



THE FUTURE OF COLORADO HEALTH CARE

AN ECONOMIC ANALYSIS OF HEALTH CARE REFORM
AND THE IMPACT ON COLORADO'S ECONOMY



TABLE OF CONTENTS

Executive Summary.....	1
Introduction and Context.....	3
The 208 Commission and Federal Health Reform	4
The Consequences of Inaction	5
Costs and Benefits of Reforming the Health System	9
The Economic Impact Model.....	14
Health Delivery System Reform.....	29
Net Impact on Employer-based Premiums.....	38
Conclusion	40
Appendices.....	41
A. Step by Step Methodology for Economic Output Calculations	41
B. Step by Step Methodology for Employment Calculations	49
C. Delivery System Reforms	53
D. University of Denver Methodological Unit.....	60
Endnotes.....	64





EXECUTIVE SUMMARY

This study was led by the New America Foundation and the University of Denver's Center for Colorado's Economic Future with support from The Colorado Trust and the Colorado Health Foundation. Based on original and secondary state-specific data, the study considers the economic consequences of doing nothing to change the current system of health coverage and the delivery of health care services, and conversely, the costs and benefits of increasing health insurance coverage, as well as the costs and benefits of reforming the health care delivery system. The report's pairing of unique data and sound analysis is intended to provide the state's policy and business leaders with an increased ability to make well-informed decisions about the future of health care in Colorado.

The New America Foundation team was led by Health Policy Program Director, Len Nichols, PhD. The New America Foundation is a nonprofit, nonpartisan public policy institute that invests in new thinkers and new ideas to address the next generation of challenges facing the United States. The University of Denver's Center for Colorado's Economic Future team is directed by Charlie Brown. The Center informs and enhances public dialogue on issues affecting Colorado's long-term economic health and quality of life by providing information, research and analysis. Henry Sobanet, Principal of Colorado Strategies, serves as consultant to DU, managing this project.



In this paper, we estimate the major costs and benefits of health reform in Colorado to allow readers to make informed judgments about the 208 Commission's proposal. If the likely economic gains outweigh the likely economic costs, then opponents of reform must explain why they are willing to forego these net benefits. If the expected costs exceed a fair assessment of the likely benefits, then proponents must make non-economic arguments to change spending priorities.

Right now, health care costs place increasing strain on Colorado households, employers and governments. In 2008, health insurance premiums in Colorado represented nearly 22 percent of median family income.¹ During that same year, the average deductible – the amount Coloradans must spend before insurance begins to pay for their medical care – was more than \$1,800. The cost of health insurance will continue to

grow in the future. In fact, according to the Colorado Business Group on Health, premiums are expected to grow at 10 percent per year.²

These high and increasing costs make health insurance and health care unaffordable for many of Colorado's citizens, businesses and governments. As many as 776,000 Coloradans are uninsured.³ In addition, U.S. businesses spend nearly three times as much per worker per hour for health benefits, making it difficult to compete in a global economy.⁴ Small business owners cite the high cost and inaccessibility of health insurance as fundamental obstacles to entrepreneurship.⁵ Finally, health care costs continue to claim a larger share of government budgets. Colorado spends almost \$1.5 billion on Medicaid alone. This represents roughly 20 percent of the \$7.5 billion in the Colorado General Fund.⁶



The upward trajectory of Colorado's health care costs has profound implications for the state's economy. To help explain the impact of these costs, our analysis uses Colorado-specific data to show that health care costs will increase without health reform, insuring more people will spur economic activity and changes to the delivery system will improve the quality of care and lower costs. Specifically, we demonstrate that:

- Failing to enact health reform in Colorado will lead to higher health care costs, more uninsured Coloradans and higher health spending, especially by businesses. Over the next decade, employer spending will grow by more than 109 percent without reform and family spending will grow by nearly 72 percent over the same time period.
- Increasing health insurance coverage in Colorado will spur increased economic activity and create more jobs, even after accounting for the costs of financing reform. In 2019, state economic output will be nearly one percent higher than it would be without reform and there will be roughly 19,000 new jobs as a result of reform.
- Focusing Colorado's health care delivery system on value and efficiency will allow the state to deliver higher quality care at lower costs over time, while freeing up resources for other state priorities. The rate of health care cost growth will be between 5.5 percent and 17 percent lower than it would have been without reform. In 2019, premiums for employer-sponsored insurance will be between 10 percent and 25 percent lower than without reform, due to this reduced cost growth as well as less cost-shifting due to uncompensated care.



In short, we conclude that implementation of 208 Commission reforms would result in an expansion of Colorado's economy.

INTRODUCTION AND CONTEXT

Although many indicators show that Colorado has withstood the recession better than the nation as a whole, the state's economic and fiscal policy climate has been weakened. From September 2008, the first month in which the recession began to cost the state jobs, until the end of calendar year 2009, Colorado lost just under 144,000 non-farm jobs on a seasonally adjusted basis. The February 2010 data have the state's seasonally adjusted unemployment rate at 7.7 percent, down from its high for this recession of 8.3 percent but significantly higher than the February 2008 rate of 4.3 percent.

Total state personal income, measured on a nominal basis, decreased in 2009 – the first annual decline since the Great Depression – and on a non-seasonally adjusted basis, average weekly earnings of Colorado's private sector employees fell by just under 3.1 percent between January 2009 and January 2010. Several factors have contributed to a substantial decline in state and local tax revenues: economic turmoil in the financial markets, a major reduction in consumer spending, a weak housing market and slide in new construction, a drop off in energy prices and related activity. The state's budget gap is 10 percent to 15 percent of General Fund revenues.

The current downturn is even more severe when viewed in the context of the last several years. The March 2010 forecast from the Colorado Legislative Council shows that state General Fund revenue in FY 2009-10 is less than six percent higher than it was in FY 2000-01. Independent of revenue growth, a constitutional requirement in effect since 2001 requires annual increases in K-12 education spending, which accounts for 43 percent of the General Fund. This and other spending

mandates, combined with falling revenues, have created a substantial budgetary imbalance. At the time of this study's publication, the state was considering numerous cuts in spending. In addition, the State recently eliminated selected tax exemptions and credits in an effort to close a budget gap of more than \$1 billion.

While Colorado's Constitution governs large components of spending and revenue, the primary constraint related to this study is the requirement for a popular vote on new taxes. This requirement is a provision of the Taxpayer's Bill of Rights (TABOR), which also limits annual increases in revenue collected by the state to the rate of inflation plus population growth. Referendum C, a voter-approved five-year "timeout" from the TABOR revenue limit, was set to expire on June 30, 2010. While the expiration of Referendum C does not create any immediate state fiscal issues, Colorado's long-term ability to retain all the tax revenue the economy generates is uncertain.

In recent years, the state and various local districts in Colorado have had notable public debates about spending and taxes. In addition to the campaigns for and against Referendum C, the state recently completed a two-year process of documenting transportation needs. The baseline recommendation of new resources essential to maintain the existing system was some \$500 million annually. The General Assembly adopted a measure in 2009 that addressed a portion of this recommendation, but a long-term funding plan for transportation expansion remains elusive. Similarly with health care, the General Assembly created the Blue Ribbon Commission for Health Care Reform (208 Commission) in 2006. The 208 Commission had the task of "identifying strategies to expand health care coverage and reduce health care costs for Coloradans." The commission released its findings in 2008 with 24 of 27 commissioners agreeing with the final report, which contains far-reaching recommendations around health care coverage expansion and delivery system reforms. The fundamental premise of the commission's work is that the status quo (in terms of the number of uninsured Coloradans and the trajectory of costs) is not sustainable. It is in this fiscal and economic context that the attached analysis of the economic impacts of health care reform for Colorado was undertaken.

This project reflects a unique association of sponsors and researchers. The Colorado Health Foundation and The Colorado Trust (hereinafter "sponsors") engaged the New America Foundation (NAF) to undertake a study that would assess the economic case for reform in Colorado. The sponsors concurrently engaged the University of Denver's Center for Colorado's Economic Future to ensure a Colorado context but also an independent review of the findings.

The NAF study investigates the economic effect of two major health care reforms: coverage expansion and delivery system reform. As a basis for comparison, it analyzes reform against a non-reform scenario for Colorado health care spending and coverage developed by researchers at the Urban Institute, a nationally recognized, nonprofit, nonpartisan research organization. The study concludes that implementation of 208 Commission reforms would result in an expansion of Colorado's economy. Appendix D details the assessment of that analysis by researchers at the Center for Colorado's Economic Future.

THERE ARE MANY REASONS FOR HEALTH REFORM,
INCLUDING A STRONG MORAL OBLIGATION TO
CARE FOR ALL OUR CITIZENS AND THE PRESSING
NEED TO IMPROVE THE UNEVEN QUALITY OF THE
HEALTH CARE DELIVERED IN OUR NATION.



THE 208 COMMISSION AND FEDERAL HEALTH REFORM

The Colorado legislature created the Colorado Blue Ribbon Commission for Health Care Reform, also known as the “208 Commission,” in 2006 to identify a sustainable future for the state’s health care system. The 27 Commissioners were appointed by the bipartisan leadership of the Colorado legislature and by Governors Bill Owens and Bill Ritter. The Commissioners represented consumers, health insurance purchasers, providers, business leaders and health care experts.

After receiving 31 comprehensive reform proposals from across Colorado, the Commission selected four to analyze closely. The Commission then created its own fifth proposal.⁷ The Commission’s proposal (hereafter the “Commission Proposal”) served as the basis for its nearly unanimous recommendations to the state legislature. It represents the clearest consensus for comprehensive health care reform in the state.

President Barack Obama signed the Patient Protection and Affordable Care Act of 2009 (P.L. 111-148) into law on March 23, 2010. Minor changes were made to the law by the Health Care and Education Reconciliation Act (P.L. 111-152), signed March 30, 2010. The structure of the Commission Proposal is similar to the new federal law. Both the Commission Proposal and the new federal reform law:

- Establish a new, regulated insurance marketplace to make health coverage accessible
- Provide financial assistance to help make coverage affordable
- Require all individuals to purchase coverage
- Expand Medicaid eligibility
- Include key building blocks to improve the way care is delivered, which should lead to higher quality care and lower cost growth.⁸

The most important difference between the Commission Proposal and the new federal health reform law is their proposed sources of financing. In the absence of federal reform, Colorado would have had to fully finance its share (50 percent) of Medicaid expansion and the full cost of private insurance subsidies for those not enrolled in Medicaid.⁹ Starting in 2014, federal law expands Medicaid by creating a new mandatory Medicaid eligibility category for individuals with income at or below 133 percent of the Federal Poverty Level (FPL). The federal health reform law provides federal Medicaid matching payments for the costs of services to newly eligible individuals at the following rates: 100 percent in 2014, 2015 2016; 95 percent in 2017; 94 percent in 2018; 93 percent in 2019; and 90 percent thereafter. Under the new federal law, Colorado will still need to finance its share of the Medicaid expansion to any individuals who were previously eligible for Medicaid (but chose not to enroll), but not to the newly-eligible population, as defined by the new law. Also, starting in 2010, the federal reform law offers states the option to provide Medicaid coverage through a Medicaid State Plan Amendment. Eligible individuals include all non-elderly, non-pregnant individuals who are not entitled to Medicare (e.g., childless adults and certain parents).





