending for this program is divided between public and private spending categories based on the relative proportions of capitation payments and enrollee premiums to total revenue. Further discussion can be found in Appendix C.

Figure 3
Sources of Minnesota Health Care Spending, 2012



Source: MDH Health Economics Program. Numbers may not sum to total due to rounding.
/1 Includes, among others, MinnesotaCare, government workers' compensation, and Veterans Affairs
/2 Other major private payers include private workers' compensation and auto medical insurance

Public sources comprised the remaining 46.2 percent of total spending in 2012. Medical Assistance, Minnesota's Medicaid program, accounted for 21.1 percent. Medicare accounted for 19.2 percent of total spending.[17] Other sources of public funding, including MinnesotaCare, made up the remaining 6.2 percent.

At the national level, the split between private and public sources of spending is almost equal, as shown in Table 2. In Minnesota, however, private sources continue to contribute almost eight percentage points more to health care spending than public payers. This is due in part to the higher rate of private coverage in Minnesota.[18] Minnesota's share of public spending for health has been increasing in relation to private spending for a number of years. The rate of this change slowed in 2012, reflecting growth in private sector spending and no major changes in public program eligibility.

[17] This does not include portion of Medicare Advantage expenses funded through enrollee premiums.

[18] Using one set of estimates, developed by the U.S. Census Bureau based on the Current Population Survey Annual Social and Economic Supplement, Minnesota's rate of private coverage in 2012 (using a two-year average) was more than 10 percentage points higher than nationally, or about 76.2 percent. MDH estimated the rate of private coverage based on its own research at 60.4 percent.

Table 2
Minnesota and U.S. Shares of Health Care Spending by Payer

Shares of Minnesota Health Care Spending by Payer

	2008	2009	2010	2011	2012
Public Spending, Total	42.0%	43.4%	44.7%	45.9%	46.2%
Medicare	17.4%	17.8%	18.3%	18.7%	19.1%
Medical Assistance	18.4%	19.0%	19.5%	21.0%	21.0%
Other Public Spending /1	6.2%	6.7%	6.9%	6.2%	6.0%
Private Spending, Total	58.0%	56.6%	55.3%	54.1%	53.8%
Private Health Insurance	41.9%	41.0%	40.3%	39.2%	38.9%
Out-of-Pocket	13.5%	12.9%	12.4%	12.4%	12.4%
Other Private /2	2.6%	2.6%	2.6%	2.5%	2.5%

Shares of U.S. Health Care Spending by Payer/3

	2008	2009	2010	2011	2012
Public Spending, Total	47.1%	48.1%	48.4%	48.5%	48.6%
Medicare	20.7%	21.2%	21.2%	21.5%	21.7%
Medicaid	16.0%	16.7%	17.0%	16.8%	16.7%
Other Public Spending /1	10.3%	10.2%	10.2%	10.1%	10.1%
Private Spending, Total	52.9%	51.9%	51.6%	51.5%	51.4%
Private Health Insurance	35.8%	35.3%	35.1%	35.1%	34.8%
Out-of-Pocket	13.3%	12.8%	12.5%	12.5%	12.5%
Other Private /2	3.8%	3.8%	4.0%	4.0%	4.1%

Source: MDH Health Economics Program, Centers for Medicare & Medicaid Services. Numbers may not sum to total due to rounding.
/1 Major components of other public spending are MinnesotaCare, government w orkers' compensation and Veterans Administration
/2 Other major private payers include private w orkers' compensation and auto medical insurance
/3 U.S. comparison - CMS National Health Expenditure Accounts, Health Consumption Expenditures. This does not include research and investment.

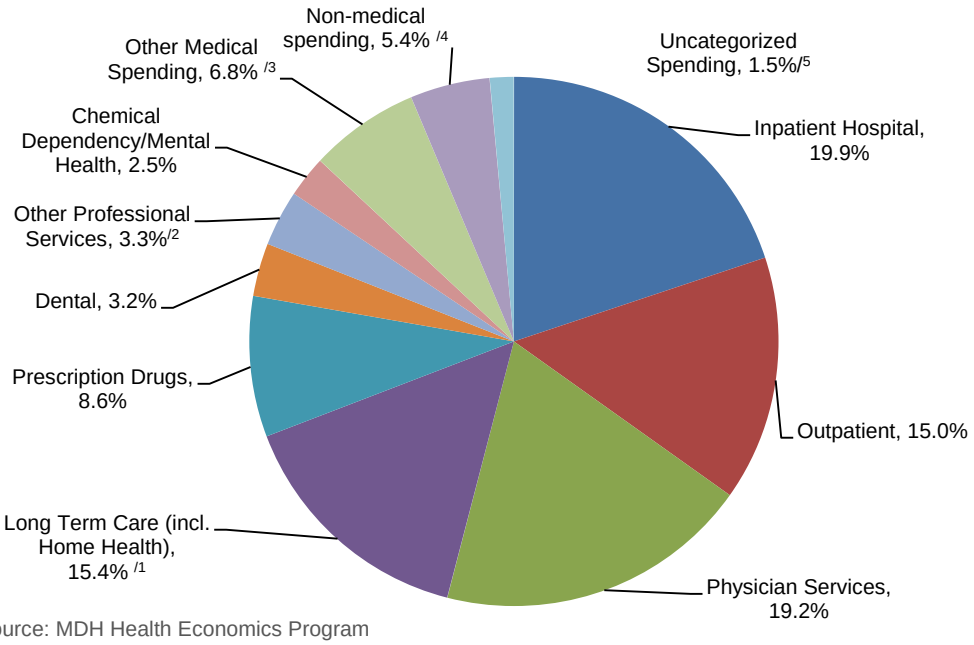
Growth in public spending is often driven by enrollment increases to Medicare, the federal insurance programs covering the elderly population, and state public health care programs. In 2012, Minnesota's Medicare enrollment grew 4.1 percent, compared to 2.4 percent average annually over the previous five years. This reflected the aging of Minnesota's population that resulted in more Minnesotans becoming eligible for Medicare benefits.

Following 2011 changes in Medicaid eligibility, 2012 saw significant enrollment growth in Medical Assistance by adults without children with incomes at or below 75 percent of the federal poverty level. This growth in enrollment was the primary driver of overall spending growth. Per enrollee, Medical Assistance spending grew just over one percent from the previous year.

Spending by Type of Service

It is also important to monitor trends in the allocation of total spending by type of service. This analysis can provide insight into emerging needs of the population. Inpatient and outpatient hospital services combined with physician services accounted for over half (54.1 percent) of total spending in 2012, as shown in Figure 4. Long-term care and prescription drug spending, together, comprised nearly one-quarter of spending, 15.4 percent and 8.6 percent, respectively.

Figure 4
Minnesota Health Care Spending by Type of Service, 2012



Source: MDH Health Economics Program
/1 Includes home health care services
/2 Includes services provided by health practitioners who are not physicians or dentists
/3 Includes durable medical equipment
/4 Includes health plan administrative expenses and revenues in excess of expenses
/5 Includes public health spending, correctional facility health spending, Indian Health Services, and not itemized spending

Table 3 displays spending within service categories from 2008 to 2012 by dollar amounts, distribution among service categories and rates of growth. The table shows that the portion of total spending attributed to hospitals continued to grow, from 32.7 percent in 2007 to almost 35 percent in 2012. The share of inpatient spending fell from 2008 to 2011, consistent with declining trends in overnight hospital admissions.[19] The trend halted in 2012 as inpatient hospital spending grew slightly faster than total spending. Over the period, outpatient hospital spending has grown as a portion of total spending, from 12.0 percent in 2008 to 15.0 percent in 2012. Outpatient spending growth has outpaced the overall increase in spending by a wide margin each year. This may be attributable to a number of factors, including changes in the capability of medical science that makes delivery of complex care possible in outpatient settings, and changes to health plan benefits to promote the use of less expensive outpatient facilities.[20]

[19] MDH/Health Economics Program. *Trends at Minnesota's Community Hospitals, 2009 to 2012*. January 2014.

