

Cost Shift Analysis Report

January 2019

DRAFT



COLORADO

Colorado Healthcare Affordability
& Sustainability Enterprise

Table of Contents

Executive Summary.....	3
Introduction	4
Background	5
Methodology.....	8
Limitations.....	8
Purpose.....	9
Cost Shifting in Colorado	10
Regional Differences.....	18
External Factors Influencing Cost Shifting	20
Medicaid Expansions and Payer Volume	21
Colorado’s Health-conscious Market.....	26
External Uncertainties.....	32
Section Conclusion	34
Hospital Actions Influencing Cost Shifting.....	34
Hospital Cost Growth.....	35
Hospital Decisions Influencing Costs and Price.....	37
Section Conclusion	45
Modeling Scenarios	46
Modeling to Evaluate Margins and Cost Shifting Choices	47
Effect of Costs	48
Effect on Insurance Premiums or Coverage Expense to Self-Funded Employers and Union Trusts	51
Section Conclusion	53
Cost Control Efforts.....	53
Innovation, Transformation Tools, Emerging Policies.....	55
Conclusion.....	56
APPENDIX A: Division of Insurance (DOI) Regions and Regional Data Colorado DOI Region	1
APPENDIX B: Adjusted Discharges Per Payer Type.....	1
APPENDIX C: Modeling Scenarios	1
Effect of Margins.....	1
Effect of Costs	2
Effect of Costs and Margins.....	4

Executive Summary

This report reviews the health care cost landscape in Colorado and introduces new research by the Colorado Department of Health Care Policy and Financing that analyzes the reasons behind rising hospital costs, which comprise the largest portion of health care spend.¹ This report focuses on the cost shift to commercial payers.² **The Department concludes that while the 2009 Colorado Health Care Affordability Act (CHCAA), (replaced by the 2017 Colorado Healthcare Affordability and Sustainability Enterprise (CHASE) Act), and the federal 2010 Affordable Care Act (ACA) led to increased Medicaid payments to hospitals, a reduction in the number of Colorado's uninsured, less bad debt and less charity-care write-off for hospitals, these positive outcomes did not result in a reduction in hospital cost shift to other payers.**

Major findings of this report include:

- The CHCAA and the ACA decreased the number of uninsured Coloradans by more than half. Because more people are insured, the amount of money hospitals are losing annually due to bad debt and charity care write offs has decreased by more than \$400 million.
- The impact of the Colorado hospital trends on consumers suggests that rising hospital costs and margins have contributed to rising insurance premiums.
- Actual hospital cost growth trends and actual hospital margins contribute to commercial cost shift and hospital overcompensation, more so than Medicaid or Medicare under-compensation.
- Colorado hospital costs grew 58.7% between 2009 and 2017 while adjusted discharges only grew 14.2%.
- In 2009, Colorado hospital operating expenses were 3.2% higher than the national average. By 2017, Colorado hospitals operating expenses per adjusted discharge were 14% higher than the national average.
- This report identifies rapid cost growth as a major contributing factor to the cost shift. Hospitals could have passed on significant savings to commercial consumers had they matched national cost benchmarks using Medicare Cost Reports suggesting as much as 8.3% in cost savings or \$7.9 billion from 2009-2017.
- Overall, payment-to-cost ratios across all payers increased from 1.05 to 1.08 between 2009 and 2017.
- Hospital margins for all payer types (commercial, Medicaid, Medicare, other) increased by more than 250% from \$538 to \$1,359 per adjusted discharge between 2009 and 2017.

¹ Centers for Medicare and Medicaid Services. (2017). *National Health Expenditure Data: Health Expenditures by State of Residence*. Available from <https://www.cms.gov>

² This report analyzes cost shift data from calendar year 2009 through calendar year 2017 and includes data reported under the Colorado Health Care Affordability Act (CHCAA), which was enacted effective July 1, 2009 and repealed effective June 30, 2017, and data reported under the Colorado Healthcare Affordability and Sustainability Enterprise (CHASE), which was enacted July 1, 2017.

- More transparent reporting practices and hospital/payer data, such as audited financial statements and DATABANK information, are needed to identify business decisions and trends at the hospital level that lead to increases in hospital costs and prices. This report and analyses are limited by data availability and aggregation of the data by the Colorado Hospital Association that makes it impossible to drill down to the individual hospital or payer level.
- In addition to more transparency into hospital financial data, Colorado would also benefit from clarification of and accountability for not-for-profit hospital obligations to communities. There is further opportunity for each community to have more influence on hospital business decisions such as new construction or physician/hospital acquisition, which impact health care costs in their community.
- Hospitals could have reduced their cost shift or fee increases to commercial carriers and their employer and consumer clients. This could have been achieved by managing costs at or close to the national average while maximizing the benefits of CHCAA, CHASE and the ACA: increased hospital Medicaid reimbursement, reduction in charity care and bad debt, and increased revenues from the reduction in the number of uninsured Coloradans.

Introduction

According to research published in *Health Affairs* (1982), cost shifting “occurs when one hospital must increase prices charged to all payers to make up for shortfalls in reimbursement from some payers” (p.1).³ In the legislative declaration of the Colorado Healthcare Affordability and Sustainability Enterprise (CHASE) Act, the General Assembly stated its intention to reduce the need for hospitals to shift uncompensated care costs to commercial payers by increasing reimbursement to hospitals for inpatient and outpatient care provided to Health First Colorado and Colorado Indigent Care Program (CICP) members and reducing the number of uninsured Coloradans.

In line with that declared intention, one of the purposes of CHASE is to consult with hospitals to improve cost efficiency and patient safety; the CHASE Board is tasked with using publicly available data to report on the differences between the cost of care provided and the payment received for patients covered by Medicaid, Medicare, and other payers – referred to as the cost shift.

Analysis of cost shifting under the former Colorado Health Care Affordability Act (CHCAA), established in 2009 and repealed in 2017, showed that the under-compensation for Medicaid-covered and uninsured patients improved significantly following the implementation of the CHCAA, but the overcompensation for care (increased charges) to commercially covered patients was unchanged.

As such, the CHASE Board dedicated resources to more fully understand the impact of the health care affordability and sustainability fee on cost shifting to commercial payers and to

³ Aquilina, D., & Johnson, A.N. (1982). The Cost Shifting Issue. *Health Affairs*, Vol. 1 (4). Retrieved from <https://doi.org/10.1377/hlthaff.1.4.101>.

increase transparency about the impact of the fee on the health care market. The following information reflects the CHASE Board's efforts.

Background

In 2009, when the Colorado Health Care Affordability Act (CHCAA), otherwise referred to as the hospital provider fee, was enacted into law with the passage of House Bill (HB) 09-1293, one of the priority areas was to "reduc[e] the need of health care providers to shift the cost of providing uncompensated care to other payers" (p. 2). To accomplish this, the CHCAA included funding for a state share revenue source with a 50% Federal Medical Assistance Percentage (FMAP) to raise Medicaid payments to hospitals, as well as fund a Medicaid expansion to parents and adults without dependent children to 100% of the federal poverty level (FPL), and increased Child Health Plan Plus (CHP+) coverage to 250% of the FPL. In addition, the CHCAA created a Medicaid buy-in for disabled adults/children, and ensured twelve (12) month continuous eligibility for children enrolled in Medicaid. The hospital provider fee created under CHCAA served as a funding source for the state's portion for these additional payments to hospitals and to fund the Medicaid expansions, which is matched by at least 50% federal funds.

The Affordable Care Act (ACA) of 2010 presented hospitals with considerable gains. The ACA expanded Medicaid beyond CHCAA Medicaid expansions, increasing the FPL for Medicaid parents and adults without dependent children to 133% of the FPL. Also, when CHCAA was signed in 2009, this bill did not anticipate enhanced federal matching rates from the ACA. With the ACA, the federal match for Medicaid adults was 100% FMAP for four (4) years before tapering to 90% in 2020, rather than the 50% originally anticipated when the CHCAA was signed. Simply put, a Medicaid claim for \$1,000 with a 100% FMAP receives a \$1,000 payment of federal funds, while a Medicaid claim for \$1,000 with a 50% FMAP requires only a \$500 payment of federal funds, with the remaining \$500 being provider fee. CHP+ also received an enhanced matching rate of 88% under the ACA versus 65%. With the ACA, Medicaid expansion states saw a significant benefit to insurance rates without the associated costs of coverage because of the enhanced matching rate.⁴ **Because the hospital provider fee was originally expected to contribute 50% of the cost of the Medicaid expansion, the enhanced matching rate from the ACA reflected a significant financial benefit to hospitals.**

Medicaid expansions and the ACA substantially influenced the Medicaid population. In 2014, when Colorado expanded Medicaid, the Medicaid population increased from nearly 500,000 individuals in 2009 to almost 1.3 million individuals in 2018. See **Figure 1** for a timeline of major events concerning the ACA, CHCAA, CHASE, and Medicaid expansion.

⁴ Cohen, R.A., Zammiti, E.P., & Martinez, M.E. (2018). Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, 2017. *CDC*. Retrieved from <https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201805.pdf>.

ACA, CHCAA, CHASE and Medicaid Expansion Timeline

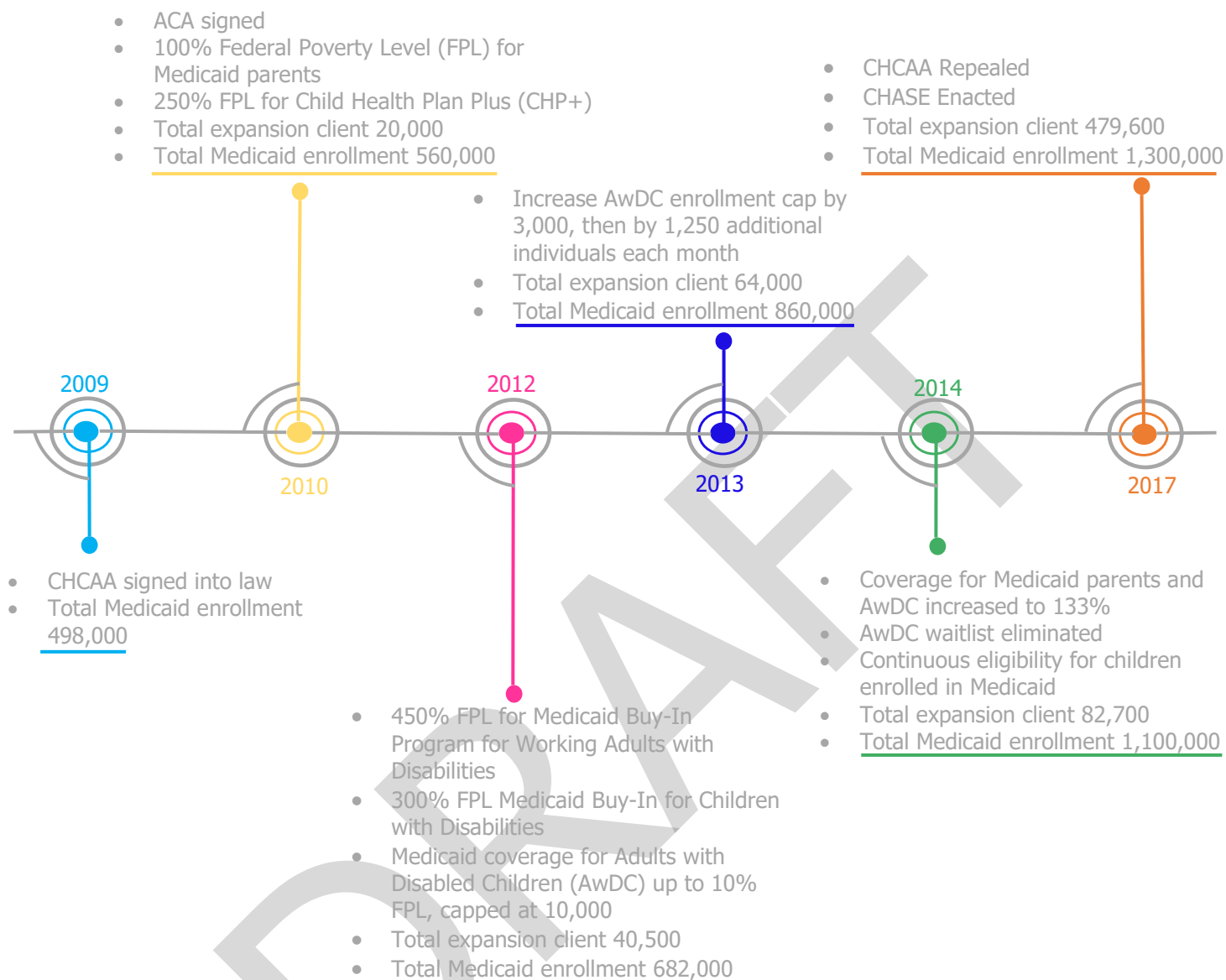


Figure 1⁵

Reducing cost shifting to commercial payers was a priority in 2009 and remained so in 2017 when the CHASE Enterprise was created. The General Assembly declared its priorities for the CHASE Enterprise pursuant to Senate Bill (SB) 17-267, including (emphasis added):

- Providing a payer source for some low-income and uninsured populations who may otherwise be cared for in emergency departments and other settings in which uncompensated care is provided;
- Reducing the underpayment to Colorado hospitals participating in publicly funded health insurance programs;

⁵ Hospital Provider Fee Oversight and Advisory Board. (2009-17). Colorado Health Care Affordability Act Annual Reports, 2009-17.

- **Reducing the number of persons in Colorado who are without health care benefits;**
- **Reducing the need of hospitals and other health care providers to shift the cost of providing uncompensated care to other payers;**
- Expanding access to high-quality, affordable health care for low- income and uninsured populations; and
- Providing the additional business services specified in subsection (4)(a)(iv) of this section to hospitals that pay the health care affordability and sustainability fee charged and collected as authorized by subsection (4) of this section by the Colorado health care affordability and sustainability enterprise created in subsection (3)(a) of this section (pp. 17-18).⁶

The General Assembly’s declaration on cost shifting is important, though its importance may not be readily apparent to Colorado consumers. America’s Health Insurance Plans, report that that hospital pricing affects consumers by contributing to health insurance premiums. Cost shifting works much the same way as how production costs are built into purchases—the consumer is often unaware of the underlying costs that are passed on to the consumer. When under-compensated costs are shifted to commercial payers (and self-funded employers), insurance and self-funded employer premiums rise, causing consumers to pay more for health care coverage. See **Figure 2** for a visual of how cost shifting works for the health care consumer.



Figure 2 *When a portion of patient service costs are not covered, hospitals increase prices to insurance companies which then increase insurance premiums.*

⁶ Concerning the sustainability of rural Colorado, SB 17-267, General assembly of the State of Colorado. (2017).

Methodology

Findings in this report are derived using a variety of resources, including research from the Colorado Health Institute (CHI), the Center for Improving Value in Health Care (CIVHC), and the Kaiser Family Foundation (KFF), as well as initial findings from the Department. The bulk of internal analysis relies on information the Colorado Hospital Association (CHA) shares with the Department; specifically, the data is from DATABANK⁷ and is reported to the Department on an aggregated basis.

The impact on the cost shift is evaluated by trending DATABANK data and the difference between hospital payments and costs for each of four (4) major payer groups—Medicare, Medicaid, Commercial, and CICP/Self Pay/Other. The trending starts with 2009 data as it shows data prior to the implementation of the CHCAA, while changes after the CHCAA are captured with data from 2010 and years that follow. 2014 is the first year of data that includes the expansion of Medicaid under the Affordable Care Act (ACA).

Limitations

There are limitations with the data provided by CHA. Specifically, DATABANK submissions are voluntary and therefore not inclusive of all Colorado hospitals. In 2017, 67 hospitals reported to DATABANK which represents 71% of the CHA membership, however, these 67 hospitals represent approximately 95% of licensed beds. Further, the Department only has access to aggregated data because of non-disclosure agreements between CHA and hospital providers. One result of this aggregation is the combined CICP/Self Pay/Other group data, which is inclusive of data for three distinct payer types. As such, the Department cannot ensure accuracy or year-over-year consistency; that would be the responsibility of the submitting hospitals who are the subject of the analysis. Also, hospitals self-report, which creates a potential for reporting bias. Finally, overall cost-to-charge ratios reported in the survey are compared to global cost-to-charge ratios. Still, the analytical findings are directionally accurate and credible as a whole.

Currently, the only Colorado hospital data source shared with the state is aggregated DATABANK data. This is compared to other states which, according to the National Conference of State Legislatures (NCSL),⁸ demonstrate more transparent reporting practices among hospital providers. For instance, the NCSL showed that hospitals in twelve (12) states submit transparent costs while hospitals in seven (7) states provide revenue information using various metrics. Other states, such as Arizona, Oregon, and Washington, fully commit to transparent reporting practices by sharing detailed cost, revenue, and utilization reports with the state.

There is an opportunity for Colorado to improve hospital transparency and reporting to the Department and the state going forward.

⁷ CHA DATABANK is an online program available to Colorado Hospital Association members and serves as a centralized location for the collection and analysis of hospital utilization and financial data.

⁸ National Conference of State Legislatures. (2017). Transparency and disclosure of health costs and provider payments: State Actions. Retrieved from <http://www.ncsl.org/research/health/transparency-and-disclosure-health-costs.aspx>.

Although best practices are followed in performing this analysis, this analysis relies heavily on external resources. Constructively continuing this analysis work is an important recommendation from this report. **This analysis suggests there is a significant opportunity for the CHASE Board, legislators, the Department, and CHA to work together to improve transparency, to identify hospital efficiencies/best practices for others to emulate, to reduce prices to consumers, employers, and other payers thereby improving health care affordability, to improve Colorado's health care system, and to improve patient outcomes.**

Purpose

This report examines external influences, as well as hospital strategic business decisions contributing to the cost shift. It identifies the following themes:

- External factors influencing cost shifting:
 - Medicaid expansions and payer volume
 - Colorado's health-conscious market
 - External uncertainties
- Hospital actions influencing cost shifting:
 - Choices that increase hospital costs
 - Capital investments
 - Administrative expenditures
 - Business decisions
 - Mergers
 - Acquisitions
 - Reimbursement negotiations with commercial insurance companies.

This report is structured with aggregate data presented first to assess cost shifting across Colorado. This analysis also distinguishes between regions and considers cost shifting according to localized populations and resources. Next, the report explores identified themes including external influences, hospital choices, and strategic business decisions affecting the cost shift. **Finally, this report expounds on opportunities to lower costs, as well as opportunities to continue researching cost shifting and ways in which collaborative partnerships can improve Colorado's health care system.**

Cost Shifting in Colorado

The calculation of payments, costs, margin, and the payment-to-cost ratio are displayed in **Tables 1 through 4** below. **Tables 5 through 8** examine aggregate DATABANK financial data.

Payment-to-cost Ratio Calculation

	<i>Payer Payment</i>
÷	<i>Payer Cost</i>
=	<i>Payer Payment To Cost Ratio</i>

Table 1

Payment Calculation

	<i>Payer Charges</i>
–	<i>Payer Contractual Allowances</i>
–	<i>Payer Charity Care Write Offs</i>
–	<i>Payer Bad Debt</i>
=	<i>Payer Payment</i>

Table 2

Cost Calculation

	<i>Payer Charges</i>
×	<i>Global Cost to Charge Ratio</i>
=	<i>Payer Cost</i>

Table 3

Margin Calculation

	<i>Payer Payment</i>
–	<i>Payer Cost</i>
=	<i>Payer Margin</i>

Table 4

Since DATABANK reports aggregate data, it is impossible to break out the data by peer group (urban, rural, resort, and mountain regions). It is likely that the largest hospitals and regions (i.e., the Front Range) drive the results. Because of these limitations, the analysis in this section

is meant to be an assessment of the Colorado hospital industry and not an assessment of any particular hospital.

Table 5 exhibits the payment-to-cost ratio by payer type and was reported in the January 2019 CHASE Annual Report. This data prompted questions about hospital cost shifting, namely: **Why has the commercial payment-to-cost ratio substantially increased since 2009 while margins have also increased?**

Year-to-year, Medicare and Medicaid payment-to-cost ratios are trending up and down within a 0.4% variance over the nine (9) year period, while commercial rates are trending upward. The data implies a beneficial fiscal impact to hospitals with the upward trend of both the Medicaid payment-to-cost ratio and the CICP/Self Pay/Other payment-to-cost ratio. This was partially offset by the downward, then flattening trend in the Medicare payment-to-cost ratio. Trending pre-ACA data shows CHCAA had a slight impact on the Medicaid and CICP/Self Pay/Other payment-to-cost ratios, causing the commercial payment-to-cost ratio to decrease. However, the pre-ACA commercial payment-to-cost ratio variance was very low (0.1%). **Over the lifespan of the hospital provider fee the commercial payment-to-cost ratio increased from 1.55 to 1.66, whereas the overall payment-to-cost ratio increased from 1.05 to 1.08.**

The highest year-over-year change in dollar compensation was between 2013 and 2014 (pre- and post-ACA), which saw hospital margins increase by \$256.1 million. Margins increase when payments increase more than costs. Between 2013 and 2014, there was growth in Medicaid's portion of hospital revenue and cost as a result of Medicaid expansion. This resulted in the Medicaid under-compensation increasing from \$327.9 million to \$682.8 million, a \$354.9 million increase. This implies that the increase to Medicaid payments of \$422.9 million did not cover the increase in Medicaid's portion of costs. This is reflected in the Medicaid payment-to-cost ratio decrease from 0.80 to 0.72. It should be noted, however, that this 0.72 cost ratio was substantially higher than before the hospital provider fee, reflecting a financial benefit to hospitals. The ACA also had an impact to the CICP/Self Pay/Other payer type compensation, which saw under-compensation decrease from \$248.4 million to \$82.7 million between 2013 and 2014, a decrease of \$165.7 million.

The greatest increase to payments occurred in 2016, with \$874.6 million of the total \$1,226.8 million increase paid by commercial insurance. **Said another way, commercial insurance's incremental change was responsible for 71.3% of the total payment increase in 2016. During that same year, hospital costs also grew in line with the payment increase (\$1,114.3 million), netting a year-over-year increase in margins of \$112.5 million. With hospitals receiving more Medicare and Medicaid reimbursements and a substantial decrease to the uninsured, the aggregated data does not explain why commercial insurance is being overcompensated for rising hospital costs and margins.**

Payment-to-cost Ratio

	Year	Medicare	Medicaid	Insurance	CICP/Self Pay/ Other ⁹	Overall
Pre-ACA	CY 2009	0.78	0.54	1.55	0.52	1.05
	CY 2010	0.76	0.74	1.49	0.72	1.06
	CY 2011	0.77	0.76	1.54	0.65	1.07
	CY 2012	0.74	0.79	1.54	0.67	1.07
	CY 2013	0.66	0.80	1.52	0.84	1.05
Post-ACA	CY 2014	0.71	0.72	1.59	0.93	1.07
	CY 2015	0.72	0.75	1.58	1.11	1.08
	CY 2016	0.71	0.71	1.64	1.08	1.09
	CY 2017	0.69	0.69	1.66	1.14	1.08

Table 5¹⁰

Table 5 exhibits the payment-to-cost ratio by payer type. Notice the commercial cost-to-charge ratio increased by 4.6% between 2013 and 2014. The Medicaid expansion potentially impacted commercial reimbursements; however, further analysis of the aggregated data suggests otherwise.