Under the new federal reform law, Colorado will not have to finance subsidies to help individuals purchase insurance. The federal government will fully subsidize individuals who qualify for financial assistance to purchase private insurance in the federal exchanges beginning in 2014. The Commission proposed to finance Colorado's share of reform costs exclusively through increased tax rates or new consumer taxes. Federal reform will be financed through a combination of sources. Federal financing sources include but are not limited to savings from the Medicare and Medicaid programs, sector-specific health industry fees and an excise tax on high-cost health insurance plans. Accordingly, while the Commission proposal and federal law offer roughly the same level of coverage expansion, federal reform offers two additional benefits to Colorado: **1) the federal government would finance a larger share of reform costs, and 2) less of the financing would be borne through taxes on Colorado households.**

The Lewin Group evaluated the Commission Proposal by quantifying the number of people who would be covered, the associated costs and the potential savings to households. The broader implications for job creation and the Colorado economy as a whole were not considered, nor did the Lewin Group consider the potential cost savings and efficiency gains accessible through delivery system reforms.

The study discussed herein builds on the Lewin analysis by considering the Colorado-specific benefits and costs of comprehensive health care reform in a broader economic context. The Commission Proposal is used as the basis to explore the implications of comprehensive health care reform over the next decade on a variety of state economic indicators including gross state product (GSP), job creation and health care cost growth. At the time of the Commission's work, the prospects for comprehensive federal reform were dim. Thus, the Commission presumed little federal help. Accordingly, we assessed the implications of health reform according to the Commission's proposal. Given that federal health reform is now the law of the land, we will indicate throughout the report where current law will have significantly different implications for Colorado's economy or health system or both.

THE CONSEQUENCES OF INACTION

There are many reasons for health reform, including a strong moral obligation to care for all our citizens and the pressing need to improve the uneven quality of the health care delivered in our nation. But the focus of this study is specifically and exclusively on the economic case for reform. Will the economy of Colorado be stronger and more resilient in the wake of the changes to health policy envisioned by the 2008 Commission?

A key component to this economic case is an examination of the status quo. Is there a strong case for change, or are the current set of health policy costs and outcomes satisfactory and sustainable? On one level, there is little cause for concern. By most measures, the health care sector itself has had strong economic performance. This sector has been one of the few bright spots in the economy over the course of the past few years: it has been growing and profitable while other businesses have shrunk or disappeared.

However, it is the very success of this sector that has been, in part, responsible for the struggles of many Coloradans. This extraordinary growth means that health care costs have been on a trajectory that has put increasing strain on businesses, families and the state budget, as will be described in greater detail. These cost trends are simply unsustainable. Getting a handle on these costs – but also ensuring that they are paid by the right people for the right things rather than being shifted around in ways that are not transparent – is essential to putting the state on a much firmer economic and health system foundation going forward.

The recent passage of federal health reform law demonstrates our nation's commitment to solving the challenges facing the American health care system.



The Unsustainable Status Quo

There are currently 46.3 million uninsured Americans, more than 15 percent of our population.¹⁰ Estimates vary, but according to the Urban Institute, 776,000 Coloradans are currently uninsured.¹¹ Even those able to access health insurance are increasingly less able to afford their care. Fewer businesses can afford to offer health insurance coverage to their employees and those that do are forced to shift more costs on to their employees. In addition, our government health programs like Medicare and Medicaid are fiscally unsound in the long term and are projected to claim an increasing share of federal and state revenues.¹² Neither families, nor businesses, nor governments can afford to continue in our current system.

Families

One key indicator of the affordability of health coverage is the share of median family income that is required to purchase family health insurance. In 1987, the median family spent 7 percent of income on coverage; by 2006, that number jumped to 17 percent.¹³ In Colorado, our data show that in 2008, the median family had to spend 22 percent of its income on health coverage alone, leaving less available for other necessities like rent, food, transportation and savings.¹⁴ While the cost of insurance alone is staggering, families are also asked to pay out-of-pocket for things like copayments and deductibles. In Colorado, the average copayments were \$24 per office visit and citizens paid more than \$1,800 dollars before insurance would begin covering the cost of care.¹⁵

Employers

In addition to the strain on families and individuals, businesses are harmed by increasing health care costs. For the past decade, there has been a downward trend in the number of businesses offering health insurance coverage to their workers. In 2008, 87.7 percent of U.S. employees were offered health insurance through their employers. In Colorado, 85.4 percent of employees were offered coverage. But only 51 percent of all Colorado employees actually enrolled in their employer coverage (compared to 54 percent of workers nationwide).¹⁶ This low participation rate likely reflects the rising cost of premiums and the increasing share of income premiums consume. While many would like to malign businesses for pushing health care costs on to their workers, the truth is that rising health care costs are threatening the profitability and viability of businesses. According to our recent study, in 2005, manufacturing firms in the United States paid more than twice as much as their trade partners in health costs. The hourly cost of health benefits in the United States was \$2.38 versus \$0.96 for international competitors.¹⁷ Since firms cannot immediately pass all of the increases in health care costs on to workers as deferred compensation or onto consumers as higher prices, they have to absorb them in the short- to medium-term as increased operating expenses and lower profits. Businesses simply cannot afford to continue with the status quo and remain competitive in the global economy.

Government

Rising health care costs also place an increasing strain on state and local budgets and threaten the sustainability of the Medicare and Medicaid programs. As more federal, state and local money must be funneled to health care, it crowds out other important priorities like investment in education and infrastructure. Without increasing revenues and taxes, health costs will take up an increasing share of government dollars. On average, Medicaid accounted for 21.2 percent of state spending in 2007, an increase of more than six percentage points over 2006.¹⁸ Medicare is similarly struggling and consuming a significant and increasing portion of the federal budget. These statistics paint a grim picture of the current situation that is facing families, businesses and the government. Our economic evaluation of health care reform, however, is based on the most accurate projections of health care cost growth. The important questions are: Do we expect that the current economic downturn will moderate growth in health spending? Will the combination of slower economic growth and continued health care cost growth exacerbate these trends?



The Sustainability of the Status Quo

A recent independent study by the Urban Institute confirms that the economic and social costs of failing to fix Colorado's health care system are very high. This research was critical to our own study, providing the basis for our assumptions about expected health care cost growth in the future. The Urban Institute study shows that without reform, the number of uninsured Coloradans will increase, while businesses, individuals and governments will face increasingly higher health care costs.¹⁹

Using a Colorado-specific version of the Urban Institute's Health Insurance Policy Simulation Model (HIPSIM), Urban Institute analyzed changes in health coverage and cost growth under three different scenarios. Because of the importance and uncertainty around our nascent economic recovery, Urban built scenarios with alternative assumptions about economic and health care cost growth. The first, or worst case, assumed slow growth in incomes and high rates of growth in health care costs. The second, or intermediate case, assumed somewhat faster economic recovery and a continuation of recent, relatively moderate growth in health care costs. The third scenario, or best case, assumed a rapid return to full employment, faster income growth and the slowest rate of growth for health care costs. The analysis evaluated the type of coverage and level of uninsured in 2014 and 2019; and changes in spending by families, employers and the government in 2014 and 2019. In all cases, the Urban Institute's expectations of future health care cost growth are more optimistic than short term local forecasts from organizations like the Colorado Business Group on Health and the Denver Metro Chamber of Commerce. We use Urban's more conservative expected growth rates for two reasons: **1) the more conservative the scenarios, the more difficult it is to show significant savings from reform; and 2) Urban's model is based on decades of data rather than the shorter term studies by local organizations.**

TABLE 1**GROWTH RATE ASSUMPTIONS UNDER EACH OF THE THREE SCENARIOS, BY A 5 YEAR PERIOD**

	<i>Unemployment Rate at end of period</i>	<i>Employment rate at end of period</i>	<i>Income growth (average annual growth)</i>	<i>CPI (average annual growth)</i>	<i>Medicaid health care spending per capita (average annual growth)</i>	<i>Private health spending per capita (average annual growth)</i>	<i>Private premiums (average annual growth)</i>	<i>Out-of-pocket health care costs (average annual growth)</i>	<i>Decline in ESI offer rate due to recession?</i>
2009 to 2014									
Worst Case	7.1%	61.2%	1.0%	2.0%	6.0%	7.0%	8.0%	3.5%	Yes
Intermediate Case	6.1%	62.0%	1.5%	2.0%	5.0%	6.0%	7.0%	3.0%	Yes
Best Case	5.1%	62.8%	2.0%	2.0%	4.0%	5.0%	5.0%	2.5%	No
2014 to 2019									
Worst Case	5.1%	62.8%	1.5%	2.0%	6.0%	7.0%	8.0%	3.5%	No
Intermediate Case	5.1%	62.8%	2.0%	2.0%	5.0%	6.0%	7.0%	3.0%	No
Best Case	5.1%	62.8%	2.0%	2.0%	4.0%	5.0%	5.0%	2.5%	No

Source: Urban Institute, "Health Reform: Cost of Failure in Colorado," August 2009.