[20] Moses, H. et al. "The Anatomy of Health Care in the United States." *Journal of the American Medical Association,* 310, no. 18 (2013):1947-1963.

Table 3
Minnesota Health Care Spending by Type of Expense

Millions of Dollars

	2008	2009	2010	2011	2012	Change from 2011	Average Annual Growth
Inpatient Hospital	$7,340	$7,588	$7,577	$7,570	$7,910	4.5%	2.4%
Outpatient Hospital	$4,274	$4,585	$5,035	$5,388	$5,970	10.8%	9.4%
Physician Services	$7,207	$7,225	$7,342	$7,323	$7,648	4.4%	1.5%
Long Term Care/1	$5,403	$5,644	$5,740	$5,937	$6,016	1.3%	3.3%
Prescription Drugs	$3,469	$3,687	$3,451	$3,280	$3,423	4.4%	-0.9%
Dental	$1,385	$1,290	$1,246	$1,263	$1,290	2.2%	-0.3%
Other Professional Services/2	$1,151	$1,218	$1,105	$1,245	$1,359	9.1%	5.4%
Chemical and Mental Health	$824	$918	$947	$966	$1,007	4.2%	6.2%
Other Medical Spending	$2,720	$2,901	$3,084	$3,263	$3,263	0.0%	4.4%
Other non-Medical Spending	$1,726	$1,906	$2,027	$2,067	$1,938	-6.3%	4.5%
Total	$35,500	$36,963	$37,554	$38,301	$39,823	4.0%	3.3%

Distribution of Spending

	2008	2009	2010	2011	2012
Inpatient Hospital	20.7%	20.5%	20.2%	19.8%	19.9%
Outpatient Hospital	12.0%	12.4%	13.4%	14.1%	15.0%
Physician Services	20.3%	19.5%	19.6%	19.1%	19.2%
Long Term Care/1	15.2%	15.3%	15.3%	15.5%	15.1%
Prescription Drugs	9.8%	10.0%	9.2%	8.6%	8.6%
Dental	3.9%	3.5%	3.3%	3.3%	3.2%
Other Professional Services/2	3.2%	3.3%	2.9%	3.3%	3.4%
Chemical and Mental Health	2.3%	2.5%	2.5%	2.5%	2.5%
Other Medical Spending	7.7%	7.8%	8.2%	8.5%	8.2%
Other non-Medical Spending	4.9%	5.2%	5.4%	5.4%	4.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: MDH Health Economics Program

/1 Includes home health care services

/2 Includes services provided by health practitioners who are not physicians or dentists

Increases in inpatient and outpatient hospital spending were responsible for 60 percent of total spending growth from 2011 to 2012. Growth in physician services spending was also a large driver of total growth, contributing 22 percent. This increase is likely driven by an increase in utilization, which was also seen at the

national level.[21] Greater use of physician office visits is likely associated with economic recovery or changes to insurance benefits that promoted use of primary care.[22]

The portion of total spending due to prescription drug spending has declined since 2008. This reflects the loss of exclusive patent protection for several highly used drugs, resulting in shifts in utilization to lower-cost generic alternatives.[23] In addition, the growth in spending for long term care slowed as a result of a one-time reduction in Medicare payments to skilled nursing facilities, which occurred in order to calibrate after high spending increases in 2011.[24]

One of the most notable trends occurred in the in the non-medical spending category, which fell 6.3 percent in 2012. This decline was driven almost exclusively by a drop in the net cost of insurance, which is the total amount of premiums paid to insurers minus the expenses they incur, or underwriting profit. For many years, Minnesota commercial premiums have grown faster than expenditures, peaking in 2011 but declining in 2012. Affordable Care Act regulation of the Medical Loss Ratio (MLR) may have contributed to this trend by requiring that health plans spend a minimum amount of premium revenue on medical spending and related activities. [25] Although Minnesota had existing MLR regulations, the enforcement of rebate provisions suggest that the heightened standard did impact insurance carriers. In 2011, Minnesota health plans collection $8.9 million in premiums over the new threshold, spurring rebates to Minnesota consumers. This number fell to $1.4 million in 2012.[26] National spending also saw a drop in the net cost of insurance.[27]

[21] Truven Health Analytics."Trend in Primary Care Physician Office Visits." Graphic in: *Health Leaders Media Factfile: Consumer Sentiment*. February 2013. Available from: http://www.healthleadersmedia.com/content/288903.pdf.

[22] Berry E. "Physicians seeing patient visits rebound in 2012". amednews.com. Chicago (IL): American Medical Association. Available from: http://www.amednews.com/article/ 20120806/business/308069954/1/.

[23] Hoffman, J. et. al. "Projecting Future Drug Expenditures – 2012." *American Journal of Health-System Pharmacists* (69).

[24] Martin et al., 2014.

[25] Minnesota has historically regulated MLR, but the ACA increased this regulation from 82 percent in the small group market and 72 percent in the individual market to 80 percent in both small group and individual markets and 85 percent in the large group market.

[26] Center for Consumer Information & Insurance Oversight, Centers for Medicare and Medicaid Services. *Medical Loss Ratio Data and System Resources.* Available from http://www.cms.gov/CCIIO/Resources/Data-Resources/mlr.html.

[27] Martin et al., 2014.

Health Care Spending Projections

This section presents results from two separate projections of health care spending in Minnesota, relying on historical trends in spending; methodologies developed by the Centers for Medicare & Medicaid Services (CMS), aligned to Minnesota; and statistical modeling at the payer and provider-type level:

The first set of projections, as required by statute, establishes a baseline of health care spending in Minnesota absent health reforms enacted in 2008. Minnesota's 2008 health reform law contained a number of initiatives to reduce growth in health care spending. These included provisions such as investments in population health, increased transparency in provider cost and quality, and strengthened care coordination for the chronically ill.[28] This first set of models approximates the impact of these reforms on spending growth by comparing baseline projection estimates, developed on the basis of pre-reform trends, with *actual* spending in 2012.

The second set of projections uses all available historical information, including estimates of spending presented in this report, to forecast future health care spending in Minnesota. The value of projecting future spending is not limited to measuring the impact of Minnesota reforms. Despite the recent slowdown in health care spending, the issue of future spending growth remains important to Minnesota consumers, businesses, and government budgets. The second set of projections provides a more complete look at the potential for health care spending growth over the coming years by considering the possibility that most recent trends not used for the first set of projections have predictive properties for future health care spending. These projections do not attempt to exclude changes to spending that resulted from Minnesota's 2008 reforms; they also form the basis for estimating the portion of spending growth projected to result from implementation of the Affordable Care Act (ACA).

MDH contracted with Mathematica Policy Research to develop the projection model and periodically update the model to incorporate methodological improvements and changes in the policy environment that may influence health care spending in Minnesota.[29] The methods used in the projections are derived from those employed by the CMS to project national health care expenditures. For the purpose of this report, the projection model was updated with refreshed macroeconomic inputs and data refinements to historic spending estimates. Additionally, the model specifications were revised to consider updates to CMS's approach to projecting health expenditures.[30]

Health Care Spending in the Absence of Minnesota Reforms

In order to exclude any potential changes resulting from Minnesota reforms, the projections assume stability in the trends and relationships of underlying variables that drove health care spending growth prior to 2009. As a result, these projections do not represent predictions of actual future spending; rather, they represent a counterfactual scenario of future health care spending absent any changes to the drivers of health care spending and factors associated with Minnesota health reforms of 2008. These projections attempt to include the effect of external factors on spending, *including* changes associated with the Affordable Care Act which are discussed in greater detail in the following section.

