DEPARTMENT OF HEALTH

Minnesota Health Care Spending: 2018 and 2019 Estimates and Ten-Year Projections

REPORT TO THE MINNESOTA LEGISLATURE

October 2021

Minnesota Health Care Spending: 2018 and 2019 Estimates and Ten-Year Projections

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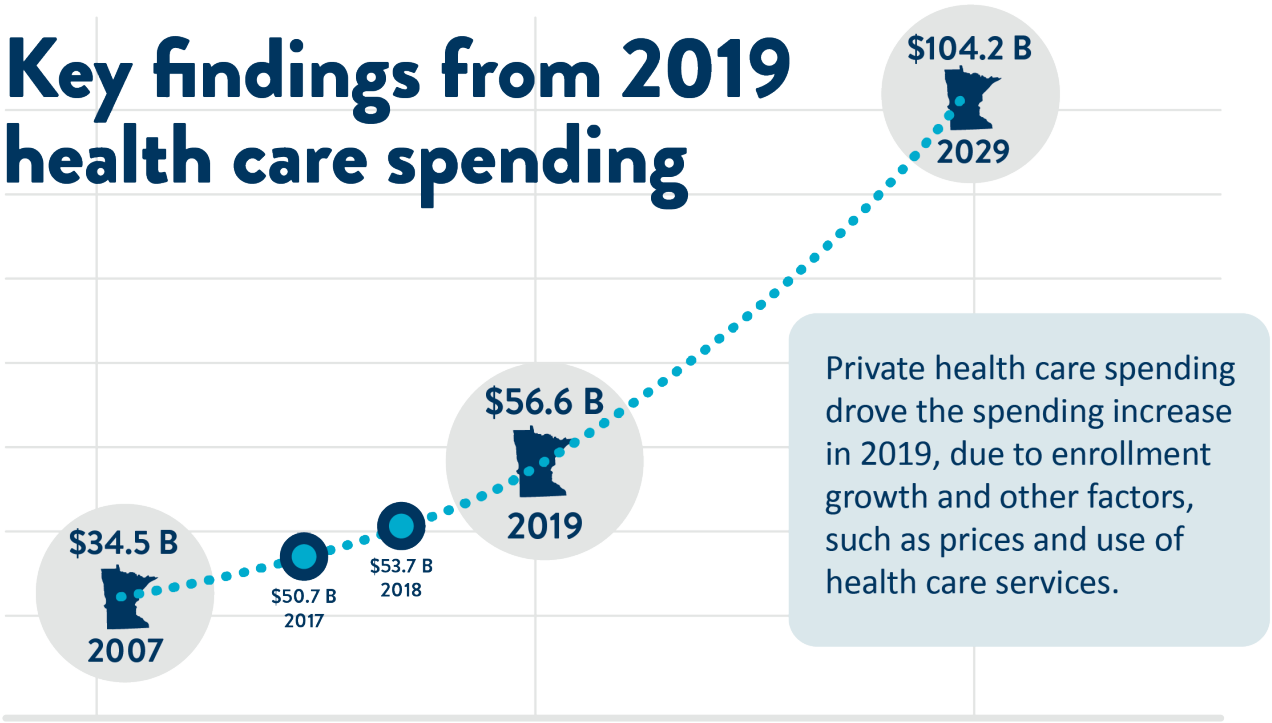
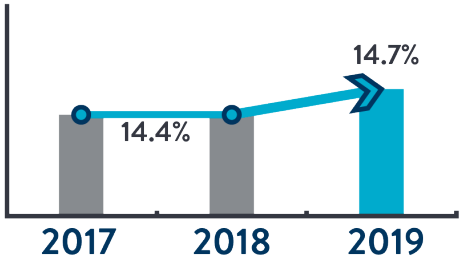
Key findings from 2019 health care spending



Private health care spending drove the spending increase in 2019, due to enrollment growth and other factors, such as prices and use of health care services.

Private health care spending accounted for more than half of all spending in the state; reversing two years of a decline in the share of private health care spending.

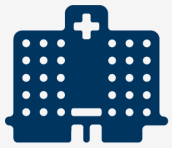


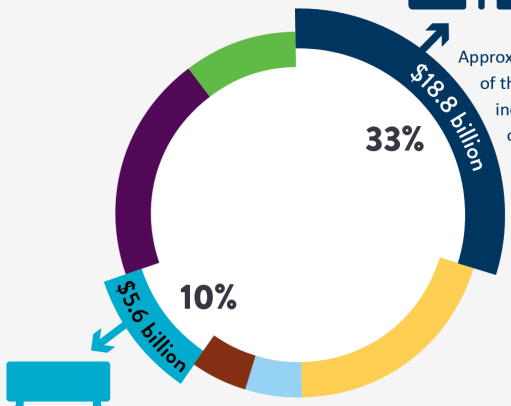
Health care spending as a percent of the Minnesota economy increased in 2019 to 14.7%, after remaining relatively flat in 2017 and 2018 at 14.4%

For additional information and the complete report, please visit the Minnesota Department of Health, Health Economics website at www.health.mn.gov/data/economics

2019

Hospital spending remained the single largest spending category of health care service.





Approximately $1.1 billion of the 2019 spending increase is the result of increased spending for hospital services.

Although the volume and level of retail drug spending continues to be concerning, in 2019 it had less rapid growth than hospital spending, accounting for 10 percent of total spending.

DEPARTMENT OF HEALTH

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

The Honorable Michelle Benson, Chair
HHS Finance & Policy Committee,
Minnesota Senate
3109 Minnesota Senate Building

The Honorable Jim Abeler, Chair
Human Services Reform Finance & Policy
Committee, Minnesota Senate
3215 Minnesota Senate Building

The Honorable Tina Liebling, Chair
HHS Finance & Policy Committee
Minnesota House of Representatives
477 State Office Building

The Honorable Rena Moran, Chair
HHS Policy Committee
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449 State Office Building

The Honorable Melissa Wiklund, Ranking Member
HHS Finance & Policy Committee,
Minnesota Senate
2227 Minnesota Senate Building

The Honorable John Hoffman, Ranking Member
Human Services Reform Finance & Policy
Committee, Minnesota Senate
2235 Minnesota Senate Building

The Honorable Joe Schomacker, Ranking Member
HHS Finance & Policy Committee
209 State Office Building

The Honorable Debra Kiel, Ranking Member
HHS Policy Committee
Minnesota House of Representatives
255 State Office Building

October 27, 2021

To the Honorable Chairs and Ranking Members:

The Minnesota Department of Health (MDH) has estimated total health care spending for Minnesota residents dating back to 1993. Since 2010, we have developed projections of health care spending in the state, which we use as benchmarks for estimates of actual trends.

This report summarizes the latest trends in Minnesota residents' health care spending for calendar years 2018 and 2019, with a focus on 2019, the most recent year of available health care spending estimates. As in previous reports, an actuary certified the appropriateness of the data used, methodologies employed, and assumptions made in constructing MDH's latest health care spending estimates and ten-year annual projections. This is available in Appendix B of the report.

The major findings from this year's (2019) legislatively mandated analysis are as follows:

- **Spending:** Health care spending reached $56.6 billion in 2019, an increase of 5.4 percent (or $2.9 billion) from 2018; this was the third consecutive year of spending growth above 5.0 percent.
- **Economy:** Health care spending as a portion of the state's economy increased one-third of a percentage point in 2019 to 14.7 percent after remaining relatively unchanged in 2018.

- **Spending drivers:** Private health care spending drove the spending increase in 2019. The largest contributor to the change was enrollment growth, followed by inflation and other factors, such as changes in prices and use of health care services.
- **Hospital spending:** Health care spending by hospital entities – in inpatient and outpatient settings – remained the largest spending category at $18.8 billion, accounting for one-third of total spending. It contributed about 40.0 percent to total spending growth.
- **Prescription drugs:** Retail prescription drug spending accounted for 10.0 percent of total spending, or $5.6 billion, though it grew less rapidly in 2019 than hospital spending.
- **Spending projections:** Projected health care spending will increase an average of 6.9 percent per year; by 2029, annual spending is projected to reach $104.2 billion, $47.6 billion higher than 2019 spending.
- **Pandemic impact:** Although the COVID-19 pandemic was unprecedented, it does not appear to have stunted future growth: in 2020, spending is still expected to increase 1.0 percent and by 2021, spending is expected to return to spending levels at or above pre-COVID spending for all payer types, excluding other public spending.

This report and the Minnesota Health Care Markets Chartbooks are available online on the Health Economics Program website, www.health.state.mn.us/healtheconomics. Questions or comments on the report may be directed to Stefan Gildemeister, the State Health Economist at (651) 201-4520 or health.hep@state.mn.us.

Sincerely,

Jan K. Malcolm
Commissioner of Health
PO Box 64975
Saint Paul, MN 55164
www.health.state.mn.us

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Executive Summary

The Minnesota Department of Health (MDH) has estimated total health care spending for Minnesota residents dating back to 1993.[1] Following major state health reforms implemented in 2008, MDH was required to produce ten-year health care spending projections.[2] Both historical estimates and spending projections are updated annually and are used by a variety of stakeholders (e.g., employers, purchasers of health care services, researchers, providers, and policymakers) to inform health reforms and/or policy proposals; establish business strategy; conduct planning related to workforce and budgets; and benefit considerations, among others. Additional information and data visualizations on health care spending for Minnesota residents are contained in the Minnesota Health Care Market Chartbook, Section 1. Health Economics Program (www.health.state.mn.us/healtheconomics).

Total Minnesota Health Care Spending

This year's report illustrates that the modest health care spending growth observed between 2009 and 2012 following the Great Recession appears to have ceased. In 2019, Minnesota experienced the third consecutive year of spending growth above 5.0 percent, with spending reaching $56.6 billion, a 5.4 percent (or a $2.9 billion) increase from 2018.

Health Care Spending by Payers

All payers of health care services in Minnesota continued to experience growth in 2019, albeit at varying rates. Private payer spending grew faster than public payer spending, contributing to higher total health care spending growth. Private spending grew at 7.0 percent (or an additional $1.9 billion) compared to 3.8 percent in public spending (or an additional $1.0 billion). Private payer spending continued to represent more than half of all health care spending, 51.6 percent (an increase of 0.7 percentage points from 2018). Yet, over the past decade, *public* spending has routinely grown faster than private spending, with public spending drawing closer to half of total spending; 2019 reversed this trend.

Health Care Spending by Categories of Service

The distribution of health care spending across categories of service (e.g., inpatient hospital, long-term care, etc.) from 2017 through 2019 was relatively unchanged. Hospital spending continued to represent one-third of all health care spending ($18.8 billion). Spending by other categories of service represented lower percentages of spending, ranging from 17.9 percent (physician services) to 2.5 percent (other professional services, such as services provided by health practitioners who are not physicians or dentists). Although the volume and increasing level of retail prescription drug spending continues to be concerning, especially for consumers at the

[1] The first publication of health care spending in Minnesota occurred in 1998, analyzing spending in 1996. Minnesota Department of Health, Health Economics Program. "Minnesota Health Care Expenditures and Trends: 1996." October 1998 (http://www.health.state.mn.us/divs/hpsc/hep/publications/costs/98-06.pdf).

[2] Minnesota Statutes 62U.10, subdivision 1-5. Although this statute was created in 2008, based on the nature of the statute, MDH began producing ten-year health care spending projections in 2010.

point of purchase, in 2019, prescription drug spending grew less rapidly compared to hospital spending. The increases in hospital, long-term care, and other spending (such as mental health/chemical dependency, and other medical and non-medical spending) were the primary drivers of spending growth. More than $2 billion of 2019's spending growth was driven by increases in these three service categories.

Projections of Future Health Care Spending

Over the ten years following our most recent health care spending estimates (2020 to 2029), health care spending in Minnesota is projected to accelerate, reaching $104.2 billion by 2029, $47.6 billion more than 2019 spending. Spending is projected to increase even more quickly, growing at an average of 6.9 percent per year from 2020 through 2029, compared to 4.5 percent per year from 2010 through 2019. During this same period, public payer spending is projected to grow more rapidly than private payer spending (on average 7.2 percent per year, compared to 6.6 percent per year). As a result, public payer spending is expected to exceed private spending for the majority of the next decade. By 2029, it will represent more than half of all health care spending in the state (51.4 percent, or an additional $2.8 billion over private spending). This places increased pressure on government budgets and raises long-term sustainability concerns.

COVID-19 Impact on Projections

As a tool to forecast future trends, projections rely on historical data and stable relationships between key variables. Because the COVID-19 pandemic interrupted *typical* health care utilization and spending patterns in 2020 and 2021, the standard projection models we usually consider would have failed to account for this impact. Therefore, we separately modeled the COVID-19 impact on health care enrollment, utilization, and spending. This also allowed us to include the one-time allocation of state and federal partners' COVID-19 funding, which we report in other public spending, that assisted with the pandemic (in terms of testing, surge capacity, lab enhancements, etc.) – a total of $898 million from 2020 through 2021.

Consistent with varying limitations on access to health care services observed throughout the COVID-19 pandemic, but particularly in the second quarter of 2020 (i.e., providers temporarily closing, limits to type of care offered, and elective procedures cancelled), our separate modeling projected lower overall spending growth (approximately one percent) in 2020. While some payers experienced a contraction in spending due to lower utilization (e.g., private payers and Medicare), other payers experienced an increase in spending due to increased enrollment and higher average enrollee spending (e.g., Medicare Advantage, Minnesota Health Care Programs, other public spending).

For 2021 we project spending will return to levels at or above pre-COVID spending for all payer types, excluding other public spending, leading to spending growth of over eight percent due to historically lower 2020 spending. It is unclear how much this spending growth may be related to pent-up demand for delayed care. Other public spending, the expenditure category where COVID-19 related state and federal funding is recorded, saw significant spending increases due to one-time state and federal COVID-19 funding, which is not currently anticipated to continue past 2021. For 2022 and beyond, we anticipate that spending growth will return to levels at or above pre-COVID levels.

Introduction

The topic of health care spending can be thought of as a complex puzzle, composed of multiple factors such as enrollment in various types of health care programs (with some individuals having dual- or secondary coverage), health care utilization and service mix (which changes annually), prices of health care services (which can vary widely within the same service and health care institution), and policy changes at the state and federal level. These factors contribute to changes in spending in aggregate, by payer, and by categories of service (e.g., hospital services, dental, etc.) and can impact economic and policy decisions differently for private and public payers.

For more than 25 years, the Minnesota Legislature has been interested in understanding the current and future state of health care spending in Minnesota and monitoring factors that influence these trends over time and across the spectrum of care delivery.[3] Moreover, this year, the Legislature and a variety of stakeholders have been particularly concerned with how the COVID-19 pandemic has impacted health care spending (and more broadly, the health of Minnesotans), and how those dynamics may affect spending into the future.

To help the Minnesota Legislature track total historical and future health care spending, the Minnesota Department of Health (MDH) was tasked with monitoring and reporting on trends in actual health care spending in Minnesota and with developing projections of future spending trends.[4] Both of these efforts were undertaken by the Health Economics Program (HEP), as part of its portfolio to inform policymaking through objective analyses on the health care system.

This is the tenth report HEP has submitted to the Legislature. As with past report findings, health care spending continues to grow faster than the overall economy, with no indication of relief. The report describes health care spending by several key areas:

- Estimated spending by Minnesota residents or on their behalf in 2018 and 2019;[5]
- Trends by payers of health coverage and categories of service; and
- Projections of future health care spending in Minnesota.

The health care spending estimates we provide in this report are developed using a collection of state-level summary data from various health care payers and is limited to spending on behalf of Minnesota residents, as shown in Figure 1.

[3] Minnesota Laws of 2008: Chapter 358 S.F. 3780, Minnesota Statutes 62J.04, Minnesota Statutes, Section 144.70.
[4] Minnesota Statutes 62U.10, subdivision 1-5.
[5] In this year's report, we generally focus our analysis on actual health care spending for the period of 2018 to 2019. However, in the appendix we include key findings for the period of 2017 to 2018.