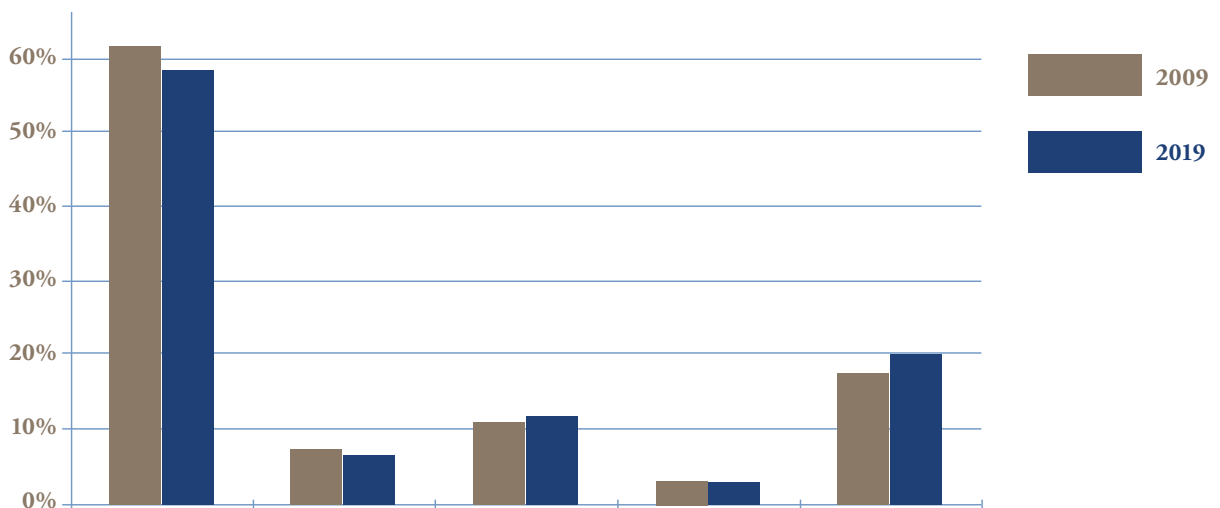
As these data show, under every scenario, the rate of growth of health care costs per capita and of premiums exceeds income growth, so that each year health spending will claim larger and larger shares of family budgets. In our judgment, these cost levels are economically unsustainable.

Our current status quo of high health care cost growth is not an anomaly, but instead what we can expect for at least the next decade. And, given recent economic and health cost trends, the best case scenario seems virtually impossible, meaning that health care cost growth will likely continue to grow much faster than economy-wide productivity and inflation over time. For the purposes of this report, we assume the intermediate case is the most likely.

More concerning than the rate of growth of health care costs is the implication of this growth for health insurance coverage in Colorado and spending patterns in the future. Without reform, more Coloradans will be uninsured, fewer will be covered by employer-sponsored insurance and more will rely on Medicaid coverage. By 2019, more than one-in-five non-elderly (under the age of 65) Coloradans will be uninsured. Fewer than 60 percent will be covered by employer-sponsored insurance. Medicaid enrollment will increase by more than a percentage point. Figure 1 presents the expectations of this model.

FIGURE 1

DISTRIBUTION OF HEALTH COVERAGE 2009-2019, TOTAL NON-ELDERLY* POPULATION



Source: Urban Institute, "Health Reform: Cost of Failure in Colorado," August 2009.

*Non-elderly is defined as individuals under the age of 65.

Without reform, employer health care contributions will continue to rise. As illustrated by Table 2, total employer health care contributions will rise by 109 percent without action. In addition, premium costs per worker (the total cost to a firm of providing health coverage divided by the total number of workers in a firm) will increase by nearly 105 percent, climbing from \$5,563 in 2009 to \$11,375 by 2019. Family premiums will reach more than \$22,000 annually by 2019. Further, uncompensated care costs – care that is delivered and not paid for by the uninsured and underinsured – will rise by 113 percent. This is significant because uncompensated care costs typically result in higher prices for services, which in turn lead to higher premiums for the privately insured.



TABLE 2

AGGREGATE SPENDING 2009-2019, NON-ELDERLY POPULATION (IN MILLIONS)

	2009	2019	Percent change 2009-2019***
Medicaid/SCHIP	\$1,490	\$2,792	87.3
Uncompensated Care*	\$871	\$1,858	113.2
Employer Share of Premiums	\$7,321	\$15,317	109.2
<i>Premiums per Worker (in Dollars)</i>	\$5,563	\$11,375	104.5
Individual and Family Spending**	\$5,829	\$10,015	71.8

Source: Urban Institute, "Health Reform: Cost of Failure in Colorado," August 2009.

*Uncompensated Care is the cost of care provided for which no payment is received from the patient or insurer or government.

**Individual and Family Spending constitute the household contribution toward insurance premiums and out-of-pocket expenses on health care.

***Percent change may not calculate correctly due to rounding.

The status quo trajectory of the U.S. health care system is increasingly unsustainable. According to the Commonwealth Fund's estimates, Colorado's health system as a whole is better than the U.S. average, but neither families, nor businesses, nor governments are getting appropriate value for their health care dollars.²⁰ While it is clear that something must be done to fix our ailing system, this study addresses whether comprehensive reform is necessary and worth the costs to fix the system.

COSTS AND BENEFITS OF REFORMING THE HEALTH SYSTEM

Health reform will have quantifiable benefits – more people will be able to pay for the care they need, providers will shift fewer uncompensated care costs to private payers over time and health care cost growth should be reduced for households, employers and governments. At the same time, coverage expansion is costly, delivery system reform infrastructures must be built and reform must be fully financed. This analysis will outline, measure and weigh the benefits against the costs of comprehensive reform for Colorado's economy.

COSTS

The health care system is one of the largest components of both state and federal budgets, making it expensive and complicated to overhaul and retool for the 21st century system we need. Additionally, there are many stakeholders who stand to lose from structural changes to the system. As a result of the health system's complexity, it is difficult to identify the discrete costs of health reform. Therefore, we focus on the two main ways to think about the costs of reform: the public budget costs of reform and the economic cost of financing reform.

Public Budget Costs

The public budget costs of health reform include all costs incurred by the government that help pay for health care for the newly insured and the low-income insured, and that ultimately must be financed by the population as a whole. The vast majority of these costs are spent on new Medicaid spending as eligibility is expanded and on subsidies to help low- and middle-income individuals purchase private health insurance.



According to respected analysts, comprehensive reform to the nation's health care system that would extend coverage to most of the uninsured would cost about 1 percent of Gross Domestic Product.²¹ In Colorado, the Lewin Group estimated that for the four insurance-based reform packages evaluated by the 208 Commission, new public subsidy costs would be between \$980 million and \$3.1 billion per year in 2008 dollars. Much like federal reform, the upper range of these values approaches 1 percent of Gross State Product (GSP).²² It is also important to note that under the 208 Commission proposal, Colorado's actual share of the public cost will fall below this range because the federal government contributes to the cost of Medicaid coverage. These costs, however, only represent the change in budget outlays, not the full opportunity or economic cost of reform.



Opportunity Cost of Financing Reform

Colorado must fully finance its share of any reform initiative. The Lewin Group offered several financing options for the 208 Commission and the Legislature to consider, including increases in tobacco, alcohol and income taxes and a new tax on unhealthy foods like salty snacks and soda. The new or higher taxes would extract the economic "cost" of reform. Specifically, since all new taxes are ultimately paid directly by people or indirectly through reduced business profits, these taxes would have two primary results.

First, taxes would reduce consumers' disposable income as a larger share of their personal budget is spent on taxation. Second, with lower disposable income, consumers would spend less of their money in all sectors of the

Colorado economy. This would, in turn, lower economic output and job growth as individuals spend more on taxes and less on goods and services.

BENEFITS

Though the immediate benefit of health reform is better access to timely care and a healthier Colorado community, there are more purely economic benefits to consider. While we are not able to rigorously quantify all of the positives of health reform, those that we can quantify include additional spending in the Colorado economy, more high-value jobs, reduced cost-shift from the uninsured and lower health care spending growth. Other real benefits that should be considered in a political context but are not counted in our standard economic impact model include improved productivity from improved health, community, family and interpersonal gains. This means the estimates of economic benefit from reform that we will make are conservative, in that they omit known, but harder to quantify, gains that Coloradans would obtain.

Quantifiable Benefits

Additional Output or Economic Activity (GSP)

From Additional Public Spending on Reform

The amount of public money necessary to implement the 208 Commission proposal would be transmitted through the economy. This transmission will occur not just in one lump sum, but rather in cascading waves as one person's or sector's increased spending is someone else's new income and new spending. As a result of injecting public funds to finance health reform into the economy, individuals and health care providers will spend more on health and on household goods and services. This, in turn, will allow the people who sell those goods and services to spend more on what they buy, as well. Therefore, one dollar in new spending results in more than one dollar in increased economic activity, as measured by GSP. This "multiplier effect" is true for both health care and household goods. For example, as doctors provide care to more patients, they will buy more medical supplies; the new supplies will translate into increased economic activity in the medical



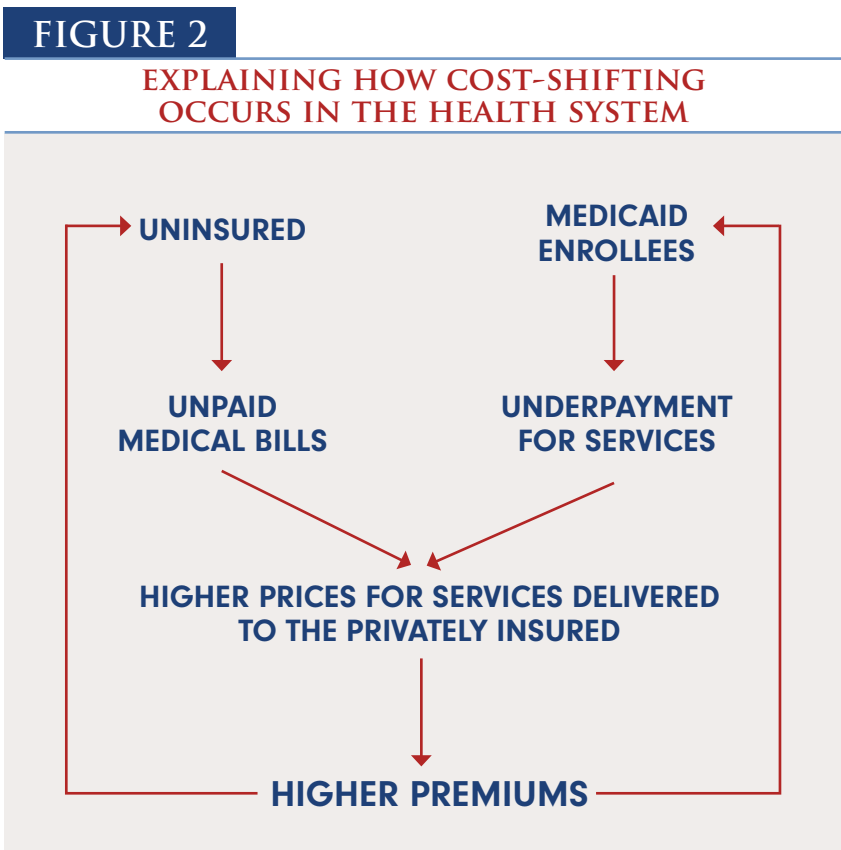
supply industry, as well as those industries – both health and non-health – that supply goods to the medical supply industry. The multiplier effect is particularly significant for health spending because the vast majority of health care dollars are spent locally, rather than on products and services produced in other states or countries, as is the case for general household spending.