Payment

	Year	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Overall	YOY Difference
Pre-ACA	CY 2009	2,214.2M	557.5M	6,043.5M	654.1M	9,469.3M	-
	CY 2010	2,359.3M	877.8M	6,082.9M	1,025.6M	10,345.6M	876.3M
	CY 2011	2,511.2M	979.3M	6,538.3M	965.6M	10,994.5M	648.8M
	CY 2012	2,581.5M	1,147.4M	6,963.0M	1,014.1M	11,706.0M	711.5M
	CY 2013	2,455.2M	1,295.1M	7,081.5M	1,287.9M	12,119.7M	413.7M
Post-ACA	CY 2014	2,756.6M	1,718.0M	7,373.5M	1,072.4M	12,920.5M	800.8M
	CY 2015	2,862.4M	1,992.3M	7,396.1M	1,173.8M	13,424.7M	504.1M
	CY 2016	3,153.6M	2,069.7M	8,270.7M	1,157.5M	14,651.5M	1,226.8M
	CY 2017	3,368.1M	2,150.9M	8,787.8M	1,402.6M	15,709.3M	1,057.8M

Table 6¹¹

Table 6 shows the greatest increase to payments occurred in 2016, with commercial insurance responsible for 71.3% of the total payment increase. It is unclear why there was such a large increase to commercial reimbursements other than rising hospital costs.

⁹ The data indicates that this payer type is paying above cost. This may be a misrepresentation of the self-reported data. Additional analysis is needed to understand the changes in the CICP/Self Pay/Other payer group.

¹⁰ See footnote 7.

¹¹ See footnote 7. Overall does not include Other Operating Payments.

Cost

	Year	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Overall	YOY Difference
Pre-ACA	CY 2009	2,839.3M	1,040.6M	3,903.3M	1,269.0M	9,052.3M	-
	CY 2010	3,115.9M	1,182.9M	4,085.0M	1,416.1M	9,800.0M	747.7M
	CY 2011	3,243.5M	1,284.9M	4,251.0M	1,483.2M	10,262.6M	462.6M
	CY 2012	3,499.5M	1,455.9M	4,512.9M	1,516.7M	10,984.9M	722.3M
	CY 2013	3,695.9M	1,623.0M	4,670.1M	1,536.3M	11,525.2M	540.3M
Post-ACA	CY 2014	3,878.3M	2,400.8M	4,635.7M	1,155.1M	12,069.9M	544.7M
	CY 2015	3,974.7M	2,669.0M	4,678.7M	1,062.1M	12,384.5M	314.5M
	CY 2016	4,443.3M	2,924.2M	5,044.5M	1,086.8M	13,498.8M	1,114.3M
	CY 2017	4,863.2M	3,133.1M	5,278.0M	1,232.3M	14,506.6M	1,007.8M

Table 7¹²

Table 7 shows that in 2016 and 2017, hospital costs increased by \$1,114.3 million and \$1,007.8 million, respectively. Medicaid expansions help frame this conversation, but they do not explain *why* hospital costs increased by 9% between 2015 to 2016 and 7.5% between 2016 and 2017. these conclusions.

Margin

	Year	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Overall	YOY Difference
Pre-ACA	CY 2009	(625.1M)	(483.1M)	2,140.2M	(614.9M)	417.0M	-
	CY 2010	(756.7M)	(305.1M)	1,997.9M	(390.5M)	545.7M	128.6M
	CY 2011	(732.2M)	(305.6M)	2,287.4M	(517.6M)	731.9M	186.2M
	CY 2012	(918.0M)	(308.5M)	2,450.1M	(502.5M)	721.1M	(10.8M)
	CY 2013	(1,240.6M)	(327.9M)	2,411.4M	(248.4M)	594.5M	(126.6M)
Post-ACA	CY 2014	(1,121.7M)	(682.8M)	2,737.7M	(82.7M)	850.6M	256.1M
	CY 2015	(1,112.3M)	(676.6M)	2,717.4M	111.7M	1,040.2M	189.6M
	CY 2016	(1,289.7M)	(854.5M)	3,226.2M	70.7M	1,152.7M	112.5M
	CY 2017	(1,495.1M)	(982.2M)	3,509.8M	170.3M	1,202.7M	50.0M

Table 8¹³

Overall, the data shows payments to hospitals have grown over \$6 billion between 2009 and 2017, with annual growth ranging between 3.5% to 9.3%, depending upon the year examined (See Table 6). Hospital costs have grown comparable to payments, with patient service costs increasing by \$5.5 billion between 2009 and 2017 and annual cost growth between 2.6% and 9.0% (See Table 7).

¹² See footnote 7. Overall does not include Other Operating Costs.

¹³ See footnote 7. Overall does not include Other Operating Margins.

The Center on Budget and Policy Priorities (CBPP) graphically demonstrated this theme and also showed benefit to expansion states hospital operating margins in **Figure 3**.¹⁴ Moreover, **findings from various studies attribute the reduced uncompensated care costs to Medicaid expansion.**^{15,16,17} **Improved financial performance and a lower likelihood of hospital closures nationally, particularly in rural areas where uninsured rates were previously high, have also been associated with Medicaid expansions.**¹⁸ National trends have shown the increased resources have not always translated into benefits for the communities which hospitals serve. Rather, many hospitals have used those increased revenues and resources to fund multimillion-dollar renovations, to enable market share growth through vertical and horizontal expansion, or to increase executive compensation.¹⁹

¹⁴ Center on Budget and Policy Priorities. (2017). Affordable Care Act's Medicaid Expansion Benefits Hospitals, Particularly in Rural America. Retrieved from <https://www.cbpp.org/research/health/affordable-care-acts-medicaid-expansion-benefits-hospitals-particularly-in-rural>.

¹⁵ Blavin, F. (2017). How Has the ACA Changed Finances for Different Types of Hospitals? Updated Insights from 2015 Cost Report Data. *The Urban Institute*. Retrieved from http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2017/rwjf436310.

¹⁶ Gillis, K. (2017). Physicians' Patient Mix – A Snapshot from the 2016 Benchmark Survey and Changes Associated with the ACA. *American Medical Association*. Retrieved from <https://www.ama-assn.org/sites/default/files/media-browser/public/health-policy/PRP-2017-physician-benchmark-survey-patient-mix.pdf>.

¹⁷ For additional study citations supporting these findings, see: Antonisse, L., Artiga, S., Garfield, R., & Rudowitz, R. (2018). The Effects of Medicaid Expansion under the ACA: Updated Findings from a Literature Review. Washington, DC: Kaiser Family Foundation. Retrieved from <https://www.kff.org/medicaid/issue-brief/the-effects-of-medicaid-expansion-under-the-aca-updated-findings-from-a-literature-review-march-2018/>.

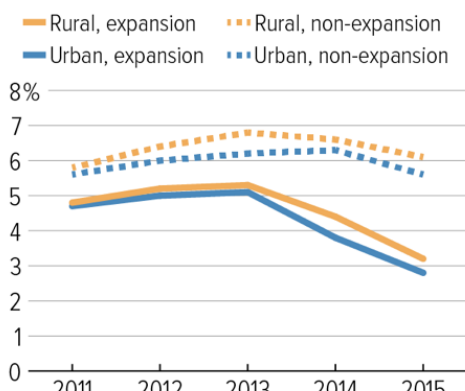
¹⁸ Hardy, R., Lindrooth, R., Perraiillon, M., & Tung, G. (2018). Understanding the Relationship Between Medicaid Expansions and Hospital Closures. *Health Affairs*. Retrieved from <https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2017.0976>.

¹⁹ For more information see Dan Diamond's report in Politico: How hospitals got richer off Obamacare. Available at <https://www.politico.com/interactives/2017/obamacare-non-profit-hospital-taxes/>.

Changes in Hospital Operating Margins

Medicaid Expansion Reduces Hospitals' Uncompensated Care Burden

Uncompensated care as share of total hospital expenses, by state Medicaid expansion status

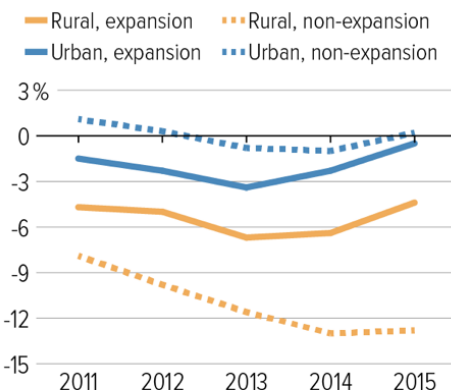


Note: Under the Affordable Care Act, 31 states and Washington, D.C. have expanded their Medicaid programs.
Source: Unpublished Urban Institute data

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Medicaid Expansion Increases Hospitals' Operating Margins

Hospital operating margin, by state Medicaid expansion status and hospital location



Note: Operating margin = difference between revenue from providing services to patients and total operating expenses. Under the Affordable Care Act, 31 states and Washington, D.C. have expanded their Medicaid programs.
Source: Unpublished Urban Institute data

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Figure 3²⁰

As expressed in the CBPP visual (**Figure 3**), uncompensated care costs declined for expansion states. This is also apparent through the DATABANK financial data (see **Table 9**). Charity care write-offs (translated to costs in the table below) cover medical treatments for patients who are uninsured or underinsured. The hospital generally does not receive payment or reimbursement for the charity care and counts it as a deduction. Bad debt is when a patient is unable to pay his or her bills. Prior to the ACA, charity care and bad debt cost hospitals around \$700 million a year. **After the ACA was enacted, charity care and bad debt costs in Colorado hospitals decreased by more than 50% to \$286.3 million a year.** To be clear, changes to charity care and bed debt are reflected in the calculations of hospital payment to cost ratios, payments, costs, and margins in **Tables 5 through 8**. As such, one observation is that increasing hospital margins are concurrent with the reduction in hospital bad debt and charity care.

²⁰ Center on Budget and Policy Priorities. (2017). Affordable Care Act's Medicaid Expansion Benefits Hospitals, Particularly in Rural America. Retrieved from <https://www.cbpp.org/research/health/affordable-care-acts-medicaid-expansion-benefits-hospitals-particularly-in-rural>.

Bad Debt and Charity Care Cost Compared

	Year	Charity Care Cost	Bad Debt Cost	Charity Care + Bad Debt Cost	YOY Difference	YOY Percent Difference
Pre-ACA	CY 2009	(438.4M)	(255.2M)	(693.6M)	-	-
	CY 2010	(430.9M)	(234.2M)	(665.1M)	28.5M	-4.1%
	CY 2011	(473.2M)	(194.8M)	(668.0M)	(2.9M)	0.4%
	CY 2012	(465.6M)	(206.3M)	(671.9M)	(3.9M)	0.6%
	CY 2013	(444.7M)	(255.2M)	(699.9M)	(28.0M)	4.2%
Post-ACA	CY 2014	(174.2M)	(146.0M)	(320.1M)	379.8M	-54.3%
	CY 2015	(118.5M)	(145.4M)	(263.9M)	56.2M	-17.6%
	CY 2016	(147.2M)	(145.4M)	(292.6M)	(28.7M)	10.9%
	CY 2017	(133.5M)	(152.8M)	(286.3M)	6.3M	-2.1%

Table 9^{21,22}

This is also true for the CICIP, which is a sliding fee discount program for low income Coloradans who do not qualify for Medicaid. CICIP saw significant reductions to the program's population and associated write-off costs pre- to post-ACA (see **Table 10**), which are likely reflected in the reduction of hospital charity care.

CICIP Data

Fiscal Year	Clients	Write off Costs
2012-13	208,449	\$579,357,905
2013-14	106,196	\$379,678,081
2014-15	58,224	\$144,043,878
2015-16	50,338	\$134,157,594
2016-17	49,135	\$124,162,968
2017-18	49,118	\$128,672,717

Table 10²³

Another interesting aspect of the ACA is the Disproportionate Share Hospital (DSH) payment reductions that were built into the ACA but never occurred. Reductions to DSH payments have been scheduled since 2010 but have been delayed four (4) times by Congress. In Federal Fiscal Year (FFY) 2018, the reduction for the hospital DSH payment would have been \$35.3 million, with \$17.7 million coming from federal funds. Department estimates for prior year reductions for Colorado hospitals are displayed in **Table 11**. **In aggregate, the delayed DSH reductions allowed Colorado hospitals to receive approximately \$108.2 million in DSH funds that would have otherwise been cut following the enactment of the ACA.**

²¹ Amounts represent the costs associated with Charity Care and Bad Debt. In previous years, these amounts were expressed as charges written off.

²² See footnote 7.

²³ This data is from legislative reports submitted to the Colorado legislature by the Department of Health Care Policy & Financing and internal CICIP analysis. CICIP Annual reports are available at <http://www.leg.state.co.us/library/reports.nsf/ReportsDoc.xsp?documentId=668CC9603367A20E872576CD006FA098>.

This means that hospitals collected \$54.4 million in federal funds that they expected to forgo with the passage of the ACA.

DSH Fund Reduction Estimates

	FFY 2013-14	FFY 2014-15	FFY 2015-16	FFY 2016-17	FFY 2017-18	Total
State Fund	(4.4M)	(5.3M)	(10.6M)	(15.9M)	(17.7M)	(53.8M)
Federal Fund	(4.4M)	(5.5M)	(10.9M)	(15.9M)	(17.7M)	(54.4M)
Total Fund	(8.8M)	(10.8M)	(21.5M)	(31.8M)	(35.3M)	(108.2M)

Table 11

Post-ACA, under-reimbursement of Medicaid to hospitals increased to \$982.2 million in 2017, which is three (3) times that of 2013 (see **Table 8**). **Considering that Medicare payments stayed reasonably flat during this time, it may seem that Medicaid expansions influenced commercial reimbursement from 2013 to 2017; however, the comparative commercial cost shift has consistently been more than required to offset both the Medicaid and Medicare under-compensated care. Table 12 displays a summary of cost shifting and the difference between commercial overcompensation (cost shift) and under-compensation, which translates into increasing margins. Following the ACA implementation in 2014, commercial insurance payment has been consistently near or more than \$1 billion greater than the combined under-compensation of other payer types, resulting in overall payment-to-cost ratios increasing from 1.05 to 1.08. As bad debt and charity care declined, commercial insurance compensation increased more than the necessary offset - to the benefit of hospital margins.**

Cost Shift Overcompensation

Year	Medicare	Medicaid + CICP/Self Pay/Other ²⁴	Under- compensation	Commercial	Cost Shift
CY 2009	(625.1M)	(1,098.0M)	(1,723.1M)	2,140.2M	417.0M
CY 2010	(756.7M)	(695.6M)	(1,452.3M)	1,997.9M	545.7M
CY 2011	(732.2M)	(823.2M)	(1,555.5M)	2,287.4M	731.9M
CY 2012	(918.0M)	(811.0M)	(1,729.0M)	2,450.1M	721.1M
CY 2013	(1,240.6M)	(576.3M)	(1,817.0M)	2,411.4M	594.5M
CY 2014	(1,121.7M)	(765.5M)	(1,887.1M)	2,737.7M	850.6M
CY 2015	(1,112.3M)	(564.9M)	(1,677.2M)	2,717.4M	1,040.2M
CY 2016	(1,289.7M)	(783.8M)	(2,073.5M)	3,226.2M	1,152.7M
CY 2017	(1,495.1M)	(811.9M)	(2,307.0M)	3,509.8M	1,202.7M

Table 12²⁵

This section reveals financial evidence of cost shifting. Specifically, it shows that in aggregate, **commercial payments have increased significantly and comprise over 50% of total hospital payments.** Medicare under-compensation has tripled since 2009; however, with the

²⁴ The two groups were combined to simplify under-compensation from Medicaid, the uninsured, and other insurance types.

²⁵ See footnote 7.

passage of the CHCAA and subsequently the ACA, Medicaid reimbursements have increased, compensating hospitals for a larger portion of their costs. **Hospital under-compensation significantly declined overall since 2009 from the combination of the Medicaid and CICP/Self Pay/Other group. Consequently, Colorado's hospital industry saw overall margins continue to grow, peaking in 2017. Since the ACA, margins are double what they were in 2009, concurrent with increases in Medicaid reimbursement and decreases to charity care and bad debt. Moreover, under the ACA, payments to hospitals for CICP/Self Pay/Other would have been \$50 million less in federal funds, except for the delays to DSH payment reductions.**

The aggregated financial data does not show how hospitals utilized their post-ACA margins, which were concurrent with hospital reduction in charity care and bad debt. At the same time, commercial payment-to-cost ratio has increased and not declined since the ACA. One conclusion could be that the benefits of Medicaid expansions and the ACA has not been passed onto commercial insurance, employers or commercial consumers by reducing commercial hospital reimbursement demands. **Transparent financial reporting could help shed light on such questions; however, until hospitals commit to transparent reporting practices, analysis of the available aggregated data is what will be reported. Note this aggregate analysis does not identify how Front Range hospitals and expanding hospital systems are weighting and influencing these aggregate results. Transparency for individual hospital's detailed financials is critical, including a requirement for historic, current and future detailed submissions.**

Regional Differences

Colorado is regionally diverse, and health care needs are equally diverse. Communities in the eastern plains have unique needs compared with those of the western slope and so on. For example, diabetes, which is both costly and a co-morbidity with other chronic conditions, is more prevalent in communities on the eastern plains than other regions of the state.²⁶ This section of the report is dedicated to nuancing Colorado's regional health care payments and costs.

For a better understanding of how regional differences impact health care costs, the Division of Insurance (DOI) classifies the various regions with similar health care costs.²⁷ See **Appendix A** for Colorado DOI regions and the hospitals that are within each region. To preserve hospital anonymity, CHA combined DOI regions as follows:

- DOI Regions 1, 4, and 6 – Boulder, Fort Collins, and Greeley
- DOI Regions 2 and 7 – Colorado Springs and Pueblo

²⁶ Colorado Department of Public Health & Environment. (2015). Diabetes' Impact in Colorado. Retrieved from https://www.colorado.gov/pacific/sites/default/files/DC_Factsheet_Facts_For_Action_Diabetes_In_Colorado_November_2015.pdf.

²⁷ Department of Regulatory Agencies. (2016). Division of Insurance completes geographical rating area study [Press release]. Retrieved from <https://www.colorado.gov/pacific/dora/news/division-insurance-completes-geographic-rating-area-study>.

- DOI Region 3 – Denver Metro
- DOI Region 5 and 9 – Grand Junction and West
- DOI Region 8 – East

As seen in **Figure 22** of **Appendix A** and in **Table 13**, DOI regions 2 and 7 (Colorado Springs, Pueblo) and DOI region 8 (East) have exhibited lower *overall* payment-to-cost ratios, while DOI region 5 and 9 (Grand Junction and West) and DOI regions 1, 4, and 6 (Boulder, Fort Collins, and Greeley) have exhibited higher overall payment-to-cost ratios.

Overall Payment-to-cost Ratio Minimum and Maximum DOI Region

	Overall	Regional Maximum			Regional Minimum		
Year	Ratio	Ratio	Region		Ratio	Region	
CY 2009	1.05	1.09	DOI 5 & 9	Grand Junction and West	1.01	DOI 8	East
CY 2010	1.06	1.10	DOI 5 & 9		1.02	DOI 8	East
CY 2011	1.07	1.11	DOI 5 & 9		1.00	DOI 2 & 7	Colorado Springs and Pueblo
CY 2012	1.07	1.11	DOI 5 & 9		1.00	DOI 2 & 7	
CY 2013	1.05	1.11	DOI 1, 4, 6	Boulder, Ft. Collins, Greeley	0.98	DOI 2 & 7	
CY 2014	1.07	1.11	DOI 5 & 9	Grand Junction and West	1.00	DOI 2 & 7	
CY 2015	1.08	1.13	DOI 1, 4, 6	Boulder, Ft. Collins, Greeley	1.03	DOI 2 & 7	
CY 2016	1.09	1.16	DOI 1, 4, 6		1.06	DOI 2 & 7	
CY 2017	1.08	1.16	DOI 1, 4, 6		1.06	DOI 2 & 7	

Table 13²⁸

To assess cost shifting practices, regional commercial payment-to-cost ratios are displayed in **Table 14**. The Denver Metro region (DOI region 3) consistently had the lowest commercial payment-to-cost ratio, but it has continued to rise through the years. Boulder, Fort Collins, and Greeley (DOI Regions 1, 4 and 6) have higher commercial payment-to-cost ratios for most years of data compared to all other regions. In fact, the commercial payment-to-cost ratio for the Boulder, Fort Collins, and Greeley region was twice that of the commercial portion of costs for the region in 2016, resulting in its high overall payment-to-cost ratio seen in Table 13. The Grand Junction and West regions (DOI region 5 and 9) have experienced growth in their commercial payment-to-cost ratio, exceeding Boulder's in 2017. Even though Colorado Springs and Pueblo commercial payment-to-cost ratios have been the highest per region in early years, it has not resulted in high overall payment-to-cost ratios.

Commercial Payment-to-cost Ratio Minimum and Maximum DOI Region

	Overall	Regional Maximum			Regional Minimum		
Year	Ratio	Ratio	Region		Ratio	Region	
CY 2009	1.55	1.76	DOI 2 & 7		1.47	DOI 3	Denver Metro

²⁸ See footnote 7.

Commercial Payment-to-cost Ratio Minimum and Maximum DOI Region

	Overall	Regional Maximum			Regional Minimum		
Year	Ratio	Ratio	Region		Ratio	Region	
CY 2010	1.49	1.66	DOI 2 & 7	Colorado Springs and	1.43	DOI 3	
CY 2011	1.54	1.74	DOI 2 & 7	Pueblo	1.48	DOI 3	
CY 2012	1.54	1.80	DOI 1, 4, 6	Boulder, Ft. Collins, Greeley	1.46	DOI 3	
CY 2013	1.52	1.83	DOI 1, 4, 6		1.42	DOI 3	
CY 2014	1.59	1.89	DOI 1, 4, 6		1.50	DOI 3	
CY 2015	1.58	1.86	DOI 1, 4, 6		1.55	DOI 3	
CY 2016	1.64	2.05	DOI 1, 4, 6		1.59	DOI 3	
CY 2017	1.66	1.98	DOI 5 & 9	Grand Junction and West	1.63	DOI 3	

Table 14²⁹

Regional disparities are important to this study in that they reveal cost shifting trends across Colorado. This is especially evident in DOI regions with high payment-to-cost ratios. Such regions are concurrently experiencing growing infrastructures, with new hospitals entering already competitive markets (UCHealth Longs Peak and UCHealth Greeley) while existing hospitals expand (Boulder Community Health's Foothill campus expansion).^{30,31} Conversely, one (1) of two (2) general hospitals in the county of Pueblo has closed its birthing center.³² With the currently limited and aggregated financial data, analysis about these hospital strategic business decisions and their impact is difficult. Still, the data indicates that **hospital overcompensation and under-compensation are regionally diverse.**

The compilation of DATABANK DOI data is presented in **Appendix A**. The CHASE Board intends to continue investigating regional differences, as well as the effect hospital cost control initiatives and lower margins have on Colorado's DOI regions.