Figure 1: Data Sources Used to Estimate Minnesota Health Care Spending

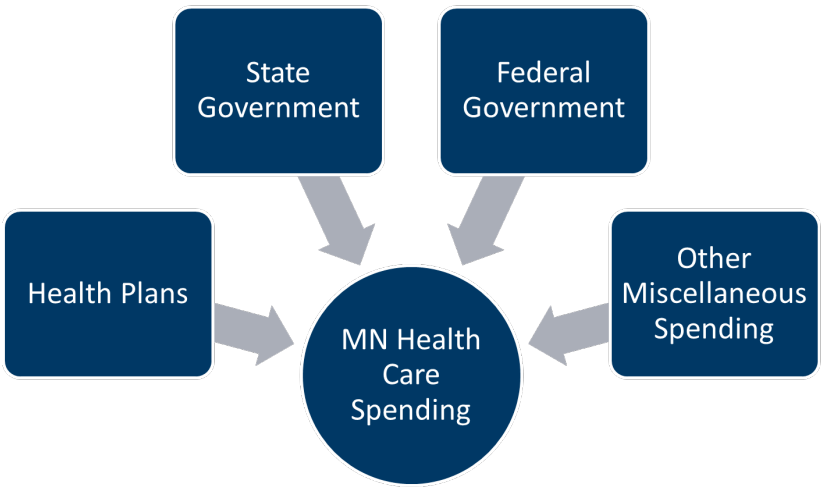


Figure is for illustration purposes only and does not include all data sources used to create annual health care spending estimates for Minnesota residents.

Due to the fragmented health care system in the United States, developing spending estimates is not straightforward: there is no single source of data, nor is there a single lens through which to view any resulting estimate. Instead, dozens of carefully curated data sources are pulled together. After eliminating double counting between sources, the data are analyzed to address gaps and other data limitations and aligned within similar reporting timeframes and units of analysis to produce an estimate of total spending. In addition to total spending, MDH's estimates are organized by the sponsor of health coverage, which we refer to as payers, and by different types of health care services, or categories of service.

This report examines spending trends over time, the distribution (percentages) of spending across payers and categories of service, and the payers and categories of service that drove spending growth.[6] Another section of the report presents projected health care spending over the next decade. Outside of this legislative report, additional information on health care spending and data visualizations of related trends in Minnesota residents include:

- Minnesota Health Care Markets Chartbook, Section 1: This presentation includes a summary of health care spending in Minnesota, comparisons between Minnesota and U.S. health care spending, and drivers of health care spending. Minnesota Health Care Markets Chartbook (https://www.health.state.mn.us/data/economics/chartbook/index.html).

[6] Data is reported in broad categories, which does not allow for a more granular analysis of how prices, changes in the types of services used, and volume of services received drive health care spending. In the past, we have done separate analyses of cost-drivers in commercial health care use, refer to MDH's Minnesota Health Care Spending: 2014 Estimates and Ten-Year Projections report (https://www.health.state.mn.us/data/economics/docs/costs/healthspending2018.pdf); "Drivers of Spending Growth in the Commercial Market," Pages 24-26.

- A Policy Short-Take: "State Policies that Establish Health Care Spending Targets", describes the policy levers other states are using to moderate health care spending growth, and identifies levers Minnesota historically employed to control spending growth. Policy Short Takes: State Policies that (www.health.state.mn.us/data/economics/docs/shorttakespendingtargets.pdf).[7]
- Research studies: The Health Economics Program has conducted a number of research studies using the Minnesota All Payer Claims Database (MN APCD) with a focus on exploring different aspects of spending or unit costs, such as spending on select chronic diseases, on low-value services, or on hospital-based procedures. Publications Using the MN APCD (www.health.state.mn.us/data/apcd/publications.html).

[7] Since this policy-short take was written, there are additional states that have established benchmark programs (e.g., Nevada, New Jersey, and Washington); states with updated results and other states without any results yet available (e.g., Connecticut and Oregon), and states without future established benchmarks beyond 2023 or 2024 (e.g., Massachusetts, Delaware, and Rhode Island). Manatt webinar. State Benchmarking Models: Promising Practices to Understand & Address Health Care Cost Growth. June 17, 2021.

Health Care Spending in 2019

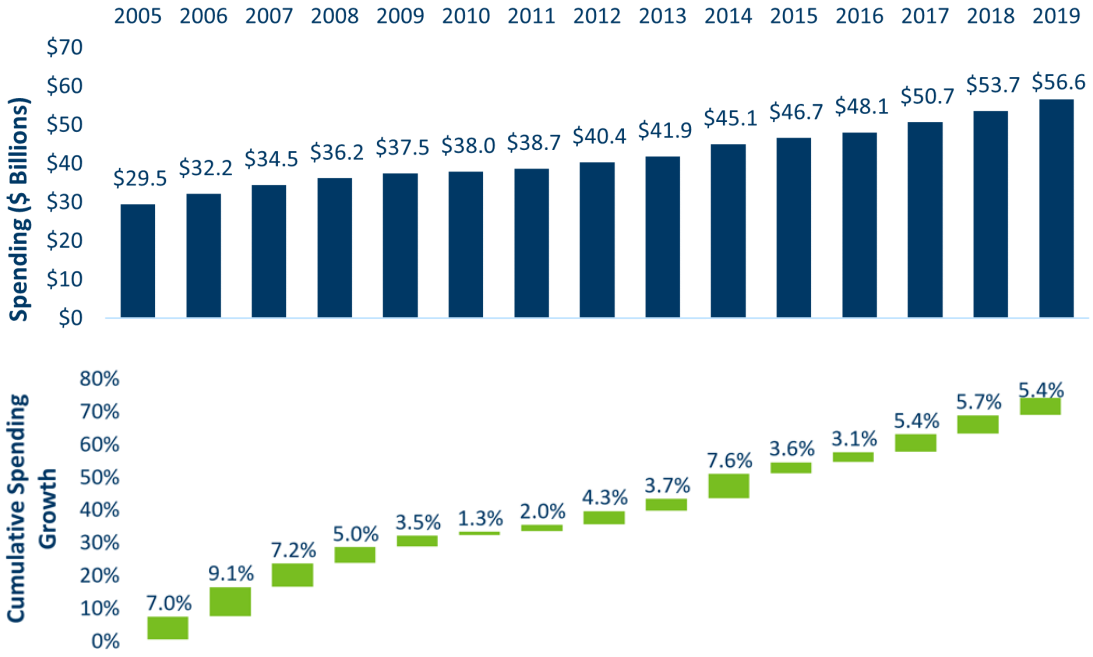
The Minnesota Department of Health (MDH) has been tracking health care spending by Minnesota residents for over 25 years. During this time, health care spending has continued to grow – albeit at times fluctuating between periods of accelerated, modest, or minimal growth – directly attributable to significant health care policy changes, enrollment changes in types of program offerings, and economic conditions such as the introduction of Medicare Part D, the passage of the Affordable Care Act, and the Great Recession and its slow recovery.

Key Findings:

- Health care spending grew 5.4 percent between 2018 and 2019.
- This marks the third consecutive year of spending growth above 5.0 percent.
- Total spending was $56.6 billion.
- Spending represented 14.7 percent of Minnesota's economy.

Over the past 15 years, as seen in Figure 2, health care spending by all payers in Minnesota has grown considerably, from nearly $30 billion in 2005, to $40 billion in 2012, to $50 billion in 2017, and to nearly $60 billion ($56.6 billion) just two years later, in 2019.[8] Compared to 2018, spending in 2019 represents an increase of 5.4 percent (or $2.9 billion). During the period of growth shown in Figure 2 (2005 to 2019), Minnesota's population grew by less than one percent per year, while health care spending grew by 4.8 percent per year.

Figure 2: Historical Spending and Annual Growth



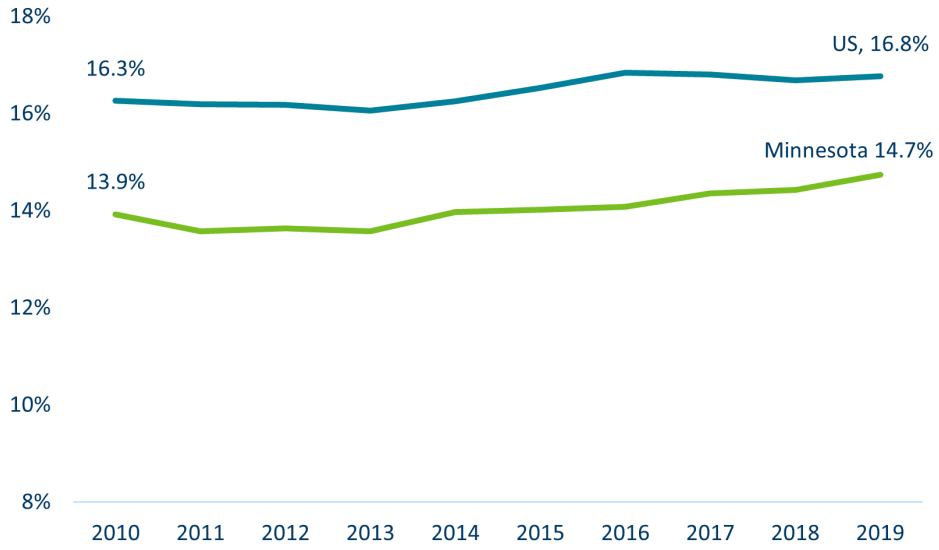
Source: Minnesota Department of Health, Health Economics Program.

[8] Health care services can include visits with a doctor, a surgery, etc. Health care goods include items such as prescription drugs and pacemakers. Dollars are not adjusted for inflation, as inflation is one of the factors that drives spending growth.

The growth experienced in 2019 was the third consecutive year of health care spending growth over 5.0 percent, reversing the trend of the previous eight years, when all but one year (2014) had modest growth in health care spending (for purposes of our report, we define "low" growth as spending growth at or under 3.0 percent, "modest" growth as spending growth between 3.0 percent to 5.0 percent, and "high" growth as spending growth above 5.0 percent). The last time we experienced three or more consecutive years of high growth was from 2005 through 2007, when growth ranged from 7.0 percent to 9.1 percent. This is still below the double-digit growth rates experienced in 2000 and 2002.[9]

Over the past three years, Minnesota's health care spending has been growing faster than Minnesota's economy. As a result, the share of the economy devoted to health care spending has been rising, reaching 14.7 percent in 2019. Compared to the nation overall, Minnesota continued to devote a smaller share of its economy to health care spending (Figure 3); however, Minnesota health care spending is growing faster than the Minnesota economy, therefore catching up to the national rate.[10]

Figure 3: Health Care Spending as a Share of the Economy



Source: Minnesota Department of Health (MDH), Health Economics Program. MDH analysis of the Centers for Medicare & Medicaid Services: 2019 National Health Expenditure Accounts, NHE tables (Health Consumption Expenditures). Health care spending includes medical and prescription drug spending.

[9] Growth rates were 12.9 percent in 2000, 9.4 percent in 2001, and 10.6 percent in 2002.

[10] For more detailed information of comparisons of national and Minnesota spending, visit Minnesota Health Care Markets Chartbook, Section 1: Minnesota Health Care Spending and Cost Drivers (https://www.health.state.mn.us/data/economics/chartbook/index.html).

Who Pays for Health Care in Minnesota?

Analytic frameworks to track health care spending are bound to draw a simplified and somewhat abstract picture. This is partly driven by available data or by the need to simplify the complex transactions that characterize the U.S. health care system. Within this report, MDH tries to include all the ways in which Minnesota residents – the primary payers of health care spending – finance health care through premiums, taxes, direct payments, and foregone wages. In our framework, and again driven by the availability of underlying data, we specifically focus on the payment methods shown in Figure 4.

Key Findings:

- Private spending accounted for more than half of all health care spending, 51.6 percent; reversing two years of a decline in the share of private health care spending.
- Private spending grew faster than public spending in 2019; 7.0 percent compared to 3.8 percent.
- Private health care spending drove the spending increase in 2019, the largest contributor to the change was enrollment growth, followed by inflation and other factors, such as changes in prices and use of health care services.

Figure 4: Health Care Spending Framework

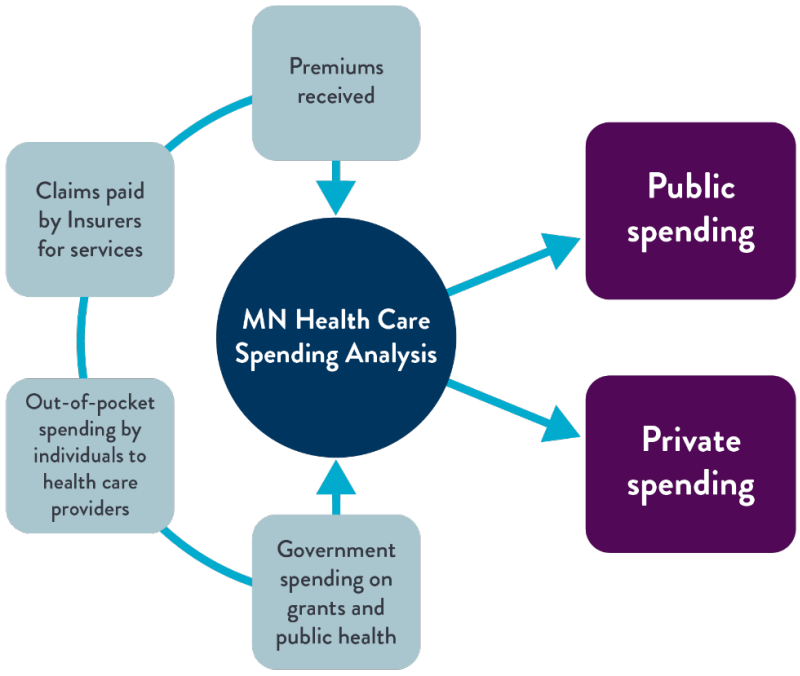


Figure is for illustration purposes only and does not include all sources used to create annual health care spending estimates for Minnesota residents.

Although there are various entities that "finance" spending for health care, for purposes of our report, we attribute spending by who is the *ultimate* sponsor of health care coverage and refer to them as payers. For example, we consider private health insurance spending as the ultimate payer of health care coverage even

though private health insurance is *funded* by premiums paid by businesses, households, and tax expenditures by federal and state governments. This classification is important because laws and policy changes are often focused on types of payers (e.g., a law may provide for individual market premium subsidies, with the state government being the payer, but they are ultimately financed by multiple sources). Furthermore, looking at spending by payers allows one to understand the impact of health policy changes, as some payers are larger than others, and state and federal governments regulate different payers.[11]

We also track how private and public payers' health care spending changes over time. As shown in Figure 5, private spending has consistently accounted for more than half of all Minnesota health care spending, and that trend continued in 2019 (51.6 percent or $29.2 billion). The increase in the share of spending by private payers in 2019 reversed two years of a decline in the share of private health care spending. This also followed several years where the share of spending by private payers had been falling (e.g., 2009-2015, and 2017).

