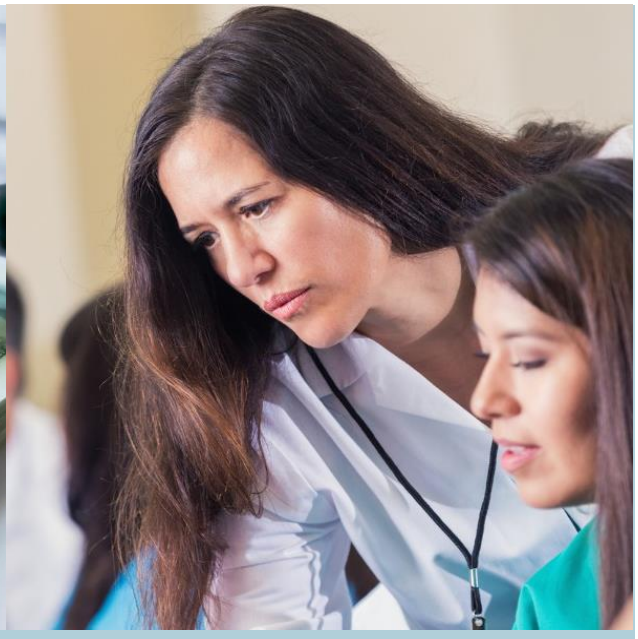


Virginia's Health Care Sector Economic Trends in 2020

New data on the Commonwealth's health care spending and tracking the initial impacts of the COVID-19 pandemic

Corwin Rhyan, MPP
Matt Daly, PhD

Altarum Institute

ALTARUM

SOLUTIONS TO ADVANCE HEALTH

Table of Contents

Acknowledgments and Contact

This study was conducted by Corwin Rhyan and Matt Daly, with excellent research assistance provided by Samuel Obbin and George Miller, PhD, all of Altarum's Health Economics and Policy Team.

Funding for this work was provided by the Virginia Hospital & Healthcare Association (VHHA). Data from Virginia's All Payer Claims Database were provided by the Virginia Health Information (VHI) organization.

Author Contact:
Corwin Rhyan, Senior Analyst, Health Economics and Policy
Altarum Institute
Corwin.Rhyan@altarum.org

Report Highlights

VIRGINIA HEALTH SECTOR SPENDING

- Total annual spending on health care in Virginia fell from a revised estimate of $93.8 billion in 2019 to $91.6 billion in 2020 (a decrease of 2.3%), due primarily to the impacts of the COVID-19 pandemic decreasing health sector utilization of care.
- Health spending in Virginia decreased despite the opposite trend in the national average—between 2019 and 2020 national health spending increased 2.1% year over year after omitting direct federal financial support for the health sector.
- The decline in health spending was primarily seen in Q2 2020, where Virginia spending fell 10.2% from a year prior. Nationally health spending only fell 7.0% over the same period. Virginia's health spending level did not exceed the Q1 2020 peak in any quarter of 2020.
- Health spending as a percent of state Gross Domestic Product for Virginia declined from 17.1% to 16.8% in 2020, ending well below the national average of 18.3%.
- Health spending per capita in 2020 in Virginia was nearly $1,000 lower than the national average, with professional, physician, and clinical services; hospital care; nursing home, residential, and home health spending all lower than their national counterparts.
- Overall health spending growth rates in Virginia have averaged 3.5% annually since 2015, lower than the national average of 4.2%. Nursing home, residential, and home health care growth (2.4%) was the lowest among the major categories in Virginia over this period, while prescription drug spending growth was the highest (6.6%).
- At the beginning of the COVID-19 pandemic, the steepest drop in health spending in Virginia occurred between Q1 and Q2 2020 in ambulatory settings (professional, physician, and clinical services), which fell 15.7%, followed closely by hospital care at a 13.8% drop.
- The pandemic-related impacts on Virginia's health spending resulted in over $5.0 billion less being spent on the combined major health categories compared to what would have been expected had 2019 health spending growth continued.
- The largest payer for health care products and services in Virginia is private health insurance, spending an estimated $24.4 billion on personal health care in 2020, followed by Medicare $16.9 billion, and Medicaid $12.0 billion, although Medicaid is the fastest-growing payer in spending and enrollment since 2015.

VIRGINIA PRIVATE HEALTH INSURANCE TRENDS

- For individuals with health insurance coverage through a private-sector employer, the average single premium in 2020 was $6,900 and the average family premium was $20,300.
- These annual single and family premiums have increased 16.0% and 15.5% respectively between 2015 and 2020, while combined premium + deductible totals have increased even faster (22.4% for single coverage and 19.2% for family coverage).

- Since 2008, per-enrollee private insurance personal health care spending has increased by 38.3%, while single annual premiums have increased 64.9%, and family premiums have increased 71.4%.
- At the same time, deductibles and other cost-sharing have also increased over this period. Since 2008, the average deductible for a single person with employer coverage has increased by 135% while the average family deductible increased 143%, faster than both the growth in premiums and growth in medical expense costs (health spending).
- The weighted-average ratio of private insurance incurred claims as a ratio of premiums (an indication of the amount of private health insurance premiums going towards actual health spending) has fallen from 85.2% to 81.9% in the Commonwealth from 2016 to 2020.

VIRGINIA HEALTH SECTOR GOVERNMENT ASSISTANCE

- Health care providers in Virginia received a combined $3.6 billion in direct federal government pandemic-related assistance, including $1.3 billion in Paycheck Protection Program funds and $2.3 billion in Provider Relief Funds.
- As a percent of total health care spending, hospitals and nursing home/home health settings in Virginia received less federal financial support compared to the national average, while ambulatory and physician settings received a greater proportion.
- These federal supports took the 2020 Virginia's overall health care spending from a 2.3% decline to a 1.5% increase in combined spending + federal support. Similarly, hospital services swung from a 1.7% decrease to a 3.4% increase in combined spending + federal support, a smaller total increase than the national average of 6.6%.

VIRGINIA HEALTH SECTOR EMPLOYMENT

- In the fourth quarter of 2020, 366,000 individuals were employed by the health care sector in Virginia, about 11.5% of the total private sector employed population. This is a reduction from the pre-pandemic peak of 381,000 workers.
- Employment fell across many of the major health care sectors: ambulatory settings lost an estimated 1,000 workers, hospitals another 4,000 workers, and nursing homes and residential settings 7,000 workers.
- As a result of these losses, the proportion of health care employment in ambulatory settings rose slightly, held constant in hospitals, and fell in nursing, residential and home health settings. In 2020, about 52% worked in ambulatory care settings, 29% in hospital settings, and 20% in nursing home and residential care settings.
- Health sector job growth among ambulatory care settings in Virginia has been the fastest since 2015, at 2.3% year over year, versus hospital and nursing home settings growing at slower average rates of 0.7% and 0.2% respectively.

Prior Report Overview

This document follows and updates a previous report published in January 2021 that detailed analyses of Virginia's health care sector through 2019. That work provided a comprehensive look of health sector trends for the Commonwealth of Virginia, including measures of health care spending, employment, and prices from 2015 to 2019, using data from the Center for Medicare & Medicaid Services (CMS) National and State Health Expenditure Accounts (NHEA), data from the Commonwealth's All-Payer Claims Database, and a variety of other government sources.

The prior report found that as of 2019, health spending reached an estimated $92.2 billion or about $10,800 per resident and had been increasing on average 4.5% per year between 2015 and 2019.[1] That spending per resident in Virginia was an estimated 7.1% lower than the national average, driven by lower spending on professional services; hospital services; nursing home, residential and home health; and other categories. As a result, spending on health care in Virginia as a proportion of the state's domestic product was lower than the national average (16.8% vs. 17.8%), representing a $6.6 billion lower health care budget compared to what would have been spent if spending as a percent of the overall economy was equal to the U.S. average.

The report also found that among the major payers, Medicaid spending represented the fastest-growing payer component over this period, due to the recently enacted expansion of eligibility in the Commonwealth. This was contrasted with spending growth among those with private insurance, which was the slowest among the three major payers in 2019. Yet, despite this slow health spending growth by private insurance, premiums for private insurance increased for single and family coverage over this period, with additional increases in average deductibles and cost-sharing. This resulted in average individual premiums for single coverage in Virginia ($6,400) exceeding the national average ($5,800).

The prior report concluded by looking at employment in Virginia's health sector also found that at the end of 2019 about 378,000 individuals were employed by the health care sector, with 50% in ambulatory care, 29% in hospitals, and 21% in nursing homes and residential care, representing 9.2% of nonfarm workers.

[1] Some prior year values have been updated in this year's new report based on updated data, discussed in more detail in the Appendix.

Updates Overview and Report Data Sources

This new report updates findings from that prior analysis and adds a new year of data (through 2020), covering the initial economic impacts of the COVID-19 pandemic that caused a massive shock to the Commonwealth's economy and health sector. While the prior report detailed a myriad of economic indicators on a reasonably constant growth path from 2015 through the end of 2019 (e.g., population, enrollment, health spending, health employment, insurance premiums), the year 2020 represented a large disruption to many of these trends for the Commonwealth's health sector. The pandemic posed a huge challenge for health care systems and providers to rapidly adapt operations to care for newly ill COVID-19 patients, while at the same time requiring postponement or even cancelling many other types of care. As a result, health spending and employment saw reductions likely unimaginable prior to the pandemic and upset many of our predictions for the Virginia health sector made in the prior year. We focus much of this report on the changes in health sector economic indicators in 2020 and contrast how the Commonwealth was impacted by the pandemic relative to the nation as a whole.

This report continues from the previous report by producing estimates based on data from the Center for Medicare & Medicaid Services (CMS) National and State Health Expenditure Accounts (NHEA) with data from the Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), the United States Census Bureau, and data from the Commonwealth's All-Payer Claims Database (alongside a variety of other public data sources). We continue the research philosophy of benchmarking to any relevant state CMS NHEA data that exist through 2014, while using the remaining datasets to project forward Virginia health sector trends through the end of 2020. We generally assess data in this report on a quarterly basis, using cubic splines to interpolate data when annual sources are used and averages to roll up monthly level data.

It is very important to note in this report, we (unless otherwise noted) report data on health care spending for Virginia and nationally absent the direct government assistance for health care providers made available as a result of federal stimulus bills. These programs such as the Paycheck Protection Program (PPP) and Provider Relief Funds (PRF) did provide financial assistance for health care providers, although because these funds were not directly for the receipt of care, we initially omitted these data from both the Virginia and nationwide comparison data in this report. CMS in their most recent release of the official NHEA for the U.S. for 2020 included many of these payments in their health spending estimates, resulting in higher health spending growth for 2020 and we analyze these trends in total assistance and combined impacts on health expenditures separately in later sections of this report.

In reporting on trends in 2020 and growth from prior years in this document, we also slightly update prior metrics based on the best available data for the years 2015 through 2019. Updates were made to the prior report values for a few reasons. First, following publishing the preceding report, some data available from the Commonwealth's All-Payer Claims Database from Virginia Health Information (APCD) ended in the third quarter of 2019 due to incomplete runouts in the final months. With new, complete data available from the APCD we were able to update and adjust

the final months of 2019 by following trends between Q3 2019 and Q1 2020 for data such as health spending for Medicaid and Commercial Insurance. Second, in the past year, new data from the Bureau of Economic Analysis has now made available personal consumption expenditure (PCE) data by health sector components, allowing us to update BEA estimates of the Virginia health sector that previously relied only on personal income, a subset of PCE. Last, in this report, we improve on our analyses of some Medicaid and prescription drug spending data in the APCD, by better tracking enrollments between medical and prescription drug plans, improving our underlying estimates of per-capita Virginia health expenditures.