The data available for this analysis from CHA, which combines regions to protect and prioritize hospital confidentiality, is not in the best interest of the state, employers, consumers or those working to improve health care affordability to the benefit of employers, consumers and the state. Securing hospital financials – through new transparency policy - is critical on a historic basis and going forward. **Detailed hospital transparency is needed to enable communities and elected officials to drive favorable behavior changes by hospitals, to identify hospital efficiencies/best practices for others to emulate, and to craft appropriate health care affordability policy going forward.**

External Factors Influencing Cost Shifting

²⁹ See footnote 7.

³⁰ Daily Camera. (2016). Boulder Community Health OK'd for expansion of Foothills campus. Retrieved from http://www.dailycamera.com/top-business/ci_30446834/boulder-community-health-okd-expansion-foothills-campus.

³¹ UCHealth Today. (2018). Hiring is in full swing at UCHealth Greeley Hospital. Retrieved from <https://www.uchealth.org/today/2018/10/01/hiring-is-in-full-swing-at-uchealth-greeley-hospital/>.

³² The Pueblo Chieftain. St. Mary-Corwin to close its birthing center, NICU. (2017, October 25). Retrieved from <https://www.chieftain.com/223f3d18-f5ce-5ea0-8860-8cd8d0985be8.html>.

This section of the report covers external uncertainties affecting the cost shift such as payer case mix changes, Medicaid expansion, and uncertainties facing hospital providers. Findings in this section suggest a significant change in payer case mix, including more than a 50% reduction in uninsured Coloradans. Medicaid expansion is responsible for the reduction in uninsured, with doubled Medicaid membership from 2009 to 2017. Barring these positive changes, **hospitals continue to overcompensate commercial reimbursements by about \$1 billion. This analysis seeks to answer: (1) why overcompensation on hospitals' commercial revenue streams continues when Medicaid expansions and programmatic efficiencies have been implemented and designed to reduce the cost shift, and (2) where hospitals allocate the additional revenue.**

Medicaid Expansions and Payer Volume

Health insurance coverage in Colorado has improved significantly since 2009 according to the 2017 Colorado Health Access Survey from CHI (see **Figure 4**).³³ In fact, the number of uninsured Coloradans went from 13.5% in 2009 to as high as 15.8% in 2011 to 6.5% in 2017, decreasing more than 50% overall. Further, the data shows Medicare and Medicaid enrollment respectively increasing by 48.5% and 118.7% proportionally while employee-sponsored health insurance coverage decreased by 14.4% *proportionally* (not in-patient volume) between 2009 to 2017.

Statewide Health Care Coverage for Colorado

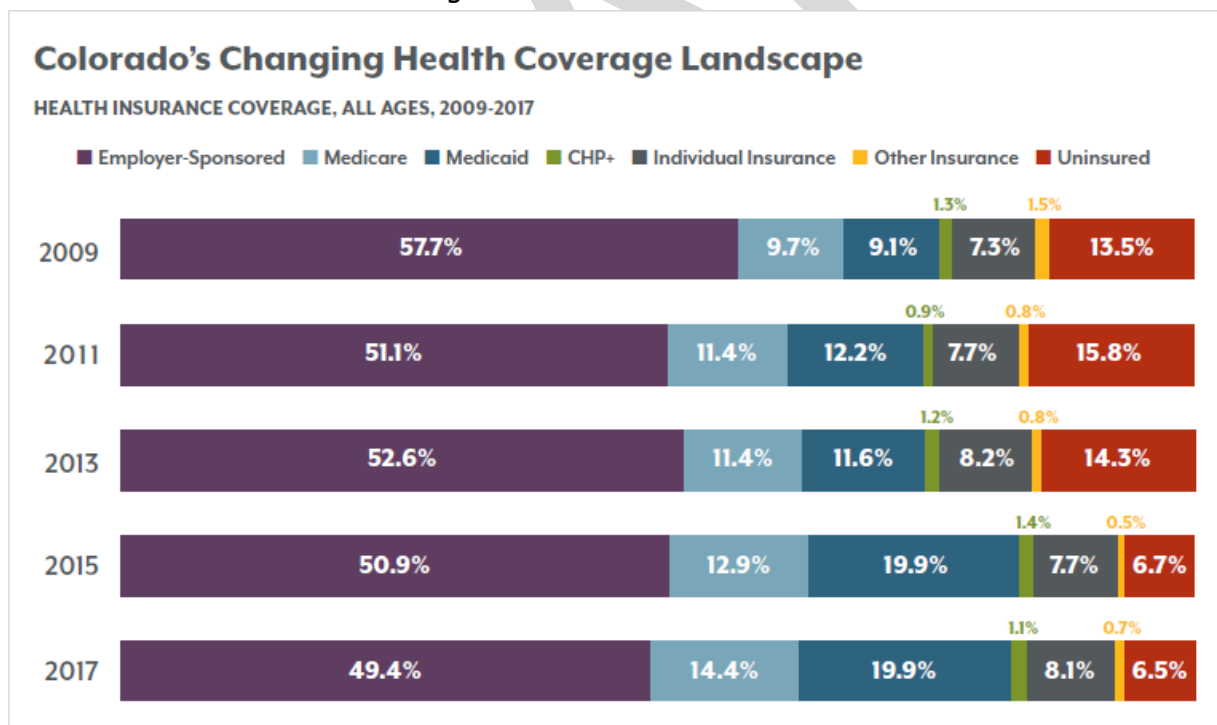


Figure 4³⁴

³³ Colorado Health Institute (CHI). (2017). Colorado Health Access Survey: The New Normal, September 2017. Page 8. Retrieved from <https://www.coloradohealthinstitute.org/research/colorado-health-access-survey>.

³⁴ See footnote 33.

To better understand the impact of the Colorado coverage on hospitals, this report reviews hospital payer mix. See **Table 15** for a percentage breakdown of the gross charges according to each payer. This corroborates the 2017 Colorado Health Access Survey findings: commercial insurance now represents a smaller portion of services provided, a decline in the uninsured portion of services, a significant increase in Medicaid service, and a slight increase in Medicare service.

Hospital Payer Mix by Type

Year	Medicare	Medicaid	Commercial and Self-Funded Coverage	CICP/Self Pay/Other	Total
CY 2009	31.4%	11.5%	43.1%	14.0%	100%
CY 2010	31.8%	12.1%	41.7%	14.5%	100%
CY 2011	31.6%	12.5%	41.4%	14.5%	100%
CY 2012	31.9%	13.3%	41.1%	13.8%	100%
CY 2013	32.1%	14.1%	40.5%	13.3%	100%
CY 2014	32.1%	19.9%	38.4%	9.6%	100%
CY 2015	32.1%	21.6%	37.8%	8.6%	100%
CY 2016	32.8%	21.7%	37.4%	8.1%	100%
CY 2017	33.5%	21.6%	36.4%	8.5%	100%

Table 15³⁵

To simplify the shift in payer mix, payer types are segregated by commercial insurance versus non-commercial insurance. **Figure 5** displays payer mix for the commercially insured compared to all others. From 2009 to 2017, the commercial proportion of payer mix declined 6.7%. Because of this change in payer mix, hospitals were faced with making strategic decisions to address the shift in payer mix.

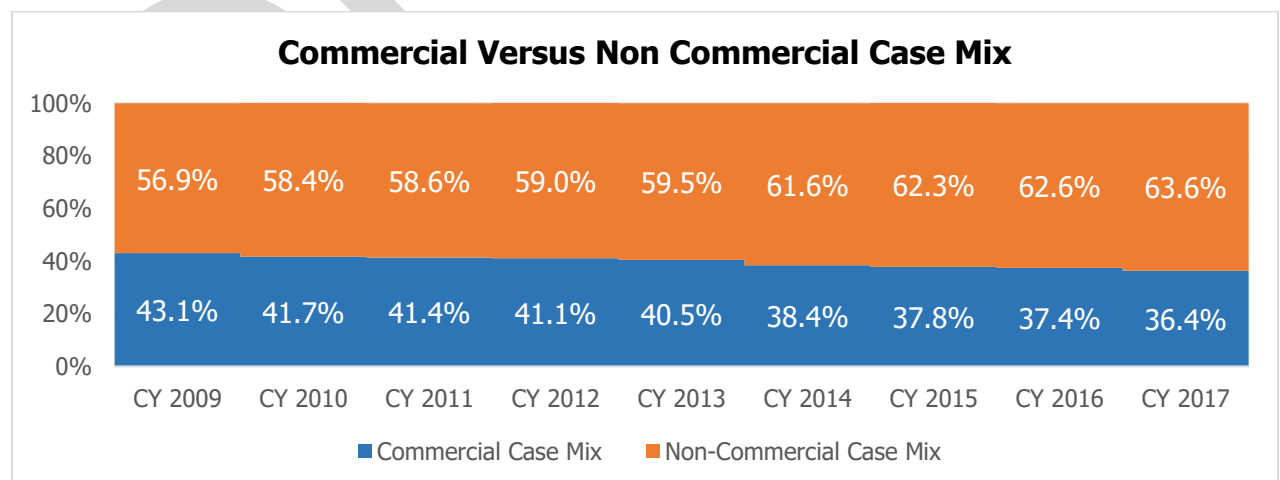


Figure 5³⁶

³⁵ See footnote 7.

³⁶ See footnote 7.

As noted, payer mix proportions did not actually indicate an increase or decrease in payer type volume. To study payer mix volume changes, adjusted discharge was used. Adjusted discharge is a metric of hospital services that combine inpatient and outpatient services by applying the outpatient to inpatient revenue ratio to inpatient discharges. The impact of payer mix *and* patient volume is analyzed by comparing multiple years to 2009 levels in the form of adjusted discharges (see **Table 16**). Volume trends indicate that adjusted discharges increased from Medicaid and Medicare patient volume while decreases to the CICP/Self Pay/Other category were offset by the large increases to Medicaid patient volume. **This resulted in patient volume increases of 114.2% between 2009 and 2017.** During that same timeframe, there was nominal change in commercial insurance patient volume.

Adjusted Discharges as a Percent of Overall Adjusted Discharges in 2009

Year	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Total
CY 2009	28.3%	13.9%	40.5%	17.4%	100.0%
CY 2010	29.0%	15.2%	39.5%	17.4%	101.2%
CY 2011	30.5%	15.8%	40.1%	17.0%	103.4%
CY 2012	30.5%	16.1%	40.8%	16.1%	103.5%
CY 2013	30.1%	17.5%	40.3%	15.5%	103.3%
CY 2014	30.7%	24.0%	39.9%	12.2%	106.9%
CY 2015	30.9%	26.8%	40.3%	11.2%	109.2%
CY 2016	32.7%	28.2%	40.0%	10.6%	111.5%
CY 2017	34.1%	28.4%	40.7%	10.9%	114.2%

Table 16³⁷

Table 42 in **Appendix B** displays adjusted discharges for all payer types. Refer to **Figure 6** for a visual of the data. Overall adjusted discharges are not calculated from overall figures, but are summed, and subsequent calculations will not reflect those of the *2019 Annual Report*.

³⁷ See footnote 7.

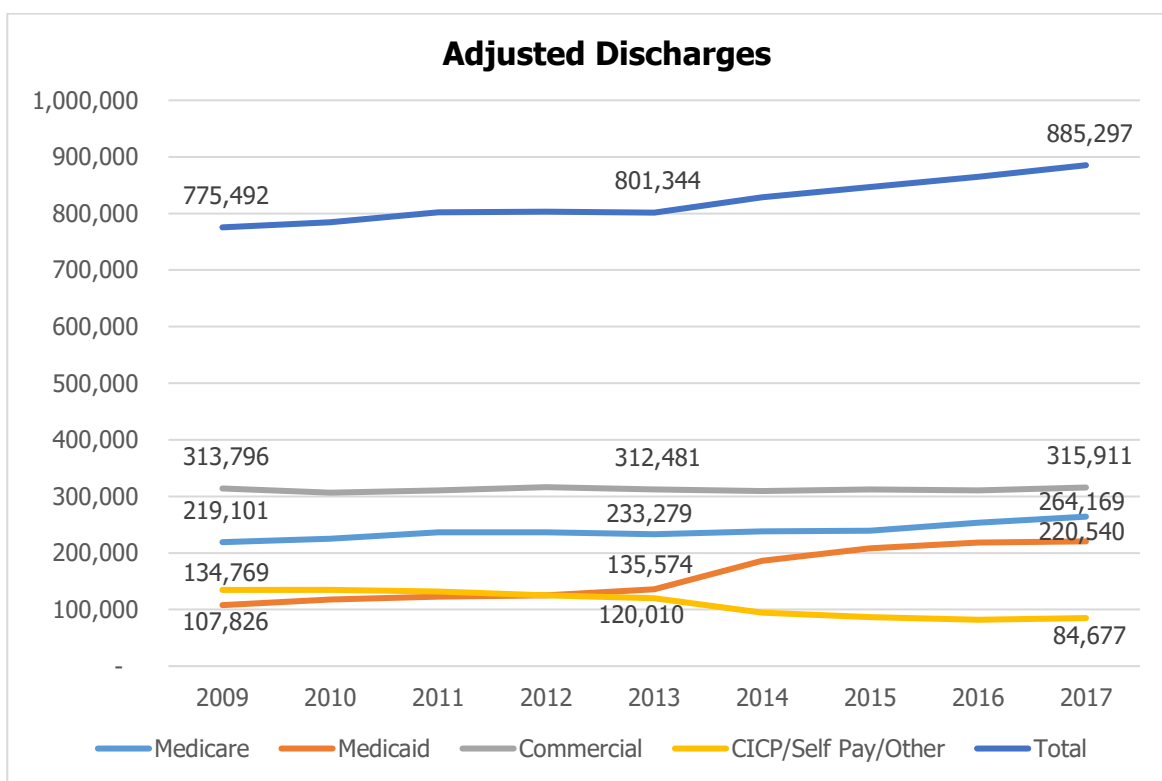


Figure 6³⁸

Adjusted discharges reflect the patient mix shifts described above by showing a decrease in the CICP/Self Pay/Other payer type category that corresponds with an increase in the Medicaid payer category. Concurrently, commercial patient volume remained relatively stable despite the patient mix shift, meaning **hospitals are experiencing the same volume of commercial patients while uninsured hospital visits and uncompensated care have dramatically decreased. Patient payer mix did not reduce commercial patient volume; Medicaid patient volume increased with an associated uninsured patient volume decrease.**

Patient volume is further analyzed by translating it into payment per adjusted discharge. This figure is as close to a price per adjusted discharge as health care billing can get; however, it has limitations. Particularly, the CICP/Self Pay/Other payer type may include payment types that are not attributable to the category. While the category is meant to represent the uninsured and the civilian military health plan, Tricare, the data is aggregated; therefore, data elements cannot be confirmed nor statistically validated. To compensate for this limitation, the Medicaid and CICP/Self Pay/Other payer types are combined (See **Appendix B, Table 43 through 45, and Figure 7 through 9** below).

Findings show that the payment per adjusted discharge is greatest for the commercial payer type and lowest for the combination of Medicaid/CICP/Self Pay/Other payer type. Medicaid and CICP/Self Pay/Other had the greatest payment per adjusted discharge growth, with 16.6% average eight-year growth. Commercial payment per adjusted discharge saw 5.6% seven-year average growth, with significant growth between 2015 and 2016 of 12.5%. Medicare saw the

³⁸ See footnote 7.

lowest average eight-year payment per adjusted discharge growth of 3.3%. These figures determine that while under-compensation for Medicare has declined per adjusted discharge, under-compensation for all other types has improved. Conversely, commercial insurance covers the under-compensation and contributes to profits by being the highest payment per adjusted discharge.

Overall, hospitals had relatively stable margins per adjusted discharge after the CHCAA was passed in 2009 (between \$696 and \$912 per adjusted discharge), until more recent years. **Following the ACA, margins per adjusted discharge increased to over \$1,000 while there were nominal changes to the amount of commercial discharges, increased compensation for Medicaid and Medicare patients, and sizable decreases to bad debt and charity care. As of 2017, a hospital could expect \$1,359 per adjusted discharge overall for all patients served, more than twice the amount they received in 2009.**

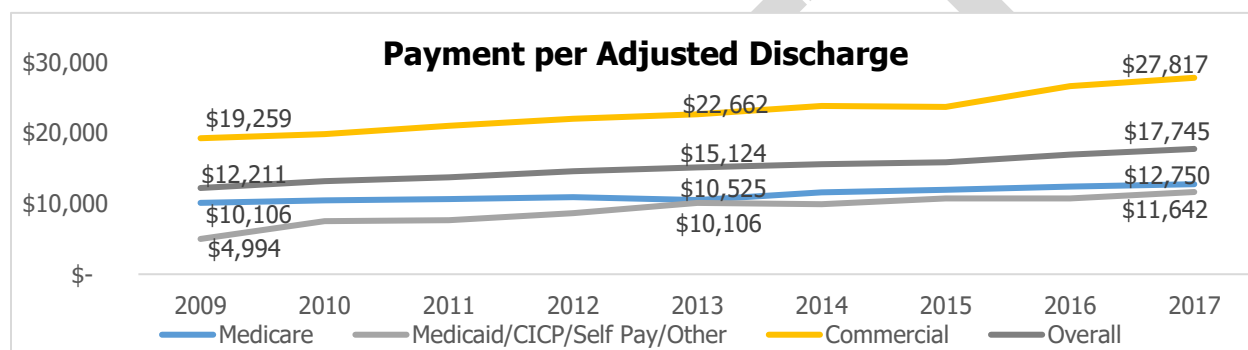


Figure 7³⁹

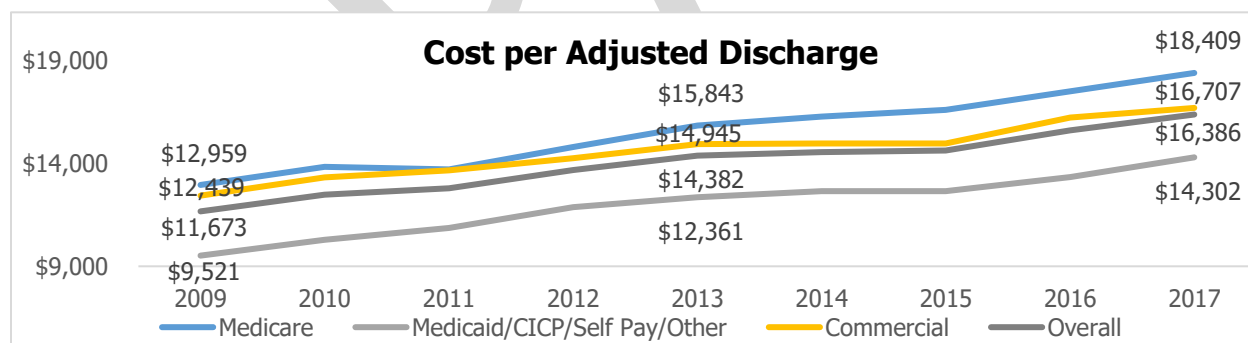


Figure 8⁴⁰

³⁹ See footnote 7.

⁴⁰ See footnote 7.

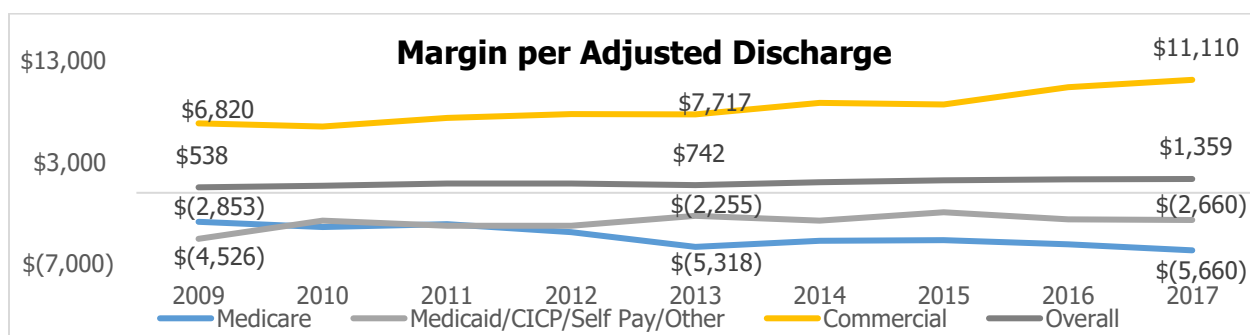


Figure 9⁴¹

With the decrease in uninsured patients and no change in the volume of the commercial patients, hospitals could have stable margins without increasing the cost shift. Yet, aggregated data shows that the cost shift to commercial payers increased (see Table 5) along with hospital margins per adjusted discharge (See Figure 9). The overall payment-to-cost ratio has risen between 2009 and 2017, from 1.05 to 1.08, and margins per adjusted discharge for all payer types (commercial, Medicaid, Medicare, other) more than doubled through the year, from \$538 to \$1,359.

Colorado's Health-conscious Market

The following section assesses Colorado health care utilization and per capita spending. Findings show that although spending per capita is lower than the national average in Colorado, contradictory data suggests utilization and cost per services remain higher than other states. High utilization is credited to Coloradans' preventive care and outpatient services. Spending per capita conversely reflects a health-conscious population who invests in preventive care instead of letting health problems escalate into bigger, more expensive medical concerns. The contradiction between high utilization and lower per capita spending can be reconciled with research and analysis.

To understand Colorado's health care consumer spending and quality in relation to the national average, the Commonwealth Fund recently published a study comparing health care spending and quality across Medicare and employee-sponsored insurance nationwide. Notably, the study shows that Medicare expenditures in Colorado are 15% less than the national average for inpatient services while offering 5% higher quality care (see **Figure 10**).

⁴¹ See footnote 7.