From Additional Spending by Households

While the 208 Commission proposal would certainly stimulate new health spending, it would also provide subsidies for the purchase of health insurance, thereby enabling Coloradans to spend more of their current income on non-health goods and services in the short-term. This net increase in household spending on non-health goods also has a multiplier effect as it is transmitted, transaction by transaction, throughout the economy. So, by raising the money to pay for subsidies and public coverage, Colorado can increase the output of all sectors of the economy. The economic analysis presented in later sections will quantify the effects of additional spending in the health sector and by households.²³

New Jobs

As more Coloradans obtain health insurance and seek medical care, there will be an increased demand for all levels of clinicians and health care workers. The increased demand will lead to more health care-related job opportunities in Colorado, resulting in more individuals with disposable income to buy other consumer goods from Colorado businesses. Additionally, as new health care workers have new income, their spending will stimulate jobs in all sectors of the economy. Again, an increase in public spending will lead to even larger increases in economic activity than the value of the spending increase. Using input-output models that reflect data on the supply and demand of goods between sectors of the economy, it is possible to determine how large the benefits of increased output and employment are to the Colorado (or any other) economy.²⁴



Lower Cost-Shift

In addition to the employment and output gains, increased coverage will also help reduce uncompensated care – or care provided to the uninsured and underinsured for which providers are not directly compensated. As illustrated in Figure 2, the uncompensated care delivered to the uninsured combined with low Medicaid provider payment rates leads to higher health care prices and insurance premiums for the privately insured. As all or nearly all Coloradans obtain insurance and the Colorado Medicaid program increases its payment rates to providers (as prescribed in the 208 Commission proposal), uncompensated care would be reduced. A reduction in uncompensated care will diminish the need for cost-shifting to insured individuals, which should make premiums lower than they would have been without reform – a benefit to both employers and individuals.



According to the Lewin Group, if the 208 Commission's proposal is enacted, the actual cost of reform will be reduced by \$165 million from reduced safety net spending.²⁵

Reduced Cost Growth and Higher Quality Care

Another benefit of health reform is reduced cost growth and higher quality care from increased efficiencies in the delivery system over time. According to considerable scholarly research, between 30 percent and 50 percent of health care spending does not improve health in any demonstrable way.²⁶ If we could improve the clinical value and efficiency of care provided in Colorado and the United States, we could greatly reduce the cost of delivering care to the currently and newly insured. The Commission proposed many delivery system reform innovations, some of which have been implemented and some of which remain outstanding.

Several recent innovations and ongoing pilot projects in Colorado indicate that reducing the rate of growth of health care costs while improving the quality of care is an eminently feasible goal.²⁷ Except for equitable access, Colorado already enjoys a better than average health system performance relative to the nation.²⁸ Indeed, Colorado's delivery system leaders are uniquely poised to take the State's health system to the next level of efficiency and quality.²⁹ With persistent effort and both public and private sector support, delivery system reform can save money and improve the value we receive from our health care dollars, effectively driving down the cost of health reform over time. By evaluating the percent reduction in cost growth, we will enumerate the true savings from delivery system reform.

Other Qualitative Benefits

Improved Productivity from Improved Health

The uninsured are more likely to die prematurely and experience poorer health over the course of their lives.³⁰ A multi-year Institute of Medicine study found that their increased mortality and morbidity cost between \$65 billion and \$135 billion in lost economic value in 2001 alone. These costs are based upon the lost hours and years of workplace productivity and earnings that uninsured individuals forego because of their reduced health. The lower \$65 billion figure represents the lost economic value of increased mortality alone, while the higher \$135 billion figure takes into consideration the lost economic value of increased morbidity as well as increased mortality, a more complete approximation of the true economic value lost. By 2007, these costs had risen to a high of more than \$200 billion per year. This is more than it would cost to cover the uninsured.

Following the Institute of Medicine's methodology, the economic losses from the uninsured in Colorado were between \$1.82 billion and \$3.87 billion in 2007.³¹ While it is unlikely that Colorado can capture all of these former output losses – some of the economic value is improved quality of leisure time – at least some of this value could be recouped through more productive workers who would earn more income and thereby increase the state's tax base. A very strong case may be made that this dimension of the gain is quantifiable, but due to imprecision about how it would be captured by the economy, we will not include it in our conservative estimate of the positive impact of health reform.

Family Benefits

The gains to family members include both the economic value of saved parents or children as well as the fiscal benefits to the state and federal government of the cost of saved survivor benefits. While these benefits may seem small in the aggregate because of the relatively small number of premature deaths, social science research shows us that the children of families with parental figures are more successful later in life.³² Furthermore, children who do not suffer from increased morbidity have a better chance at success than those who are often absent from school as a result of illness.³³



Community Benefits

With higher rates of insurance, the community benefits by reducing stress on public safety-net health systems. For example, people who have health insurance coverage are more likely to seek preventive care in a timely manner, rather than seeking care at an emergency room. This pathway to preventive care means the more people there are insured, the fewer stresses on emergency rooms, thereby resulting in faster care, fewer ambulance diversions and less-strained safety-net resources.³⁴

Interpersonal Benefits

The interpersonal benefits from increased coverage to families and communities are suggested by recent empirical work on social capital. The theory of social capital asserts that the sum of an individual's social relationships and interactions affects their personal decision-making on a variety of levels (e.g., education, jobs, saving, risky lifestyles), as well as changing their propensity for investing in housing and community assets (e.g., parks, civic associations, etc.). Personal decisions made within the context of more social capital versus less increase one's value in the marketplace and thus one's economic viability. Recent studies have shown that high rates of being uninsured and resulting low access to care correlate strongly with low rates of social capital.³⁵ By reversing these trends, health reform could raise the social capital of a given area or region, making it more economically viable as a whole.

These benefits will not be included in our conservative estimate of the economic impact of health reform. Nevertheless, they do exist and should be listed in any political and social evaluation of health reform.

SUMMARY

In this paper, we estimate all major costs and benefits of health reform in Colorado so that readers can make informed judgments about whether to support or oppose this and similar proposals. If the likely economic gains outweigh the likely economic costs, then opponents of reform will need to explain more precisely why they are willing to forego these net benefits. If, on the other hand, the expected costs exceed a fair assessment of the likely benefits, then proponents will have to appeal to non-economic arguments to win the political debate over spending priorities.

With the use of Colorado-specific data, the purpose of this paper is to estimate how the costs and benefits of health reform will affect the Colorado economy over the next 10 years. In doing so, we examine and quantify the likely cost of a coverage expansion; the economic outcome of a coverage expansion; delivery system reforms likely to be implemented with coverage expansion; and the costs and benefits of those delivery system reforms. Finally, based on our analysis of the 208 Commission's proposal, we extrapolate the likely effect of federal health reform on Colorado.



THE ECONOMIC IMPACT MODEL

Our economic model for evaluating the likely impact of health reform quantifies the impact of financing and spending more on health care as proposed by the Commission. The overall impact compares net new health spending, net new non-health spending, the contractionary impact of financing reform and the cumulative reverberations of all these flows throughout the Colorado economy, to the status quo/no reform scenario. We will focus on the well-established metrics of statewide economic output (measured as gross state product or “GSP”), as well as total state employment to compare the reform scenario to the non-reform/status quo scenario.

There are three major inputs to our economic model:

- Baseline assumptions about
 - Health spending
 - Economy-wide growth
 - Employment growth
- New spending on coverage expansion
 - Distribution of new health subsidies
 - Colorado's share of financing
- Delivery system reforms.

Each of these elements was used to calculate likely costs and benefits of health system reform in Colorado. We explain the first two and their role in our model in the next section. The economic impact methodology does not lend itself to delivery system reform analysis, so we describe and analyze the various ongoing and prospective delivery system reform scenarios in the section that follows our economic impact analysis.

Elements of the Economic Model

Baseline Health Spending

The baseline of health spending estimates where current trends are likely to take us and provides a “without reform” comparison point for the rest of our analysis. There are two elements to a baseline. One is the level of spending in various categories – employer, Medicaid, etc. – in the most recent year for which we have data that has been properly decomposed. For these, we used the Lewin estimates compiled for the Commission. The second element of a baseline is projected rates of growth. For this we used Urban Institute estimates from its Colorado-specific study of the cost of doing nothing.³⁶

The starting point for the baseline scenario is the Lewin Group's analysis of health spending before implementation of the Commission's recommendations for health reform in Colorado.

Because the Lewin Group performed its analysis of the Commission's recommendations in 2007, we updated them to 2009, our analysis' starting point, through 2019, our analysis' ending point. We also executed the updates in a way that reflected not just historical trends but also took into account the uniquely unfortunate economic downturn of 2008-2009. Fortunately, the Urban Institute's health spending model was able to adjust for the severe recession, so we used their “intermediate case” growth rates to update the 2007-2008 categories of spending identified by Lewin in their report.³⁷

To grow Lewin's categories of spending to current and future rates, we applied the sector-specific growth rates provided in the Urban report. For example, because Urban's intermediate case projects private premiums to grow at 7 percent per year from 2009 to 2019, we grew all categories related to private premiums by 7 percent per year. As noted earlier, this is a more conservative pessimistic forecast than recently observed Colorado trends, but it is based on more extensive data collection



than shorter-term, local forecasts. For those categories of spending for which Urban did not make a specific forecast, we used well-respected, publicly available data. For example, we trended forward the growth in Medicare spending based on the Center for Medicare and Medicaid Services' (CMS) State Health Expenditures tables of Medicare spending in Colorado.³⁸ These projections are made by the same CMS Actuaries who provide the analysis and official projections for the annual Medicare Trustees' Reports.

In Table 3, Column A is the original data from the Lewin report and Column B is the rate of growth associated with the category of spending. For each year after 2008, the rate of growth is applied to the prior year's spending level to determine current and future health spending in Colorado.