As a reminder, this new report continues to incorporate other health sector spending data to produce estimates of Virginia health spending trends through 2020. These additional data sources include: the APCD, from which we used data on Medicaid and commercial health insurance claims; CMS Medicare Geographic Variation Public Use Files on Medicare spending; CMS Form-64 data on state Medicaid expenditures; and BEA state-level personal consumption expenditures for the health sector. We used these data, blended and combined with data on health insurance enrollment statistics from the American Community Survey and official CMS Medicare and Medicaid enrollment files, to estimate by component and payer Virginia health spending trends through 2020. We designed these estimates to benchmark to the existing CMS state-level health spending data, while extending those data through the most recent period available.

Additional state and national data from Altarum's Health Sector Economic Indicators (HSEI) and Virginia macroeconomic data from BEA are also included in this report, providing context for Virginia's health spending trends relative to national averages. This report's data inputs include a mixture of monthly, quarterly, and annual data depending on the underlying source. Further, the data from the APCD, while expected to encompass all Medicaid enrollment and claims within the Commonwealth, are not necessarily comprehensive for those with private health insurance. As a result, we incorporated APCD metrics based on per-enrollee spending for each period and category of spending and then standardized to be representative of the Commonwealth's overall privately insured population. More detail on this approach is available in the methods section.

For this report's estimates of Virginia health sector employment trends, we collected and processed data from the Bureau of Labor Statistics State and Metro Area Employment. Major categories available at the state level through 2020 include total health care employment, ambulatory health care centers employment, hospital employment, and nursing home and residential care employment.

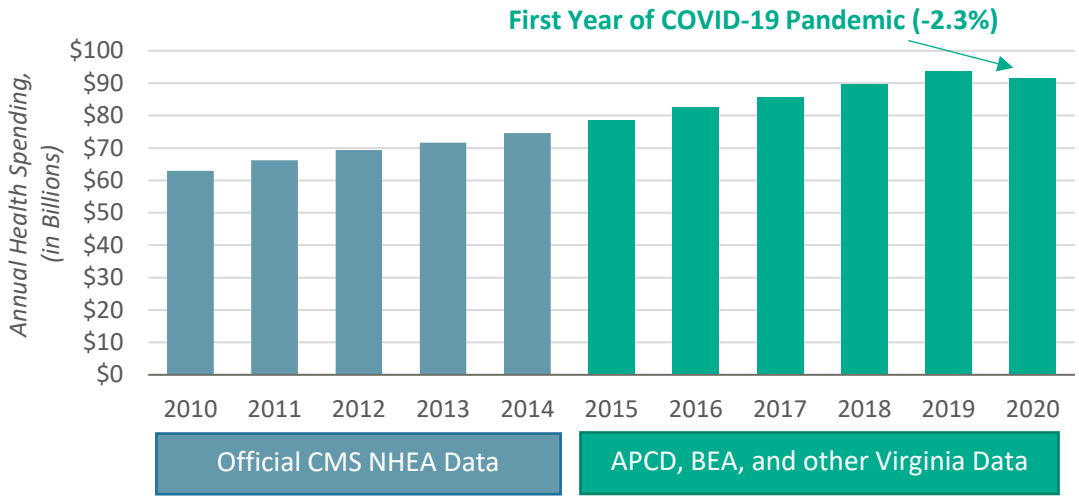
Data on private-sector health insurance premiums are based on the results of the Agency for Health Research and Quality's (AHRQ) Medical Expenditure Panel Survey— Insurance/Employer Component (MEPS-IC). We collected data for Virginia from the MEPSnet/IC Query tool, which was recently updated with cost data through the year 2020. Data are reported separately for those with single and family coverage, and we include total premium and deductible trends. Additional data on insurance coverage purchased directly by individuals (not through an employer) from the Healthcare.gov marketplace are compiled by the Kaiser Family Foundation and used in our analyses. To further assess trends in the private health insurance markets, we also gather and

analyze in this new report data from the CMS Medical Loss Ratio (MLR) publicly-available database, using data submitted directly by private insurers for the purpose of ensuring MLR requirements are being met (and to calculate any necessary rebates). We filter these MLR data for private plans for Virginia residents and assess trends in premiums collected relative to claims paid out since 2016.

Lastly, we include in this report an assessment of COVID-19 pandemic assistance from the federal government for the Commonwealth of Virginia, using data on the Paycheck Protection Program (PPP) forgivable loans that were given to health care providers in the Commonwealth, as well as Provider Relief Funds. Data on these federal programs are tabulated and estimated for the year 2020, and then contrasted with the size and spending in these programs nationwide relative to overall health spending totals.

Overall Virginia Health Sector Spending

Figure 1: Virginia Annual Health Care Spending, in Billions



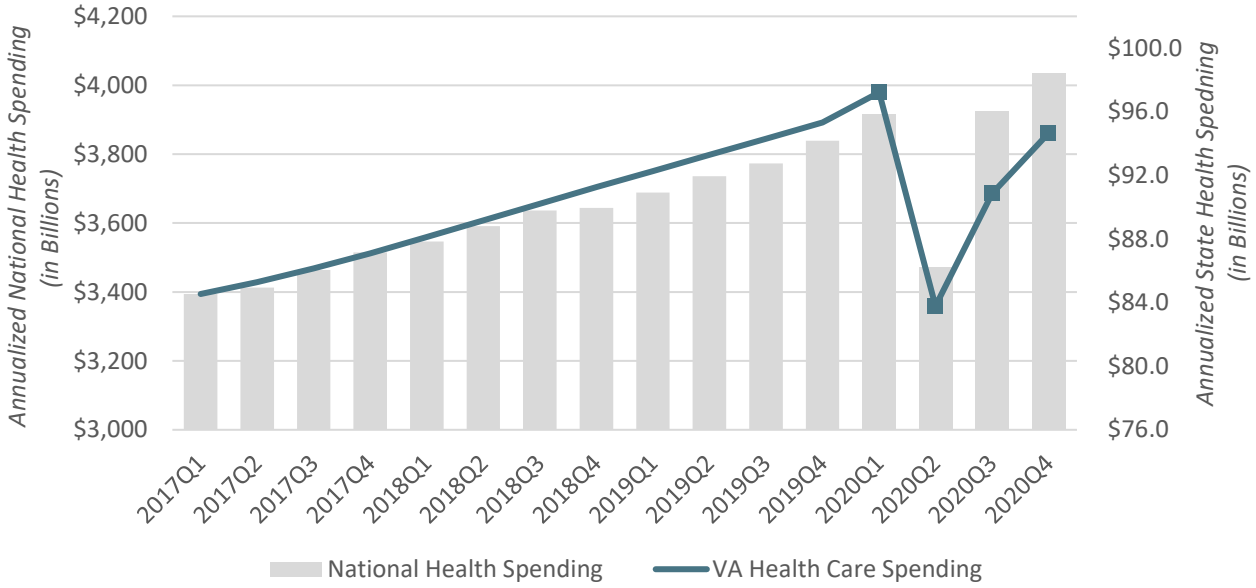
Total Virginia health care spending in 2020 was $91.6 billion,[2] falling 2.3% ($2.2 billion) from the prior year's high of $93.8 billion (Figure 1). This drop in health spending in the Commonwealth was the first time nominal health spending declined since CMS began tracking state health spending in 1991 (data not shown), and was likely triggered by numerous effects of the COVID-19 pandemic, including drastic reductions in utilization of many types of health care services during the early peak of the pandemic. This fall in health care spending for the Commonwealth occurred across many types of health care services, which we explore in more detail below, although spending on major health care products, such as prescription drugs, in 2020 still increased from the year prior.

The decline in health care spending in the Commonwealth began in Q2 2020 as the COVID-19 virus infections first began to be identified in small numbers in mid-March with an acceleration in cases in the following months (and associated reductions in many types of elective health care service use). As seen in Figure 2, the drop in annualized health care spending in Q2 2020 was extreme, falling below a level seen since 2016, and never recovering to the previous high set in the mostly pre-pandemic Q1 2020. The drop in health care spending for the Commonwealth was far more severe than the national average drop in spending, as Virginia's health care spending fell 10.2% year over year in Q2 2020, while nationally health spending only fell 7.0% from a year prior. The drop in personal health care spending (a subset of total health spending that includes hospital, ambulatory, residential care, prescription drug spending, but does not include public health,

[2] In this report we show health care "spending" as the amount spent on the traditional CMS-defined health sector categories, and do not include supplemental federal government support in 2020 for health providers, such as Paycheck Protection Program forgivable loans or Provider Relief Fund provider payments. We discuss the impact of these federal payments separately in a later section of this report.

investment, research and development, net cost of insurance, and government administration costs) was even greater in the Commonwealth, falling 11.7% in Q2 2020. Moreover, the rate of recovery in health spending in the Commonwealth in the second half of 2020 was slower than the national average rate of recovery—nationally health spending had basically recovered by the third quarter, while Virginia's health care spending never exceeded its prior peak through Q4 2020.

Figure 2: Virginia and National Quarterly Health Care Spending (Annualized), in Billions

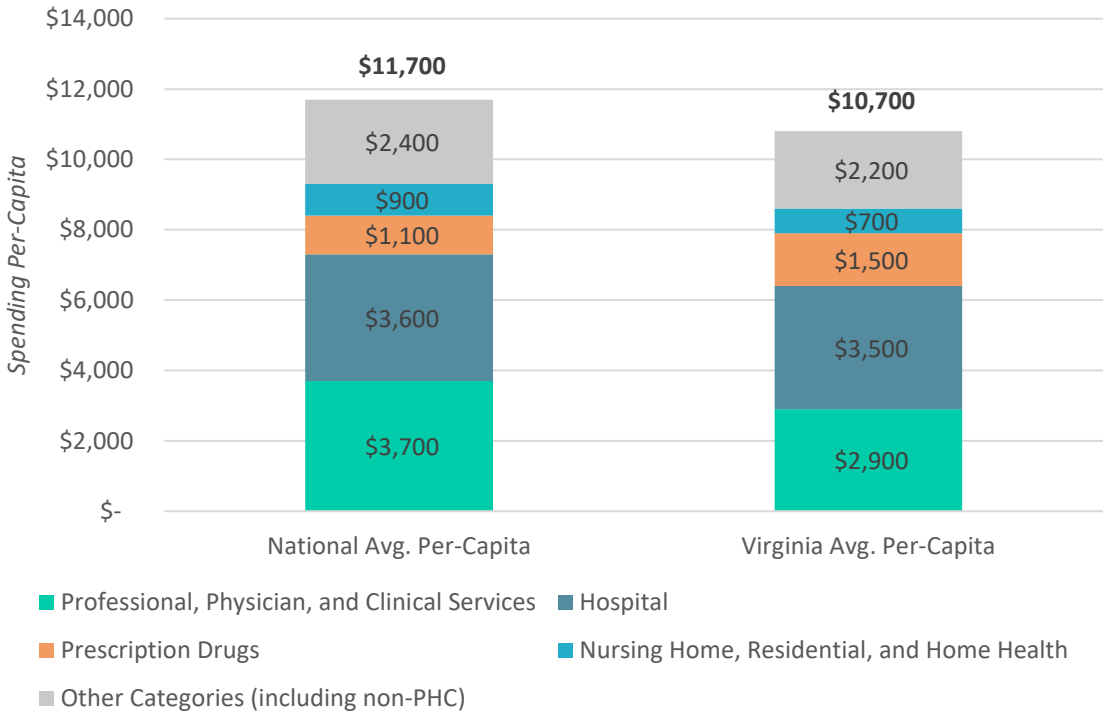


As a percent of Gross Domestic Product (GDP), Virginia's health spending fell from 17.1% in 2019 to 16.8% in 2020. While total health spending declined in the Commonwealth, state GDP also fell slightly from $549 billion to $544 billion in 2020. Yet, because the fall in total health spending was greater than the annual drop in GDP, the proportion of Virginia's economy going to health care shrunk in 2020. The reduction in total health spending as a percent of GDP for Virginia is much greater than the national trend, resulting from a sharper initial drop in spending for the Commonwealth and a slower recovery in the latter half of 2020. When compared to the national average, Virginia's health total sector spending is much smaller relative to the size of the state's economy (the proportion of national health spending of GDP was 18.3% in 2020). If Virginia instead spent the national rate of health spending to GDP on health care in 2020, it's health spending in 2020 would actually have been $99.9 billion, an additional $8.3 billion (data not shown).