The variation of spending growth between private and public payers is influenced by factors such as demographics (including enrollment), inflation, health care prices, utilization, and policy changes.[12] In 2019, private spending grew more rapidly than public payer spending (7.0 percent compared to 3.8 percent), leading to a $1.9 billion increase in private spending and a $1.0 billion increase in public spending. The accelerated growth in private spending in 2019 was attributable to enrollment growth, followed by inflation and other factors, such as changes in prices and the use of services.[13] In comparison, 2018 saw similar growth for private and public payers (5.6 percent and 5.8 percent, respectively); though inflation drove about 40 percent of the increase for both payers, the slightly faster growth in public spending was also due to higher enrollment growth. The variation in spending growth was more pronounced in 2017, when spending growth was largely driven by public payer spending (7.8 percent), rather than private payer spending (3.3 percent), due to state policy changes and changes in utilization, that coincided with increased public program enrollment and decreased private health insurance enrollment.[14]

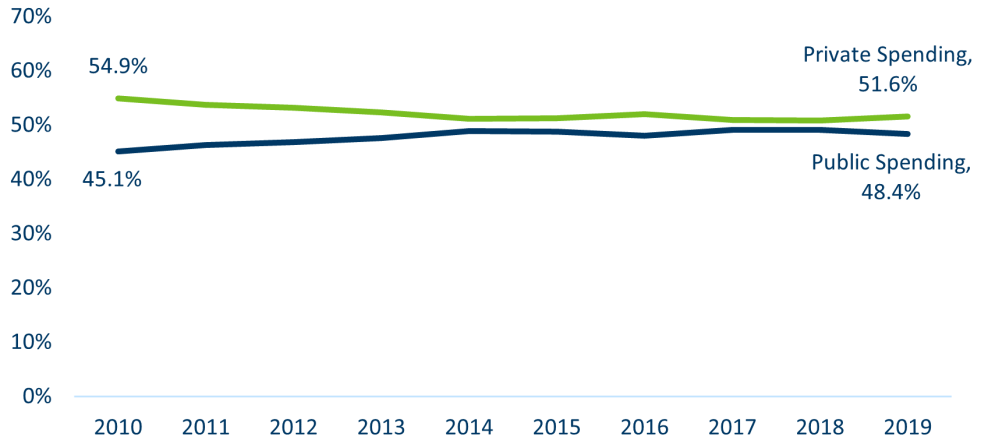
[11] Researchers and analysts often use different methods to distinguish private and public payers; for example, they may look at specific types of financers and determine policy changes that have influenced spending trends (e.g., MedPAC and the US Government Accountability Office have reviewed ways in which the 340B Drug Pricing Program determines eligibility and incentives; others may look more broadly at sponsor-level spending (e.g., CMS National Health Expenditure data)). For more information on the difference in payers, refer to MDH's Minnesota Health Care Spending: 2017 Estimates and Ten-Year Projections report (https://www.health.state.mn.us/data/economics/index.html); "A Closer Look: Classification by Payer of Health Insurance" Pages 15-16.

[12] Public payers, such as Medicare and Medicaid, generally cover individuals who may have higher health care needs because of their age or health conditions. Medicare is focused on covering people aged 65 and older, as well as people with disabilities and end-stage renal disease (kidney disease). Medicaid also covers older people and people with disabilities, including a substantial proportion of long-term-care spending (approximately 62 percent) in the state, much of which is for home-based services that keep people in their homes and out of facilities.

[13] In both 2018 and 2019, the growth in Minnesotans with private health insurance was at least one percent (1.5 percent and 2.8 percent, respectively) for the first time since 2012.

[14] For more information on the trends in health care spending in 2017, refer to MDH's Minnesota Health Care Spending: 2017 Estimates and Ten-Year Projections report (https://www.health.state.mn.us/data/economics/index.html).

Figure 5: Share of Private and Public Spending



Source: Minnesota Department of Health, Health Economics Program.

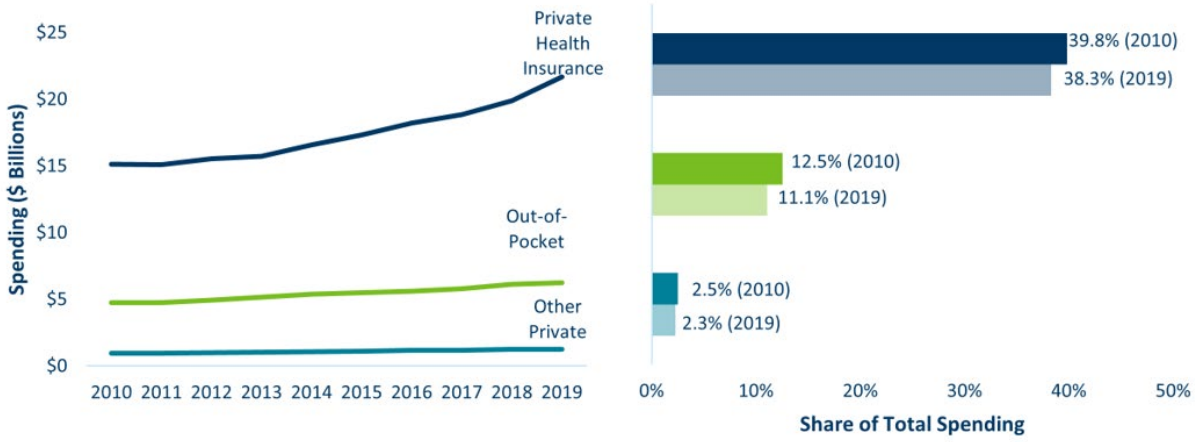
Private Spending

Private payers continue to be a significant funder of health care services in Minnesota. Nearly 60 percent of all Minnesotans (3.3 million) in 2019 had private insurance coverage, an increase of nearly 140,000 Minnesotans from 2017. Moreover, spending by private payers (which includes private health insurance, out-of-pocket expenses, and other private spending such as workers' compensation and medical care covered by auto insurance) continued to represent the largest share of total spending (51.6 percent). Overall, private spending increased by 7.0 percent or $1.9 billion in 2019, nearly reaching $29.2 billion.[15]

Private health insurance across all its components (e.g., commercial insurance – through individual, small group, and large group employer plans – and private Medicare plans) represented the single largest private payer category in 2019; it accounted for 38.3 percent of total (private and public) spending, and nearly 75 percent of all private payer spending ($21.7 million). Out-of-pocket spending and other private spending represented the remaining 13.3 percent of total spending by private payers in 2019, totaling $7.5 million.

[15] Per-enrollee private spending increased more slowly in 2018 and 2019; 4.1 percent and 4.0 percent, respectively. However, private enrollment grew in both 2018 and 2019 compared to enrollment declines in previous years. Although population growth did influence total private spending by approximately 40 percent in 2019, inflation and other factors (such as prices and utilization) each influenced 30 percent of total private spending.

Figure 6: Trends in Private Spending and Share of Total Spending ($ in Billions)



Source: Minnesota Department of Health, Health Economics Program.
Private health insurance is insurance offered by employers or purchased directly by individuals. Other major private payers include private workers' compensation and auto medical insurance. In the bar chart above, the darker bar chart colors denote the time period of 2010, whereas the light bar chart colors denote the time period of 2019.

Private health insurance spending grew more quickly than overall health care spending for the third time since 2010. The 2019 increase (9.4 percent) was driven primarily by other factors (such as prices and use of health care services) and increased enrollment; these two factors accounted for approximately 70 percent of the increase.[16]

Out-of-pocket spending (direct payments from individuals to health care providers) for all Minnesota residents increased by nearly $1.5 billion between 2010 and 2019; though as a whole, this category of spending climbed more slowly than total spending in all but two years. We discuss it in more detail in “A Closer Look,” below.

Health care spending related to workers’ compensation and auto medical insurance, which we categorize as “other private spending,” continued to account for approximately 2.5 percent of total spending, relatively unchanged since 2010.

[16] In 2019, there was a 2.8 percent increase in the number of Minnesotans enrolled in private insurance (predominately employer-sponsored coverage)). This increase in enrollment was the largest one-year change in private insurance enrollment since 2009, when there was a 3.8 percent decrease in private insurance enrollment, a result of the Great Recession.

A Closer Look: Out-of-Pocket Spending

Out-of-pocket spending – all spending for health care services made directly by individuals to pay providers for health care services and/or for health care goods (e.g., prescription copays/co-insurance), not including premiums – across *all* payers increased minimally in 2019 (1.9 percent), compared to overall private spending growth (7.0 percent). Note that approximately 36.0 percent of Minnesotans enrolled in Medical Assistance, MinnesotaCare, and certain Medicare plans have limited or no cost-sharing obligations, diluting the rate of increase experienced by privately insured individuals.[17] Therefore the overall metric masks the trend for the privately insured.

However, rising out-of-pocket spending for privately insured and uninsured Minnesotans represents a very real struggle to afford one's share of health care costs and contributes to erosion of wealth. For example, between 2018 and 2019 Minnesotans with employer-sponsored coverage saw their annual deductible increase over $200 for single coverage and nearly $130 for family coverage.[18] Together with other increases in point-of-service costs, like co-insurance or rising patient costs for prescription drugs, these increases contributed to larger cost-sharing burdens for many Minnesotans. For example:

- In 2019, about 25.0 percent of Minnesotans reported forgoing needed health care (up from 21.0 percent in 2017), greatly impacting Minnesotans with employer coverage and the uninsured.
- Similarly, 22.0 percent of Minnesotans have reported problems paying their medical bills that same year, up from 20.0 percent in 2017.
- Also in 2019, 7.2 percent, or about 390,000 Minnesotans reported struggling with paying basic bills like rent, heat, and groceries due to their medical bills.[19]

Out-of-pocket costs are an ongoing and growing concern; higher cost-sharing requirements for Minnesotans reduce both necessary and unnecessary care, negatively affect health outcomes, and appear to increase inequities.[20]

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[17] There is no current out-of-pocket limit for Medicare Part D, the outpatient prescription drug coverage for those on Medicare. As a result, Minnesotans with more complex medical needs, chronic conditions, or Minnesotans who take costly prescriptions may have substantial out-of-pocket prescription drug costs.

[18] Agency for Healthcare Research and Quality. Average single and family deductible (in dollars) per employee enrolled with family coverage in a health insurance plan that had a deductible at private-sector establishments by firm size and State - Minnesota (Tables II.F.2 and II.F.3). For Minnesotans with single coverage the average deductible increased from $2,045 in 2018 to $2,272 in 2019; for family coverage the average deductible increased from $4,033 in 2018 to $4,160. This is in addition to large deductible increases from 2017 to 2018. In 2017 the average single coverage deductible was $1,966 and family coverage deductible was $3,739.

[19] Findings are based on the 2019 MNHA Survey. MDH Health Economics Program. Pandemic's Impact on Health Insurance Coverage in Minnesota Was Modest by Summer 2020; February 2, 2021 (https://www.health.state.mn.us/data/economics/docs/inscoverage2020.pdf).

[20] See Collins SR, et al. "Too High a Price: Out-of-Pocket Health Care Costs in the United States." The Commonwealth Fund. November 2014. Eaddy MT, et al. "How Patient Cost-Sharing Trends Affect Adherence and Outcomes." Pharmacy and Therapeutics. January 2012; 37(1): 45–55. Fronstin P, Sepúlveda MJ, Roebuck MC. "Consumer-Directed Health Plans Reduce the Long-Term Use of Outpatient Physician Visits and Prescription Drugs." Health Affairs. 2013; 32(6):1126–34. 17 One study reports more than a quarter of insulin dependent diabetics ration lifesaving insulin. Herkert D, Vijayakuma P, Luo J, et al. "Cost-Related Insulin Underuse Among Patients with Diabetes," JAMA, 2019; 179(1) 18; For example, see Chernew M, et al. "Effects of Increased Patient Cost Sharing on Socioeconomic Disparities in Health Care." Journal of General Internal Medicine. 2008: 23(1131); Hershman, DL et al. "Household Net Worth, Racial Disparities, and Hormonal Therapy Adherence Among Women with Early-Stage Breast Cancer." Journal of Clinical Oncology. 2015; 33(9):1053-1059; and Lewey, J et al. "Medication Adherence and Healthcare Disparities: Impact of Statin Co-Payment Reduction." American Journal of Managed Care. 2015; 21(10): 696-704.

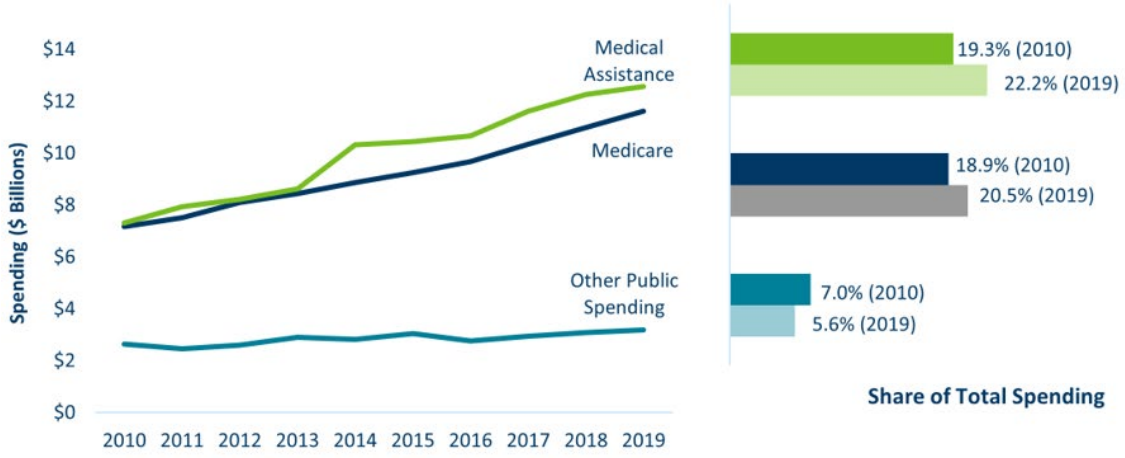
Public Spending

Spending by public payers in our report encompasses spending for Medical Assistance (Minnesota's Medicaid program), Medicare, and other public payers (including MinnesotaCare, Veterans Affairs, Indian Health Service, certain public health expenditures, and school-based health care spending).[21]

Compared to spending by private payers, spending by public payers grew more slowly in 2019 at just 3.8 percent (an increase of $1.0 billion) to reach nearly $27.4 billion. This was attributable to lower spending growth in Minnesota Health Care Programs – Medical Assistance and MinnesotaCare. The vast majority – nearly 90 percent – of public spending is for Minnesota residents enrolled in Medicare and Medical Assistance; representing 42.7 percent of total spending in the state (20.5 percent and 22.2 percent, respectively; Figure 7). In comparison, 33.3 percent of Minnesotans are enrolled in these two programs (18.1 percent in Medicare; 15.2 percent in Medical Assistance).[22] In 2019, these programs represented $24.2 billion in public spending, but they accounted for less than one-third of the state's total health care spending increase.

Other public spending (including MinnesotaCare, Veterans Affairs, Indian Health Service, certain public health expenditures, and school-based health care spending) represented 5.6 percent of total spending in Minnesota ($3.2 billion); however, it contributed only to 3.2 percent of the total spending increase in 2019, or about $93.3 million.

Figure 7: Trends in Public Spending and Share of Total Spending ($ in Billions)



Source: Minnesota Department of Health (MDH), Health Economics Program.
Note: MDH spending estimates for Medical Assistance and MinnesotaCare rely on payments made by the Department of Human Services (DHS) for services provided during a calendar year, including managed care capitation payments. As such, the estimates differ from DHS reports in their program forecast (data based on payment timing consistent with the state budget). Other public spending includes MinnesotaCare, GAMC, government workers' compensation, Veterans Affairs, and public health spending. In the bar chart above, the darker bar chart colors denote the time period of 2010, whereas the light bar chart colors denote the time period of 2019.

[21] Other public spending also includes the historical GAMC program which ended in 2010.
[22] Based on primary source of coverage; approximately 11 percent of Medicare enrollees are also enrolled in Medical Assistance.

In 2019, Minnesota's public Medicare program spending (including Medicare Part D), grew 5.7 percent.[23] This is the third consecutive year Medicare experienced high spending growth (above 5.0 percent). The increase in 2019 was driven by increased administrative costs and profits (categorized as "other spending"), associated with a shift to Medicare Advantage, as well as physician services and retail prescription drugs.