TABLE 3

BASELINE HEALTH SPENDING BY CATEGORY, 2009-2019 (IN MILLIONS)

	Column A	Column B	Column C	Column D	Column E
	2008*	Annual Rate of Growth	2009	2014	2019
Out-of-Pocket	\$4,152	6.0%	\$4,401	\$5,890	\$7,882
Employer Workers	\$11,929	7.0%	\$12,764	\$17,902	\$25,109
Employer Retirees	\$1,287	7.0%	\$1,377	\$1,931	\$2,709
Non-Group	\$1,188	7.0%	\$1,271	\$1,782	\$2,501
Medicare	\$5,810	8.4%	\$6,298	\$9,432	\$14,123
Medicaid / CHIP	\$2,972	5.0%	\$3,120	\$3,983	\$5,083
CHAMPUS/TriCare	\$752	6.1%	\$798	\$1,073	\$1,442
Other Public	\$574	6.1%	\$609	\$819	\$1,101
Workers Comp.	\$714	6.1%	\$758	\$1,019	\$1,370
Other Private	\$721	6.1%	\$765	\$1,029	\$1,383
Total	\$30,099	6.9%	\$32,162	\$44,859	\$62,702

On average, health spending is projected to grow by about 6.9 percent per year over the next decade. In particular, total health spending in Colorado will more than double from \$30 billion in 2008 to \$62.7 billion in 2019.

Baseline Economic & Employment Growth

Because our model is dependent on an understanding of how the entire economy reacts to changes in health spending, we also needed to understand how the economy as a whole would progress without health reform. To do so, we utilized a macro model produced annually for the Colorado State Demographer's Office by the Center for Business and Economic Forecasting. This model forecasts major demographic and macroeconomic variables as a function of both the national economic outlook and labor market conditions in the state. Because the 2009 model was not final at the time of our analysis, we adjusted the most current iteration of the model to account for our current economic downturn.³⁹



Our baseline assumptions about economic output and job growth are outlined further. Despite the current downturn in GSP and employment growth as a result of the recent financial crisis, we project Colorado's economy to return to a steadier course by the second half of our time frame.

TABLE 4

BASELINE PROJECTIONS OF COLORADO ECONOMY, 2009-2019

Year	GSP (in millions)	Year over Year GSP Growth Rate	Employment	Year over Year Employment Growth Rate
2009	\$246,978	-0.9%	2,897,262	-2.3%
2014	\$305,871	5.0%	3,090,073	2.0%
2019	\$410,274	5.8%	3,314,433	1.2%

Source: Adjusted Version of CBEF Forecast

Relationship Between Health Sector and Colorado's Economy

Another major indicator of whether health reform is a net positive or negative for the Colorado economy is the percentage of total economic activity (GSP) that is consumed by the health sector. As Table 5 shows, in 2009, the first year of analysis, health spending consumes 13 percent of Colorado's GSP. By 2014, that share will jump to 14.7 percent of state output; and by 2019, the share would be 15.3 percent if current trends continue. If health reform can increase overall GSP, but without significantly increasing the share of GSP going to the health sector, it will have a positive effect on Colorado's overall economic output rather than concentrating all the benefits in the health sector.

TABLE 5

BASELINE GROSS STATE PRODUCT AND HEALTH SPENDING, 2009-2019 (IN BILLIONS)

Year	Baseline GSP	Baseline Health Spending	Health Spending as Share of GSP
2009	\$247.0	\$32.2	13%
2014	\$305.9	\$44.9	14.7%
2019	\$410.3	\$62.7	15.3%

Source: Adjusted Version of CBEF Forecast; Authors' Calculations

New Spending on Health Reform

In addition to forecasting how health spending would likely progress without reform, we need to be able to compare it to spending under a reform scenario. To do so, we need to determine the total cost of health reform. To maintain consistency, we trended Lewin's estimates of the cost of reform under the Commission's proposal forward by the growth rates provided by the Urban Institute and CMS. As a result, we made no new assumptions about the composition of health spending patterns in Colorado. In Table 6, we outline the new spending necessary to expand health coverage in Colorado in 2007 as identified by the Lewin Group.⁴⁰



TABLE 6

CHANGE IN PUBLIC SPENDING UNDER THE COMMISSION'S PROPOSAL (IN MILLIONS)

Category of Spending	Change in Spending 2007/2008
Medicaid / CHP+ Expansion	\$1,621.4
Premium Subsidies	\$553.7
Administration of Subsidies	\$23.0
Cover Colorado	\$95.3
Funding for Local Public Health and Nursing Services	\$23.0
Total New Program Costs	\$2,306.9⁴¹
Savings to Current Safety Net Programs	-\$164.8
Total Public Cost of Expansion	\$2,142.1
Colorado's Share of Public Cost	\$1,331.4

Source: Figure 17 Lewin Group, "Appendix G: The Commission Proposal for Health Reform," December 2007.

Table 6 outlines only the new public costs of expanding health insurance coverage according to the Commission's proposal. In 2008 dollars, that proposal, to provide subsidies to low-income families to purchase insurance and increase Medicaid eligibility, would cost taxpayers in Colorado and the nation \$2.3 billion. Of that, \$165 million would offset current spending on safety-net programs, which would bring the total public cost to \$2.1 billion in 2008.

Because Table 6 only provides an accounting of public costs, we also need to determine the change in private (hereafter referred to as household) spending. As discussed earlier, both health spending and household spending have a multiplier effect on Colorado's economy. For every dollar change in household spending there is more than a one dollar impact on the economy. But these different types of spending have different multiplier effects on the economy as a whole, primarily because they begin differently (e.g., health, non-health savings or imports to Colorado) and therefore move through the economy with different patterns. Accordingly, we must specify both how much and what kind of new spending will be introduced into the Colorado economy.

According to Lewin's analysis, outlined in Table 7, a large share of the public subsidies provided to low-income Coloradans will actually replace former spending on health services, freeing up money to spend in other portions of the economy. Because of the generosity of the Commission proposal, on net, households in Colorado would have more disposable income – once spent on health care – that they can then spread throughout the Colorado economy.

TABLE 7

IMPACT OF COMMISSION PROPOSAL ON FAMILY HEALTH SPENDING (IN MILLIONS)

Category of Spending	Change in Spending 2007/2008
Change in Premiums	-\$236.6
<i>Change in Family Premiums</i>	\$412.4
<i>Premium Subsidies</i>	-\$553.7
<i>Cover Colorado Subsidies</i>	-\$95.3
Change in Out-of-Pocket Payments	-\$606.8
<i>Acute and Primary Care</i>	\$-516.9
<i>Services covered under HCBS waivers</i>	-\$89.9
Section 125 Plans	-\$372.9
Total Change in Spending	-\$1,216.3

Source: Figure 20 in Lewin Group, "Appendix G: The Commission Proposal for Health Reform," December 2007



Specifically, the Commission's proposal would free up \$1.22 billion in reduced premium and out-of-pocket spending (in 2008 dollars) and allow families to spend it according to their usual spending patterns. So, instead of costing individuals and families more, on aggregate, health reform will cost them less and increase their disposable income. This increase in disposable income occurs because many families who once paid for their health insurance out of their income will now receive subsidies from the state to purchase health insurance. The money that was once spent on premiums and out of pocket payments for services is now "freed-up" by the subsidies and is a source of new income for Colorado households. Instead of devoting that spending exclusively to the health sector, families can now spend it according to their normal spending patterns.

As a result, our analysis must consider the new spending to finance health reform and the newly available household spending as a result of health reform as two separate types of funds to be injected into the Colorado economy with enactment of reform. As noted, because these types of injections have different multiplier effects, they must be evaluated separately.

According to Table 8, one such stream of funds will be new household spending of \$1.22 billion (in 2008 dollars) to be allocated according to the spending patterns of Colorado families. The other stream of funds will be true new health spending and will be dedicated to the health sector. This amount is the difference between the total cost of the Commission proposal of \$2.1 billion and the \$1.22 billion in new household spending. In 2008, that new health spending will total \$926 million. Because our economic model differentiates between the effects of different types of spending, it is important to make clear that these are two separate types of funds, but that both can be attributed to the impact of health reform.

TABLE 8
HEALTH AND NON-HEALTH "INJECTIONS" FOR COVERAGE EXPANSION (IN MILLIONS)

Year	Total Public Spending Injection	Health Spending Injection	Household Spending Injection
2008	\$2,142	\$926	\$1,216
2009	\$2,289	\$989	\$1,300
2010	\$2,446	\$1,057	\$1,389
2011	\$2,613	\$1,130	\$1,484
2012	\$2,793	\$1,207	\$1,586
2013	\$2,984	\$1,290	\$1,694
2014	\$3,189	\$1,378	\$1,810
2015	\$3,407	\$1,473	\$1,935
2016	\$3,641	\$1,573	\$2,067
2017	\$3,890	\$1,681	\$2,209
2018	\$4,157	\$1,797	\$2,360
2019	\$4,442	\$1,920	\$2,522

Colorado's Share of Financing Health Reform

Because health reform does not occur in a vacuum and the true costs of reform must be subtracted from the benefits of reform, it is important to ensure that we properly model the financing of the Commission's proposal. To do so, we must determine what portion of the injections of new funds is Colorado's responsibility.



A large portion (about two-thirds) of the coverage expansion proposed by the Commission would result in increased Medicaid enrollment. The other one-third would come from new private insurance coverage. Medicaid is a public program whose financing is shared jointly by the state and federal governments. In Colorado, that financing is split evenly by the two governments. Therefore, in order to determine how much Colorado must finance, we need to know the total cost of the coverage expansion, the cost of the Medicaid expansion and the federal government's share of the Medicaid expansion. In Table 9, we show the original data from the Lewin Group on these levels of spending in 2007/2008. We then grow each category of spending (total and Medicaid-only) by their respective growth rates of 6.9 percent and 5 percent (Medicaid-only growth from Table 3) over our 10 year timeline. By multiplying the total new Medicaid spending by 50 percent,⁴² we can determine the federal government's share of the coverage expansion. Colorado's share is simply the difference between the total cost of the coverage expansion and the federal share of reform.