[28] Visit: http://www.health.state.mn.us/healthreform/index.html for more information on these initiatives.

[29] Methodological detail is presented in Appendix C.

[30] Greater detail of the CMS projection methodology is available from http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/ProjectionsMethodology2012.pdf

In the hypothetical absence of Minnesota reforms or other changes to cost drivers,[31] health care spending would be expected to grow 6.8 percent average annually between 2012 and 2022 (compared to 5.2 percent for the preceding 10 years). At this rate of growth, total health care spending would more than double over the next decade to reach $82.9 billion by 2022.

As noted above, MDH is required to estimate actual health care spending in Minnesota and compare results to projections of health care spending, to isolate potential effects of the state's 2008 health reform activities. When determining savings resulting from Minnesota health reforms, MDH is required to specifically analyze spending excluding Medicare and long-term care, areas of spending less affected by state-level policy change. This narrower subset of health spending totaled $27.0 billion in Minnesota in 2012.[32]

As shown in Table 5, total spending was projected to reach $43.1 billion in 2012, about 8.2 percent above actual spending. For spending excluding Medicare and long-term care spending, the gap between what was projected ($30.0 billion) and actually spent in 2012 ($27.0 billion) was about 10.9 percent, a proportionally wider gap than the difference in total spending (see Table 5).

This marks the second report in which estimated actual spending fell short of the levels of spending predicted by the baseline projection model since this analysis began in 2009. That is, health care spending in Minnesota appears to have grown less in 2012 than what would be expected based on the historical relationship between macroeconomic factors and health care spending.

Recognizing the methodological difficulty associated with attributing changes in health care spending growth to individual state-level policy interventions, such as Minnesota's 2008 health reforms, the Minnesota Legislature chose to define health reform savings as actual spending that fell *below* projected spending. In and of itself, the presence of a difference between actual and projected spending cannot be attributed with any sense of confidence to Minnesota reforms.

As suggested earlier, it remains likely that the slow economic recovery in 2012 continued to constrain health care spending because of lower rates of coverage and stagnant trends in income and wealth. In national research, the recession is estimated to have led to 45 to 77 percent of the slowdown.[33,34] Other research recognizes the potential effect of the recession but places greater weight on other factors to explain the trend. Although the projection model attempts to capture the economic shock and impact of the recession and slow recovery, the magnitude of the recession makes this challenging because of the lack of comparable experience in the historic time series. On top of major economic fluctuations, the debate over health reform and the ACA brought renewed attention and urgency to the issue of health care spending, which may have impacted the behavior of those buying and selling health insurance.[35]

[31] The projection estimate approximates the absence of Minnesota reforms by holding constant the pre-reform relationship between the economy and health care spending and applying it to projected future macroeconomic conditions.

[32] Medicare expenditures account for $7.6 billion and non-Medicare long-term care expenditures for the remaining $5.2 billion of the difference to total spending.

[33] Cutler, D. and N. Sahni. "If Slow Rate Of Health Care Spending Growth Persists, Projections May Be Off by $770 Billion." *Health Affairs*, 32, no. 5 (2013):841-850.

[34] Kaiser Family Foundation, 2013.

[35] Sheiner, L. "Perspectives on Health Care Spending Growth." *The Future of U.S. Health Care Spending Conference*. April 2014.

Table 5
Actual Health Care Spending and Projected Spending Absent 2008 Reforms, 2012
(in millions)

	Actual Spending	Projected Spending	Actual Less Projected	% Above Actual Spending
Total Spending	**$39,823.0**	**$43,096.0**	**$3,273.05**	**8.2%**
Public	$18,397.7	$18,475.5	$77.8	0.4%
Private	$21,425.3	$24,620.5	$3,195.2	14.9%
Total Spending less Medicare & Long Term Care	**$27,002.6**	**$29,958.9**	**$2,956.2**	**10.9%**
Public	$7,051.4	$7,108.3	$56.9	0.8%
Private	$19,951.3	$21,061.0	$1,109.7	5.6%

Source: MDH historical spending estimates and projections from Mathematica Policy Research, Inc.

Individual cost sharing remains at record high levels, which likely contributes to constraining spending growth. In addition, national spending has grown at a comparatively slow pace.[36] This indicates that more general factors such as labor market and price trends may be at play, in addition to factors specific to Minnesota and its reform activities.[37] At this time, MDH cannot demonstrate conclusively that Minnesota policies have structurally changed the health care delivery system. However, the state is well positioned to reap the benefits of these reforms in the coming years. Existing evidence about the comparatively high rates of adoption of electronic health records, the transformation of the delivery system through initiatives such as Minnesota's Health Care Home concept, and the pace of performance-based contracting speak to that likelihood. Early findings from an evaluation of the Health Care Homes model show that the program may be contributing to lower spending.[38]

Spending Difference Attributable to State-Administered Programs

As part of its legislative requirements for this analysis, MDH must estimate the difference between projected and actual spending that is related to the state-administered programs Medical Assistance, MinnesotaCare, and the State Employee Group Insurance Program. Based on a range of scenarios about the appropriate factors to estimate the counterfactual spending trend for state-administered programs, a midpoint estimate of the portion of this difference attributable to state-administered programs is about $372.1 million. The methods employed for the development of this estimate are outlined in Appendix B.

[36] Martin et al., 2014.

[37] Levine, M and M. Buntin. *Why Has Growth in Spending for Fee-for-Service Medicare Slowed*? Congressional Budget Office Working Paper Series. August 2013.

[38] Wholey, D. et al. 2014.

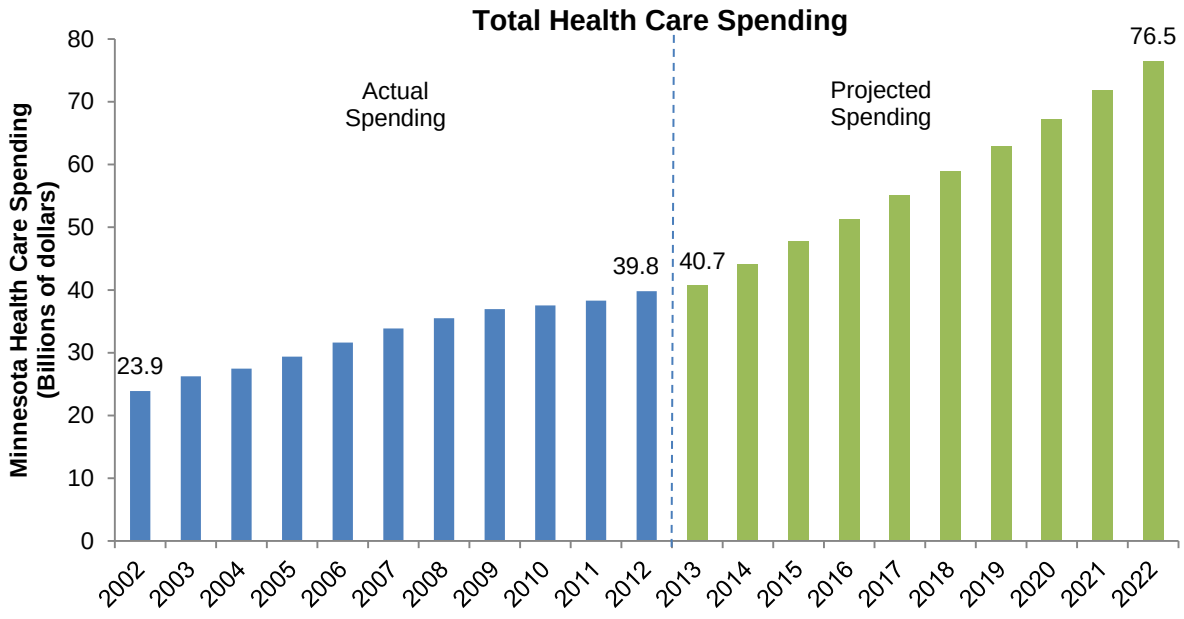
Future Health Care Spending in Current Policy Environment

The gap between actual spending and spending as projected by the previous model demonstrates that there has likely been some disruption in the relationship of macroeconomic factors and health care spending, either as a result of the recession or because of ongoing changes to the policy environment or economic incentives. As a result, the baseline projections are limited in the insight they can provide into future health care spending trends.