Medicare Cost plans, which in 2018 covered 40.1 percent of Minnesota Medicare enrollees, were discontinued as an option by the federal government across most of the state in 2019, leading many Medicare enrollees to move to either a Medicare Advantage plan or enroll in Traditional Medicare with the option of enrolling in a separate Medicare Supplement plan.[24] The process of starting new Medicare Advantage plans and ending Medicare Cost plans led to these increased administrative costs and profits across health plans. For more detailed information on Private Medicare Plans and the difference between Medicare Advantage and Medicare Cost plans, refer to "Minnesota Health Care Spending: 2015 and 2016 Estimates and Ten-Year Projections" report (https://www.health.state.mn.us/data/economics/index.html).[25]

Despite the change in Medicare plan offerings, the number of Minnesotans enrolling in Medicare continued to increase; since 2010 the Medicare population has increased by an average of 26,000 Minnesotans (or 3.0 percent) annually, closely tracking aging of the state's population.[26]

In contrast to Medicare, Medical Assistance experienced low spending growth in 2019 (2.4 percent) reaching nearly $12.6 billion. This slow growth follows two years of high spending increases (5.6 percent in 2018 and 8.8 percent in 2017). The slower pace of overall Medical Assistance growth was driven by an enrollment decline (2.9 percent) associated with a strong economy and contract terms that led to lower managed care payments to insurers for families and children. This resulted in no net spending increase except in long-term care, where growth continued at an accelerated pace (6.8 percent), driven by waiver programs, which provide services to individuals who are elderly, have disabilities or other chronic conditions, and would otherwise be in a nursing facility, hospital, or intermediate care facility.[27] These increases were driven by both an increase in the number of people receiving waiver services, and higher monthly costs than in past years (which may be due to the types of services received). For more detailed information on the effects of waivers in Medical Assistance long-term care spending, read "A Closer Look: Long-term Care Spending" Minnesota Health Care Spending: 2017 Estimates and Ten-Year Projections report (https://www.health.state.mn.us/data/economics/index.html).

[23] Medicare program spending is divided into public and private Medicare spending. Public Medicare spending includes Traditional Medicare, Medicare Advantage, Medicare Cost, and Medicare Part D plans, and accounted for the majority (87.5 percent) of all Medicare spending in the state in 2019. Private Medicare spending is limited to additional services covered by private Medicare plans, and Medicare Supplement ("Medigap") plans.

[24] MDH Health Economics analysis of Medicare Advantage/Part D Contract and Enrollment data.

[25] "On January 1, 2019, Medicare cost plans were discontinued from being offered in 66 Minnesota counties, due to a change in federal law." Minnesota Department of Commerce, accessed June 28, 2021 (https://mn.gov/commerce/consumers/your-insurance/health-insurance/medicare.jsp#:~:text=Most%20Minnesota%20seniors%20do%20NOT,a%20change%20in%20federal%20law). Medicare Advantage spending appears to be growing nationally and we do not have reasons to believe this trend will not occur in Minnesota. We recommend continued review into Medicare Advantage spending into the future. For more information on national billing trends, visit Medicare Payment Advisory Commission Report, June 2021.

[26] The rate of population growth in Minnesotans aged 65 or older is expected to remain above 3 percent into 2023.

[27] For more on waivers, visit the MN Department of Human Services: https://mn.gov/dhs/people-we-serve/people-with-disabilities/services/home-community/programs-and-services/hcbs-waivers.jsp.

A Closer Look: What is Public Health Spending, and How Has it Changed?

What is public health spending? Public health spending commonly includes spending for:

- Education, aimed at the prevention and treatment of diseases and conditions (e.g., diabetes, sexually transmitted infections, or measles outbreaks);
- The administration of local health services (e.g., vaccinations provided by local public health departments or contracted providers); and
- Research and health promotion (e.g., quitting smoking), which also includes support of these activities through grants and other funding for community health centers and local partners.

The organization, provision, and financing of public health services across the United States differs significantly across states, making a full accounting (and a comparison) of spending challenging. Many states' health departments, such as Alaska, Maine, Montana, New Hampshire, Oregon, and Wyoming, are also responsible for administering Medicaid programs, whereas Minnesota operates these services through a separate agency. Similarly, some states operate all public health services centrally from within their public health departments, while other states, including Minnesota, contract out a number of these services to local public health departments.

For purposes of our spending report, we focus exclusively on spending for health care services, which includes local spending (such as Community Health Services System spending by local tax levies and other local funds) and federal expenses (including public health grants from the Substance Abuse and Mental Health Services Administration (SAMHSA), Centers for Disease Control and Prevention (CDC), and other Block Grants that support providing health care services). The financing of all the administrative tasks of MDH, the state's public health agency, which includes licensing and regulatory oversight activities, is not included in this calculation. Also not included in our report are spending for MDH services related to Environmental Health, Health Operations, Health Regulations, Medical Cannabis, and public health research. While all of these services are essential to keep the public healthy and safe, they are not directly related to the consumption of health care services, which is the framework used for this report. As a result, the public health spending estimates in this report should not be used for comparative "public health" budget analyses or to assess how overall public health funding changed over time (Figure 8).

Figure 8: Public Health Program Funding, Minnesota

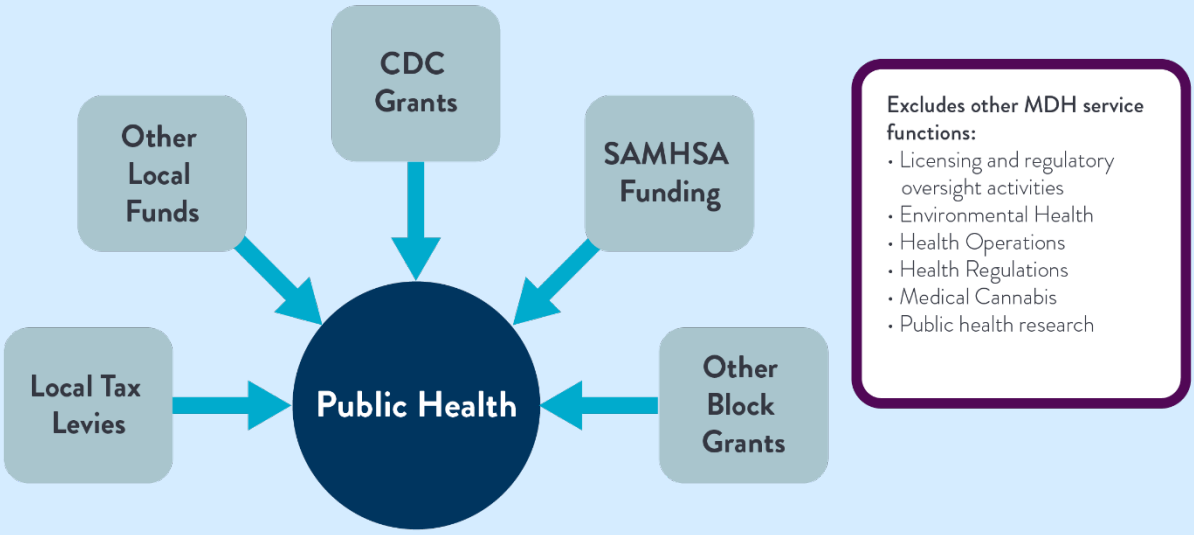
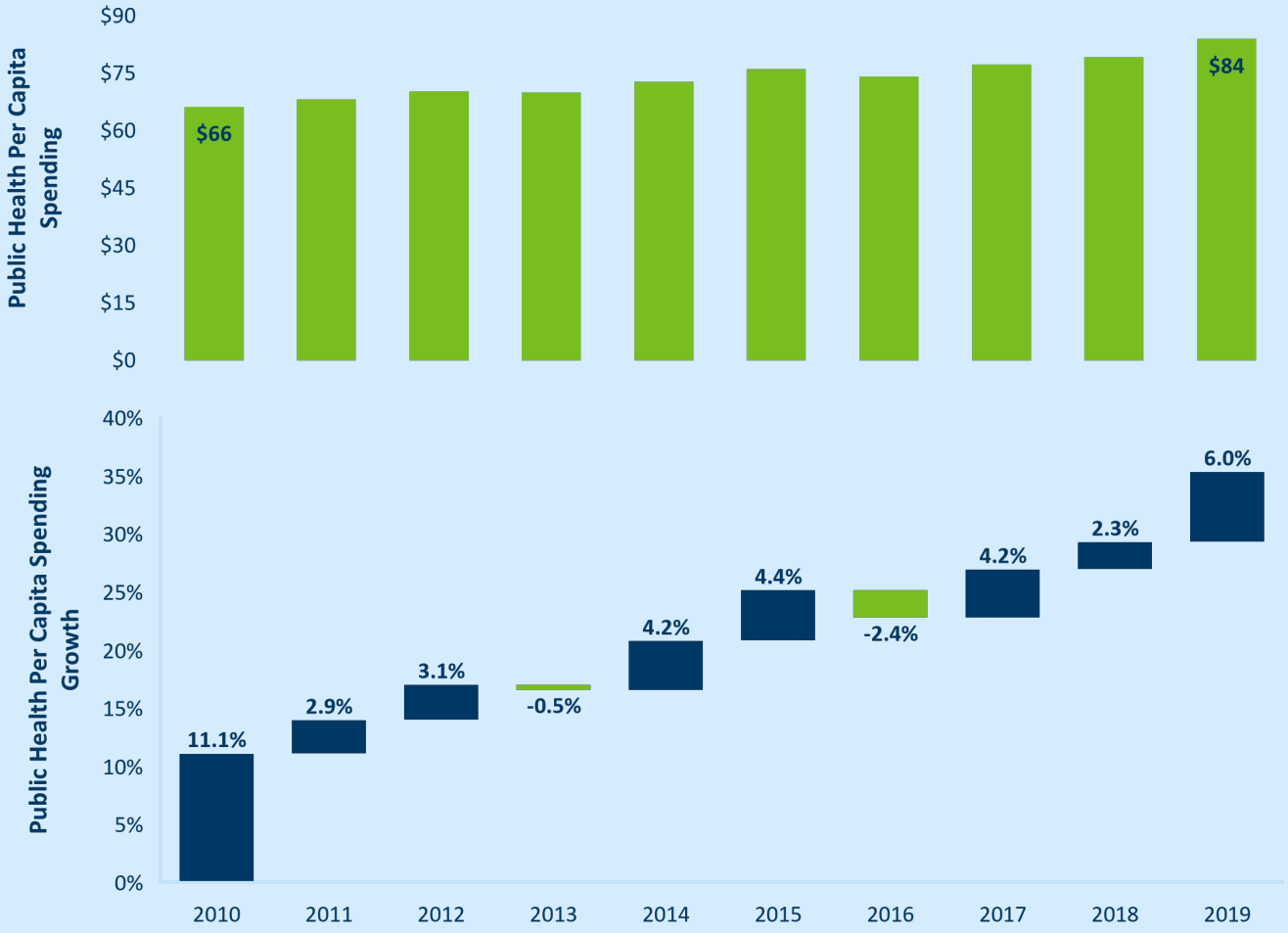


Figure is for illustration purposes only.

How has public health spending for health care services changed? Over time, spending for public health has grown more slowly in most years than overall per-person spending in Minnesota and its growth has varied widely over the past ten years (Figure 9).

Public health funding often changes in response to specific public health events, for example by adding one-time funding through CDC grants. Such one-time funding, which were often minimal for Minnesota, for situations such as H1N1 influenza (2009 and 2010), Ebola (2015) and Zika (2017), do not allow for consistent maintenance of infrastructure to steadily support and grow the public health side of delivering health care goods and services, let alone to ensure sufficient support for certain population and public health outcomes or to prepare for events like the COVID-19 pandemic. As a result, public health spending in 2019 accounted for 0.8 percent of total health spending, whereas 20 years ago, it accounted for 1.2 percent (not shown).

Figure 9: Public Health Program Funding, Minnesota



Sources: MDH, Health Economics Program. Public health program spending includes estimated portions of Community Health Services spending, Centers for Disease Control spending, government block grants and federal funds, and public health grants.

What Do Minnesota Health Care Dollars Pay For?

In this report, we also review what type of health care services (e.g., visit with a doctor, a surgery) or goods (e.g., prescription drugs, pacemaker) lead to health care spending, sometimes by identifying *where* the care took place. We report on the following broad categories of services:

- Hospital care, which includes both inpatient and outpatient hospital services and emergency departments;
- Physician services;
- Long-term care, which includes home health care;
- Retail prescription drugs;
- Dental services;
- Other professional services, such as services delivered through a chiropractor or physical therapist; and
- Other medical spending.[28]

Key Findings:

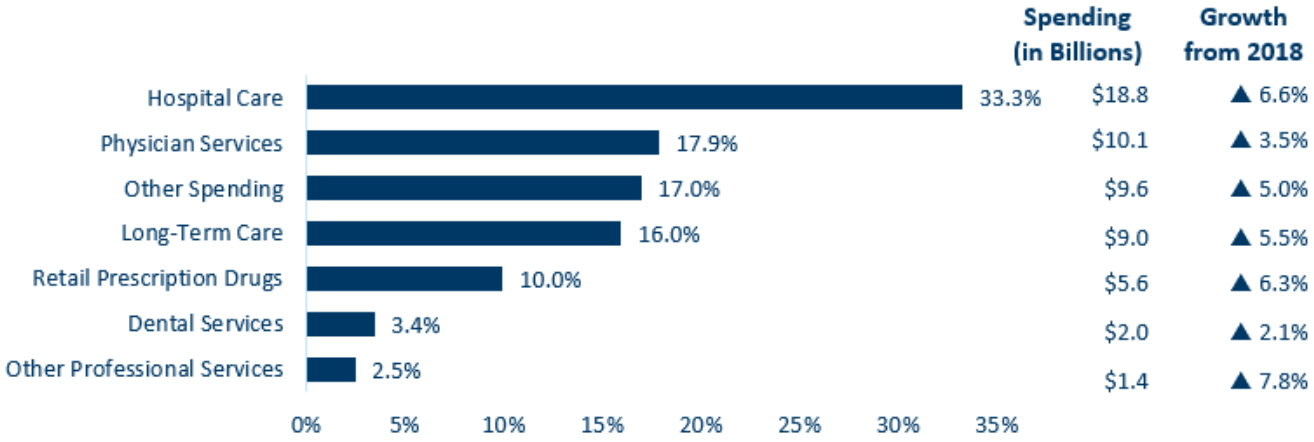
- Hospital spending grew 6.6 percent; it remained the largest spending category, accounting for one-third of total spending ($18.8 billion).
- Retail prescription drug spending growth continues to be concerning, especially for consumers; however, it grew less rapidly than hospital spending (6.3 percent) and reached $5.6 billion.

Analyzing health care spending across categories of service allows us to understand which types of health care services drive health care spending and observe potential shifts between service types across provider settings.

The distribution of health care spending across categories shown in Figure 10 has stayed relatively stable over time. This stability is expected in part because these categories represent established structures in the delivery of health care services with billions of dollars in economic arrangements – these structures are not designed to be nimble, and most changes occur gradually.

[28] Other medical spending includes: 1) chemical dependency and mental health (all settings of care); 2) other medical spending (includes not itemized and durable medical equipment); 3) health plan administrative expenses and revenues in excess of expenses; and 4) uncategorized spending (for spending such as public health spending, correctional facility health spending, Indian Health Services, school-based spending which cannot be placed easily into other categories).

Figure 10: Distribution of Health Care Spending by Categories of Service in MN (2019)[28]



Source: Minnesota Department of Health, Health Economics Program.

Hospital spending, encompassing both inpatient services and outpatient care delivered by hospitals, continued to be the largest category of health care spending in Minnesota; it reached $18.8 billion in 2019 (and represented approximately one-third of total spending over the past ten years).[29] It remained one of the fastest growing spending categories (6.6 percent, an increase of over $1.1 billion), and was responsible for 40 percent of the spending growth in 2019. This was associated with increased hospital spending across private payers and from more growth in outpatient care than inpatient hospital services.[30]

Four other categories of service experienced growth rates of at least five percent: long-term care (5.5 percent; $9.0 billion), other spending (5.0 percent; $9.6 billion), retail prescription drugs (6.3 percent; $5.6 billion), and other professional services (7.8 percent; $1.4 billion). Two of these categories, long-term care spending and other spending (including uncategorized spending) were together responsible for nearly one-third of spending growth (32 percent). The increase in long-term care spending was related to increased waiver spending in Medical Assistance, along with higher out-of-pocket spending for long-term care services.