TABLE 9

FINANCING HEALTH REFORM IN COLORADO (IN MILLIONS)

	Total Injection	New Medicaid Spending	Federal Share of Medicaid	Colorado's Share of Financing
2007/2008	\$2,142.1	\$1,621.4	\$810.7	\$1,331.4
2009	\$2,288.9	\$1,702.5	\$851.2	\$1,437.7
2010	\$2,445.8	\$1,787.6	\$893.8	\$1,552.0
2011	\$2,613.5	\$1,877.0	\$938.5	\$1,675.0
2012	\$2,792.6	\$1,970.8	\$985.4	\$1,807.2
2013	\$2,984.0	\$2,069.4	\$1,034.7	\$1,949.3
2014	\$3,188.5	\$2,172.8	\$1,086.4	\$2,102.1
2015	\$3,407.1	\$2,281.5	\$1,140.7	\$2,266.3
2016	\$3,640.6	\$2,395.6	\$1,197.8	\$2,442.8
2017	\$3,890.1	\$2,515.3	\$1,257.7	\$2,632.5
2018	\$4,156.8	\$2,641.1	\$1,320.5	\$2,836.2
2019	\$4,441.7	\$2,773.1	\$1,386.6	\$3,055.1

According to Table 9, Colorado pays for about two-thirds of the cost of this reform. In 2010, Colorado's share is made up of \$893.8 million in Medicaid spending and \$658.2 million in other spending, including subsidies for private coverage.

Therefore, when computing our economic impact model, we must remove the negative multiplier effect of Colorado financing reform, described in the costs section. In effect, we must subtract out the negative impact of financing reform by raising taxes. As families pay taxes they have less disposable income to spend in the Colorado economy. This reduced spending in the Colorado economy also has a multiplier effect in the economy, except that it detracts from economic output, rather than adding to it. For every dollar no longer spent in the Colorado economy, there is a reduction of more than one dollar in Colorado's economic output, or GSP. In 2009, the negative injection of funds totals \$1.4 billion, but it will have an even larger multiplier effect as households spend less as a result of new, higher taxes.



The final element of our analysis is related to delivery system reform, which will be addressed in detail later in this report. Now that we can compare spending before health reform and the total, yearly cost of health reform, we can progress to the next step of our model which will determine, through the use of input-output analysis, the magnitude of the effect of health reform on economic output and employment in Colorado.

Methodology: Regional Input-Output Analysis

Economic Impact Analyses

Now that the dollar cost of health reform is clear – \$2.1 billion in new public spending, made up of \$926 million in new health spending and \$1.22 billion in transfers to households in 2007/2008 – we must determine the economic costs and benefits of reform. To do so, we must determine the economic impact of injecting \$926 million in health spending, injecting \$1.22 billion in household spending and financing \$1.33 billion through higher taxes.

Neither the funding for this public investment nor the additional spending within the health care industry occurs in a vacuum. Rather, as explained earlier, each has ripple effects within the larger economy. These effects are commonly referred to as “multipliers.” The additional funds that will flow to doctors and hospitals will allow them to buy more medical equipment; the makers of medical equipment pay salaries to their employees; these employees purchase goods from businesses in their hometowns; and so the initial injection of funds circulates throughout the economy. The economic effects of financing reform have similar reverberations. In Figures 3 and 4, we present a graphical explanation of how these funds flow through and multiply within an economy.

FIGURE 3

MULTIPLIER EFFECT OF INVESTMENTS IN HEALTH CARE

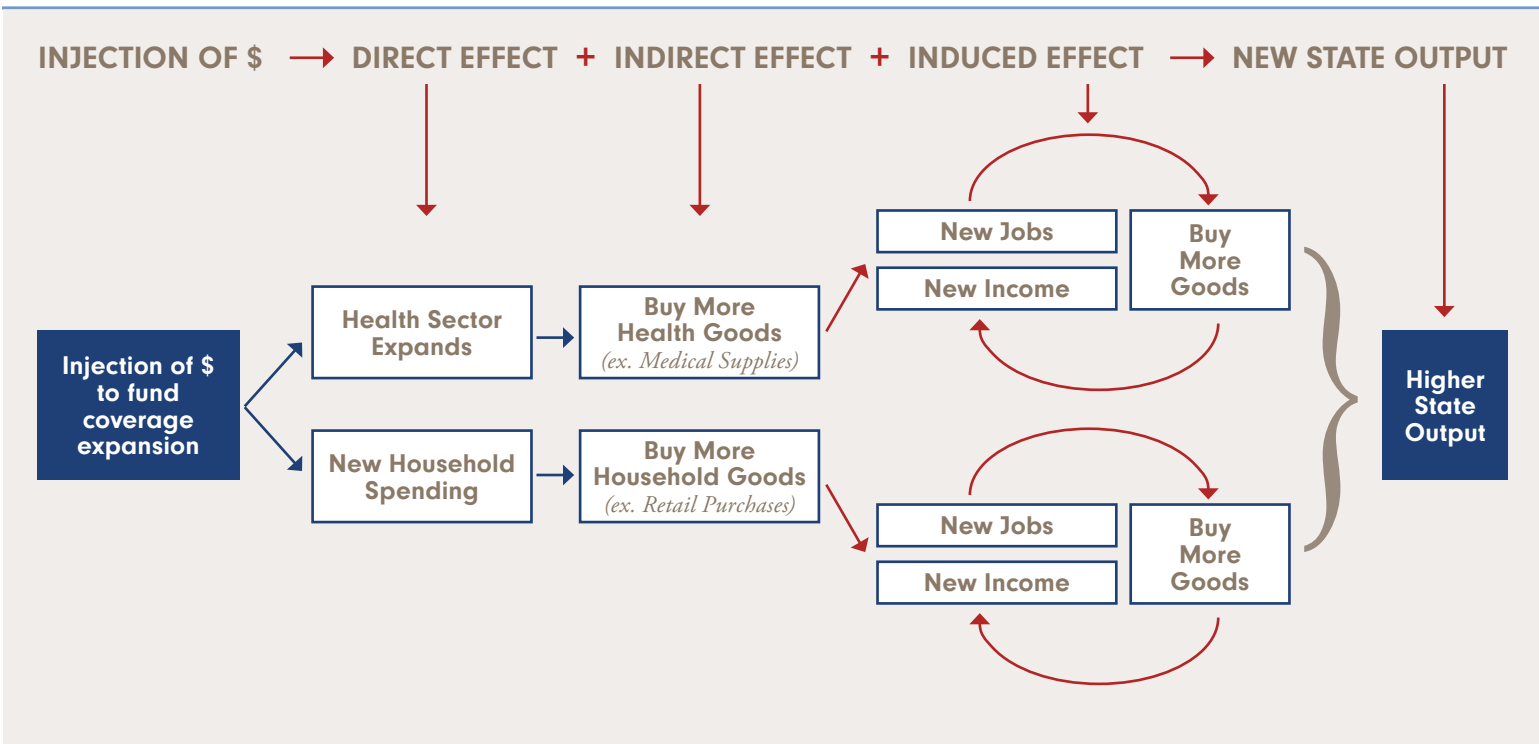
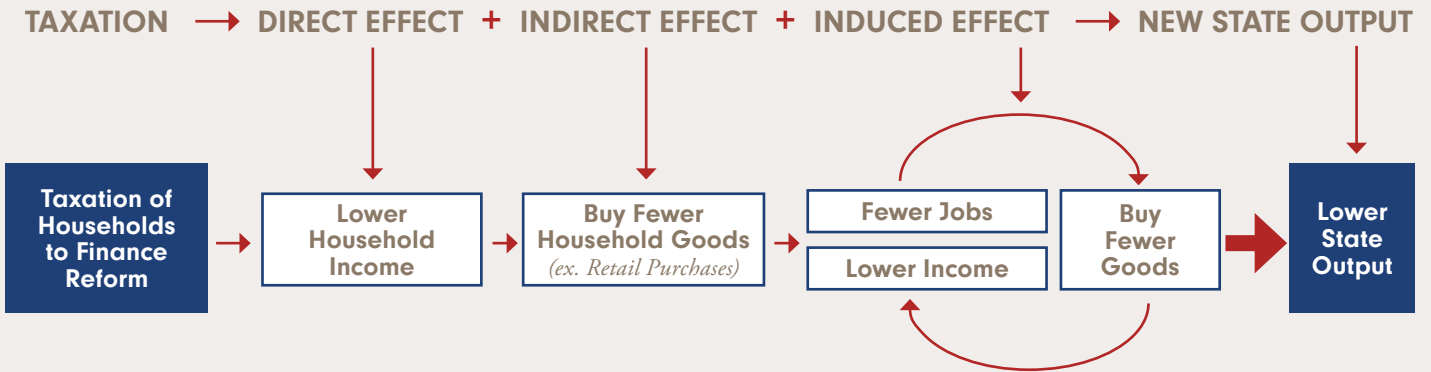




FIGURE 4

MULTIPLIER EFFECT OF FINANCING INVESTMENTS IN HEALTH CARE



There are several different tools that combine these direct and indirect induced effects and, hence, gauge the overall impact of public and private investments in particular industries. Some – including the IMPLAN (IMPact analysis for PLANning)⁴³ and REMI (Regional Economic Models, Inc.)⁴⁴ – rely on proprietary survey data and complex computer programs. However, a simpler method using data made available since the 1970s through the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce has been shown to be equally effective at predicting economic impacts.⁴⁵ It is called the Regional Input-Output System or “RIMS II.” This simpler method – in addition to being just as accurate – is also transparent, an important precondition for conducting an analysis that can earn public trust.

Regional Input Output Modeling System (RIMS II)

RIMS II is a powerful and flexible tool that has been used in thousands of studies to gauge the economic impact of everything from increased tourism⁴⁶ to the development of affordable housing on local economies.⁴⁷ As is the case in this analysis of the impact of health care reform on the Colorado economy, researchers often use this tool to evaluate the consequences of various public policy choices. For example, a California study examined the economic impacts of public support for increased ethanol production.⁴⁸ Within the Colorado context, studies have used these data to model the impact of everything from child care centers in La Plata County⁴⁹ to the Challenger Learning Center in Colorado Springs.⁵⁰ One study from 2008, prepared for the Colorado State University extension service by John Loomis, a professor at Colorado State University, examined the effect of increasing instream flows in Colorado Rivers. Results indicated that higher instream flows draw more anglers and river rafters to the state and hence generate more economic activity.

This study is similar in terms of its baseline methodological framework, though it is more detailed and comprehensive than many multiplier-driven analyses of this kind. In this case, some of the flows of “new” money come from the federal government, others from new state spending and taxes, and others are reallocated from within the Colorado economy. New tourist spending, as cited previously, would recirculate within the hospitality and food and beverage industries, as well as within the larger Colorado economy. Similarly, new health spending, as evaluated in our study, would go to doctors and hospitals and then recirculate both within the health care sectors and within the larger state economy. The funds also flow to the economy according to the spending patterns of households as a result of their lower health care costs.