Inpatient Spending per Beneficiary Versus Hospital Quality Score

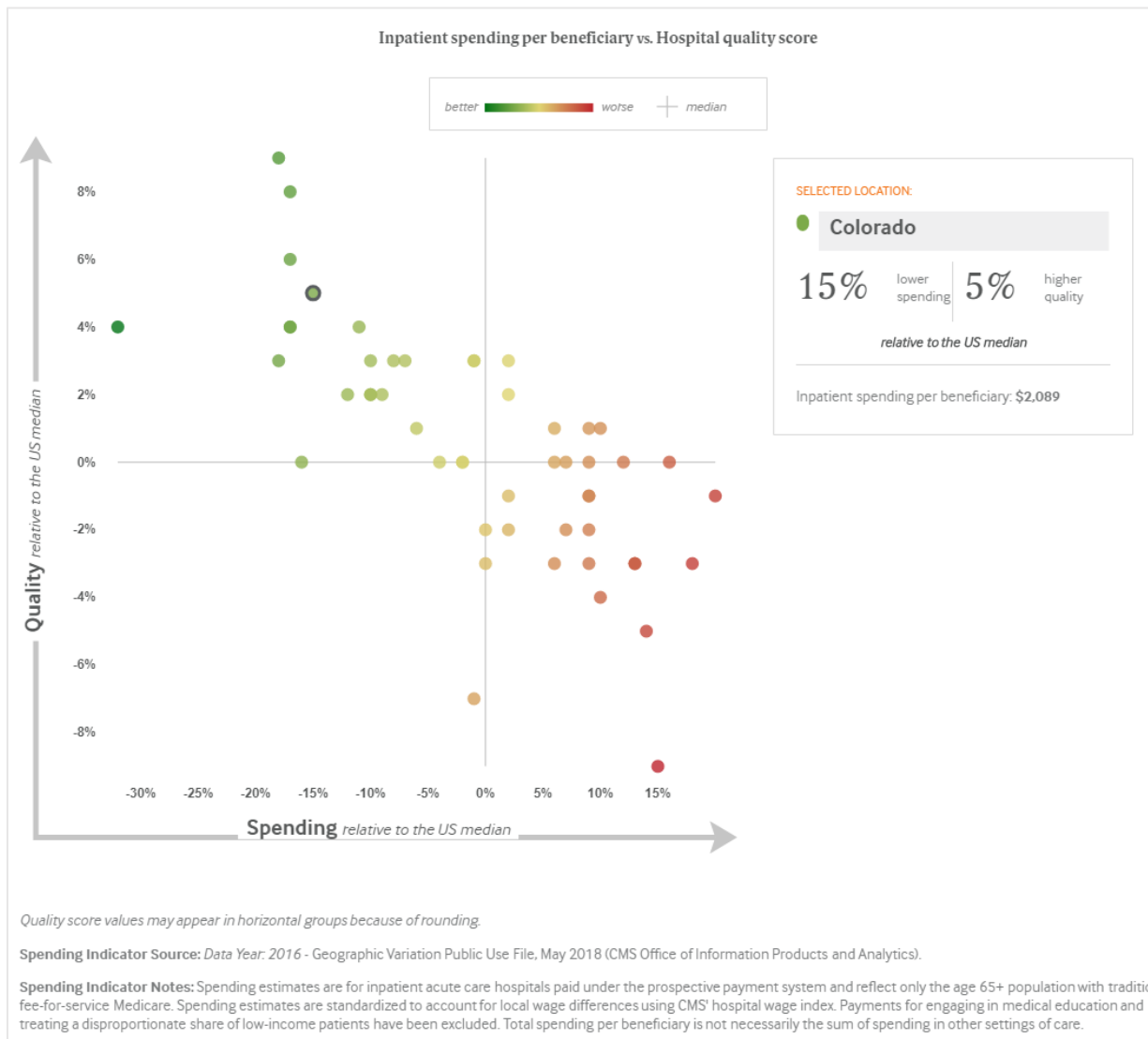


Figure 10⁴²

For a direct comparison of the Medicare and employee-sponsored spending data across Colorado and bordering states, refer to **Figure 11**. According to this data, inpatient spending in Boulder, Colorado is 17% lower for the employee-sponsored patients and 18% lower for Medicare beneficiaries than the national median. Conversely, inpatient spending in Grand Junction, Colorado varies greatly between the two coverage plans. Specifically, Grand Junction Medicare beneficiaries' spending is 33% lower than the national median, and employee-sponsored enrollees' spending is 14% higher than the national median.

⁴² The Commonwealth Fund. (2018). Health Care Quality-Spending Interactive. Retrieved from <https://www.commonwealthfund.org/health-care-quality-spending-interactive>. Original source cited for data year: 2016 - Geographic Variation Public Use File, May 2018 (CMS Office of Information Products and Analytics).

Inpatient Spending per Enrollee/Beneficiary

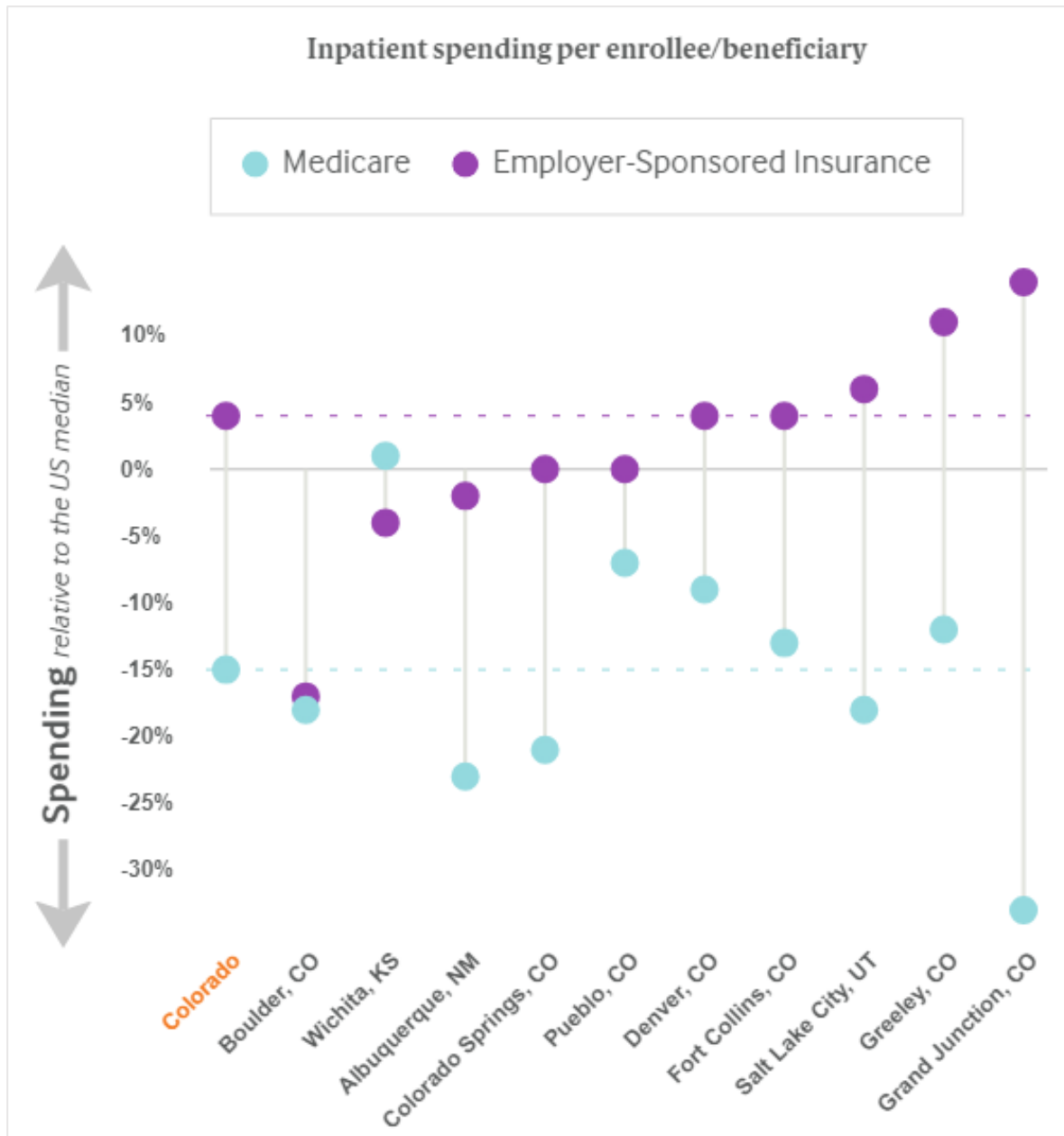


Figure 11⁴³

In line with the Commonwealth Fund findings, data compiled by the Kaiser Family Foundation (KFF) (2018) shows that Colorado is on the lower spectrum of health care expenditures per capita when compared to all other states.⁴⁴ In 2014, Colorado ranked 47 out of 51 in Health

⁴³ See footnote 424.

⁴⁴ The Kaiser Family Foundation State Health Facts. Data Source: Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends. (2017). *Medical Expenditure Panel Survey (MEPS)-Insurance Component, 2013-2017; Tables II.C.1, II.C.2, II.C.3*. Available from <https://www.ahrq.gov/> and Centers for Medicare and Medicaid Services. (2017). *National Health Expenditure Data: Health Expenditures by State of Residence*. Available from <https://www.cms.gov/> and US Bureau of the Census. (2017). *US Population by State, 2001-2014*.

Care Expenditures per capita, with \$6,804 being the state average.⁴⁵ This is 15% below the national average of \$8,045. The research also breaks down the average health care expenditures according to service, wherein Colorado ranked 42 out of 51 for hospital care expenditures per capita (Table 17)⁴⁶ Still, private insurance expenditures and premiums per capita are higher than the national average, and these averages do not reflect the regional extremes in Colorado. The Division of Insurance reports that for the same Anthem Silver on-exchange plans, premiums can range from \$500.34 to \$826.19 depending on the DOI region.⁴⁷

Expenditures per Capita

	Colorado	National Average	Colorado Ranking ⁴⁸
Health Care (2014)	\$6,804	\$8,045	47
Hospital Care (2014)	\$2,379	\$3,079	42
Private Insurance (2014)	\$4,623	\$4,551	19
Average Annual Single Premium per Enrolled Employee for Employer-Based Health Insurance (2017)	\$6,456	\$6,368	19

Table 17⁴⁹

Research showing high health care costs and low expenditures per capita in Colorado is contradictory. This is because data reporting low per capita expenditures is misleading. For instance, Colorado continues to rank as one of the healthiest states, with 86.6% of Coloradans reporting good, very good, or excellent health according to CHI (2017).⁵⁰ In addition to being one of the healthiest states, Coloradans are also well educated. According to a Wallethub (2018) analysis, Colorado ranks high in both educational attainment (#2 out of 51) and as a well-educated state (#5 out of 51).⁵¹ A well-educated, healthy population should spend less per capita on health care, comparatively.

One reason for higher health care costs in Colorado is hospital utilization according to (CIVHC) (2018).⁵² Using such metrics as the health of the population, utilization, and the price of services to measure increasing health care costs, CIVHC (2018) analyzed findings from a multi-

⁴⁵ See footnote 44.

⁴⁶ See footnote 44.

⁴⁷ Colorado Department of Regulatory Agency. (2018). 2019 Silver Plan Comparison Retrieved from <https://www.colorado.gov/pacific/dora/health-insurance-plan-filings-and-approved-plans>.

⁴⁸ Rank is descending from highest to lowest. The District of Columbia is included.

⁴⁹ See footnote 44.

⁵⁰ See footnote 33.

⁵¹ Bernardo, R. (2018). 2018's Most & Least Educated States in America. Retrieved August 31, 2018, from <https://wallethub.com/edu/most-educated-states/31075/>.

⁵² Center for Improving Value in Health Care. (2018). Total Cost of Care Multi-State Analysis. Retrieved from <https://www.civhc.org/wp-content/uploads/2018/02/Total-Cost-of-Care-Spot-Analysis.pdf>. Original source cited in Network for Regional Healthcare Improvement (NRHI). (2018). Healthcare Affordability: Untangling Cost Drivers. Retrieved from http://www.nrhi.org/uploads/rwj_tcoc_phaseiii_benchmark_2018_r7.pdf.

state study performed by the Network for Regional Healthcare Improvement (NRHI) (2018) and revealed the following findings (as cited in NRHI, 2018, p. 6):⁵³

Colorado's total costs across all services types were 17% higher when compared with the other four states included in the analysis. Colorado's total costs were driven more by higher utilization of services (11% above average) than the price of those services (6% above average), although both were a factor.

Further analysis into broad health care service categories shows that Colorado's costs were 30% higher than other states for Outpatient services [...] and Colorado's total costs were also higher than the five state average in the Inpatient (16% above average), and Pharmacy (24% above average) categories (p. 1).⁵⁴

Since CIVHC's analysis, NRHI released additional findings from its study that are reflected in **Figure 12**.

⁵³ See footnote 52. *Id.* at page 1. Original source cited in NRHI.

⁵⁴ See footnote 52. *Id.* at page 1. Original source cited in NRHI.

Total Cost of Care by Service Category

Total Cost of Care by Service Category						
Commercial Population 2016						
Combined Attributed and Unattributed						
Measure	Colorado	Maryland	Minnesota	Oregon	St. Louis, MO	Utah
Total Cost						
Overall	19%	-20%	11%	4%	-6%	-4%
Inpatient	21%	-27%	12%	5%	-13%	8%
Outpatient	34%	-34%	3%	0%	1%	5%
Professional	2%	-16%	30%	18%	-22%	-9%
Pharmacy	28%	-3%	-10%	-16%	15%	-14%
Resource Use						
Overall	5%	-7%	7%	-10%	10%	-5%
Inpatient	-8%	-10%	9%	-16%	13%	13%
Outpatient	17%	-26%	6%	-24%	29%	3%
Professional	-4%	2%	17%	-3%	-5%	-8%
Pharmacy	22%	-4%	-16%	-7%	21%	-17%
Price						
Overall	13%	-14%	4%	16%	-15%	1%
Inpatient	31%	-19%	3%	25%	-23%	-4%
Outpatient	15%	-11%	-3%	32%	-22%	3%
Professional	7%	-18%	11%	22%	-17%	-1%
Pharmacy	5%	1%	7%	-10%	-5%	4%

Note: This is the midpoint of the ranges created from the sensitivity analysis and represents the percent about or below the risk adjusted average across all regions.

[View the entire Table 2 on page 23](#)

Figure 12⁵⁵

CIVHC's (2018) research shows that it is inaccurate to solely attribute rising health care costs to utilization without distinguishing between inpatient and outpatient services. For instance, CIVHC (2018) credits hospital outpatient service use as a major contributor to rising health care costs in that it "was 25% above the benchmark, [making it] the highest percentage above the average in any category in any participating state" (p. 2).⁵⁶ Another driving factor of high health care utilization was prescription use, which CIVHC (2018) found to be 23% above the benchmark of other states examined.⁵⁷

Colorado ranks healthier than most other states for dimensions of health related to chronic diseases, particularly in obesity ranking.⁵⁸ These characteristics are attributed to the utilization of outpatient preventive care as opposed to the

⁵⁵ Network for Regional Healthcare Improvement (NRHI). (2018). Healthcare Affordability: Data is the Spark, Collaboration is the Fuel. Retrieved from http://www.nrhi.org/uploads/rwj_tcoc_phaseiii_benchmark_2018_r7.pdf

⁵⁶ See footnote 52. *Id.* at page 2. Original source cited in NRHI.

⁵⁷ See footnote 52. *Id.* at page 2. Original source cited in NRHI.

⁵⁸ United Health Foundation. (2017). America's Health Rankings Annual Report. Retrieved from https://assets.americashealthrankings.org/app/uploads/ahrannual17_complete-121817.pdf.

utilization of hospital inpatient services. In fact, supplemental data shows that the use of hospital inpatient services is far less in Colorado than other states (see Table 18).

Colorado Hospital Services per 1,000 people

	Colorado	National Average	Colorado Ranking⁵⁹
Hospital Inpatient Days per 1,000 Population (2016)	396	564	48
Hospital Outpatient Visits per 1,000 Population (2016)	1,634	2,312	45

Table 18⁶⁰

Coloradans utilize inpatient services at a rate 30% lower than the national average. CIVHC's (2018) study shows comparatively healthy states like Oregon and Utah⁶¹ pay substantially less overall total cost of care than Coloradans.⁶²

There are many opportunities to understand cost drivers of health care in Colorado. For instance, although Colorado's health care expenditures are shown to be lower than the national average per capita according to KFF's research, CIVHC (2018) determines that "32% of practices [in Colorado] are in the ideal low price, low utilization category in providing care for their patients, leaving opportunities for improvement at 68% of the practices evaluated" (p. 4).⁶³

External Uncertainties

Hospitals, like most businesses, must account for external factors that influence organizational decisions in forecasting revenue and budgeting. In line with other health care providers, hospitals consider state and/or federal health care policy, ongoing state budgetary pressures, economic downturns, an aging population and changing local community demographics, and the like.

Some external uncertainties that may influence hospital financial planning and strategic decisions include the following:

- **Medicaid Payment Delays**

Medicaid payment delays have been caused by the transition to the new Medicaid payment system, interChange. These payment delays have been addressed, and the system is operating in line with industry norms. While there are still opportunities for improvement, which the Department is focused on in partnership with DXC, interChange

⁵⁹ Rank is descending from highest to lowest. The District of Columbia is included.

⁶⁰ The Kaiser Family Foundation State Health Facts. Data Source: Health Forum, LLC. (2017). 1999 - 2016 AHA Annual Survey, Available from at <http://www.ahaonlinestore.com> and U.S. Census Bureau. Population data from Annual Population Estimates by State, Available from <http://www.census.gov/popest/>.

⁶¹ See footnote 58.

⁶² See footnote 52. Original source cited in NRHI.

⁶³ See footnote 52. *Id.* at page 4. Original source cited in NRHI.

has optimized claims processes and created efficiencies for both providers and the Department.

- Hospital All Patient Refined Diagnosis Related Groups (APR-DRG)

Hospitals cannot predict APR-DRG weights since the data fluctuates and is received retroactively. Hospitals' forecasting models should consider data fluctuations since their payment structure is based on the APR-DRG weights. Further, the Department recalibrates APR-DRG weights less frequently than other mechanisms for payment, allowing for relatively reduced uncertainties for hospitals.

- Delayed CHASE Fee Approval

CHASE fee, payment model completion, and approval of an upcoming calculation do not happen until after the new model year has already started, making budgeting for the hospital provider fee and payment difficult. This is because the calculation relies on data being collected from previous fiscal periods. The Department is working with providers and subject matter experts to improve its processes by shifting the payment model completion to earlier in the year.

- 2016 and 2017 TABOR Reductions to the Hospital Provider Fee

In 2016 and 2017, the General Assembly reduced the amount of money collected for hospital provider fees to remain within the TABOR revenue limit.^{64,65} For 2016, the provider fee was reduced by approximately \$100 million, which resulted in an approximately \$200 million reduction in supplemental payments. For 2017, a similar proposal reduced the hospital fees collected by approximately \$250 million, or \$500 million in supplemental payments when including the federal match; however, with the passage of Senate Bill 17-267, which repealed the CHCAA and enacted CHASE, the reductions for 2017 did not occur.

Although TABOR reductions may have caused uncertainty for hospital providers, hospitals were not anticipating any revenue from the hospital provider fee for these years. This is because, in 2009, the legislative council predicted rebates under the TABOR revenue limits for the hospital provider fee. Hospitals should be factoring in these types of risks when forecasting future revenues.

- TABOR Lawsuit

The 2015 lawsuit, which is pending a fall 2019 decision, is a long term forecasting uncertainty. An unfavorable outcome could mean an elimination or reduction of payments

⁶⁴ Concerning the provision for payment of the expenses of the executive, legislative, and judicial departments of the state of Colorado, and of its agencies and institutions, for and during the fiscal year beginning July 1, 2016, except as otherwise noted, HB16-1405, General Assembly of the State of Colorado. (2016).

⁶⁵ Concerning the provision for payment of the expenses of the executive, legislative, and judicial departments of the state of Colorado, and of its agencies and institutions, for and during the fiscal year beginning July 1, 2017, except as otherwise noted, SB17-254, General Assembly of the State of Colorado. (2017).

to hospitals moving forward. However, this change would not occur until all appeals are settled—many years from now.

Policy agendas and programmatic improvements are at the forefront of this bipartisan discussion. External uncertainties help frame the discussion points concerning hospital cost growth and cost shifting; however, they cannot explain the growing evidence that health care costs in Colorado are outpacing the nation.⁶⁶

To stay ahead of the discussion, the CHASE Board is dedicated to analyzing and researching ways to improve Colorado's health care system so that it can continue making informed policy recommendations now and in the future. Moreover, addressing these challenges allows for collaboration between the CHASE Board, legislators, Department staff, CHA, members, and providers to identify health care costs and spending opportunities, implement programmatic efficiencies and tools, and to develop cost control initiatives.

Section Conclusion

The growth in the overall margins per adjusted discharge, which is double that of 2009, shows that hospitals receive more per adjusted discharge today than they ever have. In fact, since the implementation of the ACA, hospitals receive over \$1,000 per adjusted discharge, translating to a \$1 billion increase in margin (see Table 8 and Table 16). While patient payer mix has shifted amongst payer types, volume from commercial payers has remained steady and hospital charity care and bad debt have declined to less than half their pre-ACA amounts. The increase of covered lives along with growing consumer health-consciousness are positive changes seen over the last decade. Neither external factors, which all industries experience, nor the available aggregated data explain why the cost shift to commercial payers has increased.

Hospital Actions Influencing Cost Shifting

Several factors influence Colorado hospital costs like capital improvements and infrastructure improvements, construction, mergers and acquisitions of hospitals, physician group practice acquisitions, and investments in new technology and practice tools like EPIC. Most decisions a hospital makes that impact their costs are within their control. **One possible conclusion from the aggregated data could be that hospitals have raised their prices to cover their rising costs rather than limiting costs.**

According to a recent multi-state benchmark analysis, the NRHI (2018) found that "Colorado's hospital prices were 31[%] higher than the [national] average" for years 2014-2016.⁶⁷ These high prices incorporate construction costs of new hospital wings and buildings which effectively

⁶⁶ See Hospital Cost Growth section of this report and footnote 68.

⁶⁷ Network for Regional Healthcare Improvement (NRHI). (2018). Healthcare Affordability: Data is the Space, Collaboration is the Fuel. Retrieved from http://www.nrhi.org/uploads/rwj_tcoc_phaseiii_benchmark_2018_r7.pdf.

increase health care costs. Using the available data, analysis of costs per adjusted discharge show that **Colorado has the second highest construction costs per adjusted discharge in the nation** (See **Figure 16**).⁶⁸

Like many industries, hospitals have pursued mergers and acquisitions for a variety of reasons, including negotiating power with commercial carriers, economies of scale in covering overhead and innovations like EPIC, market share capture, and the like. The merger, acquisition, and construction trend is impacting the competitive marketplace and the prices to market. To get a better understanding of hospitals costs and their impact, the following is an assessment of drivers of hospital cost growth.

Hospital Cost Growth

Table 19 below shows patient service cost (see **Table 7** for a breakdown by payer type) and overall costs, which includes costs not associated with patient services. **Hospital costs have grown since 2009 with an eight-year average annual growth of 7.5% for patient services costs. Between 2015 and 2017, hospitals reported an increase of more than \$2 billion in overall expenses to DATABANK, from \$12.5 billion to \$14.7 billion in 2017, growing 9.0% and 7.4% respectively.**⁶⁹

Overall Hospital Costs					
Year	Patient Services	Other	Overall	YOY Difference	Growth
CY 2009	9,052.3M	198.4M	9,250.7M	-	-
CY 2010	9,800.0M	227.7M	10,027.7M	777.0M	8.4%
CY 2011	10,262.6M	158.0M	10,420.6M	392.9M	3.9%
CY 2012	10,984.9M	160.5M	11,145.4M	724.8M	7.0%
CY 2013	11,525.2M	168.3M	11,693.6M	548.2M	4.9%
CY 2014	12,069.9M	161.1M	12,231.1M	537.5M	4.6%
CY 2015	12,384.5M	153.7M	12,538.2M	307.1M	2.5%
CY 2016	13,498.8M	172.2M	13,670.9M	1,132.8M	9.0%
CY 2017	14,506.6M	174.0M	14,680.6M	1,009.7M	7.4%

Table 19⁷⁰

To determine if the cost growth reflects the increase in volume of services, cost growth is compared to patient volume (adjusted discharges) growth. This is illustrated in **Figure 13**, which comparatively shows how aggregate overall costs have grown at a greater rate than adjusted discharges. **Between 2009 and 2017, overall costs grew 58.7% while patient volume (adjusted discharges) only grew 14.2%. Hospital cost growth has significantly surpassed demand as measured by adjusted discharges. This could reflect a delivery system efficiency opportunity.**

⁶⁸ Data generated from Medicaid cost reports specifically for the Department by consultants.