As a result of the decline in total nominal health care spending, health spending on goods and services fell per-capita in Virginia in 2020, from $11,000 per person in 2019 to $10,700. This further increased the gap between Virginia's per-capita health spending and the national average in 2020 as it increased from $11,500 in 2019 to $11,700 per-capita in 2020. As a result, Virginia's spending per-capita in 2020 was nearly $1,000 less (Figure 3). Among the major health spending components, residents on average in Virginia spent less per-capita in 2020 than the national average on professional, physician, and clinical Services ($800 less per capita); hospital care ($100

less per capita); nursing home, residential, and home health ($200 less per capita); and other care ($200 less per capita). Conversely, in Virginia, offsetting this lower services spending per person is spending on prescription drugs, the largest health products category, where an extra $400 per person was spent in the Commonwealth relative to the national average.

Figure 3: Average Health Spending Per-Capita, by Category, 2020



As a percent of total health spending in Virginia, hospital spending was the largest major category of spending in 2020, accounting for $29.9 billion (33%) of spending (Figure 4). Professional, physician, and clinical services were the next largest category at $24.8 billion (27%), followed by other care and non-PHC categories at $18.8 billion (20%). The smallest two categories for the year were prescription drug spending and nursing home, residential, and home health spending which accounted for $12.4 billion (14%) and $5.7 billion (6%) respectively in 2020. These proportions of total spending are broadly similar to the national averages, where hospital spending accounts for 31% of total health, professional and physician services 32%, and nursing home and home health care 8% of total spending in 2020. The outlier for the Commonwealth is prescription drug spending, which only accounts for 9% of health care spending nationally compared to 14% in Virginia.

Since 2015, the fastest growth health spending category in Virginia has been prescription drug spending, averaging 6.6% average annual growth over this period (Figure 5). This spending growth has been significantly faster than the national average (3.1%) over the same timeframe and faster than the averages for other major categories: hospital care spending growth (3.6%); professional, physician, and clinical growth (3.2%); and nursing home, residential, and home health care growth

(2.4%) in the Commonwealth. As a result, combined health care spending grew slower in Virginia than it did nationwide between 2015 and 2020, at 3.5% vs. 4.2% for the country as a whole.

Figure 4: Virginia Health Care Spending by Category (in Billions), 2020

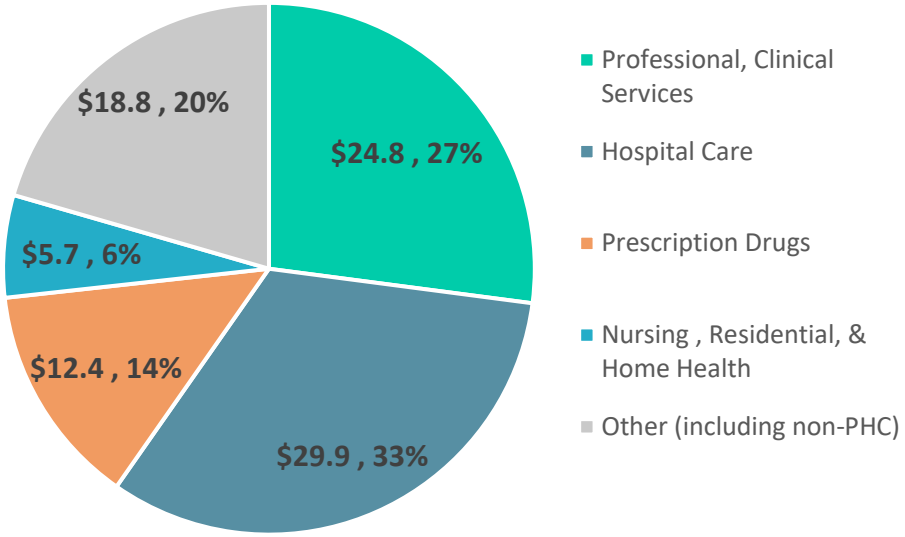
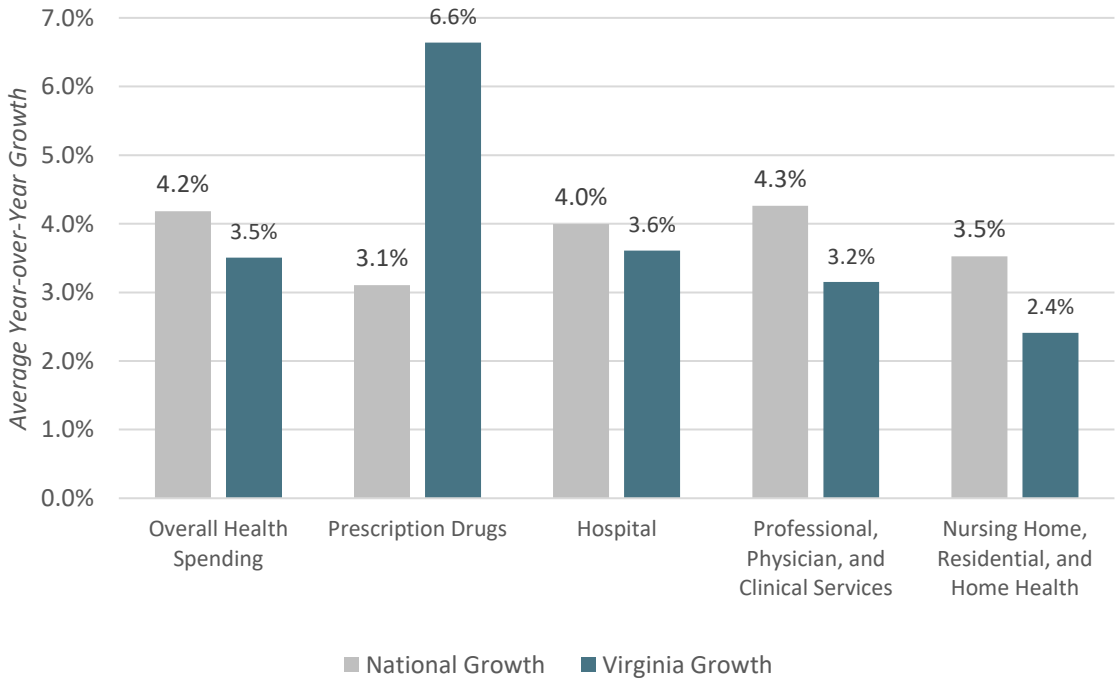


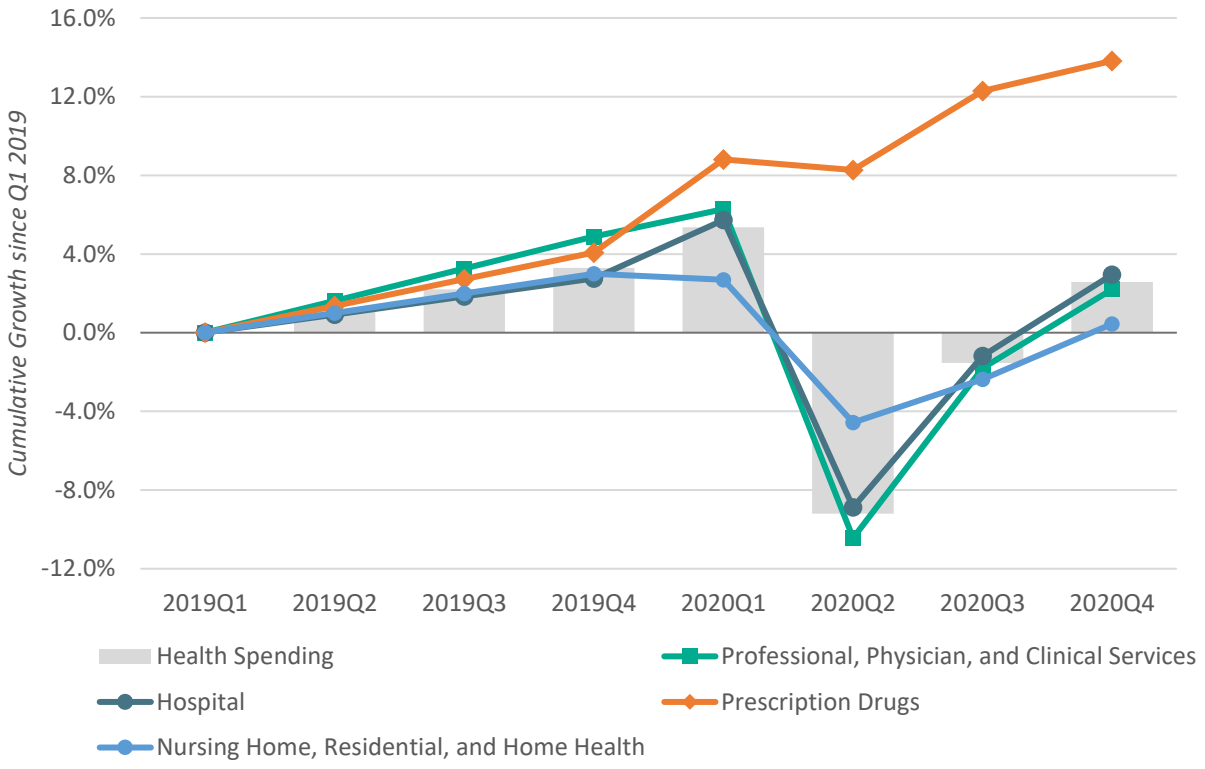
Figure 5: Average Spending Growth Rates (2015-2020) for Virginia and Nationwide, by Major Health Spending Category



Looking specifically at the change in health spending among major categories during the COVID-19 pandemic, we see how the abrupt impacts on health care utilization were quite distinct across the sectors. Figure 6 shows cumulative growth relative to the 2019 Q1 baseline. We see that the pandemic period's growth in prescription drug spending was hardly affected because changes in utilization were far more important for in-person services such as hospital care and office visits. Over the two-year period encompassing 2019 and 2020, spending on prescription drugs increased by nearly 15%. Conversely, spending on the major service-driven categories (physician care, hospitals, and nursing homes) saw much greater direct impacts shortly after the pandemic began, hitting their lowest levels in Q2 2020. The steepest drop was for physician and clinical services, which were most likely to encompass elective care or office visits that could be delayed in order to free up physician time to treat COVID patients early in the pandemic and prevent further spread by limiting in-person interactions. The next most severe drop was hospital care, followed by the nursing home, residential, and home health spending that had a more measured decline and slower recovery. While each of these categories eventually recovered above their Q1 2019 starting spending levels, each remained below its pre-pandemic peak.