Better insight can be gained by using all available historical data (i.e., beyond 2008) to provide a more fully informed picture of future health care spending, including Minnesota reforms and other changes to the underlying drivers of cost since the onset of the recession. Resulting findings may be interpreted as more robust predictions of future health care spending.

Figure 5 presents projection results from this model which estimates that health care spending will reach $76.5 billion by 2022. This represents an average annual growth of 6.7 percent over the next ten years. Although growth in this model is slower than predicted by the baseline model, it still constitutes a near doubling of total health care spending over a decade. By 2022, health care spending would represent almost twenty percent of the Minnesota economy, which means that about one of every five dollars of Minnesota's economic activity would be spent on health care.

Figure 5
Minnesota Health Care Spending, 2002 to 2022



Source: MDH historical spending estimates and projections from Mathematica Policy Research, Inc.

Due to the aging of the population and expansion of public program eligibility, public spending is projected to continue to grow as a proportion of total spending. While private spending is projected to grow 6.1 percent on average annually from 2012 to 2022, public spending is expected to grow 7.5 percent on average annually. By 2022, public payers will contribute just under half of total health care spending, as shown in Table 6.

Table 6
Public and Private Health Care Spending, 2002 to 2022
(billions of dollars)

	Total Health Care Spending		
	Private	Public	Total
Actual			
2002	$14.4	$9.5	$23.9
2003	$15.9	$10.3	$26.2
2004	$16.6	$10.9	$27.5
2005	$17.7	$11.7	$29.4
2006	$18.8	$12.8	$31.6
2007	$20.0	$13.9	$33.9
2008	$20.6	$14.9	$35.5
2009	$20.9	$16.1	$37.0
2010	$20.8	$16.8	$37.6
2011	$20.7	$17.6	$38.3
2012	$21.4	$18.4	$39.8
Projected			
2013	$21.7	$19.0	$40.7
2014	$22.7	$21.4	$44.1
2015	$24.4	$23.3	$47.7
2016	$26.3	$25.0	$51.3
2017	$28.3	$26.8	$55.1
2018	$30.2	$28.7	$58.9
2019	$32.3	$30.6	$62.9
2020	$34.4	$32.8	$67.2
2021	$36.6	$35.2	$71.7
2022	$38.7	$37.8	$76.5

Source: MDH historical spending estimates and projections from Mathematica Policy Research, Inc.

Estimates of the Impact of the Affordable Care Act on Health Care Spending

The Affordable Care Act (ACA) made broad changes to the health care finance system across the country. [39] While there have been analyses conducted to estimate the impact it will have at the national level,[40] this analysis attempts to estimate how some of its components may change the trajectory of health care spending in Minnesota. Decidedly, the largest impact on spending will be driven by changes in health insurance coverage that result from the establishment of MNsure (Minnesota's health insurance exchange), the expansion of public coverage, and the requirement that individuals have health insurance. This analysis attempts to capture the magnitude of those changes and their relationship to spending. It utilizes existing projected changes in insurance coverage for Minnesota and estimates of per capita differences in spending

[39] For a list of other provisions of the ACA, visit http://kff.org/health-reform/fact-sheet/summary-of-new-health-reform-law/.
[40] See for example Congressional Budget Office. *Updated Estimates of the Effects of the Insurance Coverage Provisions of the Affordable Care Act, April 2014.* and Cuckler, G. el al. "National Health Expenditure Projections, 2012–22: Slow Growth Until Coverage Expands And Economy Improves." *Health Affairs*, 32, no. 10 (2013):1820-1831.

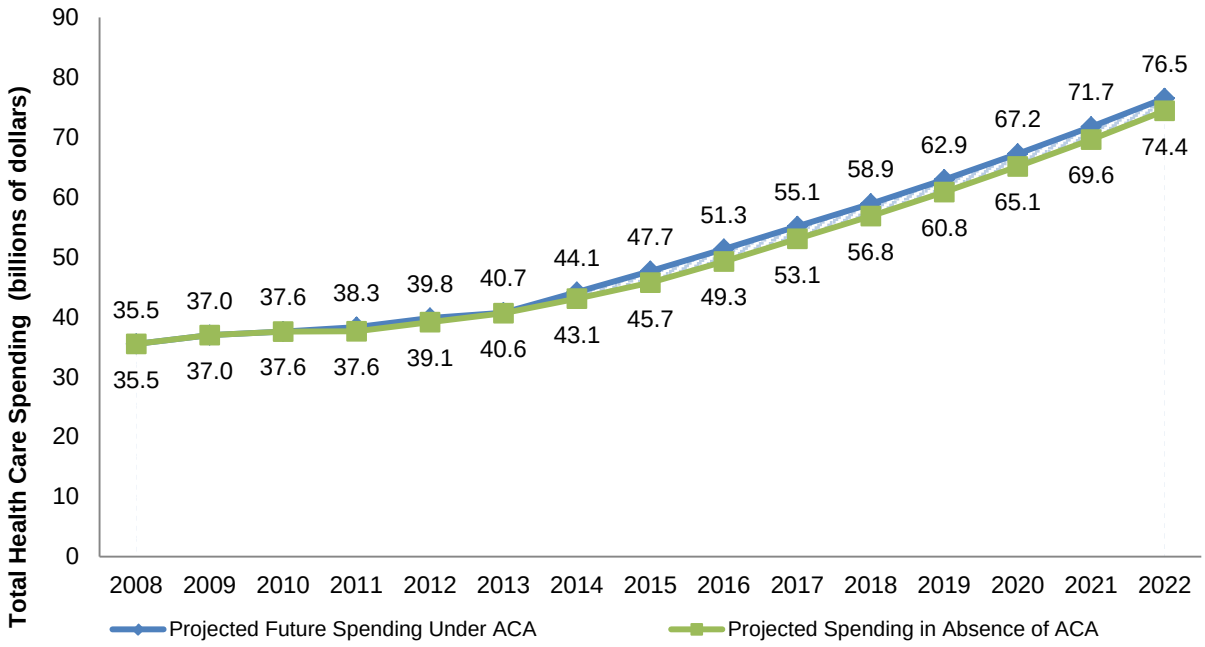
by types of coverage to simulate the marginal impact of the ACA.[41] The analysis focuses primarily on coverage transitions occurring in 2014, 2015, and 2016, assuming a steady-state in coverage thereafter. It also incorporates projected changes in Medicare spending based on projections made by the CMS. Although the ACA contains many other provisions with potential to alter the future of health care spending, lack of granular data prevents estimation of their effects at this time.

In the following analysis, two factors have opposing effects on health care spending in the state. Changes in health insurance coverage are projected to increase spending, but these increases will be partially offset by programmatic changes to Medicare, which are expected to lower spending. Together both factors produce a minor net increase in spending. This report focuses on the marginal impact of the ACA on annual spending, rather than the cumulative increase over the entire projection period.

In 2014, the year in which most coverage provisions take effect, spending under the ACA is estimated to be $1.1 billion higher than in the absence of the ACA. The policy's marginal impact on annual spending peaks in 2016 at approximately $2.1 billion, as shown in Figure 6. Following 2016, savings due to changes in Medicare are predicted to reduce the overall change in spending driven by the ACA.