⁶⁹ See footnote 7.

⁷⁰ See footnote 7. Rounding may cause discrepancies.

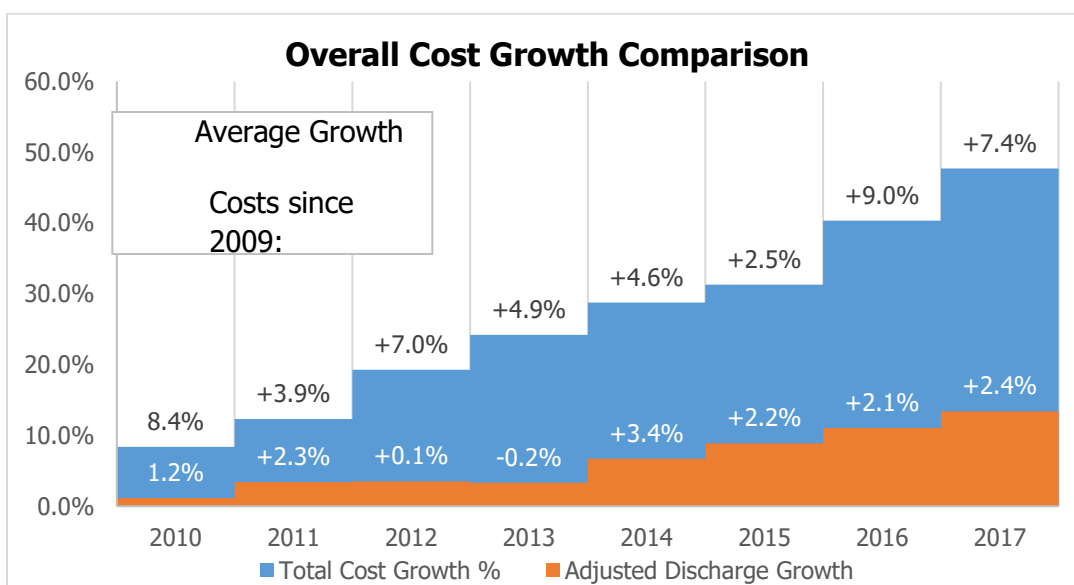


Figure 13⁷¹

From 2009 through 2017, the eight-year average patient services cost growth was 7.5%. If costs had grown in line with the Medicare Market Basket for Inpatient Prospective Payment Systems (MMB IP PPS) or with the national cost trend from hospitals' Medicare cost reports, the cost growth would have been approximately 4.4%, which may have lowered the cost shift to commercial payers (see **Table 20**).⁷² Other figures that can be used for comparison are price indexes, both the Consumer Price Index (CPI) and Producer Price Index (PPI). Nationally, eight-year price indices growth for hospital service consumers is double that of the production of hospital services.^{73,74} **Colorado hospital patient service costs have exceeded all these indices.**

Source	Average
DATABANK – Patient Services	7.5%
MMB IP PPS	4.4%
Cost Report – National Average	4.3%
CPI for Hospital Services	5.8%
PPI for Hospital Services	2.0%

⁷¹ See footnote 7.

⁷² Center for Medicare and Medicaid Services. (2018). *Market Basket Data*. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareProgramRatesStats/MarketBasketData.html>

⁷³ National Bureau of Labor Statistics. (2018). Consumer Price Index: Hospital and related services in U.S. city average, all urban consumers, not seasonally adjusted, 2009 through 2017. Retrieved from <https://www.bls.gov/>

⁷⁴ National Bureau of Labor Statistics. (2018). Producer Price Index: PPI industry group data for General medical and surgical hospitals, not seasonally adjusted, 2009 through 2017. Retrieved from <https://www.bls.gov/>

Table 20^{75,76,77,78}

Further analysis was performed to determine if the growth is normal on a per adjusted discharge basis. **Figure 14** below shows operating expenses from the Medicare Cost Report per adjusted discharge for Colorado and the nation. **Colorado's operating expense per adjusted discharge grew by 39.3% between 2009 and 2017, while national operating expense per adjusted discharge was 26.2%. Colorado operating expenses per adjusted discharge are now 13.9% higher than the national average.**

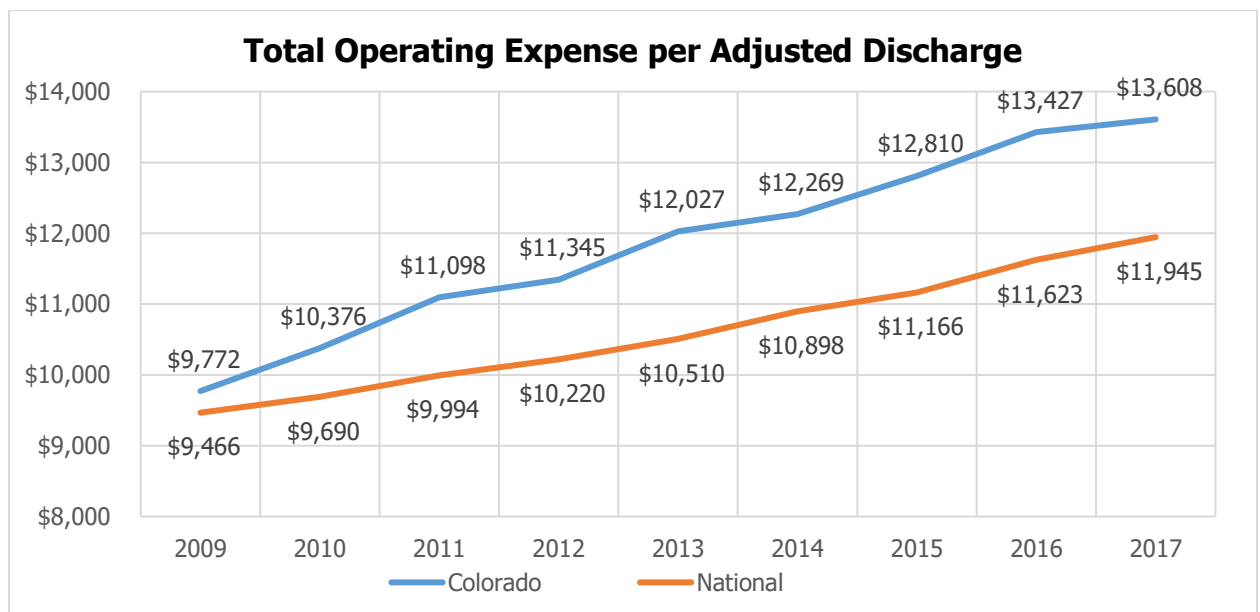


Figure 14⁷⁹

Hospital Decisions Influencing Costs and Price

As hospital systems have grown through vertical integration (physician acquisition) and horizontal integration (hospital acquisition), overhead costs have grown. As hospital systems merge and build new hospitals and services, their power in carrier negotiations increases, enabling hospitals to capture commercial carrier reimbursement rate increases in excess of need.

In aggregate, Colorado's hospitals have: (1) increased construction projects significantly; (2) integrated physicians into their value chain, which controls admissions; and (3) consolidated.

⁷⁵ See footnote 7.

⁷⁶ See footnote 72.

⁷⁷ See footnote 73.

⁷⁸ See footnote 74.

⁷⁹ See footnote 68. Methodology: Data is sourced from the Medicare Cost Report. Only hospitals that had operating expense, admin costs, and capital costs are included, while all hospitals with values in operating expense, admin costs, capital costs, medical costs, and discharges less than or equal to 1 are excluded. Only hospitals with data for all eight years of the analysis, with cost reports representing a full year are included.

This section also explores hospital cost decisions using a national study showing the relationship between hospital executive leadership salary and the health care system.⁸⁰ See Figure 15 below for a visualization of how hospital business choices interact with business decisions.

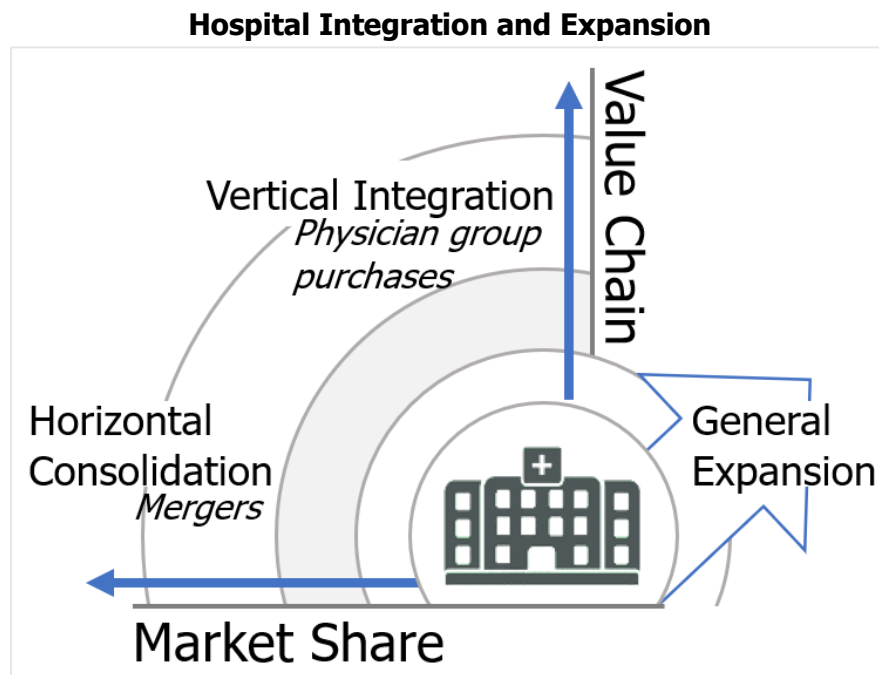


Figure 15

Colorado's capital costs are among the highest per adjusted discharge, second only to Alaska (see **Figure 16**).⁸¹ Since Colorado does not have a certificate-of-need program or related legislation that controls expansion, the expansion is unchecked.

⁸⁰ Du et al. (2018). The Growing Executive-Physician Wage Gap in Major US Nonprofit Hospitals and Burden of Nonclinical Workers on the US Healthcare System. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/30001293>.

⁸¹ See footnote 68.

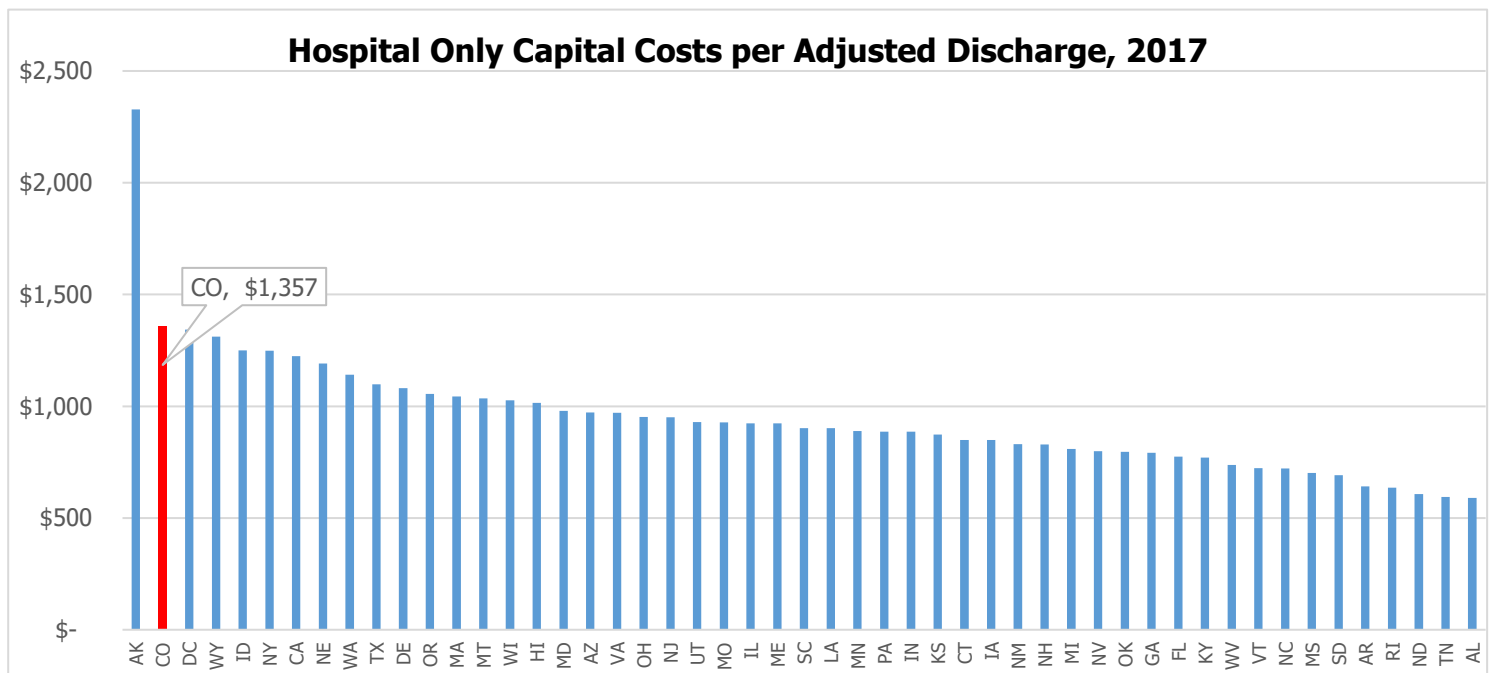


Figure 16⁸²

Hospital systems assert that new hospitals and additional beds are driven by population needs.⁸³ To assess these needs, **Table 20** below exhibits beds per one (1) thousand people in the DOI region. These figures do not include services from the freestanding emergency departments, which are predominately found on the Front Range.⁸⁴ **New construction seems to correspond to the regions that do not need new facilities nor new hospitals, with new hospital construction concentrated largely in the higher income areas of Colorado, such as Longmont/Boulder.**

Regional Current Beds per 1000 Coloradans, 2017

DOI Regions	Population ⁸⁵	Beds ⁸⁶	Beds/ 1000
Boulder	322,514	712	2.21
Colorado Springs	723,878	947	1.31
Denver Metro	2,888,227	6,082	2.11
Fort Collins	343,976	590	1.72

⁸² See footnote 68. Methodology: This data is from Medicare cost report, Worksheet B, Part 1, which provides information on annual capital costs. These costs include depreciation of previously acquired assets and capital related lease, interest, tax and insurance costs. The ranking of 2016 hospital only capital costs per adjusted discharges comparing across all states is sourced from this data.

⁸³ Denver Post. (2018). Colorado hospitals charge insured patients significantly more than five other jurisdictions, survey finds. Retrieved from <https://www.denverpost.com/2018/11/09/colorado-hospitals-charge-insured-patients-more-study/>.

⁸⁴ For a list or map of Colorado hospitals and freestanding emergency departments visit <https://www.colorado.gov/pacific/cdphe/designated-trauma-centers>.

⁸⁵ United States Census Bureau. (2017). QuickFacts. Retrieved from <https://www.census.gov/quickfacts/fact/table/co/PST045217>.

⁸⁶ American Hospital Association. (2017). Fast Facts on U.S. Hospitals 2017. Retrieved from <https://www.aha.org/statistics/fast-facts-us-hospitals-2017>.

Regional Current Beds per 1000 Coloradans, 2017

DOI Regions	Population ⁸⁵	Beds ⁸⁶	Beds/ 1000
Grand Junction	151,616	431	2.84
Greeley	304,633	429	1.41
Pueblo	166,475	758	4.55
East	273,543	520	1.90
West	432,292	644	1.49
Colorado	5,607,154	11,113	1.98
National	325,719,178	897,961	2.76

Table 21

Executive salaries also impact hospital costs. A 2018 study found a 93% mean increase in nationally sampled non-profit hospital executive salaries despite an absence of proportionate increases of service utilization.⁸⁷ In 2014, average annual salaries for nationally sampled Hospital CEOs were \$386,000.⁸⁸ Observing this trend locally, the average compensation for a Colorado Springs CEO was \$747,000 in 2016.⁸⁹ These statistics are often underestimations as top executives are usually compensated by other means than salary.⁹⁰ For instance, a 2018 report found that of 1,332 hospitals across the country sampled, 76% offered a bonus up to 269% of the base salary, with the average bonus at about 33%.⁹¹

Colorado hospitals are also rapidly merging. As a result of consolidations, just over half of general and critical access hospitals—forty-one (41) of eighty-one (81) hospitals—belong to a hospital system. See **Figure 17** for a map of hospital locations and ownership in 2018. **While there may be cost savings to hospital operations from being part of a system, there is no evidence that economies of scale savings are being passed along to commercial consumers, carriers or self-funded employers.** In fact, the National Council on Compensation Insurance (NCCI) reports that “research to date shows that hospital mergers increase the average price of hospital services by 6%-18%”.⁹² Another study found that hospital pricing increases could be more than 20% and result in the reduction of quality for some procedures.⁹³

Colorado’s largest hospital systems have dramatically expanded their control of the Colorado hospital landscape—and therefore the overall health care landscape. **In 2009, only six (6)**

⁸⁷ See footnote 80.

⁸⁸ New York Times. (2014). Medicine’s Top Earners Are Not the M.D.s. Retrieved from <https://www.nytimes.com/2014/05/18/sunday-review/doctors-salaries-are-not-the-big-cost.html>.

⁸⁹ Gazette. (2018). Colorado Springs nonprofit CEOs' compensation averaged \$747,000 in 2016. Retrieved from https://gazette.com/business/colorado-springs-nonprofit-ceos-compensation-averaged-in/article_e4e0a8d6-c687-11e8-a476-6fc4d736fd18.html.

⁹⁰ See footnote 88.

⁹¹ Becker’s Hospital Review. (2018). Average hospital CEO bonus is 33% of base salary. Retrieved from <https://www.beckershospitalreview.com/compensation-issues/average-hospital-ceo-bonus-is-33-of-base-salary.html>.

⁹² National Council on Compensation Insurance. (2018). The Impact of Hospital Consolidation on Medical Costs. Retrieved from https://www.ncci.com/Articles/Pages/II_Insights_QEB_Impact-of-Hospital-Consolidation-on-Medical-Costs.aspx.

⁹³ Robert Wood Johnson Foundation. (2012). The Impact of hospital consolidation – Update. Retrieved from https://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf73261.

systems owned twenty-three (23) Colorado hospitals; today, seven (7) systems own forty-one (41) Colorado hospitals through a combination of mergers, acquisitions, and new construction. UCHHealth has grown from one (1) to eleven (11) hospitals. Centura Health has grown from ten (10) to seventeen (17). Banner Health has grown from two (2) to five (5). Since hospital mergers and consolidation are on the rise, these figures are in constant motion. For example, the pending acquisition of Community Hospital in Grand Junction by Centura Health is not reflected in these figures.

The Department believes that additional analysis is required to fully understand the impact of these expanding systems, including deeper dives into:

- Billing Practices

For example, some hospitals add facility fees to physician billings post acquisition of physician practices when such facility fees were not present before the acquisition. This change in billing practice increases costs to employers, carriers, and public programs like Medicaid.

- Patient Referral Practices

Thorough comparison is needed between patient referral practices of physicians owned by hospitals versus independent physicians to fully quantify the financial impact to consumers, employers, commercial carriers, and public plans like Medicaid. For example, physicians owned by hospitals are required to follow clinical pathways associated with their parent owner facilities as a priority to lowest cost or higher quality settings.

- How Hospital Systems Alter or Reclassify Setting to Increase Revenues

This practice increases costs to consumers, employers, commercial carriers, and public payers like Medicaid. It occurs when a hospital buys a standalone surgical facility or an imaging center and begins billing those centers at the higher hospital rates.

Hospitals are acquiring assets at fast pace, yet our ability to quantify the impact is limited. This is because hospitals can bill for services from one general National Provider Identifier (NPI) post acquisition. In essence, the purchased location disappears from data analytics, lost inside the system's single NPI making pre- and post-acquisition comparisons more difficult and requiring the cooperation of the system to complete a thorough analysis. **This is an opportunity for future analysis and reporting.**

Rapid Hospital Consolidation

Hospital Locations and Their Ownership, 2018

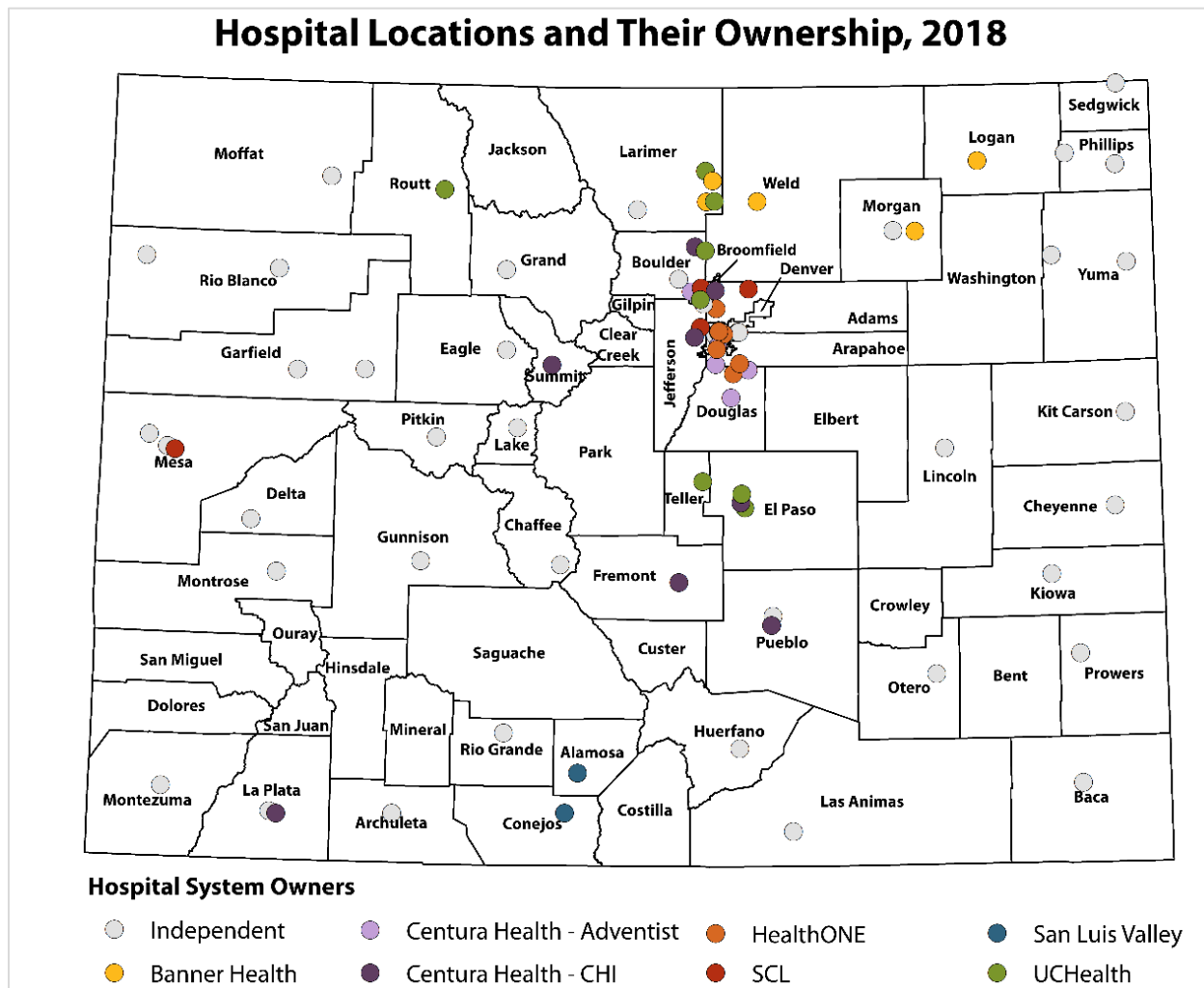


Figure 17⁹⁴

The chart below (**Figure 18**) illustrates the significant increase in hospital owned physicians and physician groups in Colorado. This trend is not equally spread across the state. Some metropolitan areas are experiencing more physician group acquisition like greater Denver, Boulder, Fort Collins, Grand Junction, etc. The cost impact to those communities—to employers, consumers, commercial payers, and Medicaid—is more pronounced.