Although retail prescription drug spending has attracted interest due to the high price of new drugs and increases in the price of existing drugs, it was responsible for just over 10 percent of the 2019 spending growth, about equal to its share of total spending. Based on national research, spending increased more rapidly in certain drug classes (autoimmune disorders, cancers, and diabetes) because of price and utilization trends. Trends for drugs that are administered in office-based settings, like many of the very costly biologics products, are not included in retail prescription spending; those expenditures are included in the physician and hospital spending categories.[31] Analysis of drivers of retail pharmacy spending is aided by data from the Minnesota All Payer Claims Database (MN APCD), some of which are made available in public use files,[32] and in the future, the

[29] Outpatient hospital care includes same-day surgeries and procedures, emergency department visits, and visits at hospital-based clinics.
[30] Within hospital spending, nearly 69 percent of the growth was related to increased outpatient hospital spending.
[31] Martin, A. et al. National Health Care Spending in 2019: Steady Growth for the Fourth Consecutive Year. Health Affairs. January 2021.
[32] MN MDH Health Economics Program APCD Public Use Files (https://www.health.state.mn.us/data/apcd/publicusefiles/index.html).

upcoming reporting of data from manufacturers in compliance with Minnesota's new Prescription Drug Price legislation .[33]

Despite the high rate of growth, the "other professional services" category was not a significant driver of spending, due to the small contribution to total spending (2.5 percent of total spending; 7.8 percent growth from 2018; contributed only 3.4 percent to total growth). While the second largest category of service in terms of dollars, physician services spending (17.9 percent of total spending) experienced modest growth (3.5 percent), reaching $10.1 billion, and was a larger driver of health care spending (11.9 percent).

[33] For additional information on this new initiative, refer to the MDH Prescription Drug Price Transparency website: https://www.health.state.mn.us/data/rxtransparency/index.html.

Health Care Spending Projections

To assist in understanding the likely trajectory of future health care spending, MDH produces ten-year health care spending projections. [34] In this year's report, we project spending from 2020 through 2029. These projections can serve several purposes for readers:

- **Purchasers**: Employers and other insurance providers use the information to monitor market trends by payers and categories of service, as well as to inform future strategic decisions (e.g., annual renewal planning);
- **Providers:** Hospitals, physician offices, and other providers might use expected trends across the spectrum of care delivery for resource planning, (e.g., to inform future workforce planning), as well as to anticipate policy actions;
- **Policymakers:** Legislators may consider the findings as part of their budget planning and to explore ideas for future health reforms or policy proposals; and
- **Researchers:** Analysts use the information to track trends in the Minnesota health insurance marketplace by payers and categories of service, and to contribute on future policy and benefit coverage considerations.

Key Findings:

- In 2020, the pandemic led to lower health care utilization, resulting in a significant spending deceleration. In 2021, spending is expected to return to levels at, or above, pre-COVID spending for most payer types.
- Spending will increase an average of 6.9 percent per year from 2020 through 2029, compared to an average of 4.5 percent per year from 2010 and 2019.
- By 2029, annual spending is projected to reach $104.2 billion.
- The share of spending by private payers will decrease over the next ten years, down to 48.6 percent of spending in 2029.

The typical approach to projecting health care spending (or other outcomes of interest) involves building off historical trends and relationships between key variables. When structural disruptions in the economy affect health insurance coverage, prices, and utilization in new ways, as has been the case with the COVID-19 pandemic and the resulting state and federal policy response, standard projection models perform poorly. For this report we performed additional modeling which allowed us to consider some already available evidence from 2020 and 2021 on health care utilization and spending metrics at the state and federal level. A more detailed description of our approach is available on page 30 ("A Closer Look: COVID-19 Impact on Projections").

Future Health Care Spending

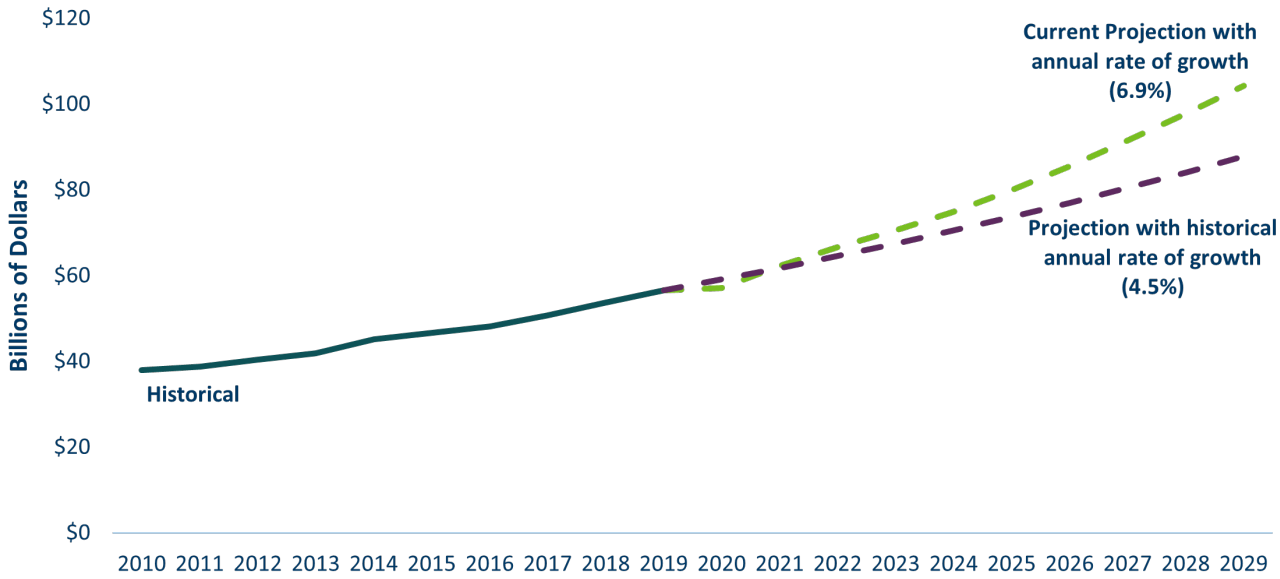
Health care spending in Minnesota is expected to accelerate over the ten-year period from 2020 through 2029, growing 6.9 percent per year, more than 2 percentage points faster than the preceding ten years (4.5 percent). The high level of growth is expected to result in health care spending reaching $104.2 billion in 2029, an

[34] In 2008, the Minnesota Legislature passed health reform legislation requiring MDH to calculate the annual projected health care spending between private and public payers, and for the next ten years based on the annual projected growth in spending. Minnesota Statutes 62U.10: https://www.revisor.mn.gov/statutes/cite/62U.10. The first report which included these projections was published in 2010.

additional $47.6 billion compared to 2019. In comparison, we expect the MN economy to increase by another $181.8 billion.

Although there may not be a *right* level of spending – stakeholders' perspectives on whether spending growth is appropriate and what to do about it differs greatly – this level of accelerated growth is concerning for at least two reasons: (1) There is no indication that the increased level of spending will produce better health outcomes, guarantee greater access to needed services, or deliver the opportunity to be healthy in more equitable ways; and, (2) As noted earlier, at current levels many Minnesotans experience affordability challenges that result in delaying needed care or struggling to pay other expenses because of health care costs. While some of this growth might be driven by an aging population and increasing prevalence of chronic disease, this spending increase likely also represents ongoing inefficiencies in care organization, delivery and financing that is destined to cause even more financial distress for more Minnesotans.[35]

Figure 11: Minnesota Health Care Spending – Historical and Projected



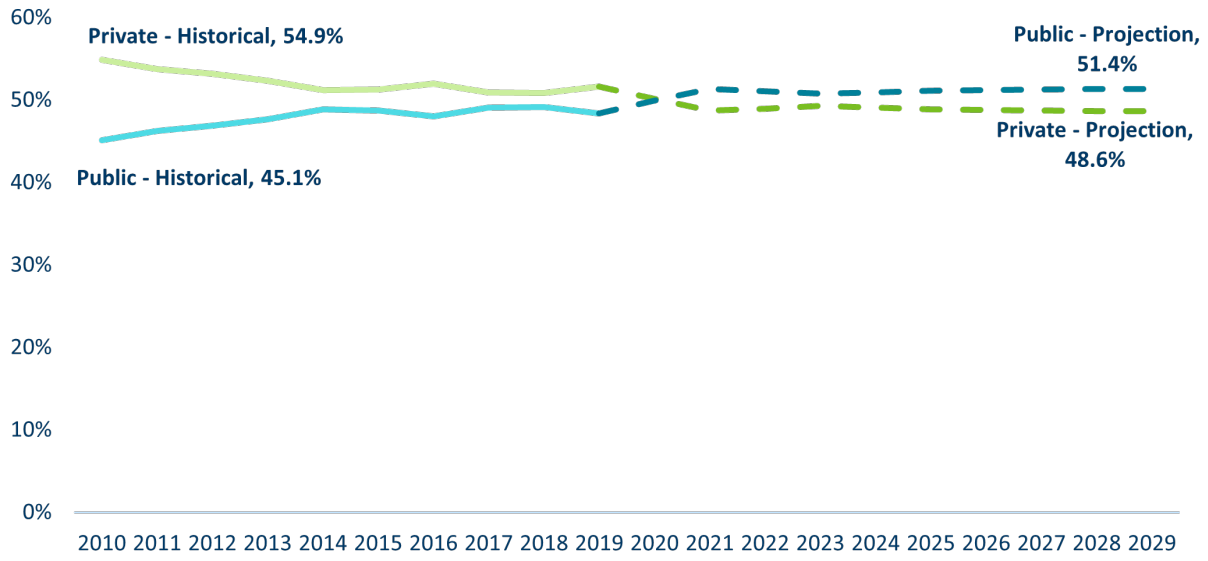
Source: Historical spending estimates from MDH, Health Economics Program; projections from Oliver Wyman. Health care spending includes medical and prescription drug spending.

Over the next ten years, the anticipated high level of spending growth will contribute an additional $16.4 billion in cumulative health care spending beyond what would have occurred if growth remained at the average 4.5 percent annually from the prior decade (2010 through 2019). This high growth will span both private and public payers, though public payer spending will accelerate more rapidly than private payers, growing an average of 7.2 percent annually between 2020 and 2029, compared to an average of 6.6 percent for private payers. As an

[35] MDH Health Economics Program: Treated Chronic Disease Prevalence and Costs in Minnesota: Estimated Costs for 2009 and 2015, Projected Costs for 2015 through 2025; December 2019. MN MDH Health Economics Program APCD Issue Brief: Analysis of Low-Value Health Services in the Minnesota All Payer Claims Database; May 2017.

outcome of these trends, the relative share of spending by private payers is expected to decrease over the next ten years, such that by 2029, 48.6 percent of spending will be attributable to private payers compared to 51.6 percent in 2019.

Figure 12: Public and Private Health Care Spending, (Share of Spending)



Source: Historical spending estimates from MDH, Health Economics Program; projections from Oliver Wyman. Health care spending includes medical and prescription drug spending.

Two main factors are expected to contribute to faster public spending growth:

- **COVID-19 Pandemic:** In 2020 and 2021, state and federal resources allocated one-time COVID-19 funding, which we report in the "other public spending" category. These funds that assist with the pandemic response through testing, vaccinations, building surge capacity, making lab enhancements and more, are expected to contribute an additional $898 million in health care spending over 2020 and 2021.[36]
  - The pandemic also led to a slight decrease in private health insurance spending in 2020 with lower utilization due to COVID-19. However, private spending already appears to be rebounding towards 2019 levels of spending in early 2021.[37]
  - Health insurance coverage also changed in 2020, with declines in private group coverage, and increases in enrollment in Medical Assistance, MinnesotaCare, and to some extent individual private coverage. These trends appeared to continue into 2021, although with a stronger economy,

[36] Ascertaining which COVID-19 funds were truly related to health care spending versus replacing lost provider revenue was difficult as most data currently available at both the state and federal funding levels is fairly aggregated. We anticipate more detailed funding reporting and analyses over the next few years will make this input more precise.

[37] Reinsurance claims in the Minnesota Premium Security Plan in the first quarter of 2021 topped both 2019 and 2020 (https://mchamn.com/wp-content/uploads/2021/06/1st-Quarter-2021-Reinsurance-Results-of-the-MPSP-as-of-062421.pdf). Kaiser-Peterson Health Care Tracker notes that hospitalizations were around 90 percent of pre-pandemic levels, and while spending was still lower than without the pandemic, it was increasing through June 2021 after the shock in the first half of 2021 (https://www.healthsystemtracker.org/brief/early-2021-data-show-no-rebound-in-health-care-utilization/).

increased individual market subsidies due to the American Rescue Plan Act of 2021 (ARPA), and future changes in federal waivers for re-determination of eligibility for individuals already enrolled in state public programs such as Medical Assistance and MinnesotaCare, they may change over time.[38]

- **Growth in public programs:** Medicare spending is expected to grow on average 8.8 percent annually through 2029 and Medical Assistance at 6.5 percent; other public spending (which includes MinnesotaCare) is expected to rise at 4.7 percent annually over the same period. These increases, especially in Medicare, are based on both increased enrollment and national projected growth rates.

With the exception of 2020, where COVID-19 resulted in flat or declining service use, all categories of service between 2021 and 2029 are expected to increase, as they have in the past. In our projections, retail prescription drugs, hospital services (particularly outpatient services), physician, and long-term care spending are anticipated to have the fastest growth compared to other categories of service over the next ten years.

Despite longstanding concerns among the public and policymakers about the sustainability of health care spending increases, the predicted acceleration of spending suggests that existing efforts to constrain spending across commercial and public payers are not expected to significantly impact the spending trajectory.

A Closer Look: COVID-19 Impact on Projections

As a tool to forecast future trends, projections rely on historical data and stable relationships between key variables. Because the COVID-19 pandemic interrupted these dynamics in 2020 and 2021, the standard projection models we usually consider would have failed to account for this impact. Therefore, in addition to running our standard projection models, we separately modeled the impact COVID-19 had in these years for health care enrollment, utilization, and spending in three distinct steps.

First, we modeled estimates of future enrollment for 2020 and 2021 based off economic scenarios of changes in employment, health coverage, and job loss. Coverage was estimated using an Oliver Wyman microsimulation model – the firm produced these projections for Minnesota – which was calibrated to Minnesota's population size, what was known about health insurance coverage in Minnesota in 2019 and 2020, employment, income, and demographics. We modeled three economic scenarios and selected the mid-range estimates for use in our overall projections.

Second, we modeled payer-specific health care utilization and spending in 2020 and 2021 to generate per member per year estimates. These estimates incorporated several additional components:

- **Projected Minnesota Health Care Program Spending:** We incorporated forecasted Medical Assistance and MinnesotaCare program spending, which considered the impact of the COVID-19 pandemic.
- **State and Federal Spending:** As mentioned, we included the one-time allocation of state and federal partners' COVID-19 funding in other public spending. These funding allocations, totaling $898 million over 2020 and 2021, covered costs of items such as testing, surge capacity, and lab enhancements, among other services, directly related to the COVID-19 pandemic.

[38] Minnesota Department of Health, Health Economics Program Minnesota Department of Health, Health Economics Program "Minnesota Saw Continued Improvement in Health Insurance Coverage Almost a Year into the Pandemic." May 2021. https://www.health.state.mn.us/data/economics/docs/inscoverage2021.pdf.

- **Contraction in Spending and Utilization:** These dynamics were accounted in the model through review of items such as the Bureau of Economic Analysis reports, journal articles, statutory financials reporting from major health plans, and review of known enrollment.[39] These sources estimated per-member per-month spending by payer.
- **2020 and 2021 Enrollment:** The results of the microsimulation model from the first step was incorporated to apply the correct per-member per-month spending across the population.

Third, we adjusted the 2020 and 2021 modeling with the standard projection models. To do this, we assumed the enhanced models were more accurate projections of 2020 and 2021 spending. Projected health care spending for 2020 and 2021 were based on the enhanced model; projected spending for 2022 was based on a combination of the enhanced model and projected 2021 spending from the standard model. For health care spending in 2022 through 2029, we applied the growth rates for 2022 through 2029 from the standard model to the 2021 health care spending estimate from the enhanced model.