Insured Minnesotans utilize significantly more care than those without health insurance.[42] Because of the difference in utilization, greater insurance coverage is expected to contribute to higher health care spending. This analysis estimates that new insurance coverage will account for $1.9 billion in additional spending in 2016.

Figure 6
Projected Impact of the Affordable Care Act, 2008 to 2022



Source: MDH historical spending estimates and projections from Mathematica Policy Research, Inc.

[41] See discussion in Appendix C.
[42] MDH/Health Economics Program. *Utilization of Health Care by Insurance Status.* November 2013.

Table 7 displays the impacts of the ACA on health care spending. The effects on spending are much larger on public spending than on private spending. Public spending is expected to be significantly higher due to the expansion in eligibility for Medical Assistance and the implementation of a Basic Health Plan in 2015.

Table 7
Estimated Impact of the ACA on Public and Private Health Care Spending, 2013 to 2022

	Spending Impact of ACA (millions of dollars)			% Difference		
	Private	Public	Total	Private	Public	Total
2013	$26.1	$44.4	$70.4	0.1%	0.2%	0.2%
2014	$257.8	$826.0	$1,083.8	1.1%	3.9%	2.5%
2015	$364.0	$1,578.1	$1,942.1	1.5%	6.8%	4.1%
2016	$386.0	$1,677.1	$2,063.1	1.5%	6.7%	4.0%
2017	$416.2	$1,645.1	$2,061.2	1.5%	6.1%	3.7%
2018	$444.3	$1,609.2	$2,053.4	1.5%	5.6%	3.5%
2019	$474.6	$1,598.0	$2,072.5	1.5%	5.2%	3.3%
2020	$506.0	$1,603.5	$2,109.5	1.5%	4.9%	3.1%
2021	$537.6	$1,591.8	$2,129.4	1.5%	4.5%	3.0%
2022	$569.1	$1,514.9	$2,084.0	1.5%	4.0%	2.7%

Source: MDH historical spending estimates and projections from Mathematica Policy Research, Inc.

The ACA will change many aspects of the health care payment system.[43] This early analysis is limited in its ability to predict the impact of many components of the ACA, such as reforms to the benefits offered in the individual insurance market. Future research will help refine these estimates through the availability of actual coverage gains, the effect of changes in benefits in the individual market on spending, and a more refined understanding about health care use pattern of the newly insured compared to people with previously existing coverage.

[43] For greater discussion of limitations, see Appendix C.

Summary

Minnesota health care spending grew slowly in 2012 to reach $39.8 billion. Despite the slow pace of growth, the rate of growth doubled relative to the previous year, indicating that impacts of the economic recession on health care spending might be waning. Spending increased as more Minnesotans gained insurance coverage, both through public coverage and in the private market. Despite this uptick in growth, health care spending grew slower than the overall economy, which was expanding during this period. As a result, health care spending declined as a portion of the state's economy from 13.7 percent in 2011 to 13.5 percent in 2012.

This was the fifth year MDH has compared actual health care spending to projected spending to determine whether underlying trends in health care spending growth are changing. The comparison shows that projected spending in 2012 exceeded actual spending by about $3.0 billion. This could indicate that there has been some disruption in relationship of macroeconomic trends and health spending growth. Minnesota reforms may have played some role, as evidenced by national studies on the potential effect of payment reform and early findings from Minnesota's Health Care Home initiative. However, it is too early to rule out the impact that the recession and mix of policy changes might have had on the health care market.

By incorporating into the projection the changes that have taken place over the last several years in the historic spending trend, this year's modeling approach is able to produce more robust projections of future spending. This refined analysis predicts that 2022 spending will be more than five billion dollars lower than projected by the original projection model. MDH predicts that health care spending will account for almost 20 percent of the state economy by 2022.

Although projections indicate that health care spending may almost double by 2022, only a minor fraction of that growth is attributable to the coverage expansion of the ACA. By 2016, the ACA is predicted to lead to annual health care spending that is approximately 4.0 percent higher than otherwise expected. While public payers account for much of this change, increased private coverage, improvement in covered benefits, and changes in cost sharing provisions will also drive shifts within private spending. Over time, programmatic changes to Medicare are expected to diminish the overall impact of the ACA on spending by offsetting coverage-driven increases in spending.

This recent slowdown in health care spending is likely influenced by a number of dynamics. Due to this complexity and the lack of availability of more granular data, MDH cannot at this point determine definitively the weight of the individual factors driving this change. Due to the lagged impact of the economy on health care spending growth, it remains too soon to determine the full contribution of the economic downturn to recent trends. In the coming years, Minnesota's health care spending will be subject to numerous countervailing pressures. Many Minnesotans will gain insurance coverage through provisions of the Affordable Care Act, some holding coverage for the first time. At the same time, initiatives in the public and private sectors continue to focus on sustainable spending growth and delivery system reform. Monitoring measures of costs over time and developing data tools that help track changes across sources and categories of spending will help provide greater insight into the success of these activities.

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May 19, 2014

Mr. Stefan Gildemeister
Director, Health Economics Program
Minnesota Department of Health
85 E Seventh Place, Suite 220
Saint Paul, MN 55101

Dear Stefan:

Actuarial Certification

Over the course of the past several weeks Towers Watson has provided actuarial review of the final estimates of state-wide health expenditures in Minnesota developed by the Minnesota Department of Health (MDH). Our review considered the extensive tables that MDH provided, presenting sources of funding and categories of state health care expenditures for 2012 and previous years. Our review also included examination of supporting documentation, discussion of data sources and methodologies, and requests for additional documentation and clarification.

Based on this review, we find that the data sources and methodologies that MDH has used are valid and reasonable. We further certify that the health spending estimates for 2012, including state-wide health care expenditures totaling $39.8 billion and total spending less Medicare and long-term care in the amount of $27.0 billion, are reasonable based on our review of the data used, the methodologies employed, and health care spending trends observed nationally. The tables on the following page summarize these estimates.

Best Regards,

Stuart H. Alden, FSA, MAAA, FCA
Towers Watson

cc: Ahna Minge – MDH
David Jones, Deborah Chollet – Mathematica Policy Research
Ryan Lore – Towers Watson

Mr. Stefan Gildemeister
May 19, 2014
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Table 1
Where Minnesota Health Care Spending Came From in 2012

Source of Funding	Total Spending (Millions)	%	Total Spending Less Medicare & LTC (Millions)	%
Medicare	$ 7,626	19.1%		
Medical Assistance	$ 8,374	21.0%	$ 4,833	17.9%
Other Public	$ 2,398	6.0%	$ 2,219	8.2%
Private Health Insurance	$ 15,491	38.9%	$ 15,311	56.7%
Other Private	$ 1,002	2.5%	$ 1,002	3.7%
Out of Pocket	$ 4,932	12.4%	$ 3,639	13.5%
All Sources of Funding	**$ 39,823**	**100.0%**	**$ 27,003**	**100.0%**

Major sources of "other public" include the state public health programs (MinnesotaCare, and General Assistance Medical Care) public workers compensation, public health spending, and Veterans Administration.

"Other Private" includes private workers compensation and auto medical insurance.

The amounts by funding source may not sum to totals due to rounding.

Table 2
Where Minnesota Health Care Dollars Were Spent in 2012

Spending Category	Total Spending (Millions)	%	Total Spending Less Medicare & LTC (Millions)	%
Hospital	$ 13,879	34.9%	$ 9,820	36.4%
Physician Services	$ 7,648	19.2%	$ 6,265	23.2%
Long-Term Care (incl. Home Care)	$ 6,016	15.1%		
Prescription Drugs	$ 3,423	8.6%	$ 2,975	11.0%
Dental	$ 1,290	3.2%	$ 1,273	4.7%
Other Professional Services	$ 1,359	3.4%	$ 1,169	4.3%
Chemical Dependency/Mental Health	$ 1,007	2.5%	$ 1,007	3.7%
Other Medical Spending	$ 3,263	8.2%	$ 2,610	9.7%
Other Non-Medical Spending	$ 1,938	4.9%	$ 1,883	7.0%
Total Spending	**$ 39,823**	**100.0%**	**$ 27,003**	**100.0%**

"Other professional services" includes spending for services by private-duty nurses, chiropractors, podiatrists and other health practitioners who are not physicians or dentists.