⁹⁴ See footnote 68.

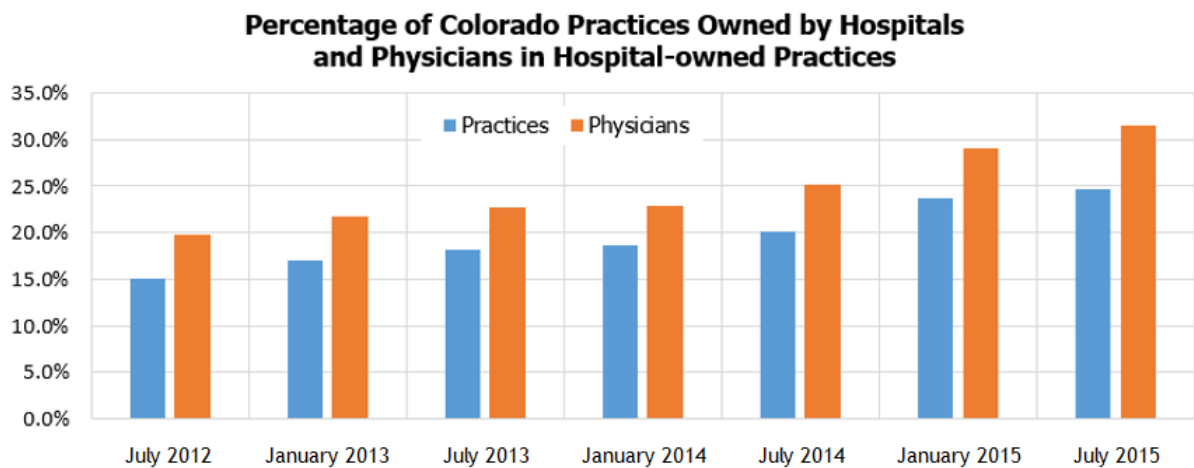


Figure 18⁹⁵

The impact of this trend—hospitals buying physicians and physician groups—is provided below by the Physician Advocacy Institute (PAI), which determined that:

“When physicians are employed by hospitals or health systems, they perform more services in a hospital outpatient department setting (HOPD) than independent physicians,” and that “the higher proportion of services performed in a HOPD setting increases both costs to the Medicare program and financial responsibility for patients.”⁹⁶

Ultimately, care is more expensive in hospital-owned facilities/practices. Figure 19 shows outpatient departments charging 80% more for cardiac imaging, 35% more for a colonoscopy, and 29% more for evaluation and management. Hospitals not only internalize costs with the purchase of physician groups, increasing overall hospital costs, but patients who utilize their services are charged more than if they had gone to a physician’s office.

⁹⁵ See footnote 68.

⁹⁶ Physicians Advocacy Institute. (2018). Updated Physician Practice Acquisition Study: National and Regional Changes in Physician Employment 2012-2016. Page 15. Retrieved from <http://www.physiciansadvocacyinstitute.org/Portals/0/assets/docs/2016-PAI-Physician-Employment-Study-Final.pdf>.

Hospital Owned Care Versus Non-Hospital Owned Care

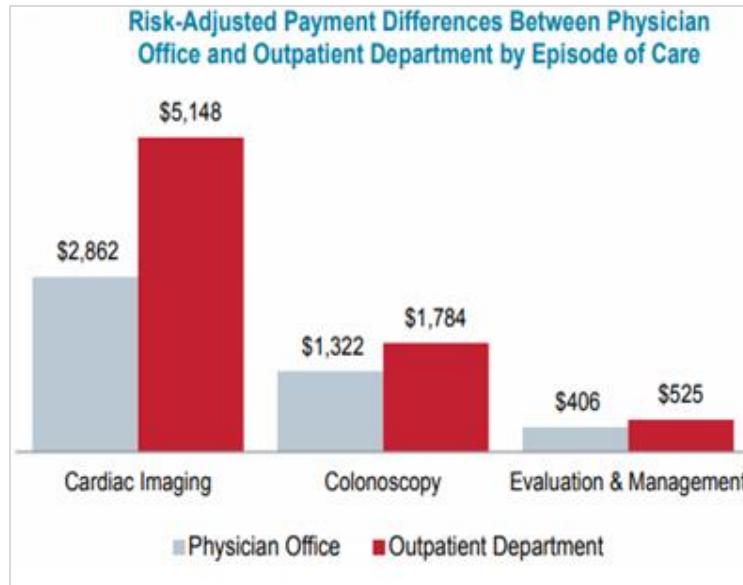


Figure 19⁹⁷

The purchase of physician groups also affects the quality of care. This is because hospital owned physicians are advised to send patients for procedures within the parent system, even if a provider outside that system has shown to achieve better results outside that system.⁹⁸ **The vertical integration of physician groups increases hospital costs and pressures physicians to admit patients to their parent hospital system versus admitting to the most cost effective, high quality alternative.**

In addition to the impact on cost and patient quality to the community, increasing hospital vertical and horizontal integration/acquisition, new construction and the like call into question the appropriate use of revenue by a not-for-profit hospital, given non-for-profit hospitals' community service obligation. The funds necessary to make acquisitions or to finance new construction come from the service fees paid by local community employers, consumers, their commercial carriers, and public plans like Medicaid. Colorado hospital construction and acquisition expenses since 2009 are in the billions of dollars. There is a clear need for additional transparency and analytics into the dollars spent by hospitals on construction and acquisition (physician and hospital) and the associated impact on health care costs. There is a concurrent opportunity to establish more effective ways for communities across the state to better control and influence these decisions to ensure that meeting community needs is the highest priority.

⁹⁷ Physicians Advocacy Institute (PAI). (2018). Updated Physician Practice Acquisition Study: National and Regional Changes in Physician Employment 2012-2016. Retrieved from <http://www.physiciansadvocacyinstitute.org/Portals/0/assets/docs/2016-PAI-Physician-Employment-Study-Final.pdf>.

⁹⁸ HealthCare Dive. (2018). More doctors become hospital employees, facing noncompetes. Retrieved from <https://www.healthcaredive.com/news/more-doctors-become-hospital-employees-facing-noncompetes/522859/>.

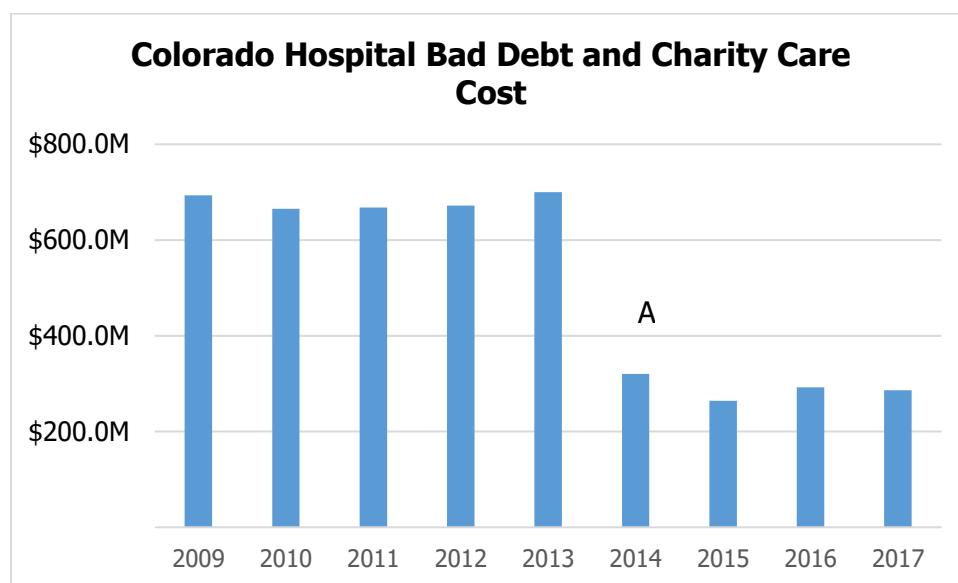


Figure 20⁹⁹

Not-for-profit hospitals receive their tax-exempt status by providing certain benefits to the community, but the aggregate decline in their charity care/bad debt has reduced the traditional value of their community contribution, as noted in the above graphic, **Figure 20**. Concurrent to the estimated \$400 million annual decline in charity care/bad debt is a significant and parallel rise in hospital construction, physician acquisition, and executive compensation.

Greater transparency into hospital financials is needed both as a historic look back and going forward. Such transparency will help communities and public entities understand hospital decisions, their impact, and if hospitals are or are not meeting their not-for-profit obligations to the communities they serve. Transparency and evolving policy could fundamentally change how acquisition and new construction decisions are made, since it could allow the very communities financing these decisions to have more oversight in the process.

Ultimately and through greater financial transparency, each community can have far greater insight into their not-for-profit hospital financials, their business decisions, how those decisions do or do not respond to the voices of the community as documented in the Community Health Needs Assessment and whether or not the decisions made by the hospital are in the best interest of the community. Further, in-depth analysis can shed light on how hospitals employed their charity care savings, such as whether those savings were re-invested into the community, were used to capture market share through vertical or horizontal acquisition, increased hospital margins, or used to reduce the cost shift to commercial consumers and employers.

Section Conclusion

⁹⁹ Colorado Healthcare Affordability and Sustainability Enterprise (CHASE). (2017) CHASE Annual Report. Also see footnote 6 for data citation.

Colorado's Front Range along with other Metropolitan Statistical Areas (MSA) are dominated by expanding hospital systems that hold the power in commercial carrier negotiations that significantly influence health care market prices. The integration of physician groups into these hospital systems is driving an increase in costs and prices to consumers, employers and their payers and may reduce the ability of physicians to refer care to preferred lower cost, higher quality settings outside their system. Acquisitions also may result in increased billings from added facility fees or higher cost altered setting classifications like billing an Ambulatory Surgery Center (ASC) at a hospital outpatient rate. Vertical and horizontal integration across the state, new hospital construction, and increases in CEO compensation have run parallel to the decrease in charity care and the CHCAA and CHASE which have driven additional funding to hospitals.

Available data also suggests that hospitals may have chosen to cost shift to the commercially insured above what is needed to compensate for public program underfunding (i.e.: Medicaid and Medicare).

One interpretation of the data suggests that hospitals could have reduced their cost shift or fee increases to commercial carriers and their employer and consumer clients. This could have been achieved by maximizing the benefits of CHCAA, CHASE and the ACA: increased hospital Medicaid reimbursement, reduction in charity care, and increased revenues from the reduction in the number of uninsured Coloradans while managing costs at or close to the national average. With the data available it is indeterminant to what extent that would have been possible by hospital.

There is a need for more transparency into hospital financial data as well as clarification of not-for-profit obligations to communities. There is further opportunity for each community to have more influence on hospital business decisions.

Modeling Scenarios

HCPF modeled two scenarios in order to explore the potential impact on insurance costs if the additional revenue realized by hospitals as a result of the CHCAA and the ACA had been applied to reducing the cost shift to the private insurance market. These scenarios are based on currently available data. Increased access to hospital data, particularly to individual rather than aggregated hospital data, would enhance HCPF's analysis of how hospitals are using provider fee dollars.

The following modeling scenarios analyze the payment-to-cost ratio data set under different circumstances. By holding certain financial factors steady, while adjusting specific variables, these modeling scenarios estimate the impact on commercial payments. As previously discussed, hospital charges to commercial payers factor directly into premium rates paid by insured employers and consumers, as well as self-funded employers, union trust plans and the like. The findings of these scenarios indicate that cost shifting to commercial plans would have decreased had hospitals:

- Maintained margin rates to pre-hospital provider fee/ACA levels
- Maintained or managed costs at reasonable trends.

Modeling to Evaluate Margins and Cost Shifting Choices

To test the financial impact of hospital margins (profits) on cost shifting, commercial payments scenarios were modeled using three (3) criteria: (1) cover the proportion of actual costs reported for commercial payer services from DATABANK; (2) cover all other payer under-compensated costs to ensure positive margins; and (3) hold overall payment-to-cost ratios at 2009 levels (1.05) to examine the aforementioned increases. **Tables 22 and 23** consider hospital costs from **Table 7** and display the data two (2) different ways. Holding the overall payment-to-cost ratios steady at 2009 levels (1.05), **Table 22** compares hospital payment amounts while **Table 23** compares the payment-to-cost ratios. **The results of this scenario suggest that the underpayments associated with Medicare and Medicaid public programs are not the reason for the increasing cost shift to commercial carriers.**

Modeling Scenario Payment Compared

	Commercial	Scenario Commercial	Difference Commercial
CY 2009	6,043.5M	6,043.5M	-
CY 2010	6,082.9M	5,988.7M	94.2M
CY 2011	6,538.3M	6,279.2M	259.1M
CY 2012	6,963.0M	6,747.9M	215.0M
CY 2013	7,081.5M	7,018.0M	63.5M
CY 2014	7,373.5M	7,078.9M	294.5M
CY 2015	7,396.1M	6,926.5M	469.7M
CY 2016	8,270.7M	7,739.9M	530.8M
CY 2017	8,787.8M	8,253.4M	534.4M

Table 22¹⁰⁰

Modeling Scenario Payment-to-cost Ratio Compared

	Commercial	Scenario Commercial	Difference Commercial
CY 2009	1.55	1.55	-
CY 2010	1.49	1.47	0.02
CY 2011	1.54	1.48	0.06
CY 2012	1.54	1.50	0.04
CY 2013	1.52	1.50	0.02
CY 2014	1.59	1.53	0.06
CY 2015	1.58	1.48	0.10
CY 2016	1.64	1.53	0.11
CY 2017	1.66	1.56	0.10

Table 23¹⁰¹

The modeling suggests that had commercial payments been reflective of the benefits from CHCAA, CHASE, and the ACA, commercial payments and the commercial payment-to-cost ratio would be significantly less, even with 5% margins or an overall payment-to-cost ratio of 1.05. Moreover, this scenario indicates that commercial payments and profits would have been

¹⁰⁰ See footnote 7.

¹⁰¹ See footnote 7.

between \$63.5 million and \$534.4 million less each year had margins remained at 2009 levels, while the commercial payment-to-cost ratio would have remained relatively flat from 2009 levels of 1.55. **Given these findings, an appropriate conclusion is that increased cost shifting to commercial payers resulted in rising margins and exceeded the financial requirement to cover underpayments by public programs.** See **Appendix C** for additional information related to payment-to-cost modeling.

Effect of Costs

To assess the impact of hospital costs and hospital cost growth on patient service costs, a scenario was applied to DATABANK data. The scenario considers 2009 patient service costs and adjusts them according to inflation and volume factors using the MMB IP PPS and adjusted discharge growth. Other operational costs are held at actual figures (See **Table 24**). The difference between the modeling scenario and actual cost indicates that there are additional elements influencing hospital cost growth beyond price and volume. **The modeling suggests that if costs had grown with inflation and volume, then costs would be significantly less than the actual costs reported. This translates to 8.3% in cost savings or \$7.9 billion dollars from 2009-2017.**

Modeling Scenario Overall Costs Versus Actual Overall Costs

	Actual	Scenario	Difference
CY 2009	9,250.7M	9,250.7M	-
CY 2010	9,555.9M	10,027.7M	(471.8M)
CY 2011	9,955.0M	10,420.6M	(465.6M)
CY 2012	10,275.5M	11,145.4M	(869.9M)
CY 2013	10,508.7M	11,693.6M	(1,184.8M)
CY 2014	11,064.7M	12,231.1M	(1,166.4M)
CY 2015	11,580.5M	12,538.2M	(957.6M)
CY 2016	12,126.1M	13,670.9M	(1,544.8M)
CY 2017	12,745.5M	13,995.3M	(1,249.8M)

Table 24¹⁰²

To further test the model, additional analysis was performed by adjusting scenario costs by varying inflation factors. Several factors were examined to ensure an accurate assessment was used to adjust scenario costs. The MMB IP PPS was determined to be the most reasonable and conservative estimate among the growth measures assessed and is in line with the national cost trends of hospitals. Other measures examined included the Social Security Administration's Cost of Living Adjustment (COLA), the Chained Consumer Price Index (C-CPI-U), and the Colorado Regional Price Parity (CO RPP). The overall modeling costs using these different inflation growth factors are displayed in **Table 25**, and a comparison of seven-year growth is displayed in **Table 26**.

¹⁰² See footnote 7.

Average Overall Cost Growth Compared

Cost Source	Dollars	Per Adjusted Discharge
DATABANK – Colorado Hospital Actual	6.4%	5.0%
Scenario (MMB IP PPS)	4.3%	2.7%
Cost Report – Colorado	6.1%	4.9%
Cost Report – National	3.9%	3.3%
COLA	2.8%	1.0%
C-CPI-U	2.9%	1.1%
CO RPP	3.1%	1.3%

Table 25^{103,104,105,106,107}

Actual Versus Modeling Scenario Overall Costs Compared

	DATABANK	Scenario	COLA	C-CPI-U	CO RPP
CY 2009	9,250.7M	9,250.7M	9,250.7M	9,250.7M	9,250.7M
CY 2010	10,027.7M	9,555.9M	9,555.9M	9,680.1M	9,641.9M
CY 2011	10,420.6M	9,955.0M	10,313.3M	10,243.6M	10,094.3M
CY 2012	11,145.4M	10,275.5M	10,450.2M	10,429.6M	10,388.5M
CY 2013	11,693.6M	10,508.7M	10,666.4M	10,645.3M	10,729.4M
CY 2014	12,231.1M	11,064.7M	11,252.8M	11,120.0M	11,286.0M
CY 2015	12,538.2M	11,580.5M	11,580.5M	11,626.8M	11,881.6M
CY 2016	13,670.9M	12,126.1M	12,162.5M	12,356.5M	12,489.9M
CY 2017	13,995.3M	12,453.5M	13,000.4M	12,962.1M	Not Available

Table 26¹⁰⁸

Based on this analysis, the modeling suggests that had hospital costs grown according to the non-DATABANK scenarios in **Table 25**, hospitals would have seen greater margins which could have been retained in the form of profits or used to reduce prices to consumers, employers, and their commercial payers.

Expanding on this scenario, the impact of costs on cost shifting is modeled. For this assessment, costs are replaced with scenario model costs from **Table 24**, payments from non-commercial payer types are held at current levels, and commercial payments are adjusted so

¹⁰³ See footnote 7.

¹⁰⁴ See footnote 72.

¹⁰⁵ Social Security Administration. (2018). Cost-Of-Living Adjustments. Retrieved from <https://www.ssa.gov/oact/cola/colaseries.html>.

¹⁰⁶ National Bureau of Labor Statistics. (2018). Table 24C. Historical Chained Consumer Price Index for All Urban Consumers (C-CPI-U): U. S. city average, all items. Retrieved from <https://www.bls.gov/cpi/additional-resources/chained-cpi-table24C.pdf>.

¹⁰⁷ Bureau of Economic Analysis. (2018.) RPP1- Regional Price Parities by state, Colorado, Years 2010-2016, RPPs: All items. Retrieved from <https://apps.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=8#reqid=70&step=1&isuri=1>. Averages reflect available data.

¹⁰⁸ See footnote 7, 72, 105, 106, and 107.

that margins are equivalent to what occurred. **Table 27** exhibits the formula that calculates commercial payments from costs.

Scenario Calculation

	<i>Overall Payment to Cost Ratio</i>
×	<i>Cost</i>
–	<i>Noncommercial Payments</i>
=	<i>Commercial Payments</i>

Table 27

The results of the scenario are displayed in **Table 28** below.

Modeling Scenario Payment-to-cost Ratio – Same Overall Payment-to-cost Ratio

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	0.78	0.54	1.55	0.52	1.05
CY 2010	0.79	0.76	1.43	0.79	1.06
CY 2011	0.78	0.79	1.49	0.74	1.07
CY 2012	0.78	0.88	1.42	0.80	1.07
CY 2013	0.73	0.90	1.36	1.03	1.05
CY 2014	0.79	0.85	1.40	1.05	1.07
CY 2015	0.79	0.86	1.40	1.21	1.08
CY 2016	0.80	0.83	1.43	1.24	1.09
CY 2017	0.80	0.84	1.39	1.41	1.08

Table 28¹⁰⁹

The modeling suggests that if hospital costs had grown at the modeled levels, then cost shifting could have reduced over time between 7.6% to 23.8% a year, cumulating in a 15.8% decline in commercial payments, providing direct savings to consumers and employers. The price reduction opportunity amounts to \$9.2 billion from 2010 through 2017, resulting in commercial prices declining between \$1,605 and \$6,634 per adjusted discharge. **One conclusion is that hospitals could have retained their margins and passed on significant savings to commercial consumers had their costs grown at or near a national benchmark.**

Synthesizing this data, a scenario assessing how growing hospital costs *and* margins affect cost shifting was performed. Commercial payments were reduced so that margins were held at 2009 levels of 1.05. **Table 29** expresses this calculation.

Scenario Calculation

	<i>2009 Payment to Cost Ratio</i>
×	<i>Cost</i>
–	<i>Noncommercial Payments</i>

¹⁰⁹ See footnote 7.

=	<i>Commercial Payments</i>
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Table 29

Results are displayed in **Table 30**.