One important point of distinction for this study from most applications of input-output models to new health spending proposals is that financing the policy change is part of our analysis. We examine the net impact that subtracts out both the direct and multiplier (i.e., indirect and induced effects) of the cost of financing this coverage expansion through higher taxes. All state funds are assumed to ultimately be financed by households. This funding could be generated by either income or consumption-based levies.⁵¹

The Choice and Use of Multipliers

The RIMS II dataset includes two different classes of multipliers: “direct effect” multipliers and “final demand” multipliers. A class is selected according to the type of data available for the project. We have data on the change in final demand for health care services which is the amount of money we believe it will cost to finance coverage expansion. Therefore, we use “final demand” multipliers. For each class there are also two types, Type II multipliers are more commonly utilized because:

These multipliers not only account for the direct and indirect impacts based on how goods and services are supplied within the region, but they also account for the induced impacts based on changes in the spending of earnings by labor within the region.⁵²

It is particularly important to use multipliers that include the impact of the earnings of labor within analyses of the health care sector since it has many high-paying jobs. The Type II final demand multipliers for this industry are presented in Table 10.

These first two sets of numbers represent the impact on the Colorado economy for each dollar change in final demand in these areas. Every dollar spent on health care increases the total output of the Colorado economy, as measured by GSP, by \$2.44 as that investment cycles through the economy. The employment column presents the number of jobs that are created by each \$1 million invested. So, for example, if \$1 billion dollars is introduced into the health sector in Colorado, it would create \$2.44 billion in GSP (\$1 billion x 2.44 output multiplier) and 21,510 jobs (\$1,000 million x 21.51 output multiplier).

Table 11 presents the multipliers for households, which are lower than those for the health care sector because typical household purchases do not support as much Colorado-based commerce, economic activity or as many high-income jobs as the economic activity generated by an injection of new health spending. This is because household spending “leaks” outside Colorado as people purchase goods produced in other states and countries. The household multipliers work in a similar manner as those for the health care industry.

TABLE 10

RIMS MULTIPLIERS FOR HEALTH CARE INDUSTRY

	Output	Employment
Health Care ⁵³	2.44	21.51

TABLE 11

RIMS MULTIPLIERS FOR HEALTH CARE INDUSTRY

	Output	Employment
Households	1.66	13.23

Model Assumptions: Static Equilibrium and One-Year Effects

RIMS II examines the impact on how spending and financing changes transmit themselves throughout the economy within an equilibrium framework. This framework assumes that the investment itself will not change the relationships among the different sectors of the economy. This is clearly appropriate for very small policy changes. While it is difficult to prove, we believe that moving no more than 1 percent of the state GSP from the rest of the economy to health is a small enough change to justify maintenance of this assumption. Therefore, we preserve the current relationships between different sectors in the Colorado economy as estimated by the Commerce Department and embodied in RIMS II.



Within the static equilibrium framework, an additional assumption is that the multiplier impacts of spending occur within the following year. As described in the handbook distributed by the Department of Commerce that explains the proper use of this Regional Input-Output Modeling System:

RIMS II, like all Input-Output models, is a “static equilibrium” model, so impacts calculated with RIMS II have no specific time dimension. However, because the model is based on annual data, it is customary to assume that the impacts occur in one year. For many situations, this assumption is reasonable.⁵⁴

Theoretically, it may take several years for the reverberations of an initial investment to work their way entirely through the Colorado economy. In that case, the direction or “sign” (positive or negative) of the net impact would be identical to our estimates, but the magnitude would be smaller. Since it would not change the qualitative conclusions, we simply follow RIMS II recommendations and assume the one-year impacts are full.

Economic Impact Analysis Results

State Output

Table 12 outlines the multiplier effect of the injections – which arise as a result of coverage expansion – on the Colorado economy. As a result of the Commission Proposal’s structure, Coloradans would buy \$1.06 billion of new health goods and services and \$1.39 billion of new non-health goods and services (see Appendix A for a complete accounting of these calculations). These numbers are the result of growing the initial injections by the rate of health care cost growth. And, as explained previously, the non-health injection of \$1.39 billion is made possible by new subsidies which replace former household spending on health services.

TABLE 12

THE IMPACT OF COVERAGE EXPANSION ON OUTPUT BEFORE FINANCING (IN BILLIONS)

	Column A	Column B	Column C	Column D	Column E	Column F
Year	Injection of Health Spending	New GSP from health injection	Injection of Household Spending	New GSP from Household Injection	Total New GSP	Colorado GSP After Injections
Source or Formula	Table 8	2.44 * Column A	Table 8	1.66 * Column C	Column D + Column B	Baseline GSP + Column E
2009						
2010	\$1.06	\$2.58	\$1.39	\$2.31	\$4.88	\$ 258.56
2011	\$1.13	\$2.76	\$1.48	\$2.46	\$5.22	\$269.81
2012	\$1.21	\$2.94	\$1.59	\$2.63	\$5.58	\$283.00
2013	\$1.29	\$3.15	\$1.69	\$2.81	\$5.96	\$297.26
2014	\$1.38	\$3.36	\$1.81	\$3.01	\$6.37	\$312.24
2015	\$1.47	\$3.59	\$1.93	\$3.21	\$6.80	\$331.04
2016	\$1.57	\$3.84	\$2.07	\$3.43	\$7.27	\$351.98
2017	\$1.68	\$4.10	\$2.21	\$3.67	\$7.77	\$374.00
2018	\$1.80	\$4.38	\$2.36	\$3.92	\$8.30	\$396.22
2019	\$1.92	\$4.68	\$2.52	\$4.19	\$8.87	\$419.14



However, these additional funds are not available to the Colorado economy for free. Analysis must also take into account the cost of financing that expansion, modeled as a tax on Colorado households. The piper must be paid.

Table 13 outlines the multiplier effect of the injections, taking into consideration the effect of Colorado households financing these new public subsidies. The Colorado share of total public cost is the dollar amount of the total public cost that Colorado will have to finance. Essentially it is the total \$2.1 billion minus the federal share of Medicaid costs (or, 50 percent of Medicaid costs). The Colorado share of financing is outlined in Table 9. In 2010, this will cost \$1.55 billion.

This cost of financing and its multiplier effect must be subtracted from the gains outlined in Table 12. To do this, we subtract the “Colorado Share of Total Public Cost” multiplied by the “Household Multiplier” of 1.66 from “Total New GSP” from Table 12. This yields the “New GSP Net of Financing” shown in Table 13.

TABLE 13
ECONOMIC IMPACT OF COVERAGE EXPANSION NET OF FINANCING (IN BILLIONS)

	Column A	Column B	Column C
Year	Injection of Health Spending	New GSP from Health Injection	Injection of Household Spending
Source or Formula	Table 9	Table 12, Column E - [1.66 * Column A]	Baseline GSP + Column B
2009			
2010	\$1.55	\$2.31	\$255.99
2011	\$1.67	\$2.44	\$267.03
2012	\$1.81	\$2.58	\$280.00
2013	\$1.95	\$2.72	\$294.02
2014	\$2.10	\$2.88	\$308.75
2015	\$2.27	\$3.04	\$327.27
2016	\$2.44	\$3.22	\$347.93
2017	\$2.63	\$3.40	\$369.63
2018	\$2.84	\$3.59	\$391.51
2019	\$3.06	\$3.80	\$414.07

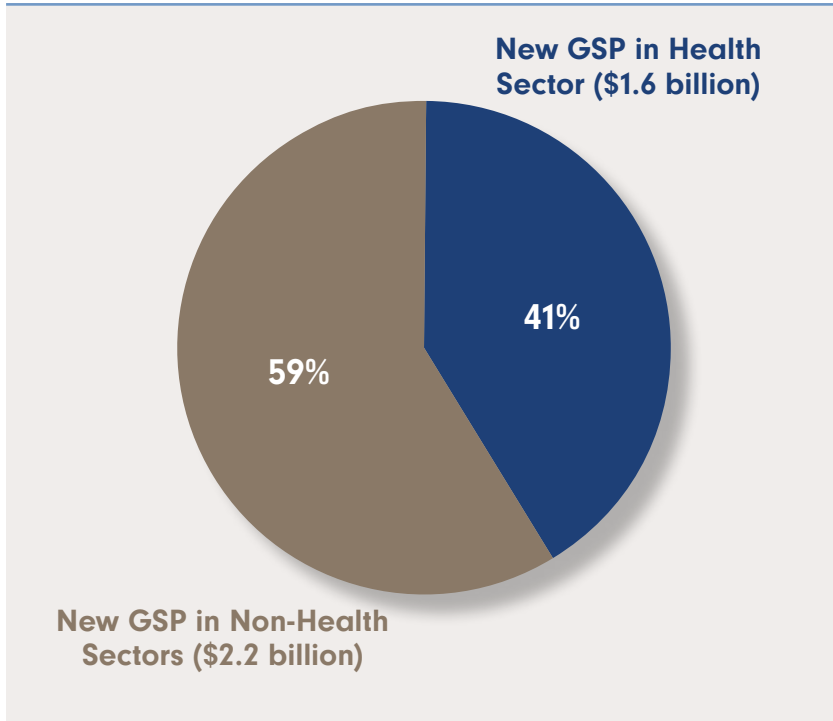
In summary, health care coverage expansion – ensuring that most or all Coloradans have adequate health care insurance – would create \$3.8 billion in new economic output in 2019, even after accounting for the economic costs of the taxes necessary to finance reform. This means that the value of the Colorado economy will be about 1 percent higher as a result of the tax-financed health care expansion envisioned by the Commission. Expanding health care coverage alone would increase economic output by \$8.9 billion in 2019; however, the economic cost of tax-financed health care reform would reduce that gain by \$5.1 billion.

A good indicator of the economic benefit of health care coverage expansion is how much of the new spending will benefit areas of the economy not related to health care. Under the Commission Proposal, nearly 60 percent of new economic activity in Colorado would occur outside of the health care sector (see Appendix A for details). As illustrated in Figure 5, a public sector investment in health insurance coverage benefits the state's entire economy, not just the health care sector.



FIGURE 5

DISTRIBUTION OF NEW ECONOMIC OUTPUT POST-REFORM IN 2019



INDIRECT EFFECTS OF A COVERAGE EXPANSION ON ECONOMIC OUTPUT

There are many benefits to expanding health insurance coverage. One is the increased productivity of workers who newly acquire health insurance. According to estimates updated from the Institute of Medicine’s methodology, this lost productivity totals as much as \$200 billion per year. In Colorado alone, lost productivity cost the economy \$3.9 billion in 2007.⁵⁶ To determine the impact of the added productivity on the Colorado economy, we projected forward these values based on the values based on the CBEF (Center for Business and Economic Forecasting) model and Urban’s determinations of the number of uninsured in the future.