Figure 13: Projected Health Care Spending

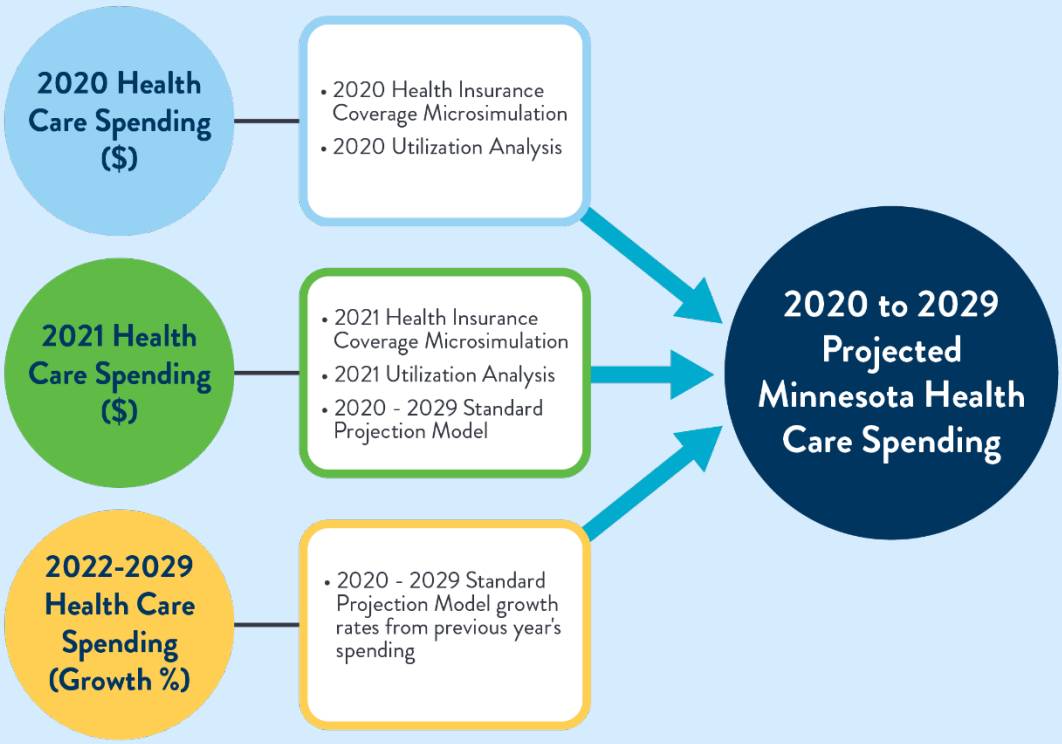


Figure is for illustration purposes only.

[39] Miller GM et al. "COVID-19 Shocks the US Health Sector: A Review of Early Economic Impacts." Health Affairs. December 16, 2020. Kaiser Family Foundation Medicaid Enrollment & Spending Growth. Altarum Health Sector Economic Indicators – Price and Spending Briefs – March 2021.

The enhanced model for this report projected minimal spending growth in 2020 across all payers. We expect spending to have risen by just one percent, 5.2 percentage points below levels produced by the unadjusted, standard model. While some payers experienced a contraction in spending due to lower utilization (i.e., private payers and traditional Medicare), other payers experienced an increase in spending due to increased enrollment and higher average enrollee spending (i.e., Medicare Advantage, Minnesota Health Care Programs, and other public payers).

These projections predict that in 2021 health care spending in Minnesota will return to levels at or above pre-COVID spending for all payer types, excluding other public spending, leading to spending growth of over 8 percent due to historically lower 2020 spending. It is unclear how much this spending growth may be related to pent-up demand for care that was delayed in 2020; some of the delayed care from the second quarter of 2020 may have been received in the latter half of 2020, as well as into 2021. Other public spending, the expenditure category where COVID-19 related state and federal funding is recorded, saw significant spending increases which are not anticipated to continue past 2021.

Despite the shock to the health care system caused by the COVID-19 pandemic, there is at this point no indication the pandemic will substantially alter the relationships between historical spending and key macroeconomic variables used to project health care spending. Yet, numerous uncertainties, including the impact of telehealth, a strong economy, the market entry of brand name drugs or biologics, and a persistent and evolving COVID-19 pandemic could alter that assessment.

Summary & Discussion

As discussed throughout this report, health care spending in Minnesota – demonstrably seen since MDH began tracking health care spending estimates back to 1993 – has exhibited real and persistent growth. In most years, health care spending grew faster than inflation, wages and the state's economy, as it did in 2019. Health care spending growth in 2019 (5.4 percent) marks the third year in a row of year-over-year increases above 5.0 percent. Some of the following factors were highlighted in the report:

- **Spending:** Health care spending reached $56.6 billion in 2019, an increase of 5.4 percent (or $2.9 billion) from 2018; this was the third consecutive year of spending growth above 5.0 percent.
- **Economy:** Health care spending as a portion of the state's economy increased one-third of a percentage point in 2019 to 14.7 percent after remaining relatively unchanged in 2018.
- **Spending drivers:** Private health care spending drove the spending increase in 2019, the largest contributor to the change was enrollment growth, followed by inflation and other factors, such as changes in prices and use of health care services.
- **Hospital spending:** Health care spending by hospital entities – in inpatient and outpatient settings – remained the largest spending category at $18.8 billion, accounting for one-third of total spending. It contributed about 40.0 percent to total spending growth.
- **Prescription drugs:** Retail prescription drug spending accounted for 10.0 percent of total spending, or $5.6 billion, though it grew less rapidly in 2019 than hospital spending.
- **Spending projections:** Projected health care spending will increase an average of 6.9 percent per year; by 2029, annual spending is projected to reach $104.2 billion, $47.6 billion higher than 2019 spending.
- **Pandemic impact:** Although the COVID-19 pandemic was unprecedented, it does not appear to have stunted future growth: in 2020, spending is still expected to increase 1.0 percent and by 2021, spending is expected to return to spending levels at or above pre-COVID spending for all payer types, excluding other public spending.

Though the environment in which this report was produced is distinct from previous reports, the lessons we draw from it are similar. While we recognize that there isn't a "right" amount of health care spending growth, we channel the concerns of many over the impacts of high and accelerated health care spending growth.

For example, it is entirely possible that Minnesota can absorb or adjust to the projected spending growth at an individual or societal level, but that outcome would likely require rapid and *sustained* economic growth at magnitudes not seen in decades. Absent this, more individuals could experience uncertainties in insurance coverage or access barriers to health care services. Over the past years, society has sought to counter affordability concerns across markets by investing more public funds to underwrite coverage (e.g., by expanding public health insurance) or to subsidize private coverage (e.g., through premium subsidies in the individual market). But public funds are not infinite and designating them up for added investments in health care will require reprioritization of spending from other high-priority areas (e.g., education, transportation, epidemic response planning) or necessitate raising taxes from individuals and employers to cover the additional costs, rather than focusing on ways we can lower the cost of care by limiting non-productive services and price increases.

What this logic chain suggests is that focusing on reducing spending growth is not just desirable, it is essential. Fortunately, there are promising developments taking place nationally and in other states that Minnesota can watch and learn from:

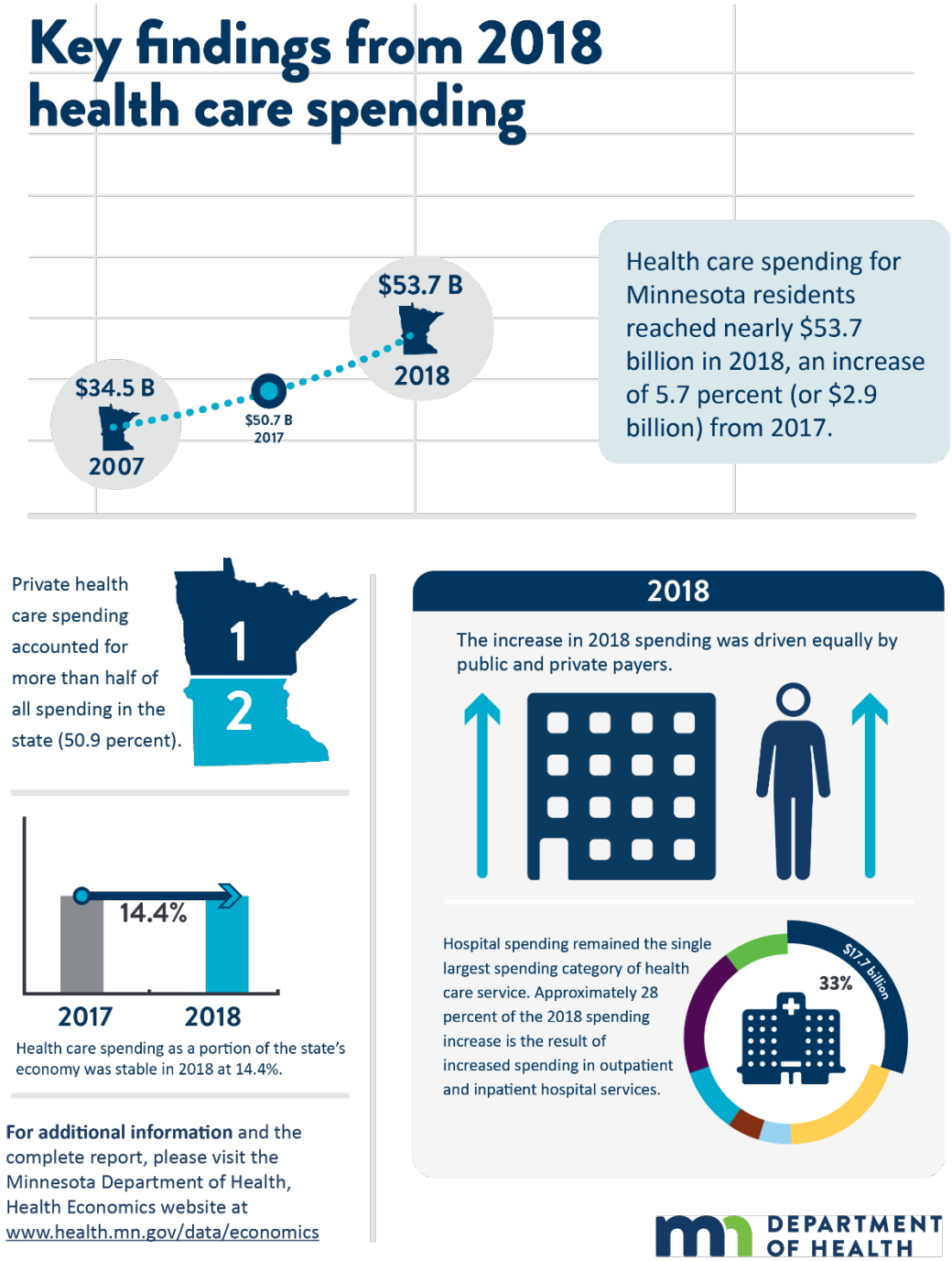
- Expansions and evaluations of health spending targets (such as global budgets and spending caps);[40]
- Transparency in hospital and health plan spending;
- Expansion and use of telehealth (including video and telephone visits); and
- Reassessments on how to provide health care in a way that focuses on whole person care, like public health and primary care, which improves health and does not substantially increase spending.

These developments may assist policymakers, providers, and businesses to design policies that could help constrain and/or contain the expected acceleration of Minnesota's health care spending.

[40] A Policy Short-take: State Policies that Establish Health Care Spending Targets www.health.state.mn.us/data/economics/docs/shorttakespendingtargets.pdf), describes the policy levers other states are using to moderate health care spending growth, and identifies levers Minnesota historically employed to control spending growth. Since this policy-short take was written, there are additional states that have established benchmark programs (e.g., Nevada, New Jersey, and Washington); states with updated results and other states without any yet available (e.g., Connecticut and Oregon), and states without future established benchmarks beyond 2023 or 2024 (e.g., Massachusetts, Delaware, and Rhode Island). Manatt. State Benchmarking Models: Promising Practices to Understand & Address Health Care Cost Growth. June 17, 2021.

Appendix A: 2018 Key Findings

Data and information related to 2018 health care spending for Minnesota residents are included within this report and appendices.



Appendix B: Actuarial Certification

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ACTUARIAL CERTIFICATION

TO:	Mr. Stefan Gildemeister Director, Health Economics Program Minnesota Department of Health 85 East Seventh Place, Suite 220 Saint Paul, MN 55101
DATE:	May 28, 2021
FROM:	Peter Kaczmarek, FSA, MAAA
SUBJECT:	**Actuarial Certification of Minnesota's Health Spending Estimates for 2019**

I, Peter Kaczmarek, am a Fellow in the Society of Actuaries, and a member of the American Academy of Actuaries, and am qualified to provide the following certification.

This actuarial certification applies to the Minnesota Department of Health (MDH) final estimate of statewide health spending expenditures in Minnesota for calendar year 2019.

Reliance
In performing the review of the MDH's final estimate of statewide health spending expenditures for calendar year 2019 and arriving at my opinion, I used and relied on information provided by the MDH staff, including tables of the underlying data supporting the estimates, methodology documentation and follow up clarification.

I used and relied on this information without independent investigation or audit. If this information is inaccurate, incomplete, or out of date, final estimates of statewide health spending expenditures for calendar year 2019 and prior years and any resulting conclusions may need to be revised. While I have relied on the data provided without independent investigation or audit, I have reviewed the data for consistency and reasonableness. Where I found the data inconsistent or unreasonable, I requested clarification.

Actuarial Certification
In my opinion, the data sources and methodologies MDH has utilized are valid and reasonable. I certify that MDH's estimate of Minnesota's statewide health spending expenditures for calendar year 2019 total of $56.57 billion and Minnesota's statewide health spending expenditures less Medicare and long-term care for calendar year 2019 of $37.05 billion are reasonable. Tables 1 and 2 on page three summarize these estimates.

This certification conforms to the applicable Actuarial Standards of Practice promulgated by the Actuarial Standards Board.

Oliver Wyman Actuarial Consulting, Inc. (DE)

Peter Kaczmarek, FSA, MAAA

05/28/2021

Date

Table 1
Where Minnesota Health Care Spending Came From in 2019

Source of Funding	Total Spending (Millions)	%	Total Spending Less Medicare & LTC (Millions)	%
Medicare	$ 11,623	20.5%		
Medical Assistance	$ 12,567	22.2%	$ 6,929	18.7%
MNCare & Other Public[1]	$ 3,185	5.6%	$ 3,052	8.2%
Private Health Insurance	$ 21,663	38.3%	$ 21,366	57.7%
Other Private[2]	$ 1,279	2.3%	$ 1,279	3.5%
Out-of-Pocket	$ 6,253	11.1%	$ 4,419	11.9%
All Sources of Funding	**$ 56,569**	**100.0%**	**$ 37,045**	**100.0%**

[1]Major sources of "Other Public" includes public workers' compensation, public health spending, and Veterans Affairs.

[2]"Other Private" includes private workers' compensation and auto medical insurance.

Table 2
Where Minnesota Health Care Dollars Were Spent in 2019

Category of Service	Total Spending (Millions)	%	Total Spending Less Medicare & LTC (Millions)	%
Hospital	$ 18,826	33.3%	$ 13,360	36.1%
Physician Services	$ 10,122	17.9%	$ 7,793	21.0%
Long-Term Care (inc. Home Care)	$ 9,035	16.0%		0.0%
Retail Prescription Drugs	$ 5,634	10.0%	$ 4,465	12.1%
Dental	$ 1,951	3.4%	$ 1,925	5.2%
Other Professional Services[3]	$ 1,392	2.5%	$ 1,210	3.3%
Chemical Dependency/Mental Health	$ 1,792	3.2%	$ 1,792	4.8%
Other Medical Spending[4]	$ 5,168	9.1%	$ 4,241	11.4%
Other Non-Medical Spending[5]	$ 2,650	4.7%	$ 2,260	6.1%
Total Spending	**$ 56,569**	**100.0%**	**$ 37,045**	**100.0%**

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

[4]"Other Medical Spending" includes not itemized, durable medical equipment, and uncategorized spending, for spending such as public health spending, correctional facility health spending, Indian Health Services, and school based spending.

[5]"Other Non-Medical Spending" includes health plan administrative expenses and revenues in excess of expenses.

Appendix C: Additional Figures and Tables

This appendix includes additional figures and tables that represent health care spending results found in the broader Minnesota Health Care Spending: 2018 and 2019 Estimates and Ten-Year Projections report.