When looking at quarterly data on health care spending, Virginia health care spending on professional, physician, and clinical services fell 15.7% between Q1 and Q2 in 2020, while hospital care fell by 13.8% and nursing home, residential, and home health care fell by 7.1%. Prescription drug spending was hardly impacted, dropping less than a percent between the two quarters.

Figure 6: Virginia Cumulative Growth in Spending by Major Category, since Q1 2019



When comparing the change in health spending by categories during the pandemic in Virginia and nationwide, we find that the initial drop between Q1 and Q2 of 2020 was relatively comparable, when services spending (and particularly services spending on ambulatory care) fell the most among all categories of health care spending. Of note, these quarterly data actually mask the severity of the drop in the first months of the pandemic for two reasons—the first-quarter data contained March information when the pandemic had already reached Virginia and the second quarter data include May and June when a recovery in health spending had already begun. Other work looking at data nationwide has found that in the worst month of the pandemic for health care spending, nationwide categories of spending for services such as physician services, dental care, and hospital care fell anywhere between 35% and 65%.

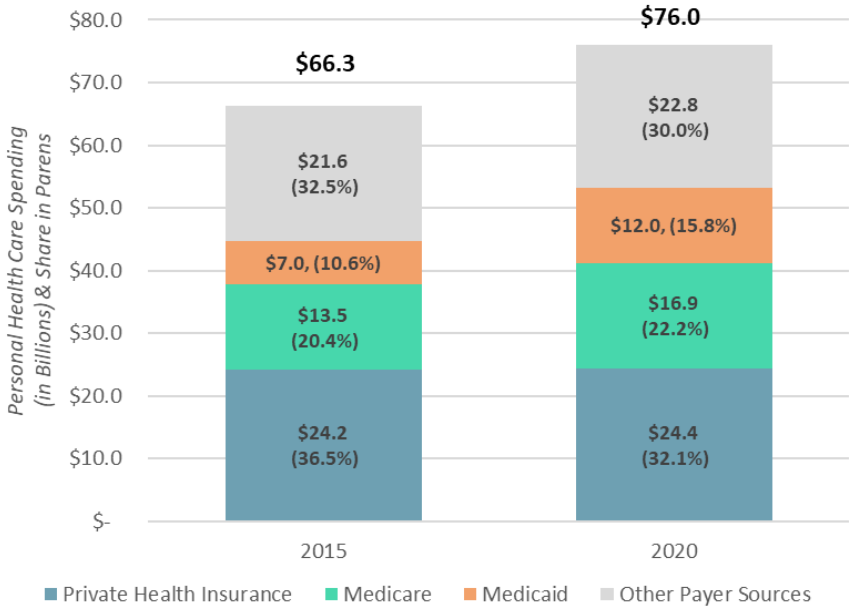
Additionally, not only did the individual health spending service categories not regain their previous Q1 2020 highs for the rest of the year, the large drop in spending also set these trends well below what might have been expected if prior growth rates had continued. When applying the 2019 annual growth rates to Q4 2019 data, we estimate the total gap in spending for the state of Virginia by major spending category and find that the total gap in health care spending was over $5.0 billion dollars below what might have been expected with the economic shocks of the COVID-19 pandemic. This spending gap includes $2.3 billion in actual lower professional, physician, and clinical services spending, $1.1 billion less in hospital spending, and $400 million in nursing home, residential care, and home health services.

Virginia Health Sector Payers

The largest payer for health care products and services in Virginia in 2020 was private health insurance, spending an estimated $24.4 billion on personal health care,[3] followed by Medicare $16.9 billion, and Medicaid $12.0 billion (Figure 7). As a share of total personal health care spending, the proportion of health care dollars covered under private insurance has fallen from 36.5% in 2015 to just 32.1% in 2020. Conversely, the percentage of PHC paid by Medicare has increased from 20.4% to 22.2% in 2020 and spending covered through Medicaid has increased from just 10.6% in 2015 to 15.8% (Figure 7). We expect that some of growth in Medicaid spending is coming from the private insurance pool, while much is picked up from what would have been out-of-pocket spending or uncompensated care among the uninsured prior to Medicaid expansion. In 2020, Medicaid disenrollments were not allowed during the public health emergency, also leading to greater Medicaid total spending.

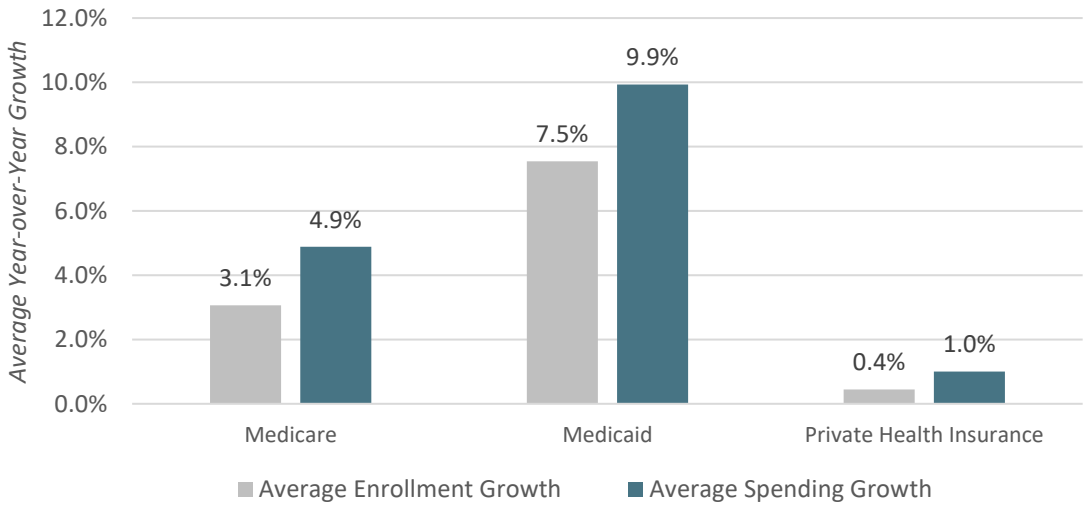
[3] Personal health care spending includes hospital, ambulatory care, prescription drugs, and nursing home care, but excludes public health, investment, research and development, net cost of insurance, and government administration costs that are included in "total health spending".

Figure 7: Virginia PHC Spending Levels by Major Payer, 2015 & 2020



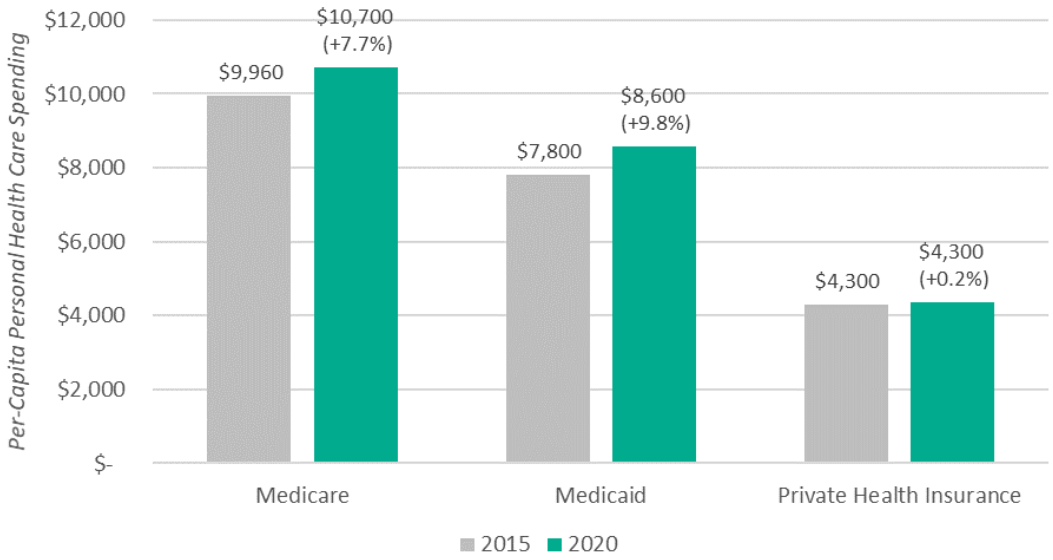
The enrollment in each of these major payer types follows the spending trends, with the greatest number enrolled in private health insurance (5.6 million), then Medicare (1.6 million) and Medicaid (1.5 million). However, growth in personal health care spending and enrollment for these public payers is inversely proportional to their current size as Medicaid enrollment and annual spending growth is the fastest of the three—enrollment growth averaging 7.5% year over year since 2015 and spending growth averaging 9.9% since 2015 (Figure 8). Medicare growth is the second fastest-growing payer, with enrollment growth averaging 3.1% and spending 4.9% through 2020. Lastly private insurance enrollment is growing very slowly, only 0.4% year over year average since 2015 and spending has increased by only 1% in total.

Figure 8: Virginia PHC Spending and Enrollment Growth by Major Payer, 2015 thru 2020



For 2020, this equates to about $10,700 of personal health care spending per Medicare enrollee, $8,600 per Medicaid enrollee, and $4,300 per private health insurance enrollee (note this spending is estimated only for the personal health care spending component of total health expenditures and does not include out-of-pocket costs, as this is the CMS NHEA state data standard). When compared to the national average in 2020, annual personal health care spending per enrollee in Virginia is below average for private insurance enrollees ($4,300 vs. $5,000) and Medicare enrollees ($11,000 vs. $12,300), and slightly higher for Medicaid enrollees ($8,600 vs. $7,700) (national data not shown). Reductions in per-capita personal health care spending were seen across all three major payers, with the greatest drops in 2020 occurring for those with private health insurance (-6.6%), followed by reductions of 4.1% for those with Medicare and 2.3% for those with Medicaid (data not shown), although the spending decreases were greatest for those with private insurance. Figure 9 shows how this has impacted growth in spending per-capita by payer since 2015, where per-capita Medicaid spending has grown the fastest (9.8%) and private health insurance health spending the slowest (0.2%).