The amounts by spending category may not sum to totals due to rounding.

Appendix B. Estimates of Savings Attributable to State-Administered Programs

Having found projected spending to exceed actual spending, MDH is required to estimate the portion of the difference that is attributable to state-administered programs. As shown in Table B1, state-administered health insurance programs in 2012 accounted for 22.5 percent of total spending excluding Medicare and long-term care. Spending for Medical Assistance alone accounts for more than three-fourths of state-administered spending.

Table B1
Spending for State-Administered Programs as a Percent of Total Spending, 2012

	Actual Spending (Millions)	Percent
Total Spending [1]	**$27,002.6**	
Spending Not State-Administered	**$20,937.1**	**77.5%**
Total State-Administered Programs [2]	**$6,065.6**	**22.5%**
Medical Assistance	$4,838.2	17.9%
MinnesotaCare	$571.1	2.1%
State Employee Group Insurance Program	$656.3	2.4%

Source: MDH Health Economics Program

[1] Excludes spending for Medicare and long term care

[2] Excludes spending for long term care

Because the underlying projection model cannot be estimated with confidence separately for each state-administered program, MDH uses two scenarios to estimate the range in the share of the spending difference likely attributable to state-administered programs (see Table B2). Scenario 1 applies the portion of spending accounted for by state-administered programs from Table B1 to the difference between actual and projected spending. Under that scenario, the share of the difference in actual and projected spending attributable to state-administered programs in 2012 amounted to $664.1 million.

The calculation in Scenario 2 takes into consideration that the slower than projected growth in actual spending is composed of differential rates of growth in private spending, applicable to the State Employee Group Insurance Program, and public spending, applicable to the Minnesota Health Care Programs. Under Scenario 2, the share of the difference in actual and projected spending attributable to state- administered programs in 2012 amounted to $80.1 million.

Table B2
Savings from 2008 Health Reform Attributable to State-Administered Programs, 2012

	Difference (in millions)	Percent of Difference
Scenario 1: Estimates as a Percent of Aggregate	2,956.2	
Amount Attributable to State-Administered Programs	664.1	22.5%
Amount Attributable to Non-State Programs	2,292.2	77.5%
Scenario 2: Estimates by Payer Growth Rates		
Amount Attributable to State-Administered Programs	80.1	6.9%
Amount Attributable to Non-State Programs	1,086.4	93.1%

Source: MDH Health Economics Program and Mathematica Policy Research, Inc.

Appendix C. Health Spending Estimate and Projection Methodology

Overview

The Health Economics Program (HEP) of the Minnesota Department of Health (MDH) prepares annual estimates of health care spending for Minnesota residents as part of its responsibility to monitor trends in Minnesota's health care market and in compliance with requirements to assess actual health care spending in the context of developed spending projections.[44] These estimates detail health care spending by broad expenditure categories and sources of funding. Generally, the data sources used for the development of Minnesota's health spending estimates are provided in fairly aggregated form; no patient-level information on volume of utilization and location of health care services is available for the development of estimates. Health spending data used in developing the estimates originate with payers of health care expenditures, such as health plans, government agencies, and consumers. Minnesota's approach to spending estimates therefore is a bottom-up approach, in that all health care spending for consumers is tracked by the source of payment. This is an important distinction from the top-down approach used by the Centers for Medicare and Medicaid Services (CMS) on which, more generally, HEP's estimation approach is based. CMS uses data flow from providers or equivalent estimates to construct their national spending estimates[45]

In addition to estimates of historic spending, MDH develops projections of future health care spending, generally focusing on health care spending trends absent the potential impact of Minnesota's 2008 health care reforms. The projections are conducted with the input of an analytic contractor to MDH. Similarly to the spending estimates, projections are computed annually to carry forward the projection window and maintain alignment with methods and data updates employed by CMS.

This document outlines the methodological approach used to generate the estimate and projections. It identifies data sources and key assumptions made when working to isolate annual trends in expenses resulting from health care consumption by Minnesota residents. Estimated and projected spending are divided into categories of payer and spending type.

Estimating Historical Health Care Expenditures

Data

Data on health care spending are available to the analysis in aggregated form, generally submitted to MDH by payers of health care services. This means, detailed expenditure data that would allow for decomposition of expenditure trends into drivers of health care growth, such as changes in mix of services (e.g., technology), health care demand due to aging or other factors, or unit prices of various products and services are unavailable to this work.

The sources of funding are grouped by type of payer similar to the payer categories used in the National Health Expenditure Accounts (NHEA), a nationwide spending estimate conducted by CMS. The broad categories include private health insurance, out-of-pocket spending, spending by other private payers, and spending by public payers, including, Medicare, Minnesota Health Care Programs (MHCP),[46] and other public sources. In addition to health care spending, data on coverage are used to estimate per capita

[44] Minnesota Statutes, Section 62U.10

[45] A description of CMS' methodology is available online: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/dsm-11.pdf; accessed Dec. 2, 2013

[46] Minnesota Health Care Programs refers to Medical Assistance and MinnesotaCare.

spending and the size of the overall Minnesota market.[47] As shown in Table C1, a number of primary data sources are used to create the health spending estimate.[48] The first three data sources, covering private spending, spending for state public program enrollees and Medicare fee-for-service program spending, fairly consistently capture about 80 percent of total spending in the state.

Table C1: Major Data Sources Used in Minnesota Health Spending Estimate

Data Source Name	Types of Data	Sources of Data	Data Used for
Health Plan Financial and Statistical Report (HPFSR)	Aggregated expenditure data, enrollment, revenue	Group purchasers (health plan companies)	Fully-insured and self-insured private health plans; Medicare Advantage and Prescription Drug Plan spending
Reports and Forecasts Division, Minnesota Department of Human Services (DHS)	Aggregated expenditure data, enrollment	Minnesota DHS	Minnesota Health Care Programs (MHCP) spending
Medicare Fee for Service (FFS) Spending Estimate	Aggregated expenditure	Centers for Medicare and Medicaid Services (CMS)	Medicare spending
Medical Expenditure Panel Survey (MEPS)	Out-of-pocket cost estimates	Agency for Healthcare Research and Quality (AHRQ)	Estimating out-of-pocket costs
National Health Expenditure Accounts	Out-of-pocket estimates	CMS	Estimating out-of-pocket costs
Various administrative reports and data	Aggregate expenditures, enrollment	Federal and state agencies	Other public and private spending

The remainder of this section discusses approaches to estimating spending categories by primary payers in two broad categories: private and public sources of spending.

Private Expenditures

Private payer spending includes all health care expenses incurred by non-public contributors to health care financing. This includes claims paid by private insurers, costs paid by consumers out of pocket, and expenses paid by other entities such as automobile insurance carriers, third party administrators and others.

Private Insurance

For the fully-insured market, estimates of private health insurance spending are computed using data reported to MDH by health insurance carriers licensed to provide health insurance coverage in Minnesota. The vehicle of data collection is the annual Health Plan Financial and Statistical Report (HPFSR). Data are reported by 13 expenditure categories and type of product, which means the data system includes information beyond private insurance spending, including for instance spending for people with

[47] The analysis attempts to develop estimates of the distribution of primary coverage by correcting for double-coverage and changes in coverage across a calendar year. Results from this analysis are forthcoming.

[48] In total, the spending estimates rely on data from about 20 data systems.

supplemental Medicare coverage. Spending under Medicare Supplemental policies is calculated consistently with commercial spending.