Table C1: Annual Health Care Spending Growth, Per Capita Health Care Spending, Minnesota and the U.S., and Annual Per Capita Health Care Spending

	2015	2016	2017	2018	2019
Annual Health Care Spending Growth (from the prior year):					
Minnesota	3.6%	3.1%	5.4%	5.7%	5.4%
U.S.	5.8%	4.8%	4.0%	4.7%	4.5%
Per Capita Health Care Spending:					
Minnesota	$8,515	$8,713	$9,116	$9,570	$10,031
U.S.	$9,399	$9,777	$10,106	$10,528	$10,948
Annual Per Capita Health Care Spending Growth (from the prior year):					
Minnesota	3.0%	2.3%	4.6%	5.0%	4.8%
U.S.	5.0%	4.0%	3.4%	4.2%	4.0%

Source: Minnesota Department of Health, Health Economics Program. MDH analysis of the Centers for Medicare & Medicaid Services: 2019 National Health Expenditure Accounts, NHE tables (Health Consumption Expenditures). U.S. Department of Commerce, Bureau of Economic Analysis: Gross Domestic Product (nominal), updated through March 5, 2021. Health care spending includes medical and prescription drug spending.

Appendix Table C1 shows annual health care spending growth (from the prior year), per capita spending, and annual per capita health care spending growth (from the prior year), for Minnesota and the United States. Annual health care spending has grown each year in Minnesota and the United States. In 2019, health care spending grew 5.4 percent in Minnesota and 4.5 percent in the United States. Over the same period (in 2019), per capita spending reached over $10,000 in Minnesota and nearly $11,000 nationally.

Table C2: Health Care Spending and Distribution by Categories of Service (2015-2019)

Millions of Dollars	2015	2016	2017	2018	2019	Change from 2018	Avg. Annual Growth (2015-2019)
Inpatient Hospital	$8,583	$8,648	$9,164	$9,494	$9,862	3.9%	3.5%
Outpatient Hospital	$6,846	$7,110	$7,670	$8,164	$8,964	9.8%	7.0%
Physician Services	$8,253	$9,029	$9,258	$9,776	$10,122	3.5%	5.2%
Long-Term Care[1]	$6,947	$7,488	$7,932	$8,567	$9,035	5.5%	6.8%
Retail Prescription Drugs	$5,225	$5,231	$5,206	$5,299	$5,634	6.3%	1.9%
Dental	$1,588	$1,589	$1,799	$1,911	$1,951	2.1%	5.3%
Other Professional Services[2]	$1,383	$1,174	$1,214	$1,292	$1,392	7.8%	0.2%
Other Spending[3]	$7,854	$7,851	$8,498	$9,149	$9,609	5.0%	5.2%
Total	**$46,678**	**$48,121**	**$50,741**	**$53,652**	**$56,569**	**5.4%**	**4.9%**

Distribution of Spending	2015	2016	2017	2018	2019
Inpatient Hospital	18.4%	18.0%	18.1%	17.7%	17.4%
Outpatient Hospital	14.7%	14.8%	15.1%	15.2%	15.8%
Physician Services	17.7%	18.8%	18.2%	18.2%	17.9%
Long-Term Care[1]	14.9%	15.6%	15.6%	16.0%	16.0%
Retail Prescription Drugs	11.2%	10.9%	10.3%	9.9%	10.0%
Dental	3.4%	3.3%	3.5%	3.6%	3.4%
Other Professional Services[2]	3.0%	2.4%	2.4%	2.4%	2.5%
Other Spending[3]	16.8%	16.3%	16.7%	17.1%	17.0%
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.

[3] Includes chemical dependency and mental health (3.2 percent), other medical spending (includes not itemized and durable medical equipment; 7.5 percent), health plan administrative expenses and revenues in excess of expenses (4.7 percent), and uncategorized spending (for spending such as public health spending, correctional facility health spending, Indian Health Services, school-based spending; 1.6 percent).

Appendix Table C2 shows the change in dollars and the share of spending by categories of service between 2015 and 2019. While all categories of service increased in terms of total dollars spent in most years, the proportion of total dollars (or shares of spending) declined and increased from 2015 and 2019 for some categories of service.

Table C3: Health Care Spending and Distribution by Payer (2015-2019)

Millions of Dollars	2015	2016	2017	2018	2019	Change from 2018	Avg. Annual Growth (2015-2019)
Public Spending, Total	**$22,746**	**$23,116**	**$24,911**	**$26,363**	**$27,374**	**3.8%**	**4.7%**
Medicare	$9,246	$9,675	$10,337	$11,001	$11,623	5.7%	5.9%
Medical Assistance	$10,446	$10,677	$11,618	$12,271	$12,567	2.4%	4.7%
Other Public Spending[1]	$3,053	$2,765	$2,956	$3,092	$3,185	3.0%	1.1%
Private Spending, Total	**$23,932**	**$25,005**	**$25,830**	**$27,288**	**$29,195**	**7.0%**	**5.1%**
Private Health Insurance	$17,318	$18,230	$18,839	$19,905	$21,663	8.8%	5.8%
Out-of-Pocket	$5,508	$5,605	$5,789	$6,135	$6,253	1.9%	3.2%
Other Private[2]	$1,106	$1,170	$1,202	$1,248	$1,279	2.4%	3.7%
Total	**$46,678**	**$48,121**	**$50,741**	**$53,652**	**$56,569**	**5.4%**	**4.9%**

Distribution of Spending	2015	2016	2017	2018	2019
Public Spending, Total	**48.7%**	**48.0%**	**49.1%**	**49.1%**	**48.4%**
Medicare	19.8%	20.1%	20.4%	20.5%	20.5%
Medical Assistance	22.4%	22.2%	22.9%	22.9%	22.2%
Other Public Spending[1]	6.5%	5.7%	5.8%	5.8%	5.6%
Private Spending, Total	**51.3%**	**52.0%**	**50.9%**	**50.9%**	**51.6%**
Private Health Insurance	37.1%	37.9%	37.1%	37.1%	38.3%
Out-of-Pocket	11.8%	11.6%	11.4%	11.4%	11.1%
Other Private[2]	2.4%	2.4%	2.4%	2.3%	2.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: MDH, Health Economics Program.

[1] Other public spending includes government workers' compensation, Veterans Affairs, and public health spending.

[2] Other major private payers include private workers' compensation and auto medical insurance.

Appendix Table C3 shows the change in dollars and the share of spending by payer between 2015 and 2019. While all payers increased in terms of total dollars spent, the proportion of total dollars (or shares of spending) diverged and private payers now represent 51.6 percent of total spending.

Table C4: Minnesota Private and Public Health Care Spending, Actual and Projected (2010-2029)

	Year	Private	Public	Total
Actual Spending	2010	$20.8	$17.1	$38.0
	2011	$20.8	$17.9	$38.7
	2012	$21.5	$18.9	$40.4
	2013	$21.9	$20.0	$41.9
	2014	$23.1	$22.0	$45.1
	2015	$23.9	$22.7	$46.7
	2016	$25.0	$23.1	$48.1
	2017	$25.8	$24.9	$50.7
	2018	$27.3	$26.4	$53.7
	2019	$29.2	$27.4	$56.6
Projected Spending	2020	$28.6	$28.5	$57.2
	2021	$30.3	$31.9	$62.2
	2022	$32.6	$34.0	$66.7
	2023	$34.8	$35.8	$70.6
	2024	$36.8	$38.1	$74.9
	2025	$39.1	$40.9	$80.0
	2026	$41.7	$43.8	$85.5
	2027	$44.5	$46.9	$91.4
	2028	$47.5	$50.1	$97.7
	2029	$50.7	$53.5	$104.2

Source: Historical spending estimates from MDH, Health Economics Program; projections from Oliver Wyman. Health care spending includes medical and prescription drug spending.

Appendix Table C4 shows the historical and projected spending for private and public payers from 2010 to 2029. By 2029, total spending is expected to nearly double to $104.2 billion.

Appendix D: Health Care Spending Estimate and Projection Methodology

Overview

The Minnesota Department of Health's (MDH), Health Economics Program (HEP) has been generating annual estimates of total health care spending for state residents for over 25 years, with estimates going back to 1993. MDH estimates health care spending not only in aggregate, but also by payers and categories of service. Generally, the data sources used for the development of Minnesota's health care spending estimates are provided in fairly aggregated form; thus, no patient-level information on volume or utilization and location of health care services is available.

What is "Health Care Spending"?

- The amount spent each calendar year (January 1 to December 31) for Minnesota residents on:
  - Medical care and prescription drug costs;
  - Public health and administrative costs (to the government – federal, state, and local); and
  - Program administrative costs and health plan company profits (i.e., net cost of insurance).
- Estimates do not explicitly include:
  - Private philanthropic care and investments (i.e., non-commercial research, structures, and equipment) in our spending estimates;
  - Charity care from hospitals or other providers, unless the costs are part of a "transactional" cost of care, meaning the item is part of a medical claim or is funded by public program payments; and
- Capital expenditures by hospitals, clinics, and other providers, except in the sense that these costs are included in the prices paid for medical care from these providers.

The data originate with payers of health care expenditures, such as health plans, government agencies, and consumers. Minnesota's approach to spending estimates 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 & Medicaid Services (CMS); CMS uses a data flow from providers or equivalent estimates to construct their national spending estimates. While MDH works to align with the CMS framework, using similar payer and categories of service, the data sources used by CMS are not available with the geographic specificity necessary to directly reproduce these estimates. As such, MDH utilizes the CMS framework by following their categorization by payers and by categories of service, but by using different data sources that are available on a state-specific basis.

In addition to estimates of historic spending, MDH contracts with an outside consultant to develop projections of future health care spending. Similar to the spending estimates, projection models are refreshed and computed annually to incorporate new estimates, move the projection window forward, and maintain alignment with methods and data updates employed by CMS.

This document outlines the methodological approach used to generate the historical spending estimates and projections. It identifies data sources and key assumptions made when working to isolate annual trends in

expenses resulting from the use of health care services ("health care consumption") by Minnesota residents. Estimated and projected spending are divided by payers and into categories of service.

Estimating Historical Health Care Expenditures

Data on health care spending are available in aggregated form, generally submitted to MDH by payers of health care services. This means expenditure data that would allow for *detailed* 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 population factors, or unit prices of various products and services are not readily available.

Changes to Historical Methodology

MDH utilizes the most up-to-date available data sources when creating health care spending estimates, including both public and not public sources. As a result, MDH's historical health care spending estimates are *not* static, meaning that estimates from previous years are revised on an annual basis (e.g., for the spending report that includes 2019 as the most recent year of estimates, we historically updated data for all prior years). This is similar to many of our data producers who update their data on an ongoing basis, like the federal government for Medicare spending or the CMS National Health Expenditure Accounts (NHEA).

On an annual basis, we routinely consider and review details[41] such as if:

- There has been a change in the data collection process by a data provider;
- The data source used for analysis continues to be available;
- The definitions for categories of service have stayed consistent;
- New source data become available;
- Methodology can be improved; and
- National spending estimates produced by CMS changed source data or methodology.

We attempt to make updates to historical spending for at least five years if we use a new source of data, unless it is not available historically. In cases where there is a new source of data, or the methodology for a particular data source changed, we attempt to blend data to eliminate large fluctuations, particularly for categories of service spending, over time.

Data Sources

The sources of funding are grouped by payer using similar categories to the 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), and other public sources. In addition to health care spending, data on types of health insurance coverage and the state population are used to estimate per capita and per-enrollee spending, and the size of the overall Minnesota market. As shown in Table D1, we use several primary data sources to create

[41] This is not an exhaustive list, rather it is an example of the types of questions we consider as we generate and revise our historical health care spending estimates.

health care spending estimates. The first three data sources, covering private spending, spending for state public program enrollees, and Medicare fee-for-service program spending, consistently capture the majority of total health care spending in the state.

Table D1: Major Data Sources Used in Minnesota Health Care Spending

Data Source Name	Types of Data	Sources of Data	Data Use
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, Medicare Supplement, and Medicare 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 & Medicaid Services (CMS)	Medicare spending
Medicare Part D	Expenditure data, enrollment	Group purchasers (health plan companies), CMS	Estimating Medicare Part D and Medicare Advantage-PDP 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 cost 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 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 plan companies licensed to provide health insurance coverage in Minnesota. The vehicle of data collection is the annual Health Plan Financial and Statistical Report (HPFSR). Health plan companies report the data by 13 categories of service and by type of insurance product, which means the data system includes information beyond private insurance spending, like spending for people with Medicare Supplement coverage. Spending under Medicare Supplement policies is calculated consistently with commercial spending. Our commercial market health care spending estimates include individuals who have fully-insured health insurance coverage through an employer, or purchased it individually (i.e., coverage purchased on the individual market directly from a health plan company, through MNsure, or through a broker).

A significant share of privately insured Minnesotans (approximately 68 percent) receive 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 residents in Minnesota is derived as a population residual using information on the distribution of health insurance coverage for Minnesota residents.

Beginning with the 2017 spending report, MDH specifically designated several Affordable Care Act (ACA) and state-based premium subsidy programs as private health insurance. This is due to the way we define our payer categories, which is different from that of CMS, which has two different ways of allocating health care spending, by payer and by financer of health care services. Historical spending estimates were updated based on this designation; however, for 2016 and prior spending reports, MDH did not include the ACA and state-based premium subsidy programs as private health insurance. Information on where these programs are accounted for within our spending estimates is below:

- ACA Cost-sharing reductions (CSR): CSR is included within private health insurance spending.
- ACA Advance Premium Tax Credit (APTC): APTC is included within our revenue calculations, affecting the Net Cost of Insurance calculations.
- State-based Minnesota Premium Subsidy Program: This program is included within our revenue calculations, affecting the Net Cost of Insurance calculations.[42]

[42] In January 2017, the Minnesota Legislature passed Laws of Minnesota 2017, chapter 2, art. 1, which provided a 25 percent subsidy on individual market premiums for qualifying individuals; it was administered through health plan companies.

High-Risk Pools (Ended in 2014)

Spending for Minnesotans who were covered in two high-risk pool programs – the Minnesota Comprehensive Health Association (MCHA) and the federal Pre-existing Condition Insurance Plan (PCIP) – was calculated separately for each program. MCHA spending was derived from aggregated claims data obtained from the plan administrator in Minnesota. PCIP private spending was calculated based on reported average monthly premiums per enrollee. The portion of PCIP spending that was funded by the federal government for the small number of Minnesota enrollees is included in the analysis as public spending (under other public spending). In 2014, both MCHA and PCIP programs terminated due to the onset of additional ACA provisions. MCHA ended December 31, 2014, and PCIP ended April 30, 2014.

Medicare Advantage Private Expenses

Health plan companies offering Medicare Advantage policies report those expenditures via the HPFSR to MDH. The expenditures are divided between public and private payer categories by subtracting CMS capitation payments from total expenditures to provide an estimate of the additional premiums paid by enrollees to cover costs, exclusive of cost sharing.

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 a health plan company). 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. Due to delays in data availability, the most recent year of out-of-pocket spending is estimated based on average ratios of out-of-pocket spending to total spending for the preceding three years of data. Future spending reports are updated once data for that year is available.

Other Private Spending

Other private spending includes spending estimates for several 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 care 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 for the property and casualty industry, is applied to an estimate of total Minnesota paid losses, estimated from historic data on medical paid losses.

Public Expenditures

Public expenditures include public spending for government-sponsored health insurance programs, such as Medicare, Medical Assistance (Medicaid) and MinnesotaCare, and spending for other programs including Veterans Health Administration (for Veterans Affairs), Department of Defense (for TRICARE), workers' compensation, state and federal correctional systems, 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 included in 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.

Prescription drug spending for beneficiaries enrolled in standalone Medicare Part D and the prescription benefit included in some Medicare Advantage plans is based on reporting from CMS, adjusted for pharmacy rebates and member spending (already accounted for within out-of-pocket spending estimates). Due to delays in data availability, estimates for the most recent year of prescription drug spending are based on trending the prior year's prescription drug per member spending against current year enrollment. All data are benchmarked against CMS monthly enrollment reports, when possible, and updated when new data are available.