Figure 9: Virginia Per-Capita PHC Spending by Major Payers, 2015 & 2020



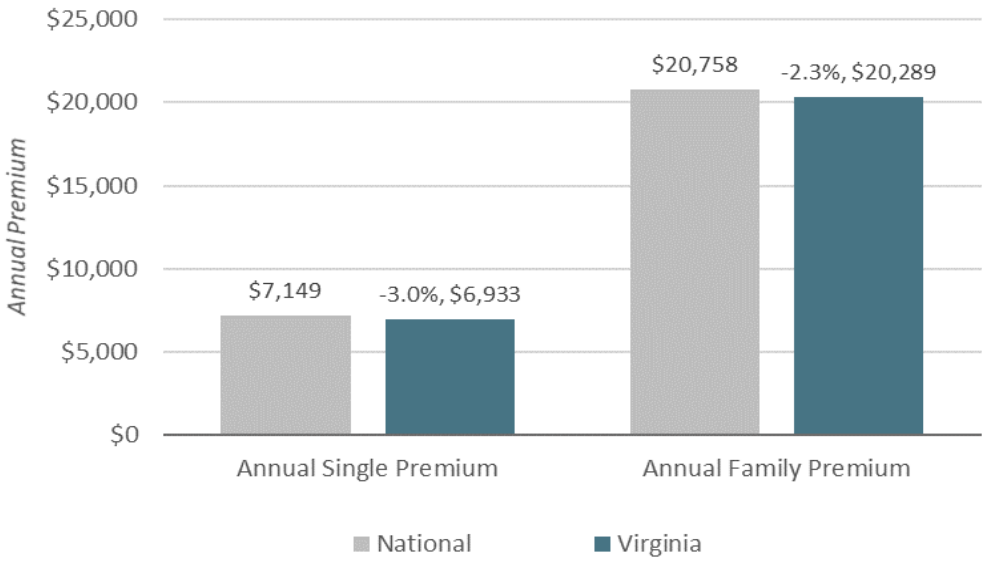
While the CMS state-level data do not explicitly track health spending from sources other than these three insurer types or out-of-pocket spending, we were able to estimate the combined total for these sources based on the difference between total health spending and the amount paid by the three major insurance types. In 2020, this combined total of remaining health spending from out-of-pocket costs and other payers (such as military and veteran's coverage and the Indian Health Service) stayed constant at nearly 30% of health spending in Virginia. This proportion of personal health care paid from other sources is higher than the national proportion of spending not covered by the three major payers, which was around 26%. The higher spending in Virginia may be a result of a higher prevalence of other insurance coverage in the Commonwealth (like Veteran's health care) or higher out-of-pocket costs.

The dramatic rise in Medicaid spending growth between 2015 and 2020 is primarily due to the growth in enrollment and Medicaid expansion for the Commonwealth. As of mid-2020, there were an estimated 1.5 million people covered by Medicaid, up from 960,000 just two years before. The rate of this growth remained very high in 2020, increasing 16.2% from the year before, although decreasing slightly from the 25.2% year-over-year growth in 2019 when increases were driven by initial Medicaid expansion. Yet, this remains by far the fastest-growing payer population in the Commonwealth. Enrollment in Medicaid in 2020 was likely up again due to continued growth in the expansion population and also federal emergency pandemic responses that prevented states from disenrolling Medicaid participants at that time.

Virginia Private Health Insurance Cost Trends

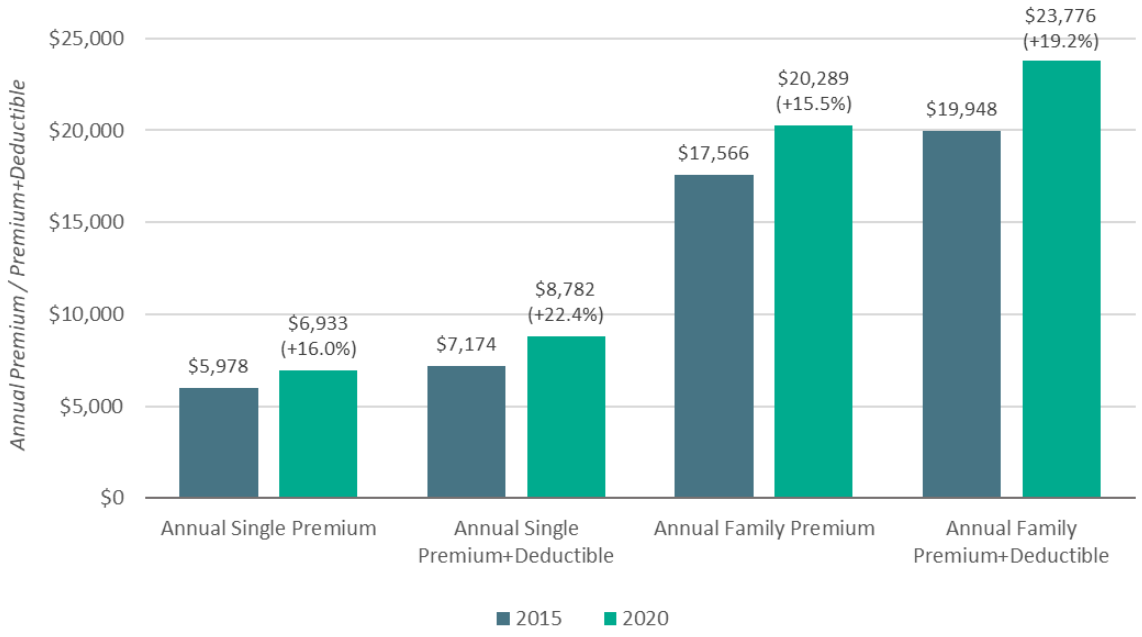
With the COVID-19 induced pandemic impacts on health care spending affecting both Virginia and the nationwide health care sectors similarly, our insights from the prior report contrasting private health insurance personal health care spending per enrollee with insurance premium trends continue to hold in 2020. Data on insurance premiums for those with coverage from a private-sector employer and those that purchase insurance directly on the insurance exchange show that payments to insurers for coverage are slightly less in the Commonwealth relative to the national average. However, the premium differences between Virginia and the U.S. are much narrower than the actual health expenditure variation. While Virginia's private health insurance spending (not including out-of-pocket costs) per capita in 2020 is approximately $700 (14%) less than the national average ($5,000 vs. $4,300), the concomitant private insurance premiums in Virginia for single and family coverage are not as far below national averages, -3.0% and -2.3% respectively (Figure 10).

Figure 10: Private-Sector Employee Annual Health Insurance Premiums, 2020



For individuals with single coverage from a private-sector employer, annual average premiums were $6,900, only $200 less than the national average of $7,100. For those with family plans, annual premiums from a private-sector employer were $20,300 compared to $20,800 nationally, a $500 difference. Moreover, private insurance premiums for Virginia residents continue to increase over time (even in 2020 when health spending per capita actually fell). When looking over the period since 2015, private insurance premiums for individual coverage have increased 16.0%, while premiums for family coverage have increased 15.5%. Even greater has been the increases in estimates of total health care insurance payments computed based on total premiums plus average deductibles for each plan type. When rising deductibles are included in the calculations, single private insurance coverage got 22.4% more expensive over the past 5 years while family coverage got 19.2% more costly (Figure 11).

Figure 11: Virginia Private-Sector Employee Health Insurance Premiums, 2015 & 2020

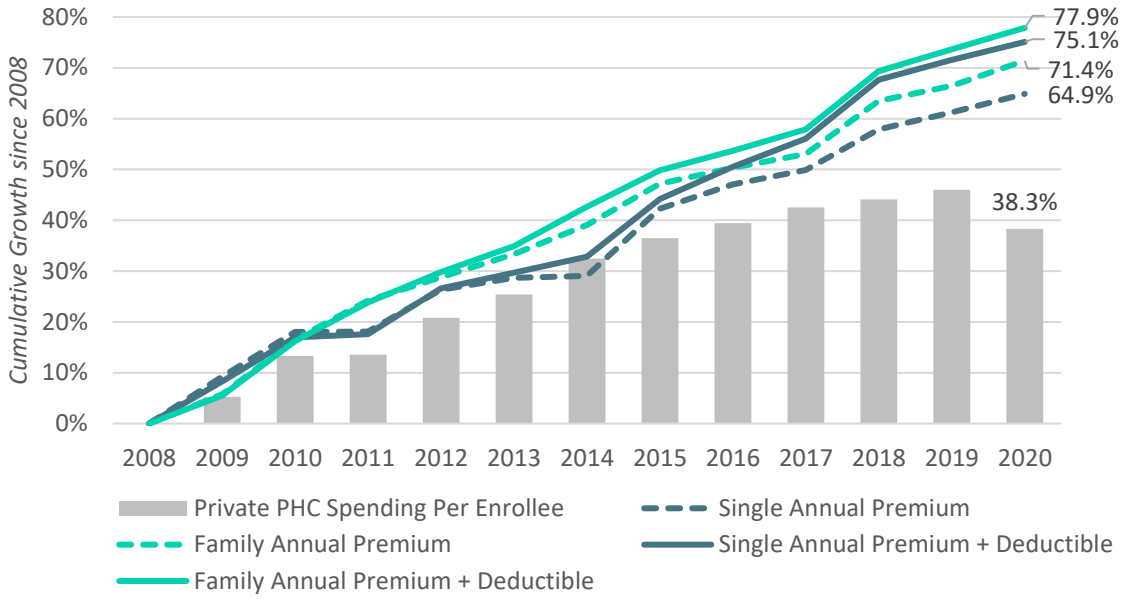


We find that this trend continues when analyzing data on coverage purchased directly from a health insurer on the public exchange. Using data on the average benchmark premiums across the state, insurance costs are actually higher in Virginia, with an average individual annual premium of $6,300 versus $5,500 across the U.S. Data on 2020 benchmark premiums in Virginia show insurance costs may have decreased slightly, but remain well above the national average, despite lower average spending per capita on health care.

When looking at the impact of these growth differences over a longer period, it is clear that, for Virginia, the cumulative growth in both single and family annual premiums has outpaced underlying spending on personal health care services by private insurance plans. Since 2008, personal health care expenditures per private insurance enrollee are up by 38.3%, while the premiums for single coverage of a private-sector employee are up 64.9%, and family premiums are 71.4% higher (Figure 12). Furthermore, over this period, other types of cost-sharing have also increased—

average deductibles are substantially higher, as are many types of co-payments for specific services. If the annual deductible were added to each of the single and family plan annual premiums, total plan costs would be 75.1% and 77.9% higher, respectively, in 2020 (Figure 12).

Figure 12: Cumulative Growth in Private Insurance Personal Health Care Expenditures, Single Premiums, and Family Premiums, Virginia, 2008-2020



These increases in insurance premiums and cost-sharing for individuals with private insurance are particularly notable in 2020, given the drop in actual utilization of care and spending on health care products and services. Premiums for many plan types increased as they had in years prior, with many plans collecting more in payment for health insurance and yet paying out far less. In many cases, this will result in rebates to consumers, but only when Medical Loss Ratio rules apply to a particular insurance category and when a plan is near the federally-mandated limit. Even with rebates, national data from 2020 indicate there was a large increase in private insurance premiums net of health care claims paid (net cost of insurance).