Modeling Scenario Payment-to-cost Ratio– 1.05 Overall Payment-to-cost Ratio

	Medicare	Medicaid	Commercial	CICP/Self Pay/Other	Overall
CY 2009	0.78	0.54	1.55	0.52	1.05
CY 2010	0.79	0.76	1.41	0.79	1.05
CY 2011	0.78	0.79	1.43	0.74	1.05
CY 2012	0.78	0.88	1.38	0.80	1.05
CY 2013	0.73	0.90	1.34	1.03	1.05
CY 2014	0.79	0.85	1.34	1.05	1.05
CY 2015	0.79	0.86	1.31	1.21	1.05
CY 2016	0.80	0.83	1.33	1.24	1.05
CY 2017	0.80	0.84	1.29	1.41	1.05

Table 30¹¹⁰

This modeling scenario suggests that the commercial payment-to-cost ratio (price paid by commercial carriers) would have declined if margins and hospital costs did not continue to rise. The value of the excess cost shift caused by actual margins and actual costs is \$11.5 billion from 2010 to 2017. Said another way, the opportunity is a 19.6% savings. This would provide a decline in commercial payment per adjusted discharge of between \$1,917 and \$8,100. **This scenario suggests that actual cost growth and actual margins contribute to commercial cost shift and hospital overcompensation.** For additional analysis, see **Appendix C**.

Effect on Insurance Premiums or Coverage Expense to Self-Funded Employers and Union Trusts

Taking these efficiency scenarios one step further, an impact analysis was performed to determine estimated health insurance premiums for a Colorado employer and its employees. The chosen employer was the State of Colorado since information is publicly available, and the impact analysis has state expenditure implications. It is also assumed that the State of Colorado is comparable to other Colorado employers in that it uses a Medical Loss Ratio and is not self-funded.¹¹¹ Using one (1) month of data from the state and allowing for a few assumptions, hospital expenditures are estimated to determine the effect on insurance premiums.

To calculate hospital expenditures, the \$27.4 million that state and state employees paid in insurance premiums for June 2017 is used.¹¹² Factoring in at least 80% of premiums spent on medical care due to the MLR and then 39% of medical care is spent on hospital services, it

¹¹⁰ See footnote 7.

¹¹¹ Depending on the funding source of an insurance plan, the Medical Loss Ratio may not apply, but for this analysis it is assumed that it is not self-funded.

¹¹² Division of Human Resources. (2017). Medical and Dental Enrollment Summary. Retrieved from <https://www.colorado.gov/pacific/dhr/workforce-data>.

follows that \$8.6 million of that month's health insurance premiums are projected to be spent at hospitals for Colorado's state employees.^{113,114}

Because health care insurance premiums are a product of hospital pricing, a reduction in hospital pricing could result in an additional reduction in insurance premiums. Using the scenarios above, which results in a 20-26% drop in commercial payments in 2016, a 20% reduction to \$8.6 million equals \$6.8 million. But the savings are more than the difference between these figures, because insurance administration would decrease to comply with MLR. As such, the savings to the state and state employees would amount to \$2.1 million for June 2017. Considering that the state pays 82% of employee insurance premiums, this would translate to \$1.8 million in state savings and \$400,000 in employee savings per month. This analysis suggests that annual savings could then equal \$21.0 million for the state and \$4.7 million for employees.

Building off the Department of Personnel and Administration's Benefits Enrollment Dashboard for June 2017, monthly premium costs can be calculated by allocating an employee's premium cost share proportionally to actuals.¹¹⁵ Potential monthly savings to the state and state employees are displayed in **Table 31 and 32** below.

June 2017 Health Care Employee Insurance Premiums Modeling Compared

	Employee Only			Employee Plus Family		
	Actual	Scenario 1	Difference	Actual	Scenario 1	Difference
Kaiser HDHP	\$56.20	\$51.82	\$4.38	\$315.74	\$291.11	\$24.63
Kaiser HMO	\$89.20	\$82.24	\$6.96	\$412.74	\$380.55	\$32.19
UHC HDHP	\$18.20	\$16.78	\$1.42	\$202.24	\$186.47	\$15.77
UHC Plus	\$135.14	\$124.60	\$10.54	\$553.10	\$509.96	\$43.14

Table 31

June 2017 Health Care Employer Insurance Premiums Modeling Scenario Compared

	Employee Only			Employee Plus Family		
	Actual	Scenario 1	Difference	Actual	Scenario 1	Difference
State Contribution	\$465.62	\$429.30	\$36.32	\$1,230.06	\$1,134.12	\$95.94

Table 32

In this scenario, a family could save up to \$43.14 a month in member premium contribution if hospital commercial payments declined by 20% - savings of \$43.14 a

¹¹³ 39% was used to reflect expenditures to hospitals reflecting Centers for Medicare and Medicaid Services. (2017). *National Health Expenditure Data: Health Expenditures by State of Residence*. Available from <https://www.cms.gov/>.

¹¹⁴ National Association of Insurance Consumers (2018). Medical Loss Ratio. Retrieved from https://www.naic.org/cipr_topics/topic_med_loss_ratio.htm.

¹¹⁵ Colorado Department of Personnel and Administration. (2017). Medical and Dental Enrollment Summary. Retrieved from <https://www.colorado.gov/pacific/dhr/workforce-data>.

month, or \$517.68 annually for a Colorado family. Significant savings could be passed onto both employees and employers from a reduction in hospital pricing if hospitals focused on controlling their costs while maintaining margins at 2009 levels.

Section Conclusion

In this section, the potential savings are expressed in the form of commercial payment reductions and insurance premium savings. A contributing factor could be that the growth in hospital costs and margins have had a direct impact on Colorado employers and consumers by making insurance premiums less affordable. There seems to be a clear opportunity for increased transparency and community influence into the business decisions that hospitals make.

Cost Control Efforts

This report is in response to the CHASE Board's, legislators', the Department's, and CHA's efforts to understand why hospital costs and margins are growing and to identify opportunities to reduce health care costs and the commercial cost shift.

The Department has been given a legislative mandate to study costs and the cost shift. In the Department's FY 2018-19 budget request R-15, "Colorado Health Affordability and Sustainability Enterprise (CHASE) Administrative Costs," the Department requested full-time employees to support the administration of CHASE; however, the Joint Budget Committee changed the direction of allocated full-time employees to perform additional analysis on cost and cost shift. Specifically, the request addresses the direction from the Joint Budget Committee to perform additional analysis of hospital cost growth and the commercial cost shift.

Beginning in State Fiscal Year 2018-19, the Department is devoting resources outlined in the direction provided by the JBC toward improving the CHASE fee calculation; improving the efficiency and effectiveness of hospital care, including hospital accountability to the community; reducing inappropriate hospital utilization; and increasing research and analysis of the cost shift from Medicaid to commercial insurance. These reports should also increase policy makers' understanding of cost shifting and how new policies may better address rising health care costs. In addition to the R-15 budget request, the Department is undertaking a substantial effort to control cost growth in the state's Medicaid program as crafted by the passage of SB 18-266. Refer to **Figure 21** for an overview of SB 18-266 initiatives.

SB 18-266



Figure 21¹¹⁶

Effective 2018, SB 18-266 authorizes the Department to “pursue cost-control strategies, value-based payments, and other approaches to reduce the rate of expenditure growth in the Medicaid program.”¹¹⁷

The Department is also working with expert advisers and external stakeholders to craft a five (5) Year Health Care Affordability Roadmap that identifies the major drivers of rising health care costs, as well as solutions to the benefit of employers, consumers, and other payers like Medicaid. This Roadmap focuses on reducing hospital and prescription drug prices; maximizing innovations and alternate payment methodologies; improving ecosystem infrastructure and shared systems; and improving population health including behavioral health. This project work, which started in February of 2018 is already at the point of a pilot rollout, which occurred in Grand Junction on November 16th in partnership with the Mesa County Healthcare Leadership Consortium, the CO Business Group on Health, the Grand Junction Chamber of Commerce, the Grand Junction Economic Development Council (EDC) and the Department. This project work will be maintained going forward as noted in the **Figure 21**, as part of the Department’s new Cost Control and Quality Improvement Office, as designated by SB 18-266. This work is also outlined in the Department’s goals, which include crafting the Health Care Affordability

¹¹⁶ Controlling Medicaid Costs: Concerning controlling costs under the “Colorado Medical Assistance Act”, and in connection therewith, using data and technology, creating a hospital review program, and making and reducing appropriation, SB 18-266, General Assembly of the State of Colorado. (2018).

¹¹⁷ See Footnote 110. *Id.* at page 1.

Roadmap and soliciting leadership engagement, collaboration, and support from more than 1,000 leaders during 2018-2019. The Department has already achieved that awareness, inclusion, and engagement goal.

Another opportunity is CHA's commitment to transparent reporting practices. Specifically, in 2017, CHA released The Financial Health of Colorado Hospitals Report (2017), which trends data from 2011-15¹¹⁸ to provide an analysis of hospital quality and pricing in Colorado. To access the report, click or go to the following URL address: <https://cha.com/wp-content/uploads/2017/10/Financial-Health-of-Colorado-Hospitals-10-6-2017-S.pdf>.

Combined, such resources will contribute to this ongoing study and enhance the engagement between the Department, legislators, CHA, hospital providers, and Coloradans.

Innovation, Transformation Tools, Emerging Policies

To further cultivate efficiencies and help curb hospital costs, the Department has or is in the process of implementing the following innovation and transformation tools:

- Prometheus Analytics Tool

Prometheus allows hospitals to readily identify when and where they are accruing potentially avoidable costs for many common hospital-based procedures. It also allows hospitals to understand how their risk-adjusted costs compare to those of their peer group(s). The tool can isolate potentially avoidable costs at the claim-line level, which enables hospitals to make specific adjustments to their clinical and business processes that will improve health outcomes and reduce unnecessary costs by procedure.

- Prescribing Tool

This tool is designed to help prescribers choose the most clinically efficacious and cost-effective prescription alternatives. It will also add a module that allows physicians to prescribe payer programs (like tobacco cessation or diabetes disease management), versus just a pill, to more effectively address the root of the condition and improve the health of the patient.

- Hospital Transformation Program

This program will use the CHASE fee to drive incentive payments that support favorable hospital transformation. The target for implementation of the hospital transformation program is October 1, 2019.

- Hospital Review Program

As part of SB 18-266, the Department is required to implement a Hospital Review program, which will better control Medicaid hospital costs while also providing the systems, supports, and care coordination provided to our most vulnerable patients (those in acute hospital settings). Through this program, Regional Accountable Entities (RAEs)

¹¹⁸ Colorado Hospital Association (CHA). (2017). *The Financial Health of Colorado Hospitals: Trends 2011-2015*. Retrieved from <https://cha.com/data-reporting/financial-health-of-colorado-hospitals-report/>.

will receive information during and prior to discharge that will improve their ability to reduce re-admissions and improve patient health.

Conclusion

This report reviews the health care cost landscape in Colorado and introduces new research by the Colorado Department of Health Care Policy and Financing that analyzes the reasons behind rising hospital costs, which comprise the largest portion of health care spend.¹¹⁹ This report focuses on the cost shift to commercial payers.¹²⁰ The Department concludes that while the 2009 Colorado Health Care Affordability Act (CHCAA) - and subsequent 2017 Colorado Healthcare Affordability and Sustainability Enterprise (CHASE) Act, and the federal 2010 Affordable Care Act (ACA) led to increased Medicaid payments to hospitals, fewer uninsured, less bad debt and less charity-care write-off for hospitals, these policies did not result in a reduction in hospital cost shift to other payers to cover the cost of uncompensated care as expected. Instead, prices continue to rise for non-governmental payers while hospital costs and margins also rise.

Major findings of this report include:

- Medicaid expansions since 2010 from CHCAA and ACA resulted in fewer uninsured Coloradans and an increase in Medicare and Medicaid members.
- Hospitals are receiving more reimbursements for Medicaid and CICP/Self Pay/Other payer types, reflective of a reduction in charity care/bad debt as a result of CHCAA and ACA.
- Colorado hospital costs grew 58.7% between 2009 and 2017 while adjusted discharges only grew 14.2%; in 2017, Colorado hospitals operating expenses per adjusted discharge are 14% higher than the national average; in 2009 the difference was 3.2%.
- This analysis identifies rapid cost growth as a major contributing factor to the cost shift. Hospitals could have passed on significant savings to commercial consumers had they matched national cost benchmarks using Medicare Cost Reports suggesting as much as 8.3% in cost savings or \$7.9 billion from 2009-2017.
- Commercial insurance payments have been consistently near or more than \$1 billion greater than the combined under-compensation of other payer types, resulting in overall payment-to-cost ratios increasing from 1.05 to 1.08; and margins for all payer types (commercial, Medicaid, Medicare, other) increased by more than 250% from \$538 to \$1,359 per adjusted discharge from 2009 to 2017.
- Conversely, actual cost growth trends and actual margins contribute to commercial cost shift and hospital overcompensation, more so than Medicaid or Medicare under-compensation.

¹¹⁹ Centers for Medicare and Medicaid Services. (2017). *National Health Expenditure Data: Health Expenditures by State of Residence*. Available from <https://www.cms.gov>

¹²⁰ This report analyzes cost shift data from calendar year 2009 through calendar year 2017 and includes data reported under the Colorado Health Care Affordability Act (CHCAA), which was enacted effective July 1, 2009 and repealed effective June 30, 2017, and data reported under the Colorado Healthcare Affordability and Sustainability Enterprise (CHASE), which was enacted July 1, 2017.

- The impact of the Colorado hospital trends on consumers suggests that rising hospital costs and margins have contributed to rising insurance premiums.
- This report and analyses are limited by data availability and aggregation of the data that makes it impossible to drill down to the hospital or payer level. More transparent reporting practices and hospital/payer data, such as audited financial statements and DATABANK information, are needed to identify business decisions and trends at the hospital level that lead to increases in hospital costs and prices.
- Hospitals could have reduced their cost shift or fee increases to commercial carriers and their employer and consumer clients. This could have been achieved by managing costs at or close to the national average while maximizing the benefits of CHCAA, CHASE and the ACA: increased hospital Medicaid reimbursement, reduction in charity care and bad debt, and increased revenues from the reduction in the number of uninsured Coloradans.
- There is a need for more transparency into hospital financial data as well as clarification of not-for-profit obligations to communities. There is further opportunity for each community to have more influence on hospital business decisions like new construction or physician/hospital acquisition, which impact health care costs in their community and reflect an allocation of funds likely generated from that same community.

APPENDIX A: Division of Insurance (DOI) Regions and Regional Data Colorado DOI Region

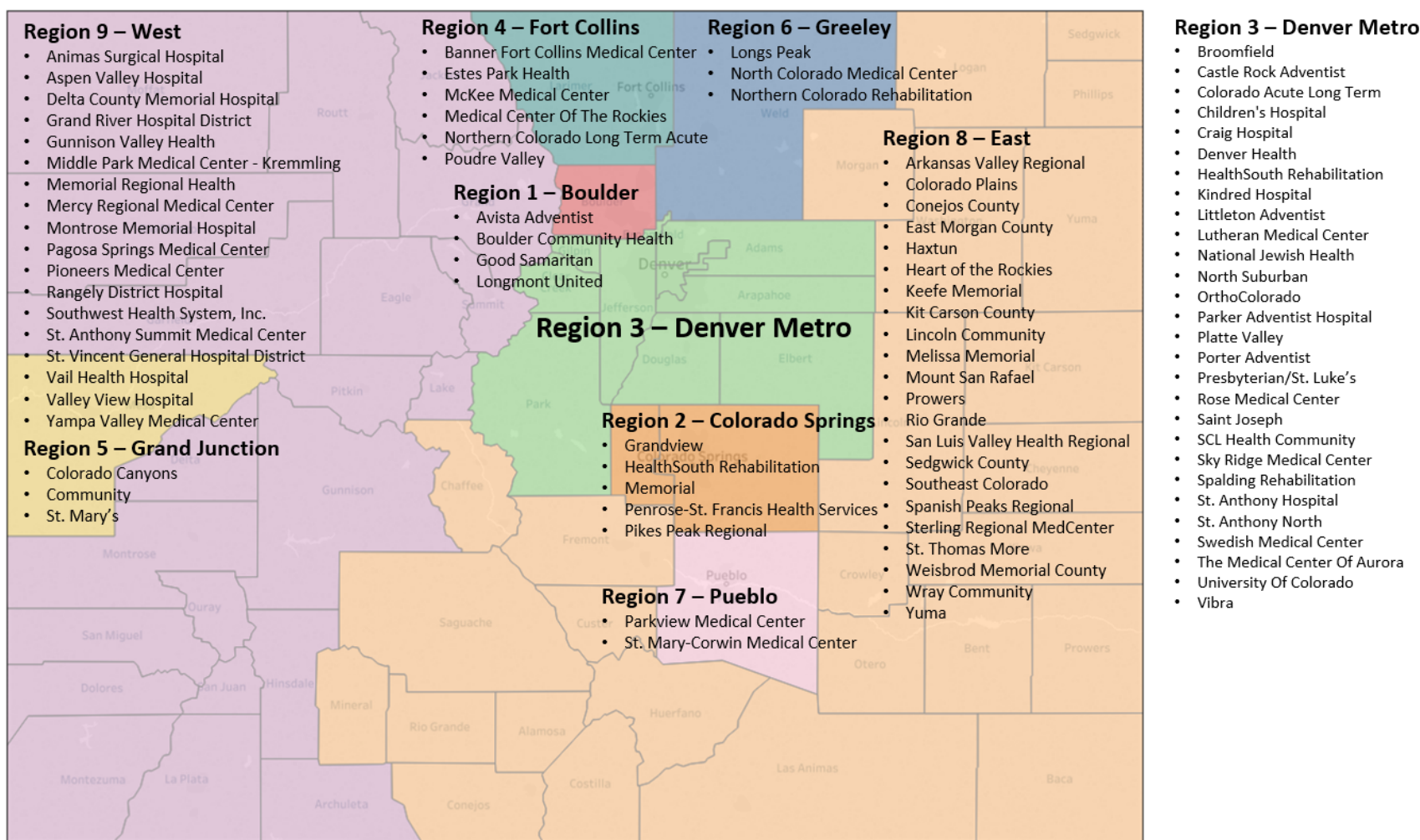


Figure 22¹²¹

¹²¹ See footnote 27.

Tables' 33-42 offer supplemental data to the Regional Differences section of this report.

Payment-to-cost Ratio (Boulder, Ft. Collins and Greeley)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	0.66	0.40	1.64	0.59	1.04
CY 2010	0.70	0.41	1.58	0.99	1.06
CY 2011	0.70	0.49	1.61	0.89	1.07
CY 2012	0.56	0.63	1.80	0.95	1.09
CY 2013	0.53	0.80	1.83	1.11	1.11
CY 2014	0.61	0.55	1.89	1.15	1.10
CY 2015	0.63	0.61	1.86	1.83	1.13
CY 2016	0.69	0.44	2.05	1.48	1.16
CY 2017	0.72	0.55	1.89	2.04	1.16

Table 33¹²²

Table 33 shows the ratio of total payments to total costs for all hospitals in the Division of Insurance Regions 1, 4, and 6 which correspond to the Boulder, Fort Collins, and Greeley areas (see **Figure 22**). Refer to **Table 1** for the payment-to-cost ratio formula. When the ratio is at a value of one (1) or more, the payments (numerator) were enough to cover the costs (denominator). The CY 2017 statewide Payment-to-cost Ratio was 1.08 for comparison.

Margins (Boulder, Ft. Collins and Greeley)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	(212.3M)	(58.5M)	405.4M	(75.9M)	58.6M
CY 2010	(199.9M)	(68.4M)	367.5M	(2.5M)	96.7M
CY 2011	(203.7M)	(66.2M)	412.6M	(21.9M)	120.8M
CY 2012	(309.2M)	(50.3M)	524.7M	(12.4M)	152.7M
CY 2013	(354.2M)	(30.8M)	550.8M	21.3M	187.0M
CY 2014	(310.4M)	(113.8M)	594.0M	20.7M	190.4M
CY 2015	(311.3M)	(114.9M)	576.5M	106.5M	256.8M
CY 2016	(259.6M)	(160.1M)	589.9M	141.2M	311.4M
CY 2017	(261.0M)	(145.3M)	615.7M	144.1M	353.6M

Table 34¹²³

Table 34 shows the difference between payments and costs for all hospitals in the Division of Insurance Regions 1, 4, and 6 which correspond to the Boulder, Fort Collins, and Greeley areas (see **Figure 22**). Refer to **Table 4** for the formula calculating the margins. When the margin is positive, the payments were enough to cover the costs. The CY 2017 statewide margin was \$1,202.7 million for comparison.

¹²² See footnote 7.

¹²³ See footnote 7.

Payment-to-cost Ratio (Denver Metro)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	0.77	0.59	1.47	0.68	1.05
CY 2010	0.73	0.84	1.43	0.74	1.06
CY 2011	0.76	0.90	1.48	0.69	1.09
CY 2012	0.75	0.88	1.46	0.67	1.07
CY 2013	0.65	0.86	1.42	0.91	1.05
CY 2014	0.68	0.78	1.50	1.01	1.07
CY 2015	0.69	0.79	1.55	1.08	1.09
CY 2016	0.68	0.72	1.59	0.90	1.06
CY 2017	0.64	0.73	1.63	1.08	1.07

Table 35¹²⁴

Table 35 shows the ratio of total payments to total costs for all hospitals in the Division of Insurance 3 which corresponds to the Denver Metro area (see **Figure 22**). Refer to **Table 1** for the payment-to-cost ratio formula. When the ratio is at a value of one (1) or more, the payments (numerator) were enough to cover the costs (denominator). The CY 2017 statewide payment-to-cost ratio was 1.08 for comparison.

Margins (Denver Metro)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	(311.7M)	(250.1M)	1,042.0M	(217.9M)	262.4M
CY 2010	(419.5M)	(111.6M)	1,002.7M	(201.7M)	269.8M
CY 2011	(389.2M)	(73.9M)	1,182.5M	(256.2M)	463.2M
CY 2012	(444.7M)	(104.4M)	1,239.8M	(269.8M)	420.9M
CY 2013	(673.0M)	(137.8M)	1,210.6M	(81.7M)	318.1M
CY 2014	(651.9M)	(336.6M)	1,439.9M	7.5M	458.8M
CY 2015	(679.0M)	(340.3M)	1,611.8M	46.6M	639.1M
CY 2016	(754.0M)	(492.1M)	1,782.5M	(59.4M)	477.0M
CY 2017	(945.6M)	(518.1M)	2,069.2M	53.5M	658.9M

Table 36¹²⁵

Table 36 shows the difference between payments and costs for all hospitals in the Division of Insurance Region 3 which corresponds to the Denver Metro area (see **Figure 22**). Refer to **Table 4** for the formula calculating the margins. When the margin is positive, the payments were enough to cover the costs. The CY 2017 statewide margin was \$1,202.7 million for comparison.

Payment-to-cost Ratio (Colorado Springs and Pueblo)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	0.81	0.47	1.76	0.14	1.02

¹²⁴ See footnote 7.

¹²⁵ See footnote 7.