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 organizations (HMOs).[43] These HMOs report revenue and expenditures as part of their annual financial reporting on the Minnesota Supplement Report #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. DHS reports MA FFS data directly. The managed care component of health care spending for MA are distributed across categories of service using historical estimates

[43] Health Maintenance Organizations (HMOs) are defined and regulated under Minnesota Statutes Chapter 62D; the Minnesota Department of Human Services is only allowed to contract with licensed Minnesota HMOs to provide services to enrollees in Minnesota Health Care Programs.

provided by DHS. 2013 and 2014 spending included estimates on the additional federal funding related to the temporary (2013 and 2014) ACA provision that increased payments for primary care services to be equal to Medicare Part B payments. To avoid double counting of expenses, payments for Individualized Educational Program (IEP) and medical transportation services spending captured in estimates for school-based health care spending are removed.

Aggregated MinnesotaCare spending by calendar year is obtained from the DHS Reports and Forecasts division. DHS also provided historical expenditure distributions that MDH used to allocate spending across categories of service. 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 the DHS Forecast no longer carries. This reconfigured program ended in 2011, and remaining enrollees moved to Medical Assistance.

For both Medical Assistance and MinnesotaCare spending estimates, managed care performance payments and gross adjustments are assigned to the calendar year they are associated with rather than the year these amounts were paid (e.g., managed care performance payments for calendar year 2016 are paid in July 2017; in our spending estimates, these amounts are included as health care spending in 2016).

In our reporting, Medical Assistance is its own category, while MinnesotaCare is included in the Other Public spending category.

Other Public Spending

In addition to Medicare and Minnesota Health Care Programs, the estimate of public health care spending includes spending by the Veterans Health Administration, Department of Defense (for TRICARE), government workers' compensation, public health programs, the Indian Health Service (IHS), school-based health care spending, and the state and federal correctional systems.

Veterans Health Administration health care 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 (for years prior to 1997) and from the CMS NHEA (for years 1997 forward). In limited circumstances when the most recent fiscal year is not available, a five-year annual growth rate trend is applied. Future spending reports are updated with complete data once data are available. The Department of Defense (DOD) reports TRICARE spending.[44] They report data 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'

[44] TRICARE is health insurance coverage for members of the United States Military and their families.

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.

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 care spending estimate relies on data from USASpending.gov, the U.S. Department of Health & Human Services Health Resources and Services Administration data warehouse, and the Substance Abuse and Mental Health Services Administration website, 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.

The estimate of federal health care 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.

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 correctional facilities are obtained directly from the Minnesota Department of Corrections. To calculate state spending, MDH multiplies per diem costs for "health services" and "behavioral health" by the average annual population utilizing health services in state correctional facilities.

The estimate of school-based health care spending draws on a range of sources, and specifically estimates spending for public schools, non-public schools, Individualized Educational Program (IEP)/medical transportation, and school-based health clinics. Spending estimates begin in calendar year 2001, as prior year data were not available. Public school-based spending is estimated by multiplying full-time equivalent (FTE) job classification school nurse data from the Minnesota Department of Education by an estimate of school nurse salaries based on the Registered School Nurse salary estimates from the U.S. Bureau of Labor Statistics, Occupational Employment Statistics. Non-public school-based spending uses data from the Minnesota Department of Education converted to a calendar year estimate. IEP planning and medical transportation services spending uses data from the Minnesota DHS. School-based clinics spending is based on completed data requests from Minnesota school-based clinics; for clinics without available data, the spending estimates are extrapolated and averaged from completed data requests.

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. While data used for Minnesota's estimates differ from those at the national level— Minnesota uses data from payers, while the NHEA from CMS largely relies on data from providers— by design both estimates use similar categories for payers and categories of service. Minnesota compares its results relative to a subset of CMS expenditure data, 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. This category of national spending offers the best comparison with the Minnesota estimates, and provides context for spending, both at a per capita level, and as a percent of the economy.[45]

In 2009, CMS restructured the NHEA and moved away from having a separation between private and public payers, likely due to the line between private and public "payers" becoming increasingly difficult to ascertain. MDH continues to see value in reporting spending by private and public payers; therefore, has kept this distinction in our health care spending estimates and projections. CMS publishes two-types of health care spending estimates, one by who finances the health care and one who pays for health care services.

Systemic differences do exist between Minnesota's state spending analysis and CMS' effort to estimate the state portion of their national health expenditure account initiative. CMS historically had developed the State Health Expenditure Account (SHEA), in which CMS attempted to translate expenditures at the point of service into a point-of-residency perspective in order to estimate state-level health spending for personal health expenditures. The estimates involved a two-step process of first generating estimates based on provider location, and then, using Medicare claims data, estimating the extent to which residents crossed state lines for care.[46] A historical independent analysis by an MDH contractor of the CMS SHEA approach did not reveal any factors that suggest CMS' approach is characterized by methodological strengths relative to Minnesota's approach, or vice versa. Rather, the CMS approach appears to be a tool that uses statistical methods to compensate for a lack of available data that are comparable for all (or most) states by apportioning a pre-defined spending amount across the nation.

Health Care Expenditure Projections

Minnesota develops projections for the primary purposes of projecting future health care spending, as required by Minnesota Statutes, section 62U.10. In 2017, MDH contracted with Oliver Wyman to develop the macroeconomic model used to project health care spending for the 2017 spending report and in 2021 for the 2018 and 2019 report (2019 through 2029). The method to develop health care spending projections is based on the methodology used by CMS to produce national health care spending projections, and, where appropriate, is customized to Minnesota's health care and data environment, based on the current policy landscape.[47] As of

[45] Although MDH does attempt to follow CMS' categories of service data aggregation methods, it is not always possible due to the nature of the data MDH is able to access. For example, data MDH utilizes for chemical dependency and mental health are often reported as a separate category of service. As a result, we are not able to proportion chemical dependency and mental health services to other categories of service, where these services were ultimately received (e.g., residential, inpatient, outpatient). In comparison, NHEA methodology does attempt to proportion their data further. Information pertaining to the health care services spending crosswalk to NHEA spending is found within the CMS NHEA Methodology Paper https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html

[46] Further information on the methodology used by CMS to generate state-level spending estimates through 2014 can be found on the CMS State Health Expenditure web site https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsStateHealthAccountsResidence.html

[47] CMS projection methodology is available at the CMS projection methodology website: https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html. MDH attempts to align its projections with the CMS

June 2021, CMS was not able to provide their planned methodology to include the impact of COVID-19 on their forthcoming ten-year projections. As a result, MN projections accounting for the effects of COVID-19 (e.g., health care utilization, coverage, and spending) may vary from the forthcoming CMS method. In future years, we will attempt to re-align our methodology with CMS projections' methodology. For more information on the COVID-19 Impact on Projections, please see the section below.

In previous years, projections to estimate what future spending would have been without the impact of 2008 Minnesota health care reforms, or the Affordable Care Act (ACA), were also undertaken. Now ten years removed from 2008 reforms, and with full implementation of the ACA that began in 2014, continuation of this projection series is no longer a realistic analytic endeavor, as discussed below. The last report that published that estimate was in March 2016.

COVID-19 Impact on Projections

As a tool to forecast future trends, projections rely on historical data and stable relationships between key variables. Because the COVID-19 pandemic interrupted these dynamics in 2020 and 2021, the standard projection models we usually consider would have failed to account for this impact. Therefore, in addition to running our standard projection models, we separately modeled the impact COVID-19 had in these years for health care enrollment, utilization, and spending in three distinct steps.

First, we modeled estimates of future enrollment for 2020 and 2021 based off economic scenarios of changes in employment, health coverage, and job loss. Coverage was estimated using an Oliver Wyman microsimulation model – the firm produced these projections for Minnesota – which was calibrated to Minnesota's population size, what was known about health insurance coverage in Minnesota in 2019 and 2020, employment, income, and demographics. We modeled three economic scenarios and selected the mid-range estimates for use in our overall projections.

Second, we modeled payer-specific health care utilization and spending in 2020 and 2021 to generate per member per year estimates. These estimates incorporated several additional components:

- **Projected Minnesota Health Care Program Spending:** We incorporated forecasted Medical Assistance and MinnesotaCare program spending, which considered the impact of the COVID-19 pandemic. This is detailed more in the Public Spending section below.
- **State and Federal Spending:** As mentioned, we included the one-time allocation of state and federal partners' COVID-19 funding in other public spending. These funding allocations, totaling $898 million over 2020 and 2021, covered costs of items such as testing, surge capacity, and lab enhancements, among other services, directly related to the COVID-19 pandemic.
- **Contraction in Spending and Utilization:** These dynamics were accounted in the model through review of items such as the Bureau of Economic Analysis reports, journal articles, statutory financials reporting from

methodology framework; however, is limited in its ability to match all variables and calculations. For example, MDH is limited in the use of lagged values of variables due to the short historical timeframe of Minnesota's data (beginning in 1993), compared with CMS' data which began in 1960. As of June 25, 2021, CMS had yet to publish any revised methodology paper that included the impact of COVID-19 on its projections

major health plans, and review of known enrollment.[48] These sources estimated per-member per-month spending by payer.
- **2020 and 2021 Enrollment:** The results of the microsimulation model from the first step was incorporated to apply the correct per-member per-month spending across the population

Third, we adjusted the 2020 and 2021 modeling with the standard projection models (discussed in the Macroeconomic Forecast section below). To do this, we assumed the enhanced models were more accurate projections of 2020 and 2021 spending. Projected health care spending for 2020 and 2021 were based on the enhanced model; projected spending for 2022 was based on a combination of the enhanced model and projected 2021 spending from the standard model. For health care spending in 2022 through 2029, we applied the growth rates for 2022 through 2029 from the standard model to the 2021 health care spending estimate from the enhanced model.

Macroeconomic Forecast

Similar to CMS' projection approach, Minnesota's approach aims to project an overall model of health care spending. It does so by modeling payer and service categories and benchmarking results to form a more predictive total spending model.

Public Spending

Three types of public spending are included in the MDH projections: Medicare, Medical Assistance (Medicaid), and other public spending (which includes MinnesotaCare). Projected values for each are determined separately.

- Medicare spending projections are based on per-enrollee growth rates published by the CMS NHEA for Medicare Health Consumption Expenditures and are adjusted to account for historical variations of growth between Minnesota and the NHEA estimates. For 2020 and 2021, separate projections based on an analysis of COVID-19 impacts were utilized.[49] For 2022 through 2029, the Minnesota Medicare spending projection was then calculated by taking the projected Medicare population and the newly estimated Medicare per-enrollee spending figure with an additional 0.5 percent added from the growth rate beginning in 2021. This additional percentage was prudent given that the average historical Minnesota Medicare growth rates were slightly higher than the NHEA national growth rates (by 0.5 percent).
- MHCP projections, which include Medical Assistance, MinnesotaCare, and (prior to 2011) GAMC, are derived from the Minnesota Department of Human Services (DHS). DHS provided data from their forecast based on program type and demographic categories, which were further summarized by MDH. The current and anticipated effects from COVID-19 were already included in this year's forecast. DHS' forecast only projected spending through state fiscal year 2025, so projections for calendar year 2025 and forward were based on a

[48] Miller GM et al. "COVID-19 Shocks the US Health Sector: A Review of Early Economic Impacts." Health Affairs. December 16, 2020. Kaiser Family Foundation Medicaid Enrollment & Spending Growth. Altarum Health Sector Economic Indicators – Price and Spending Briefs – March 2021.

[49] MDH used a contractor to analyze and prepare estimated 2020 and 2021 health care utilization and health spending in Minnesota due to COVID-19 and the subsequent economic impacts.

five-year national average per-enrollee growth rate from 2025 through 2029.[50] Medical Assistance and MinnesotaCare spending projections were then calculated by taking the respective, projected Medical Assistance and MinnesotaCare populations and the newly estimated Medical Assistance and MinnesotaCare per-enrollee spending figure. Medical Assistance and MinnesotaCare are projected separately, as MinnesotaCare is ultimately included in the other public spending category. The MHCP projections are one area where projecting spending in absence of the 2008 Minnesota reforms or ACA was no longer feasible. Projections for public spending in the absence of the changes from the 2008 reforms or the ACA were no longer available; nor were continuations of previous projections possible.

- Other public spending, which includes spending for the Veterans Health Administration, Department of Defense (for TRICARE), and public workers' compensation, independently calculated spending projections within each broad payer (VA and DOD, workers' compensation, and other public). Each of these payers utilized separate projections based on an analysis of COVID-19 for years 2020 and 2021. For years 2022 through 2029:
  - For workers' compensation and other public spending, a five- or ten-year average growth rate, with any necessary adjustments to account for Minnesota and NHEA estimates was applied.
  - For VA and DoD, the NHEA's health consumption expenditures VA and DoD annual growth rate was applied, adjusting it to account for historical variations of growth between the Minnesota and NHEA estimate.

Private Spending

Future private spending is projected by estimating a series of Autoregressive Integrated Moving Average (ARIMA) models using historic spending estimates and macroeconomic data for the years 1993 through 2019. These models allow for flexibility and ease of model interpretation, and allow us to use time series data and address concerns that may be present in statistical models, such as lack of variability and statistical errors being related to each other.

The method utilized by MDH and its contractor is designed and updated to align 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. After fitting the historic data, future spending is estimated using projected macroeconomic factors as explanatory variables. Spending is projected in total, by private payer type (e.g., private health insurance, out-of-pocket, and other private), and by categories of service (except for uncategorized spending which is projected as part of other public spending).

Each individual model includes a subset of the following as explanatory variables:

- **Relative Medical Price Inflation (lagged basis for years one to three):** Estimates of national personal health care (PHC) deflator divided by the national Gross Domestic Product (GDP) deflator. Only explanatory variables were created on a lagged basis for years one to three. The current period variable was ignored due to endogeneity concerns.
- **Minnesota Personal Health Care to GDP Growth Rate (Lagged):** This variable is calculated as the annual growth rate of nominal private and public health care spending (from historical estimates and projections)

[50] For MNCare, similar to that of the Medicare projections, an additional 2.0 percent was added to project MNCare spending between 2024 and 2029. This additional percentage was prudent given that the average historical Minnesota Medicaid growth rates were historically in line with those of the NHEA national growth rates

divided by the annual state GDP. Only explanatory variables were created on a lagged basis for years one to three. The current period variable was ignored due to endogeneity concerns.

- **Minnesota Real Per Capita Disposable Personal Income Growth Rate:** Estimates and projections are obtained from forecasts by Minnesota Management and Budget (MMB). When certain projection year data were not available from MMB, estimates were projected using prior year growth trends. 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 estimates for per capita values. Additional explanatory variables were created on a lagged basis for years one to three.
- **Minnesota Real Per Capita Public Personal Health Care Spending Growth Rate:** This variable is calculated as public spending from MDH estimates divided by the total state population and the aggregate PHC deflator. Additional explanatory variables were created on a lagged basis for years one to three.
- **Recession Indicator:** variable is based on years 2007-2010 to account for the one-time effect of the Great Recession (2007-2009) on private health care spending, as well as to the implicit impact of the Great Recession already accounted for in the MN Real Per Capita Disposable Personal Income Growth Rate.
- **Additional explanatory variables used in the payer and categories of service growth models:** To create models for specific payers and categories of service, additional explanatory variables were created, including:
  - Relative Out-of-Pocket Spending Price Index (lagged) for out-of-pocket projections;
  - Relative Medical Price Inflation by service categories (lagged) for inpatient, physician and outpatient, dental, professional services, long-term care, and other services;
  - Shortened Recession Indicator, used in the dental model only;
  - Medicare Part D Expansion Indicator, used in the Retail Prescription Drug model only; and
  - Share of 65, 75 and 85-Year-Old Population, used in the Long-Term Care model only.

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

Limitations of Projection Model

Users of these health care spending estimates should recognize that projections involve estimates of future events and are subject to economic and statistical variations from expected values. The results are subject to considerable uncertainties due to the range of necessary assumptions about future trends.

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. Similar to limitations with national projections developed by CMS, MDH's approach aims to update model specifications to capture those trends when they have happened historically; 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 (1993 through 2019), while strong because of its consistency and the method by which it is aggregated, still represents a relatively short time series. National historical data are based on a much longer time series (1960 through 2019).

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