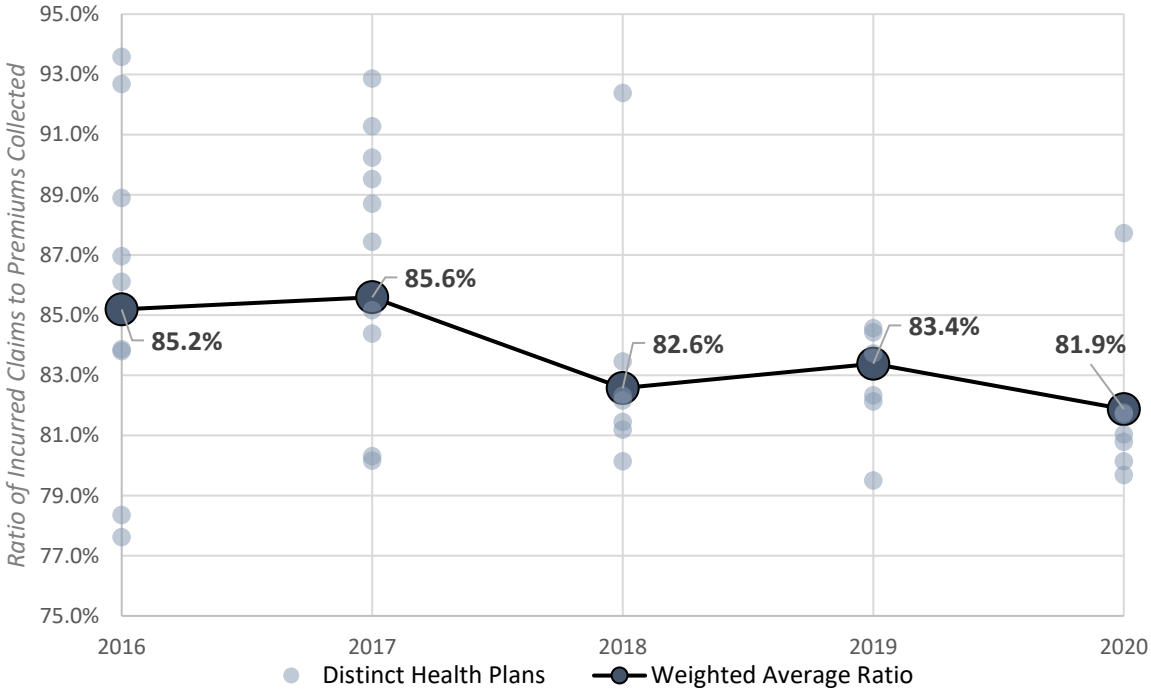
There are a variety of sources that can be used to estimate the total net cost of insurance expenditure trends, although not all are available annually at the state level. For national totals, we are able to use the CMS National Health Expenditure Accounts (NHEA) data to find that net cost of insurance expenditures increased from $237 billion to $301 billion (a 27% single-year increase!) between 2019 and 2020. Unfortunately, these NHEA data are not available at the state level to observe the total magnitude of net cost of insurance increases for Virginia private insurance plans in 2020.

Therefore, we instead use an alternative source of data, CMS Medical Loss Ratio (MLR) Report data, to assess a slightly different calculation of insurance costs, measured as the amount private insurers received in plan premiums vs. incurred health care claims (Figure 13). These data do not allow for a total cost estimate of the net cost of insurance, but can show the underlying trends in

total premiums vs. costs of care provided. We assess MLR report data directly from CMS and find for plans covering the Commonwealth between 2016 and 2020 that the weighted-average percentage of total incurred claims to directly collected premiums has fallen from 85.2% to a low of 81.9% in 2020.[4] Figure 13 shows the average ratio in large points by year for any issuer with at least $100 million in annual premiums, with each individual insurer in the transparent dots (y-axis censored at 95.0%).

For 2020, insurers in Virginia reported $20.8 billion in direct premiums collected and $17.0 billion in incurred claims (81.9%). This means that 81.9% of the premiums collected were paid out for actual health care services in 2020, and this is significantly lower than the ratio of premiums that went to actual health care services in 2016 and 2017 (85.2% and 85.6% respectively). If instead in 2020 the ratio of claims paid had been 85.6% (as it was in 2017), the $17.0 billion in incurred claims would have resulted from $19.9 billion in premiums (a $900 million reduction in Virginia private insurance premium costs). Figure 13 shows that ratio of insurance company revenues going towards health care claims has declined over time, and the proportion premiums either kept by insurers or used for non-incurred claims purposes has increased since 2016.

Figure 13: Ratio of Private Insurance Incurred Claims to Direct Premiums in Virginia (insurers over $100 million in premiums), 2016-2020



[4] Note that this calculation is similar, but not the same as the reported Medical Loss Ratios from insurers in Virginia, which contain many other financial components in the calculation. Yet, this simple ratio proxies the overall trend of decreasing claims paid per premium dollar collected over this period.

Federal Government Direct Pandemic Financial Assistance

Up until this point in this report, we have reported on health care spending data for Virginia in 2020 absent supplemental federal financial support to the health care sector. In this section we add to the analysis of Virginia's health care sector details of the direct financial support from the federal government to health care systems and providers in the Commonwealth to help providers cope with the adverse impacts of the COVID-19 pandemic. These funds came mostly through two major programs—the Provider Relief Fund (PRF) and the Paycheck Protection Program (PPP)—each of which we analyze here to compare the level of financial assistance received by Virginia providers relative to national averages.

PRF was federal financial support specific to health care entities and was primarily provided to large hospital and health care systems to assist with additional costs required to treat COVID patients and make up for lost revenues due to delayed and forgone care during the pandemic. PRF funds were typically direct payments that would not be expected to be repaid. PPP was conversely a program that offered financial assistance to businesses in all industries (although health care was one of the largest recipients of these funds) and support in health care settings mostly went to small- or medium-sized practices and these dollars were offered as forgivable loans as long as conditions such as maintaining staff employment levels were met. The amount of financial support nationwide and for the Commonwealth are shown in the table in Figure 14, in total and by major spending category and program, alongside total 2020 health care spending and the percentage of total health care spend.

Figure 14: 2020 Provider Relief Funds and Paycheck Protection Program Dollars, Virginia and Nationwide

	2020 Virginia Financial Support (in $Billions)					2020 Nationwide Financial Support (in $Billions)			
	PPP	PRF	Total	As a % of HC Spend		PPP	PRF	Total	As a % of HC Spend
Total Healthcare	1.3	2.3	3.6	4.0 %		53.3	121.6	174.9	4.6 %
Hospitals	< 0.1	1.5	1.5	5.1 %		3.7	81.1	84.8	7.1%
Professionals	1.0	.5	1.4	5.7 %		36.4	25.2	61.5	5.1%
Nursing and Home Health	0.2	0.3	0.6	10.1 %		12.1	17.8	29.9	10.3 %
Other Settings	< 0.1	< 0.1	< 0.1	-		2.3	1.5	3.7	-

In total, Virginia's health care providers received $3.6 billion in combined PRF and PPP financial support from the federal government in 2020, representing 4.0% of total health care spending. This is a lower percentage than the 4.6% of national health care spending that was offered nationwide, representing nearly $175 billion in financial COVID relief. In Virginia, hospitals received the majority of their support from the PRF, amounting to $1.5 billion or 5.1% of total hospital spending in 2020, a significantly lower value than the 7.1% average across the U.S. Conversely, ambulatory settings and professions such as physicians, clinicians, received a greater proportion in Virginia, 5.7% of total spend, compared to 5.1% nationwide, with the majority of those funds coming from PPP and not PRF. Nursing homes and home health settings received the smallest total financial support, but the greatest as a percent of their baseline spending.

When these financial supports are added to the underlying trends in health care spending for 2020, it is possible to contrast the reductions in real health care spending compared to 2019 with the direct financial support received by different types of health care providers. Figure 15 is a table showing the trend from 2019 spending and the difference between reductions in actual health care spending for care in 2020 and the financial support from the federal government, represented as the difference between 2019 and 2020 health care spending with and without federal support.[5]

Figure 15: 2019 to 2020 Healthcare Spending by Setting, including Provider Relief Funds and Paycheck Protection Program Dollars, Virginia and Nationwide

	Virginia Spending (in $Billions)						U.S. Spending (in $Billions)				
	2019 Spend	2020 (without support)	2020 (with support)	2020 Growth (without support)	2020 Growth (with support)		2019 Spend	2020 (without support)	2020 (with support)	2020 Growth (without support)	2020 Growth (with support)
Total Healthcare	93.8	91.6	95.2	-2.3%	1.5%		3,759	3,836	4,010	2.0%	6.7%
Hospitals	30.4	29.9	31.5	-1.7%	3.4%		1,193	1,187	1,271	-0.5%	6.6%
Professionals	25.6	24.8	26.2	-3.3%	2.2%		1,218	1,214	1,276	-0.3%	4.7%
Nursing and Home Health	5.8	5.7	6.2	-2.4%	7.4%		287	291	321	1.4%	11.8%

Of note in these data on the trends in growth between 2019 and 2020 are the number of health care sectors that would have had negative 2019 to 2020 total health care spending changes without the assistance of the PPP and PRF support. While this is true of hospitals, professionals,

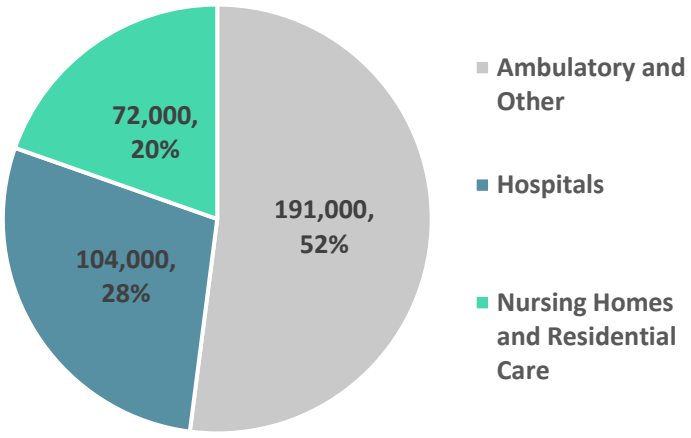
[5] Note that 2020 total national spending and growth rates including federal support will differ slightly from CMS NHEA data, because those data include additional federal support above and beyond PPP and PRF financial assistance; however, those additional supports could not be detailed by setting as done in Figure 14.

and nursing and home health care settings in Virginia, it is also clear that health care systems and providers benefited less from federal support than the national average. The level of support and percent of that support of total spending for hospitals and nursing/home health settings was lower in Virginia than in the nation, leading to a smaller growth in combined "2020 with support" when compared to the national trends.

Virginia Health Sector Employment

As of the fourth quarter of 2020, the Commonwealth's private sector employed approximately 3.2 million Virginians, with 366,000, or about 11.5%, of that privately-employed population working in the health sector. Health sector employees had steadily increased over time, growing from 338,000 individuals in early 2015 to 381,000 in Q1 2020. This then fell dramatically at the start of the pandemic due to furloughed health workers (to a bottom of 350,000) before bouncing back to the current 366,000. Among those employees, 191,000 (52.3%) work in ambulatory care settings, 104,000 in hospital settings (28.5%), and 72,000 (19.7%) in nursing homes and residential care settings (Figure 16).