A significant share of privately insured Minnesotans (60 percent) receives coverage through self-insured employers. Total self-insured spending is estimated by creating a product of a calculated per capita ratio of fully-insured to self-insured spending and an estimate of the number of self-insured Minnesotans. The estimate of the *number* of self-insured in Minnesota is derived as a population residual using information on the distribution of health insurance coverage for Minnesota residents.

High-risk Pools

Spending for Minnesotans who are covered in two high risk pool programs – the Minnesota Comprehensive Health Association (MCHA) and the federal Pre-existing Condition Insurance Plan (PCIP) – is calculated separately for each program. MCHA spending is derived from aggregated claims data obtained from the plan administrator in Minnesota. PCIP private spending is calculated based on reported average monthly premiums per enrollee. The portion of PCIP spending that is funded by the federal government for (the small number of) Minnesota enrollees is reported as public spending (under other public spending).

Medicare Advantage Private Expenses

Medicare Advantage expenditures are reported via the HPFSR to MDH by plans offering these policies in the state. These expenditures are divided between public and private payer categories by subtracting CMS capitation payments from total expenditures.

Out-of-Pocket Costs

MDH estimates out-of-pocket spending from a ratio of national estimates of out-of-pocket spending to covered-spending (the share of spending paid by an insurance carrier). This analysis is conducted at the expenditure category level and is based on aggregated health expenditure data drawn from the household component of Medical Expenditure Panel Survey (MEPS) (Midwest) and the NHEA. MDH weights this ratio to the distribution of coverage in Minnesota, to account for the difference in coverage distribution between Minnesota and the Midwest region overall. The results are multiplied by an estimate of Minnesota covered-spending.

Other Private Spending

Other private spending includes spending estimates for a number of smaller-volume payers, including workers' compensation spending for non-government workers and automobile insurance medical spending. Health care spending for the private portion of the workers' compensation program is calculated as the product of total spending and a ratio of private-to-public employment. The estimate of health spending paid by automobile insurance, the other component of this spending category, is based on a ratio of medical paid losses to total paid losses. This ratio, which is derived from "Best's Averages & Aggregates," a publication on the property and casualty industry, is applied to an estimate for total Minnesota paid losses, estimated from historic data on medical paid losses.

Public Expenditures

Public expenditures include public spending for health insurance, such as Medicare and Medical Assistance, and other spending such as by the Veterans Administration, workers' compensation, prisons and public health.

Medicare

Medicare expenses include costs for beneficiaries enrolled in fee-for-service (FFS) Medicare and payments made to health plans as part of the Medicare Advantage and Prescription Drug programs – again, the private portion of these payments is calculated separately, as private spending. FFS spending is based on a series of data tables prepared by CMS for Minnesota (residence-based) Medicare Parts A and B spending. An estimate of managed care payments (capitation) paid by CMS to Medicare Advantage plans is added to this value for public Medicare spending. The amount Medicare Advantage plans report on the HPFSR as revenue from CMS is used to represent public Medicare capitation payments. Data related to prescription drug coverage for Minnesota residents through a stand-alone Medicare Part D plan is also collected through the HPFSR. These data are benchmarked against monthly reports from CMS.

Minnesota seniors eligible for both Medicare and Medicaid may enroll in Minnesota Senior Health Options (MSHO), a program that blends Medicare and Medicaid benefits into one managed care product. CMS and the Minnesota Department of Human Services (DHS) make capitated payments directly to the managed care plan companies. These companies report revenue and expenditures as part of their annual financial reporting on the Minnesota Supplement Report, number 1. To avoid double-counting of expenses and ensure accurate allocation of payer type data, DHS administrative records are used to subtract Medicaid contributions to MSHO, leaving the Medicare capitations. The distribution of these payments across service categories is calculated based on the distribution observed for Medicare Advantage enrollees. The remaining payment stream (the DHS capitation amounts) is captured in Medical Assistance managed care spending within Minnesota Health Care Programs.

Minnesota Health Care Programs

Spending estimates for Medical Assistance (MA), Minnesota's Medicaid program, are computed separately for the managed care and FFS portions of the program. MA FFS data are reported by DHS directly. The managed care component of health spending for MA are distributed across spending categories using estimates provided by DHS. Total MA spending is distributed into federal and state funding sources using evidence from the DHS Forecast.

Aggregated MinnesotaCare spending is obtained by calendar year from the DHS Reports and Forecasts division. This volume of spending is allocated across spending categories using expenditure distributions provided, again, by DHS. Historically, the methodology for deriving spending estimates for enrollees in MinnesotaCare and GAMC was nearly identical. However, GAMC underwent significant program changes in fiscal year 2010. For 2010 and 2011, spending estimates are based on program reports for each component. They explicitly include budgetary expenses that are no longer carried on the DHS Forecast. This reconfigured program ended in 2011, and enrollees were converted to Medical Assistance.

Other Public Spending

In addition to Medicare and Minnesota Health Care Programs, the estimate of public health care spending includes spending by the Veterans Administration, government workers' compensation, public health programs, the Indian Health Service (IHS) and the state and federal correction systems.

Veterans Administration health spending for Minnesota beneficiaries (medical care and general operating expenses) is obtained directly from the U.S. Department of Veterans Affairs website. Federal fiscal year data are converted to calendar years and allocated across expenditure categories based on historic information from the U.S. Office of Management and Budget. Tricare spending is reported by the Department of Defense (DOD). The data are reported by expenditure category, which are aligned to those in the Minnesota estimation model.

Estimates of workers' compensation spending for state and local employees rely on data from the Minnesota Department of Labor and Industry (DOLI). Total Minnesota non-federal workers' compensation claims are multiplied by the share of the workforce employed by state and local government units. Estimates of workers' compensation spending for federal employees who are Minnesota residents are based on total federal workers' compensation expenses in the state from the U.S. Department of Labor.

MDH's estimation approach includes spending estimates for the medical care of individuals incarcerated in federal prisons located within the state and in state correctional facilities. The federal data are obtained directly from the Federal Bureau of Prisons. Data on medical spending at state corrections facilities is obtained directly from the Minnesota Department of Corrections. To calculate state spending, MDH multiplies per diem costs times the average annual population in state correctional facilities.

The estimate of public health spending for the state of Minnesota draws on data from a range of sources to estimate spending at the federal, state, and local public health-level. The federal public health spending estimate relies on data from USASpending.gov, which reports information on block grants and other major federal grant programs. State public health data are obtained from the DHS forecast and from a division of MDH that awards public health grants to local public health departments. Those data are converted from federal and state fiscal year to calendar year.

Lastly, data on federal spending by the Indian Health Service (IHS) are obtained from the IHS Bemidji area office and converted to a calendar year estimate. Because the data are not available by expenditure categories, all IHS expenditures are currently reported as uncategorized other public spending.

Differences Between MDH and CMS Estimation Approaches

As mentioned earlier, Minnesota has developed health care expenditure estimates since the mid-1990s, relying on data explicitly collected from payers for this effort and advancing the methodological approach and data sources used over time. Minnesota's health spending estimation method is comparable in structure to the NHEA published by CMS. While the data used for Minnesota's estimates differ from those at the national level – Minnesota uses data from payers, while CMS largely relies on data from providers – the framework and expenditure categories generally overlap. To make the data directly comparable, Minnesota analyzes its results relative to a subset of CMS expenditure data, namely spending in the health consumption category, which includes spending for personal health care, government administration, the net cost of private health insurance, and government public health activities. Both estimates exclude resources spent on investments and research that are not explicitly built into prices by providers and paid for by payers.