Payment-to-cost Ratio (Colorado Springs and Pueblo)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2010	0.78	0.67	1.66	0.44	1.03
CY 2011	0.77	0.46	1.74	0.35	1.00
CY 2012	0.76	0.53	1.78	0.26	1.00
CY 2013	0.74	0.53	1.65	0.42	0.98
CY 2014	0.76	0.49	1.82	0.35	1.00
CY 2015	0.77	0.52	1.77	0.75	1.03
CY 2016	0.76	0.51	1.67	1.42	1.06
CY 2017	0.70	0.66	1.68	1.52	1.06

Table 37¹²⁶

Table 37 shows the ratio of total payments to total costs for all hospitals in the Division of Insurance Regions 2 and 7 which correspond to the Colorado Springs and Pueblo areas (see **Figure 22**). Refer to **Table 1** for the payment-to-cost ratio formula. When the ratio is at a value of one (1) or more, the payments (numerator) were enough to cover the costs (denominator). The CY 2017 statewide payment-to-cost ratio was 1.08 for comparison.

Margins (Colorado Springs and Pueblo)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	(77.6M)	(77.3M)	338.8M	(168.4M)	15.5M
CY 2010	(93.9M)	(55.4M)	309.8M	(126.4M)	34.2M
CY 2011	(106.1M)	(97.9M)	349.2M	(149.8M)	(4.6M)
CY 2012	(114.6M)	(95.7M)	385.7M	(173.9M)	1.5M
CY 2013	(131.3M)	(98.3M)	329.2M	(132.7M)	(33.2M)
CY 2014	(118.5M)	(155.9M)	391.4M	(122.7M)	(5.7M)
CY 2015	(120.3M)	(174.9M)	387.6M	(43.4M)	49.0M
CY 2016	(134.3M)	(201.3M)	359.5M	76.5M	100.4M
CY 2017	(178.7M)	(150.4M)	380.0M	117.2M	168.1M

Table 38¹²⁷

Table 38 shows the difference between payments and costs for all hospitals in the Division of Insurance Regions 2 and 7 which correspond to the Colorado Springs and Pueblo areas (see **Figure 22**). Refer to **Table 4** for the formula calculating the margins. When the margin is positive, the payments were enough to cover the costs. The CY 2017 statewide margin was \$1,202.7 million for comparison.

Payment-to-cost Ratio (East)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	0.90	0.55	1.60	0.10	1.01
CY 2010	0.85	0.71	1.46	0.65	1.02

¹²⁶ See footnote 7.

¹²⁷ See footnote 7.

Payment-to-cost Ratio (East)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2011	0.87	0.79	1.53	0.53	1.03
CY 2012	0.90	0.89	1.49	0.47	1.03
CY 2013	0.84	0.93	1.50	0.74	1.03
CY 2014	0.85	0.76	1.64	0.96	1.06
CY 2015	0.87	0.82	1.70	0.77	1.09
CY 2016	0.87	0.80	1.71	1.08	1.11
CY 2017	0.84	0.74	1.66	1.19	1.08

Table 39¹²⁸

Table 39 shows the ratio of total payments to total costs for all hospitals in the Division of Insurance Region 8 which is widespread, including multiple counties spanning Logan County, Baca County, and Chaffee County (see **Figure 22**). Refer to **Table 1** for the payment-to-cost ratio formula. When the ratio is at a value of one (1) or more, the payments (numerator) were enough to cover the costs (denominator). The CY 2017 statewide payment-to-cost ratio was 1.08 for comparison.

Margins (East)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	(12.2M)	(18.3M)	56.6M	(33.4M)	(7.4M)
CY 2010	(20.0M)	(14.1M)	46.6M	(14.7M)	(2.2M)
CY 2011	(17.8M)	(10.9M)	54.4M	(21.4M)	4.3M
CY 2012	(14.7M)	(6.2M)	48.8M	(24.3M)	3.7M
CY 2013	(22.9M)	(4.2M)	47.7M	(12.2M)	8.5M
CY 2014	(21.4M)	(19.8M)	63.7M	(1.6M)	20.9M
CY 2015	(19.3M)	(17.5M)	73.9M	(6.4M)	30.7M
CY 2016	(20.0M)	(20.4M)	77.7M	2.3M	39.7M
CY 2017	(26.8M)	(26.5M)	73.5M	6.0M	26.1M

Table 40¹²⁹

Table 40 shows the difference between payments and costs for all hospitals in the Division of Insurance Region 8 which is widespread, including multiple counties spanning Logan County, Baca County, and Chaffee County (see **Figure 22**). Refer to **Table 4** for the formula calculating the margins. When the margin is positive, the payments were enough to cover the costs. The CY 2017 statewide Margin was \$1,202.7 million for comparison.

Payment-to-cost Ratio (Grand Junction and West)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	0.74	0.51	1.71	(0.06)	1.09
CY 2010	0.73	0.74	1.63	0.33	1.10

¹²⁸ See footnote 7.

¹²⁹ See footnote 7.

Payment-to-cost Ratio (Grand Junction and West)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2011	0.76	0.78	1.70	0.17	1.11
CY 2012	0.72	0.81	1.65	0.52	1.11
CY 2013	0.66	0.85	1.72	0.47	1.09
CY 2014	0.76	0.94	1.66	0.73	1.11
CY 2015	0.79	0.96	1.60	0.98	1.12
CY 2016	0.71	0.81	1.82	0.72	1.12
CY 2017	0.71	0.69	1.98	0.63	1.11

Table 41¹³⁰

Table 41 shows the ratio of total payments to total costs for all hospitals in the Division of Insurance Regions 5 and 9 which is widespread, including multiple counties spanning Moffat County and Archuleta County (see **Figure 22**). Refer to **Table 1** for the payment-to-cost ratio formula. When the ratio is at a value of one (1) or more, the payments (numerator) were enough to cover the costs (denominator). The CY 2017 statewide Payment-to-cost Ratio was 1.08 for comparison.

Margins (Grand Junction and West)

	Medicare	Medicaid	Insurance	CICP/Self Pay/Other	Totals
CY 2009	(74.9M)	(39.7M)	275.1M	(111.8M)	48.7M
CY 2010	(88.5M)	(25.5M)	258.2M	(74.8M)	69.4M
CY 2011	(80.6M)	(21.9M)	281.0M	(100.1M)	78.5M
CY 2012	(101.5M)	(22.2M)	260.3M	(61.3M)	75.3M
CY 2013	(127.8M)	(18.9M)	287.3M	(78.4M)	62.3M
CY 2014	(99.4M)	(11.5M)	264.7M	(31.7M)	122.1M
CY 2015	(95.0M)	(9.3M)	259.0M	(2.4M)	152.4M
CY 2016	(139.5M)	(45.2M)	362.0M	(29.9M)	147.3M
CY 2017	(151.5M)	(77.4M)	435.9M	(47.6M)	159.5M

Table 42¹³¹

Table 42 shows the difference between payments and costs for all hospitals in the Division of Insurance Regions 5 and 9 which is widespread, including multiple counties spanning Moffat County and Archuleta County (see **Figure 22**). Refer to **Table 4** for the formula calculating the margins. When the margin is positive, the payments were enough to cover the costs. The CY 2017 statewide margin was \$1,202.7 million for comparison.

¹³⁰ See footnote 7.

¹³¹ See footnote 7.

APPENDIX B: Adjusted Discharges Per Payer Type

Adjusted Discharges per Payer Type

	Medicare	Medicaid	Commercial	CICP/Self Pay/Other	Overall ¹³²
CY 2009	219,101	107,826	313,796	134,769	775,492
CY 2010	225,113	117,967	306,535	134,806	784,420
CY 2011	236,466	122,811	310,859	132,051	802,188
CY 2012	236,249	125,163	316,297	125,213	802,922
CY 2013	233,279	135,574	312,481	120,010	801,344
CY 2014	238,163	186,200	309,633	94,750	828,746
CY 2015	239,302	208,066	312,377	86,870	846,615
CY 2016	253,755	218,547	310,497	81,980	864,779
CY 2017	264,169	220,540	315,911	84,677	885,297

Table 43¹³³

Payment per Adjusted Discharge

	Medicare	Medicaid/CICP/Self Pay/Other	Commercial	Overall ¹³⁴
CY 2009	10,106	4,994	19,259	12,211
CY 2010	10,480	7,530	19,844	13,189
CY 2011	10,620	7,631	21,033	13,706
CY 2012	10,927	8,633	22,014	14,579
CY 2013	10,525	10,106	22,662	15,124
CY 2014	11,575	9,932	23,814	15,590
CY 2015	11,961	10,735	23,677	15,857
CY 2016	12,428	10,738	26,637	16,942
CY 2017	12,750	11,642	27,817	17,745

Table 44¹³⁵

¹³² Payer type Adjusted Discharges are calculated and summed to find Overall Adjusted Discharges. An alternative to this method is a calculation of Overall Adjusted Discharges from Overall IP Discharges and an Overall Adjustment Factor. This calculation was used in the CHASE *2018 Annual Report* to analyze payment per adjusted discharges/per adjusted discharge. Using the sum of payer type adjusted discharges result in a slightly greater figure than when Overall Adjusted Discharges is calculated from Overall data, resulting in a more conservative figure.

¹³³ See footnote 7.

¹³⁴ See footnote 132.

¹³⁵ See footnote 7.

Cost per Adjusted Discharge

	Medicare	Medicaid/ CICP/Self Pay/Other	Commercial	Overall ¹³⁶
CY 2009	12,959	9,521	12,439	11,673
CY 2010	13,842	10,282	13,326	12,493
CY 2011	13,716	10,861	13,675	12,793
CY 2012	14,813	11,872	14,268	13,681
CY 2013	15,843	12,361	14,945	14,382
CY 2014	16,284	12,657	14,972	14,564
CY 2015	16,609	12,650	14,978	14,628
CY 2016	17,510	13,347	16,246	15,609
CY 2017	18,409	14,302	16,707	16,386

Table 45¹³⁷

Margins per Adjusted Discharge

	Medicare	Medicaid/ CICP/Self Pay/Other	Commercial	Overall ¹³⁸	YOY Difference	Growth
CY 2009	(2,853)	(4,526)	6,820	538	158	-
CY 2010	(3,361)	(2,752)	6,518	696	217	29.4%
CY 2011	(3,097)	(3,230)	7,358	912	(14)	31.2%
CY 2012	(3,886)	(3,239)	7,746	898	(156)	-1.6%
CY 2013	(5,318)	(2,255)	7,717	742	284	-17.4%
CY 2014	(4,710)	(2,725)	8,842	1,026	202	38.3%
CY 2015	(4,648)	(1,915)	8,699	1,229	104	19.7%
CY 2016	(5,082)	(2,608)	10,391	1,333	26	8.5%
CY 2017	(5,660)	(2,660)	11,110	1,359	158	1.9%

Table 46¹³⁹

¹³⁶ See footnote 132.

¹³⁷ See footnote 7.

¹³⁸ See footnote 132.

¹³⁹ See footnote 7.

APPENDIX C: Modeling Scenarios

Effect of Margins

Modeling Scenario Payment-to-cost Ratio – Overall Margins Held To 2009 Ratio 1.05, Commercial Declines

	Medicare	Medicaid	Scenario Commercial	CICP/Self Pay/Other	Scenario Overall
CY 2009	0.78	0.54	1.55	0.52	1.05
CY 2010	0.76	0.74	1.47	0.72	1.05
CY 2011	0.77	0.76	1.48	0.65	1.05
CY 2012	0.74	0.79	1.50	0.67	1.05
CY 2013	0.66	0.80	1.50	0.84	1.05
CY 2014	0.71	0.72	1.53	0.93	1.05
CY 2015	0.72	0.75	1.48	1.11	1.05
CY 2016	0.71	0.71	1.53	1.07	1.05
CY 2017	0.69	0.69	1.56	1.14	1.05

Table 47¹⁴⁰

Modeling Scenario Payment – Overall Margins Held To 2009 Ratio 1.05, Commercial Declines

	Medicare	Medicaid	Scenario Commercial	CICP/Self Pay/Other	Scenario Overall
CY 2009	2,214.2M	557.5M	6,043.5M	654.1M	9,469.3M
CY 2010	2,359.3M	877.8M	5,988.7M	1,025.6M	10,251.4M
CY 2011	2,511.2M	979.3M	6,279.2M	965.6M	10,735.4M
CY 2012	2,581.5M	1,147.4M	6,747.9M	1,014.1M	11,491.0M
CY 2013	2,455.2M	1,295.1M	7,018.0M	1,287.9M	12,056.2M
CY 2014	2,756.6M	1,718.0M	7,078.9M	1,072.4M	12,626.0M
CY 2015	2,862.4M	1,992.3M	6,926.5M	1,173.8M	12,955.0M
CY 2016	3,153.6M	2,069.7M	7,739.9M	1,157.5M	14,120.7M
CY 2017	3,368.1M	2,150.9M	8,253.4M	1,402.6M	15,174.9M

Table 48¹⁴¹

Actual Cost

	Medicare	Medicaid	Commercial	CICP/Self Pay/Other	Overall
CY 2009	2,839.3M	1,040.6M	3,903.3M	1,269.0M	9,052.3M
CY 2010	3,115.9M	1,182.9M	4,085.0M	1,416.1M	9,800.0M
CY 2011	3,243.5M	1,284.9M	4,251.0M	1,483.2M	10,262.6M
CY 2012	3,499.5M	1,455.9M	4,512.9M	1,516.7M	10,984.9M
CY 2013	3,695.9M	1,623.0M	4,670.1M	1,536.3M	11,525.2M
CY 2014	3,878.3M	2,400.8M	4,635.7M	1,155.1M	12,069.9M
CY 2015	3,974.7M	2,669.0M	4,678.7M	1,062.1M	12,384.5M

¹⁴⁰ See footnote 7.

¹⁴¹ See footnote 7.

Actual Cost

	Medicare	Medicaid	Commercial	CICP/Self Pay/Other	Overall
CY 2016	4,443.3M	2,924.2M	5,044.5M	1,086.8M	13,498.8M
CY 2017	4,863.2M	3,133.1M	5,278.0M	1,232.3M	14,506.6M

Table 49¹⁴²

Modeling Scenario Margins – Overall Margins Held To 2009 Ratio 1.05, Commercial Declines

	Medicare	Medicaid	Scenario Commercial	CICP/ Self Pay/ Other	Scenario Overall
CY 2009	(625.1M)	(483.1M)	2,140.2M	(614.9M)	417.0M
CY 2010	(756.7M)	(305.1M)	1,903.8M	(390.5M)	451.5M
CY 2011	(732.2M)	(305.6M)	2,028.3M	(517.6M)	472.8M
CY 2012	(918.0M)	(308.5M)	2,235.1M	(502.5M)	506.1M
CY 2013	(1,240.6M)	(327.9M)	2,347.9M	(248.4M)	531.0M
CY 2014	(1,121.7M)	(682.8M)	2,443.2M	(82.7M)	556.1M
CY 2015	(1,112.3M)	(676.6M)	2,247.8M	111.7M	570.6M
CY 2016	(1,289.7M)	(854.5M)	2,695.4M	70.7M	621.9M
CY 2017	(1,495.1M)	(982.2M)	2,975.4M	170.3M	668.3M

Table 50¹⁴³

Effect of Costs

Modeling Scenario Payment-to-cost Ratio – With Modeling Scenario Costs, Commercial Declines to Reach Actual Overall Margins

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	0.78	0.54	1.55	0.52	1.05
CY 2010	0.79	0.76	1.43	0.79	1.06
CY 2011	0.78	0.79	1.49	0.74	1.07
CY 2012	0.78	0.88	1.42	0.80	1.07
CY 2013	0.73	0.90	1.36	1.03	1.05
CY 2014	0.79	0.85	1.40	1.05	1.07
CY 2015	0.79	0.86	1.40	1.21	1.08
CY 2016	0.80	0.83	1.43	1.24	1.09
CY 2017	0.80	0.84	1.39	1.41	1.08

Table 51¹⁴⁴

¹⁴² See footnote 7.

¹⁴³ See footnote 7.

¹⁴⁴ See footnote 7.

Modeling Scenario Payment – With Modeling Scenario Costs, Commercial Declines to Reach Actual Overall Margins

	Medicare	Medicaid	Scenario Commercial	CICP/Self Pay/Other	Scenario Overall
CY 2009	2,214.2M	557.5M	6,043.5M	654.1M	9,469.3M
CY 2010	2,359.3M	877.8M	5,584.9M	1,025.6M	9,847.6M
CY 2011	2,511.2M	979.3M	6,039.5M	965.6M	10,495.6M
CY 2012	2,581.5M	1,147.4M	6,035.9M	1,014.1M	10,779.0M
CY 2013	2,455.2M	1,295.1M	5,835.6M	1,287.9M	10,873.8M
CY 2014	2,756.6M	1,718.0M	6,124.9M	1,072.4M	11,672.0M
CY 2015	2,862.4M	1,992.3M	6,358.1M	1,173.8M	12,386.6M
CY 2016	3,153.6M	2,069.7M	6,594.0M	1,157.5M	12,974.7M
CY 2017	3,368.1M	2,150.9M	6,692.2M	1,402.6M	13,613.7M

Table 52¹⁴⁵

Modeling Scenario Cost

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	2,839.3M	1,040.6M	3,903.3M	1,269.0M	9,052.3M
CY 2010	2,976.9M	1,160.4M	3,894.9M	1,296.0M	9,328.2M
CY 2011	3,204.4M	1,238.2M	4,051.1M	1,303.2M	9,796.9M
CY 2012	3,297.6M	1,299.0M	4,243.5M	1,274.8M	10,115.0M
CY 2013	3,341.9M	1,440.9M	4,302.7M	1,255.0M	10,340.4M
CY 2014	3,495.4M	2,014.9M	4,371.0M	1,022.2M	10,903.6M
CY 2015	3,613.5M	2,310.0M	4,536.5M	966.9M	11,426.8M
CY 2016	3,918.4M	2,481.8M	4,618.1M	935.6M	11,953.9M
CY 2017	4,185.0M	2,571.4M	4,823.3M	991.7M	12,571.4M

Table 53¹⁴⁶

Modeling Scenario Margins – With Modeling Scenario Costs, Commercial Declines to Reach Actual Overall Margins

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	(625.1M)	(483.1M)	2,140.2M	(614.9M)	417.0M
CY 2010	(617.6M)	(282.5M)	1,690.0M	(270.4M)	519.4M
CY 2011	(693.2M)	(258.9M)	1,988.3M	(337.6M)	698.7M
CY 2012	(716.1M)	(151.6M)	1,792.4M	(260.7M)	664.0M
CY 2013	(886.6M)	(145.7M)	1,532.9M	32.9M	533.4M
CY 2014	(738.7M)	(296.9M)	1,753.8M	50.2M	768.4M
CY 2015	(751.1M)	(317.6M)	1,821.6M	207.0M	959.8M
CY 2016	(764.8M)	(412.1M)	1,975.9M	221.8M	1,020.8M

¹⁴⁵ See footnote 7.

¹⁴⁶ See footnote 7.

Modeling Scenario Margins – With Modeling Scenario Costs, Commercial Declines to Reach Actual Overall Margins

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2017	(817.0M)	(420.5M)	1,868.9M	410.9M	1,042.3M

Table 54¹⁴⁷

Effect of Costs and Margins

Modeling Scenario Payment-to-cost Ratio – With Modeling Scenario Costs, Commercial Declines to Reach 2009 Ratio Of 1.05

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	0.78	0.54	1.55	0.52	1.05
CY 2010	0.79	0.76	1.41	0.79	1.05
CY 2011	0.78	0.79	1.43	0.74	1.05
CY 2012	0.78	0.88	1.38	0.80	1.05
CY 2013	0.73	0.90	1.34	1.03	1.05
CY 2014	0.79	0.85	1.34	1.05	1.05
CY 2015	0.79	0.86	1.31	1.21	1.05
CY 2016	0.80	0.83	1.33	1.24	1.05
CY 2017	0.80	0.84	1.29	1.41	1.05

Table 55¹⁴⁸

Modeling Scenario Payment – With Modeling Scenario Costs, Commercial Declines to Reach 2009 Ratio Of 1.05

	Medicare	Medicaid	Scenario Commercial	CICP/Self Pay/Other	Scenario Overall
CY 2009	2,214.2M	557.5M	6,043.5M	654.1M	9,469.3M
CY 2010	2,359.3M	877.8M	5,495.2M	1,025.6M	9,757.9M
CY 2011	2,511.2M	979.3M	5,792.1M	965.6M	10,248.3M
CY 2012	2,581.5M	1,147.4M	5,837.9M	1,014.1M	10,581.0M
CY 2013	2,455.2M	1,295.1M	5,778.6M	1,287.9M	10,816.8M
CY 2014	2,756.6M	1,718.0M	5,858.8M	1,072.4M	11,405.9M
CY 2015	2,862.4M	1,992.3M	5,924.7M	1,173.8M	11,953.3M
CY 2016	3,153.6M	2,069.7M	6,123.9M	1,157.5M	12,504.7M
CY 2017	3,368.1M	2,150.9M	6,229.1M	1,402.6M	13,150.6M

Table 56¹⁴⁹

¹⁴⁷ See footnote 7.

¹⁴⁸ See footnote 7.

¹⁴⁹ See footnote 7.

Modeling Scenario Cost

	Medicare	Medicaid	Scenario Commercial	CICP/Self Pay/Other	Overall
CY 2009	2,839.3M	1,040.6M	3,903.3M	1,269.0M	9,052.3M
CY 2010	2,976.9M	1,160.4M	3,894.9M	1,296.0M	9,328.2M
CY 2011	3,204.4M	1,238.2M	4,051.1M	1,303.2M	9,796.9M
CY 2012	3,297.6M	1,299.0M	4,243.5M	1,274.8M	10,115.0M
CY 2013	3,341.9M	1,440.9M	4,302.7M	1,255.0M	10,340.4M
CY 2014	3,495.4M	2,014.9M	4,371.0M	1,022.2M	10,903.6M
CY 2015	3,613.5M	2,310.0M	4,536.5M	966.9M	11,426.8M
CY 2016	3,918.4M	2,481.8M	4,618.1M	935.6M	11,953.9M
CY 2017	4,185.0M	2,571.4M	4,823.3M	991.7M	12,571.4M

Table 57¹⁵⁰

Modeling Scenario Margins– With Modeling Scenario Costs, Commercial Declines to Reach 2009 Ratio Of 1.05

	Scenario Medicare	Scenario Medicaid	Scenario Commercial	Scenario CICP/Self Pay/Other	Scenario Overall
CY 2009	(625.1M)	(483.1M)	2,140.2M	(614.9M)	417.0M
CY 2010	(617.6M)	(282.5M)	1,600.3M	(270.4M)	429.8M
CY 2011	(693.2M)	(258.9M)	1,741.0M	(337.6M)	451.3M
CY 2012	(716.1M)	(151.6M)	1,594.4M	(260.7M)	466.0M
CY 2013	(886.6M)	(145.7M)	1,475.9M	32.9M	476.4M
CY 2014	(738.7M)	(296.9M)	1,487.8M	50.2M	502.3M
CY 2015	(751.1M)	(317.6M)	1,388.2M	207.0M	526.4M
CY 2016	(764.8M)	(412.1M)	1,505.8M	221.8M	550.7M
CY 2017	(817.0M)	(420.5M)	1,405.8M	410.9M	579.2M

Table 58¹⁵¹

¹⁵⁰ See footnote 7.

¹⁵¹ See footnote 7.