Figure 16: Virginia Health Sector Employment, Q4 2020

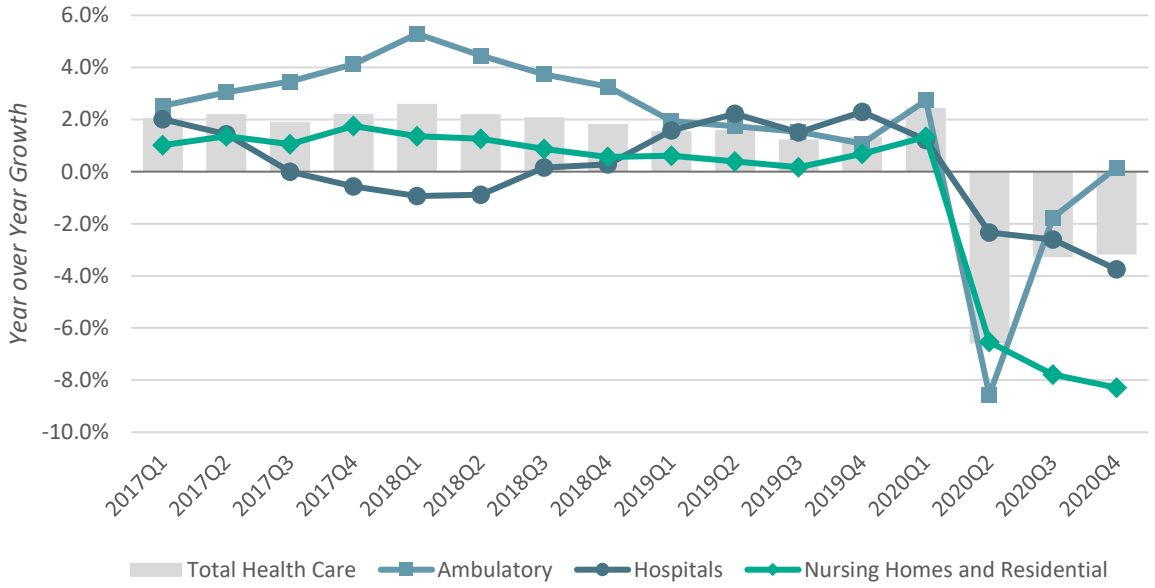


Compared to overall employment growth in Virginia, the health sector had expanded slightly faster prior to the pandemic, increasing the number of employed at an average year-over-year rate of 2.2% between 2015 and 2019, compared to only 1.4% for all nonfarm employment (data not shown). However, in 2020 reductions in employment were seen across the board in Virginia. Health care employment declined at a year-over-year average rate of -2.7%, while total nonfarm employment dropped an even steeper -4.9%. In health care between Q1 and Q4 2020, ambulatory settings lost an estimated 1,000 workers, hospitals another 4,000 workers, and nursing homes and residential settings 7,000 workers in Virginia. Because employment losses in non-health sectors were proportionally more severe, the percentage of individuals working in the health sector has

increased slightly over the pandemic period rising from 11.2% to 11.5% at the end of 2020.

The sharp decline in employment in the second quarter of 2020 coincided with a peak of the COVID-19 pandemic and lockdowns in the Commonwealth. While a reduction in medical personnel in the midst of a nationwide pandemic is counterintuitive, despite the number of new COVID patients requiring treatment, there were also significant reductions in other types of care and overall demand for medical services. As seen in Figure 17, the reduction in Virginia's health workforce was sharpest for those in ambulatory settings such as physician offices and dental offices, followed by nursing homes and residential settings and then hospitals. However, while ambulatory setting employment trends then quickly rebounded, some downward pressure on hospital employment continued through the end of 2020, and even greater levels of declines for nursing homes, falling over 8.0% year over year in Q4 2020.

Figure 17: Virginia Health Sector Employment Growth, by Major Category



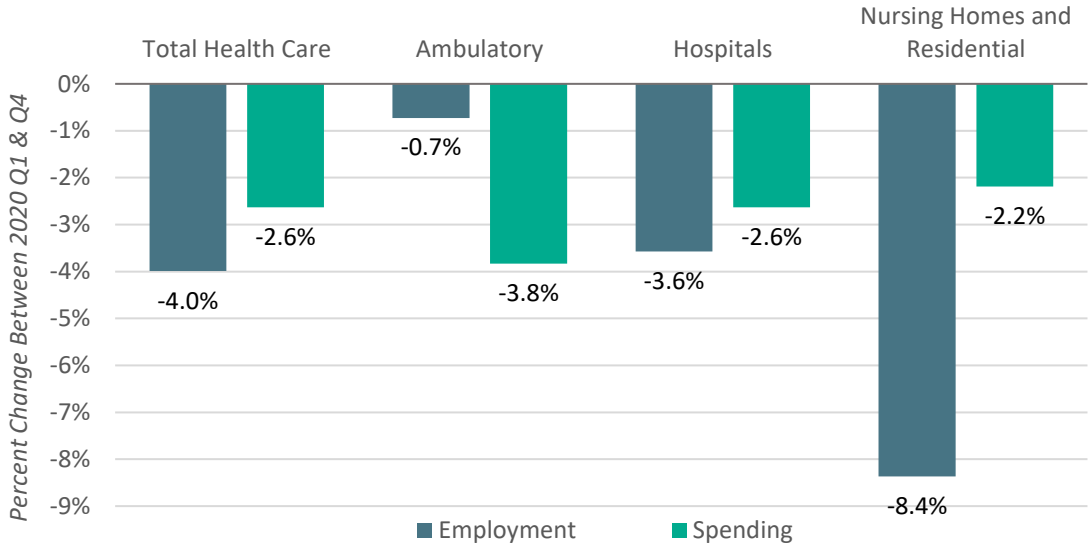
The overall average growth of Virginia's health sector employment between 2015 and 2019 was just slightly faster than the nation at 2.2% (vs. 2.1%) and the mix of health sector employment across the country was also moderately different: while the percentage of employees in nursing home and residential care settings was similar, the proportion of national health sector workers in hospital settings nationwide (31.9%) was greater than the proportion of hospital employees in Virginia (28.7%) (national data not shown). The inverse is true of ambulatory care settings, where the proportion of workers nationwide was smaller (47.5%) than in Virginia (50.5%). Following the 2020 pandemic, swings in the percentage of health care workers in ambulatory settings continued, rising to over 52% of the workforce by the end of 2020, while the percentage in nursing homes fell nearly 2.0 percentage points to 20% of jobs.

When contrasting the trends in health employment to health spending in 2020 (Q1 to Q4), we find that declines in health employment were overall greater than declines in spending across combined settings, and for hospitals and nursing homes and residential settings (Figure 18).

However, the opposite was true of ambulatory settings, where the declines in spending in Virginia were greater than the smaller 0.7% employment loss. This small employment loss is mostly owed to a very quick rebound in jobs in these settings, resulting in a much smaller gap between the Q1 and Q4 levels in 2020.

Unlike the relatively across-the-board recovery in health care spending in 2021, there have been mixed results in health care employment as a result of the COVID-19 pandemic. While some ambulatory settings, such as dental offices saw dramatic temporary drops (up to 50%) in the spring of 2020, many settings have nearly recovered, while others, such as nursing home and residential care settings have slowly declined and have yet to show signs of returning to pre-2020 employment levels. In some ways this was a continued trend—a transition towards ambulatory and outpatient settings—that was already occurring in Virginia and nationwide pre-pandemic, though the employment swings have been hastened by the crisis. Of particular uncertainty going forward is the fate of employment in nursing homes and residential care settings and how many of those jobs will eventually come back over time.

Figure 18: Virginia Health Sector Employment Growth, by Major Category



Conclusion

As a result of the COVID-19 pandemic, 2020 was a tumultuous period for the nation's health sector, resulting in drastic and unpredictable shifts in the year's levels of health care utilization, spending, employment, and coverage. The data analyzed in this report showed that Virginia was not immune to these disruptions, and in fact across many metrics saw more extreme deviations from the historical trajectory than the U.S as a whole. As we look forward to health economic trends for Virginia in 2021, we expect that based on national data health spending and employment growth may normalize somewhat, but future trends for private insurance markets remain somewhat unclear. Regardless, COVID-19 will remain the dominant factor impacting health care in 2021 and early 2022 and we'll continue following how this affects the Commonwealth overall.

Appendix A: Report Methodology

VIRGINIA HEALTH SECTOR SPENDING

CMS National Health Expenditure Accounts Benchmarking

Analyses in this report follow the spirit and strategy of Altarum's national-level Health Sector Economic Indicators (HSEI) briefs and data, while bringing these techniques to the state level for a novel analysis of health sector trends in Virginia. HSEI spending analyses are designed to provide the most up-to-date possible estimates of health expenditures that are consistent with and build upon the CMS National Health Expenditure Accounts (NHEA). Among health economists and health sector experts, these data are among the most frequently cited and most trusted estimates of health sector spending and provide robust, consistent, and understandable estimates of health sector expenditure trends. The NHEA accounts contain data at the national level (updated annually) and state level (updated every 4 or 5 years), data by payer, data by spending category, and data for specific demographic groups (age and gender). Also included in the NHEA are projections of future health national health sector expenditures, which are updated annually. Yet, despite their reliability, official NHEA data suffer from significant data lags in the release of this information, particularly at the state level (the most recent data at the time of writing are only available through the year 2014).

Therefore, this work directly incorporates and benchmarks to CMS NHEA data whenever it is available, and then subsequently builds on those data to generate estimates of spending for periods that are not yet available in the NHEA data: in this report the quarterly data for the years 2015 to 2020. When subsequent releases of NHEA data become available, this approach makes it possible to re-benchmark our findings for the years provided and continue estimating for new periods not yet available from CMS. All category definitions, populations, and spending estimates in this report match directly to the CMS definitions used in the NHEA. Details on the NHEA methodology and how it compares to other health sector spending estimates, for example those in GDP accounting, is available on the NHEA homepage. In the case of the state health spending trends, we benchmark to the data available from 2008 through 2014 in the state-level NHEA accounts, using data on total spending by health category, spending by payer, and spending per enrollee for each of the three major insurance type. Data on state health spending trends come in two variants, based on residence and provider location, we use data by residence as the source for this report.

In some cases, data from CMS (which are reported annually), need to be portioned into quarterly or monthly estimates to support the estimates of future periods and to ensure consistent reporting over time. In the national level HSEI, within year trends are estimated using the underlying health spending estimates from Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPA) data, while splined to ensure that the national annual HSEI totals match with the CMS NHEA totals. In the state-level work, we follow a similar approach, yet often do not have the same historical data in our underlying series to generate intra-year trends.

Therefore, in this work we instead use a simple cubic spline for intra-year trends of the state-level CMS total spending, spending by category, and spending by payer data from 2008 to 2014. As a result, averages of quarterly data in the final workbooks may differ very slightly from the annual data reported by CMS, due to the cubic spline methodology. Generally, our approach is to report on annualized data, which estimates spending quarterly based on what an annual total of spending would be for that period if it continued for an entire year.

In order to estimate future periods of data, while benchmarking to the CMS NHEA state-level data through 2014, we use the same approach in this work as is employed in the national-level HSEI analyses. We calculate from other data year-over-year growth rates for subsequent periods in categories and series that are comparable to the official NHEA statistics. For example, data from the Virginia APCD and data from state-level GDP and NIPA sources are used to calculate year-over-year growth rates and those are then applied directly to the base year (2014) CMS NHEA estimates. This approach is made separately and independently for total state spending category spending, spending by payer, and enrollment by payer. This approach ensures that future period estimates are consistent with the CMS NHEA data and that there are not discontinuities between the official CMS NHEA data and the more recent periods in this report and the underlying data. We specifically highlight this in Figure 1 of this report, showing the official and estimated periods in different colors.

Some estimates of health expenditures that are available at the national level are not available in the CMS state-level data (or differ slightly from the national data). For example, State NHEA data does not include estimates of spending beyond personal health care expenditures (PHC), nor do they directly contain estimates of total spending or spending per enrollee from minor insurance types (like military health systems or the Indian Health Service) or for the uninsured. Generally, when CMS spending data are not available to be used as benchmarks, we do not include estimates of those components in this report. The exception to that is our estimate of total health expenditures for the state of Virginia (in addition to the PHC expenditure data). We estimate this data by applying the ratio of national total health spending to national PHC expenditures to the state-level estimates of PHC to estimate state-level total health spending. This statistic is then used in our comparison of total health spending as a percent of GDP nationally to health spending as a percent of state GDP.