More systemic differences exist between Minnesota's state spending analysis and CMS' effort to estimate the state portion of their national health expenditure account initiative. CMS develops the State Health Expenditure Account (SHEA) estimates on an irregular basis and uses data sources on business transactions to disaggregate patterns of national spending to the state level. This, decidedly top-down approach differs from Minnesota's bottom up approach, in which actual health care transactions are traced to generate aggregate-level total spending. Analysis by an independent contractor to MDH about the CMS SHEA approach has not revealed any factors that suggest CMS' approach is characterized by methodological strengths relative to Minnesota's approach. Rather, it appears to be a tool that uses statistical methods to compensate for a lack of available data that is comparable for all (or most) states.

Projecting Health Care Expenditures

Minnesota develops projections for the primary purpose of holding static historical factors that drive health care spending in order to estimate what future spending would have been without the impact of health reforms introduced in 2008. Minnesota's projection technique combines a macroeconomic forecast model to project future spending in the absence of the Affordable Care Act. To these projections, it adds results of a microsimulation to project future spending inclusive of the current policy landscape.

Macroeconomic Forecast

Again, similarly to CMS, Minnesota's approach aims to project an overall model of health care spending and models by payer and spending categories that are benchmarked to results from the more predictive total spending model.

Public Spending

Three types of public spending are included in Mathematica's projections: Medicare, MHCP, and other public spending. Projected values for each are determined separately.

- Values for future Medicare spending are projected based on growth rates published by the CMS Office of the Actuary.
- Projections for Medical Assistance and MinnesotaCare are derived from the Department of Human Services' (DHS) forecast. The DHS forecast includes projected values for five fiscal years by program type and eligibility category. For years within the forecast period, fiscal years are converted to calendar years using a weighted average. For years beyond the forecast period, per enrollee costs are calculated for each eligibility category and for long term care separately. Using data from the MN Demographic Center and the Department of Human services, these per enrollee costs are applied to the projected enrollment change for each eligibility category to determine total projected spending.
- Other public spending, which includes spending for the Veterans Administration and public workers' compensation payment, is calculated by applying a three year moving average rate of growth to each payer category.

Private Spending

Future private spending is projected by estimating a series of regression models using historic spending estimates and macroeconomic data for the years 1993 through 2008. The method utilized by MDH and its vendor is designed and updated to be aligned with CMS methods as much as is appropriate. Again, this process determines the historic relationship between macroeconomic variables and health care spending, aiming to hold this pattern constant so that potential changes in the underlying relationship prompted by health reform (and other difficult-to-isolate factors) can be identified. After fitting the historic data, future spending is projected using projected macroeconomic factors as explanatory variables. Spending is projected in total and also by private payer type and by spending category.

Each individual model includes six variables as explanatory variables:

- **Price Index:** Estimates of national price indices are generated by CMS for each expenditure category.
- **National Real Per Capita GDP and Personal Income:** Estimates are obtained from the Bureau of Economic Analysis.
- **Minnesota Real Per Capita Personal Income:** Estimates and projections are obtained from forecasts by the Minnesota Management and Budget. In line with CMS methodology, public health care spending is subtracted to better approximate income of the population that accounts for private health care spending. This value is divided by population for per capita values.
- **Minnesota Nominal Per Capita GDP:** Nominal GDP is estimated by the Bureau of Labor Statistics. Future values are projected using national growth rates projected by the Congressional Budget Office. Values are converted to per capita basis.
- **Minnesota Per Capita Employment:** Estimates and projections are obtained from forecasts by Minnesota Management and Budget. Values are converted to per capita basis.[49]
- **Time Trend:** A time trend is included in line with the methods used by CMS. The variable is created by subtracting 1993 (the first year of historic data) from the observation year.

Using these variables, models are run in aggregate and by payer type and service category. Payer type and service category models are then constrained so that the sums of estimates from the individual models are equal to the projected aggregate spending.

Projected Impacts of the Affordable Care Act

The Affordable Care Act contained a number of provisions designed to increase the number of individuals with insurance coverage. Many more will transition to different types of health insurance. These expansions and transitions will have a significant impact of the care that Minnesotans receive and as a result, how much is spent. However, the baseline macroeconomic model is unable to incorporate changes of this nature. As a result, the 2012 spending report includes a projection model that incorporates the results of a microsimulation to better project how ACA-related coverage changes will impact future spending.

This microsimulation relies on a database that is created by pairing of two national surveys – the American Community Survey (ACS) and the Medical Expenditure Panel Survey (MEPS). The ACS contains rich information on income, health insurance status, and health care utilization, which allows for microsimulation. The MEPS contains unique information on health care spending by insurance coverage type. By pairing these two data sets, the process can simulate how changes in policy impact a person's insurance coverage and thus their health care spending.

The microsimulation begins by creating a baseline database. The Minnesota sample of the ACS is weighted to demographic and insurance coverage characteristics. Then each record is statistically matched based on demographic factors and health care utilization to MEPS records in multiple coverage types (private, Medicaid, uninsured). By matching a single person from the ACS with multiple similar people in the MEPS, we can mimic what happens to a person's spending when his or her coverage changes. For years before the ACA but not yet estimated by MDH, the model reweights the baseline estimates to projected demographic, economic, and projected per capita spending benchmarks.

[49] The per capita employment variable is not included in the total spending model as it negatively impacted the face validity of the results.

From 2014 to 2016, the model simulates coverage changes based on estimated likelihood of insurance take-up. For those records that "experience" a coverage change, their per capita spending changes from their previous coverage type to that associated with their new coverage type. These enrollment numbers are benchmarked to DHS forecasts and enrollment projections generated for the State in 2013.[50] To reflect general spending growth, per capita spending is benchmarked to per capita spending projected by the macroeconomic model. Following 2016, the results of the microsimulation are projected to increase at the growth rate generated by the macroeconomic model.

In addition to the microsimulation, this study relies on CMS projections of per capita Medicare spending growth with and without the ACA to contribute to the estimate of total ACA impact.

Limitations of Projection Model

The macroeconomic projection model is very successful at explaining past trends in health spending (the R-squared value of the total spending model is 0.98). However, similarly to any exercise in projection, the results are subject to considerable uncertainties because of the range of necessary assumptions about future trends.

Because private spending is predicted by a number of macroeconomic factors, the projection relies on the accuracy of the underlying explanatory variables. If the explanatory variables are predicted incorrectly, then the spending estimates will also be wrong. For example, if GDP in Minnesota doesn't increase as projected in 2014 due to slow economic growth, health spending estimates for 2014 have the potential to be inaccurate.

Even with accurately predicted explanatory variables, the accuracy of projections can be affected by external factors, such as changes in federal policy or economic shocks, like the Great Recession, that are not built into the historic relationship between explanatory variables and health care spending. Like CMS, MDH's approach aims to update model specifications to capture those trends; however, given that the model is macroeconomic in nature and the shifts might not carry through into the specific explanatory variables, the adjustment is only a best approximation.

In addition, the soundness of the historical data, both about how much of the "signal" of underlying trends they carry and the length of the timeline from which to extract relationships between spending and explanatory factors, can be an important limitation. Minnesota's historical data, while strong because of its consistency and the method by which it is aggregated, represents a relatively short time series.

The microsimulation also suffers from a number of limitations. Due to uncertainty surrounding the impact of other provisions, the model focuses exclusively on coverage changes. In addition, it relies on per capita spending from 2011 to project spending under the Affordable Care Act. However, the ACA included a number of provisions that change benefits, which most dramatically impacts the individual and small group markets. As such, the model is not able to incorporate how spending patterns might change as a result of these benefit changes. The microsimulation also assumes no pent up demand among the uninsured who gain coverage under the Affordable Care Act.

[50] Gruber, J. and B. Gorman. The Impact of the ACA and Exchange on Minnesota: Updated Estimates. February 2013. Available from https://www.mnsure.org/images/Report-GruberGormanUpdate-2013-02-28.pdf.

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