The benchmarking approach discussed above also applies to estimates of enrollment by major insurance types in the state, using CMS data through 2014. We attempt to remain consistent with NHEA population data, including the way that individuals are reported with multiple insurance types, and do not specifically report on the number of individuals uninsured at the state level. Details on data used to estimate enrollment in subsequent periods is described below, primarily relying on U.S. Census American Community Survey data.

Population and Health Insurance Enrollment Estimates

Data used to estimate enrollment by insurance type in Virginia for the periods of 2015 to 2020 incorporate data from the U.S. Census American Community Survey (ACS) and official Medicaid enrollment data. 1-year ACS Public Use Microdata Sample data were downloaded and processed

for each of the five years, and questions on health insurance enrollment during those years were used for individuals residing in the state of Virginia. When estimating year over year growth rates for the privately insured and those with Medicare using the ACS data (that were then applied to the benchmark CMS data described above), we counted all individuals reporting each insurance type in their survey responses as enrollees, even when an individual reported more than one type of insurance in the year. This approach, rather than using a hierarchical structure of insurance definitions to choose one primary insurance type for each individual resulted in smoother year-over-year growth trends. Note that this approach does not double-count enrollees, because only the growth rate from ACS is applied to the benchmark CMS enrollment data. Individuals with private insurance include both those that reported receiving insurance directly from their employer and those who purchased insurance directly from an insurance company during the year.

For Medicaid enrollment, we used data on enrollment by state from the Kaiser Family Foundation, again applying the year-over-year growth rate from this data to the benchmark CMS NHEA Medicaid enrollment counts. This yielded what we believe to be a more accurate count of Medicaid enrollment growth statistic, particularly for the year 2019, where enrollment expanded greatly due to the state passing Medicaid expansion in the prior year.

Private Health Insurance Personal Health Care (PHC) Spending Estimates

Total health spending and spending per enrollee for those with private health insurance in this report benchmark to CMS NHEA estimates of spending from private health insurance sources. The primary data source used to build on the CMS NHEA data (which ends in the year 2014) is data on private health insurance spending captured in medical claims contained within the Virginia All-Payer Claims Database. Importantly, we use this data only in combination with the enrollment data described above to estimate trends in health sector private insurance spending. We do this by estimating trends in the APCD for health spending per private insurance enrollee over time and then multiply this data on spending per enrollee by the enrollment data from ACS above to estimate total year-over-year growth trends for Virginia's private health insurance funded spending. Spending per enrollee is calculated from the APCD on a monthly basis based on data using the sum of health expenditures in the four major claim types (Inpatient-IP, Outpatient-OP, Prescription Drug-RX, and Professional-PB) and then dividing by the number of enrollees in that month in the APCD enrollment tables.

We use this approach to incorporate the APCD data into our health spending estimates, rather than simply using total spending from private insurers directly from the APCD because the APCD does not cover all individuals with private insurance in Virginia. Those covered by a self-insured employer are potentially missing from this data, due to the fact that those entities are not required to submit their claims to the APCD. This is particularly an issue during periods following March 2016, when the Gobeille v. Liberty Mutual Insurance Co. case was decided by the U.S. Supreme Court. Moreover, the number of submitters and enrollees covered by the APCD are not consistent over time. Therefore, the approach of using monthly computations of total spending and enrollment compensates for changes in enrollment over the year and also for potential loss of submitters over time in a way that does not bias our estimates of total spending. Of particular note

is the final period of 2019, where significant drops in total spending and enrollment were observed. We believe this was due to data that had not yet been submitted and processed by the APCD at the time of writing. As a result, insufficient data were available in the final quarter to estimate per enrollee spending averages for Q4 2019.

The monthly data on per enrollee spending were then combined via averaging into quarterly data and annual data and applied to the enrollment counts discussed in the prior section to estimate total spending. Some monthly data series derived from the APCD, such as commercial prescription drug spending in later periods, required smoothing to estimate year-over-year spending growth trends, where necessary this was done using an 18-month trailing average.

Medicaid Personal Health Care (PHC) Spending Estimates

An identical approach to the one used in the private insurance personal health care spending data was applied to estimate spending by Medicaid in Virginia for the periods building on the 2014 CMS benchmark data. Although the concerns about total spending computed in the APCD for Medicaid are less significant, because it is likely all Medicaid enrollees are covered by the APCD submitters (unlike those with private insurance), we chose to use the same approach to ensure consistency between the Medicaid and private health insurance methodology. However, for Medicaid, an additional step was taken to also include additionally available data on spending trends from CMS State Expenditure Reporting for Medicaid & CHIP data collected via CMS-64 forms for each state. We believe that this data, which measures trends in total spending by the Virginia Medicaid program in each state over time is also likely to be strongly predictive of the official CMS reported health sector spending (separately from the underlying claims data reported to the APCD).

Therefore, to estimate final Medicaid PHC spending and spending per enrollee, we blend two separate estimates of Virginia Medicaid spending over time, one generated from the APCD approach described above and one directly from estimates in spending growth by the Medicaid program from the Form-64 data. These data are blended by computing annual growth rates and then using a simple average of the two approaches to estimate Virginia health spending from the NHEA 2014 benchmark year.

Medicare Personal Health Care (PHC) Spending Estimates

Estimates of total personal health care expenditures for Medicare differ from the above approaches, due to the fact that comprehensive Medicare claims were not available in the APCD for all necessary time periods at the time of analysis. We therefore use data from CMS directly in the Medicare Geographic Variation Public Use File to estimate per enrollee spending trends for Virginia and multiply those data with the enrollment counts from the ACS to estimate year-over-year growth in Medicare spending. This year-over-year growth is then applied to the 2014 base year CMS NHEA data. The Geographic Variation public use file is the same source that is used to power the CMS State Geographic Variation Dashboard on Medicare spending trends for the following types of care: Inpatient, Post-Acute, Hospice, Physician/OPD/Tests/Imaging/Durable Medical Equipment/Part B Drug/Ambulance. Of note, missing in this data are trends in retail prescription drug spending that is typically covered through Medicare Part D, but is included in

NHEA Medicare spending estimates. Therefore, added to the overall spending growth trend for Medicare PHC is data from the Medicare Part D Provider Utilization and Payment Data: Part D Prescriber file. Year over year growth rates in spending for the state are incorporated and blended with the above estimate to produce a total estimate of spending growth for Medicare expenditures.

Spending by Personal Health Care Category

Independent of the spending estimates by payer, we also estimate spending by the major NHEA health expenditure categories for Virginia, including physician and professional services, hospital services, nursing home and residential care services, and prescription drug expenditures. These results by category are generated using the underlying year-over-year growth trends in the data for each payer attributable to each NHEA category (and mixed using weighted averages, weighted by the enrollment in each insurance type). The categories in the underlying data are attributed in varying ways, depending on the category and data source. For example, data from the APCD for private insurance and Medicaid are attributed based on claim type (Inpatient claims attributed to hospital spending, professional claims to physician and clinical spending, and prescription drug claims to prescription drug spending) and data from the Medicaid Form-64 data are attributed based on the category of spending listed. The overall state of Virginia growth rate from these combined data for each category is then applied to the base year (2014) CMS NHEA spending by category to calculate the 2015 thru 2019 spending estimates.

Also incorporated into the health spending category estimates are data from BEA state-level personal consumption expenditures data for the following settings: hospitals, nursing and residential, and ambulatory services. A simple average is used to combine the year-over-year growth rate estimate derived from the state-level BEA data and the data directly from the APCD, Medicaid, and Medicare sources. The blended growth rate is then applied to the CMS NHEA data. Details on the differences between spending category estimates derived from the blended payer data and growth estimated directly from the BEA personal consumption expenditures data are available upon request.

Lastly, to generate estimates of total PHC expenditures for the state for 2015 through 2019, data on growth in spending for those not covered by the three major insurance types was required. An estimate of this aggregate PHC spending was computed directly from Virginia personal consumption expenditure data for health care services and then blended with the data described above on the three major payers. This "other" category is used to estimate spending both from other sources and on categories not described above.

VIRGINIA HEALTH SECTOR EMPLOYMENT

Data on health care employment is taken directly from the Bureau of Labor Statistics (BLS) Current Employment Statistics (CES) data for Virginia. These data are available directly for all categories used in this report. Monthly data are collected and then combined via an average to generate quarterly and annual data. State-level data are only available in the "Not Seasonally Adjusted" data series; however, this has a minimal impact, as seasonal trends in health care

employment are very slight. Health employment as a percent of total employment is calculated in two ways (described in the report), using both a base of total nonfarm employment and total private sector employment (also not seasonally adjusted). The difference between these two series is that private sector employment excludes those employed by public state and federal government entities.

VIRGINIA PRIVATE HEALTH INSURANCE COSTS

Data on private employer health insurance premiums are calculated based on the Agency for Health Research and Quality's (AHRQ) Medical Expenditure Panel Survey— Insurance/Employer Component (MEPS-IC). These data track and allow for the comparison of private health insurance premiums and plan characteristics, such as deductibles, for individuals with coverage from a private-sector employer across the U.S. and for specific states. The data were curated using the MEPSnet/I.C. Trend Query online portal, and data for private-sector establishments were taken for Virginia to include all plan types (single, family, and employee+1) separately, all provider types (HMO, PPO, any-provider plans) combined, for all firm types combined, and all firm sizes combined for the Commonwealth. Comparable data for national premiums and deductibles were obtained using the same approach.

We collected additional data on insurance coverage purchased directly by individuals (not through an employer) from the Healthcare.gov marketplace, specifically trends in the state's average "benchmark" premium—the second-lowest-cost silver plan for a 40-year-old. These data are compiled by the Kaiser Family Foundation and made publicly available in the State Health Facts: Marketplace Average Benchmark Premiums tables.

Lastly, we collected data from the CMS Medical Loss Ratio Data and System Resources to assist in tracking underlying trends in health insurance premium trends relative to underlying medical costs for Virginia. We use the Public Use Files from 2016 to 2020, filtering and sorting the dataset to only insurance plans for the Commonwealth of Virginia based on data in the header files and then limiting the plan types to data from individual, small group, large group, mini-med, and government program type plans (the plans with the highest total spend tracked in the dataset). We then extract both "Direct Premiums Earned" and "Total Incurred Claims from Part 1" from their associated form datasets and combine all plans together by year. We sum up and contrast the total premiums with total incurred claims to develop a crude measure similar to the formal CMS Medical Loss Ratio as an alternative way to track differences in underlying health care cost trends compared to collected premiums in the private insurance marketplace.

VIRGINIA FEDERAL GOVERNMENT PANDEMIC FINANCIAL SUPPORT ANALYSES

Direct financial support for health care systems and providers was calculated using data on the Provider Relief Fund payments (Health Resources & Services Administration) and Paycheck Protection Program (U.S. Small Business Association) from their respective agencies. Data were collected by year, state, and (when possible) type of provider receiving the funds. These spending

totals by program were aggregated together and then contrasted with the total health care spending by health sector category. In order to identify the quantity of Provider Relief Fund payments allocations by among the seven health care service categories by subtracting the Paycheck Protection Program allocations from the total allocations reported by CMS in the 2020 NHEA.