TABLE A

FOREGONE PRODUCTIVITY OF UNINSURED WORKERS IN COLORADO (IN BILLIONS), 2007-2019

	2007	2009	2014	2019
Cost of increased mortality	\$1.94	\$1.98	\$2.48	\$3.37
Cost of increased mortality and morbidity	\$3.88	\$3.96	\$4.94	\$6.72



Our formula places the total economic value of foregone activity in the state of Colorado due to excess morbidity and mortality of the uninsured at \$6.72 billion per year by the end of our timeline. The market value of earnings from increased productivity, however, is not as much as the economic value-of-life used to generate these calculations. This is because the value of leisure time is also included in the estimated value-of-life used to produce this estimate. Hence, we assume that Colorado's economy can recoup one-third of the economic gain from reducing the morbidity and mortality of the formerly uninsured. Additionally, since the increased health and resulting increased productivity will not be realized immediately, we phase these gains in over three years.

To determine the true effect on economic output of this increased productivity, we evaluate it in terms of our input-output model. Because productivity gains help the entire economy, both the health and non-health sectors, we allocate this new economic activity to households. Therefore, we calculate the increased benefit from greater health and a more productive workforce times the household final demand multiplier of 1.66.

The added benefit of increased productivity of workers would add \$4.27 billion in economic activity to Colorado's economy by 2019. Some may doubt that this economic value can be properly estimated, so it is not included in our final quantitative estimates of net economic impact. This productivity gain, however, is a reasonable estimate, derived from the basic rationale of why many firms offer health insurance today: because providing employees with health benefits results in substantially reduced absenteeism and presenteeism.

Employment

The baseline case, for comparison purposes, follows. It is taken from the adjusted version of CBEF's forecast of Colorado's economy.

Table 15 shows the effect of coverage expansion on employment in Colorado. Again, there are two injections into the economy that must be "multiplied" through to determine the change in jobs. The first is the health spending injection, which is the total public cost of health reform minus the change in private spending (spending by individuals and families). In 2007/2008, that equals \$926 million. The second is the change in private spending. In 2007/2008, that change equals \$1.22 billion.

TABLE B

EFFECT OF IMPROVED PRODUCTIVITY ON GSP

Year	Value of Improved Productivity	Additional GSP from Improved Productivity
2010	\$0.75	\$1.24
2011	\$1.49	\$2.48
2012	\$2.24	\$3.72
2013	\$2.28	\$3.79
2014	\$2.33	\$3.87
2015	\$2.38	\$3.95
2016	\$2.42	\$4.02
2017	\$2.47	\$4.10
2018	\$2.52	\$4.19
2019	\$2.57	\$4.27

TABLE 14

BASELINE JOB GROWTH IN COLORADO, 2009-2019

Year	Baseline Jobs
2009	2,897,262
2010	2,891,519
2011	2,920,434
2012	2,970,082
2013	3,029,483
2014	3,090,073
2015	3,145,694
2016	3,196,025
2017	3,235,017
2018	3,274,484
2019	3,314,433



In order to determine how that \$926 million will grow, it must be inflated to current (and future) dollars. However, we cannot simply grow it by the rate of growth of health care costs (about 7 percent), because pure price inflation does not create jobs. Therefore, we first had to subtract economy-wide inflation from the 7 percent growth rate. According to the Urban Institute, economy-wide inflation in Colorado was 2 percent.

That leaves us with a 5 percent growth rate. But health spending growth has two major components; price inflation and increase in utilization. A Pricewaterhouse Coopers report from 2008⁵⁷ estimates that 55 percent of health spending growth not accounted for in general inflation is price inflation specific to this sector. The remainder (45 percent of health spending growth) comes from increases in utilization through, for example, newly available procedures, as well as increased demand generated by the aging of the population.

Therefore, we must also subtract out price inflation (or 55 percent of the growth). As a result, 45 percent of 5 percent growth equals about 2.2 percent growth per year in real health output growth. This change is what can create real job growth, rather than simply being a product of inflation. So, for the purposes of the employment input-output tables, the injection of \$926 million is grown at 2.2 percent and the household injection of \$1.22 billion at 5 percent. This is why the amount injected into the economy for the employment calculations do not match the ones from the previous section on total GSP growth.

TABLE 15

THE IMPACT OF COVERAGE EXPANSION ON EMPLOYMENT BEFORE FINANCING

	Column A	Column B	Column C	Column D	Column E	Column F
Year	Injection of Health Spending	New Jobs from Health Injection	Injection of Household Spending	New GSP from Household Injection	All New Jobs	Total Employment after Injections
Source or Formula	Appendix B, Table A	21.51 * Column A	Appendix B, Table A	13.20 * Column C	Column B + Column D	Baseline Employment + Column E
2010	\$967	20,804	\$1,341	17,696	38,501	2,930,020
2011	\$988	21,262	\$1,408	18,581	39,843	2,960,277
2012	\$1,010	21,730	\$1,478	19,510	41,240	3,011,322
2013	\$1,032	22,208	\$1,552	20,486	42,694	3,072,177
2014	\$1,055	22,696	\$1,630	21,510	44,207	3,134,280
2015	\$1,078	23,196	\$1,711	22,586	45,781	3,191,475
2016	\$1,102	23,706	\$1,797	23,715	47,421	3,243,446
2017	\$1,126	24,228	\$1,886	24,901	49,128	3,284,145
2018	\$1,151	24,761	\$1,981	26,146	50,906	3,325,390
2019	\$1,176	25,305	\$2,080	27,453	52,758	3,367,191



Table 16 shows the net effect on employment of both the coverage expansion and the financing of the coverage expansion. Again, the “Colorado Share of Total Public Cost” does not equal the value in Table 3 in the previous section because it was grown at the inflation-adjusted rate of 5 percent. In essence, it is the “real” cost to Colorado rather than the nominal cost.

To determine the number of new jobs after accounting for the effects of financing, we subtract the Colorado share of total public cost multiplied by the household multiplier of 13.20 from “All New Jobs” in Table 15. This yields “Jobs Lost from Financing” in Table 16. It is the net increase in jobs in Colorado from the coverage expansion after household financing.

TABLE 16
EFFECT OF HEALTH REFORM ON EMPLOYMENT NET OF FINANCING

	Column A	Column B	Column C	Column D
Year	CO Share of Total Public Cost	Jobs Lost from Financing	New Jobs Net of Financing	Total Employment Net of Financing
Source or Formula	Appendix B, Table B	13.20 * Column A	Table 15, Column E – Column B	Baseline Employment + Column B
2010	\$ 1,496	19,747	18,754	2,910,273
2011	\$ 1,586	20,931	18,912	2,939,346
2012	\$ 1,681	22,187	19,053	2,989,135
2013	\$ 1,782	23,519	19,175	3,048,658
2014	\$ 1,889	24,930	19,277	3,109,350
2015	\$ 2,002	26,426	19,356	3,165,050
2016	\$ 2,122	28,011	19,410	3,215,435
2017	\$ 2,249	29,692	19,437	3,254,454
2018	\$ 2,384	31,473	19,433	3,293,917
2019	\$ 2,527	33,362	19,397	3,333,830

In summary, health care coverage expansion in Colorado would create 19,397 jobs in 2019, even after accounting for the economic cost of the new taxes necessary to finance reform. Expanding health care coverage alone would create 52,758 new jobs in the state in 2019; however, the economic cost of tax-financed reform would reduce that gain by 33,362 jobs. Currently, job growth in Colorado and across the country is highly concentrated in the health care sector, but health care coverage expansion would create new jobs throughout the economy because of the new money that would be available to consumers who receive health care subsidies.

The evidence so far has shown that health reform would generate new economic output as well as new jobs in Colorado. While this clearly benefits the state's wealth, it is unclear how reform will directly benefit consumers and employers. Therefore, we now turn to a discussion of the final element of our analysis: delivery system reform.



HEALTH DELIVERY SYSTEM REFORM

The final building block of our analysis is delivery system reform. As part of its reform proposal, the Commission recommended several policies designed to increase quality and efficiency in the health care delivery system. In particular, it recommended policies that included patient-centered medical homes and disease management programs, health information technology, provider payment based on performance, transparent insurer and provider pricing and improved end-of-life care. These are exactly the type of delivery system reforms that are in the new federal health reform law to develop a patient-centered, high-quality and efficient health system. To determine whether the Commission's proposal or the federal law are worth the cost, we must also consider whether delivery system reform will be a net cost or benefit to Colorado's economy, consumers and businesses.

Before we can assert the costs or savings from delivery system reform and enumerate Colorado's prior and continuing investments in delivery system reform, we must start with an explanation of why delivery system reform is both an important and an achievable component of reform.

Why Delivery System Reform?

Delivery System Reform (DSR) is a multifaceted and complex goal. To begin with the obvious, the health sector is a major part of any modern economy and Colorado is no exception, with the health sector projected to increase from 13 percent to 19 percent of GSP over the next 10 years. If our analysis shows that an extra dollar of health spending generates multiplier effects throughout the economy and creates jobs, why not simply expand health's share of the economy?

The answer is that the opportunity cost of what we sacrifice by having such an inefficient health system is too great. Credible estimates from a variety of experts around the country suggest that at least 30 percent of health spending, on average, does not increase anyone's health.⁵⁹ This gross waste of resources, plus the fact that health care costs per capita continually grow faster than economy wide productivity, threatens the financial stability of families, businesses and governments. As inefficiency and spending grows, health costs continually crowd out other priorities. For these reasons, the national health care reform debate has focused on "bending the curve," i.e., reducing the rate of health care cost growth through efficiency and quality improvements.

Reconciling these twin realities – that more health care adds to the economy and yet a large chunk of health spending is ineffective and inefficient – produces two insights. First, we must find a way to become more efficient. We must invest in information systems and change clinician and patient incentives from volume-maximizing to value-producing before we can reorganize care delivery processes and save money while improving quality. It will take some upfront investment in reform to reap the benefits of increased efficiency. Second, reducing health spending growth – while on the one hand bad for the economy according to standard input-output frameworks (like the one employed earlier in this paper to trace the impact of premium subsidies) – can actually make the entire economy more productive by making it possible to have more of both health and non-health goods, at whatever the premium subsidy level the society prefers. By reallocating resources in more efficient ways, we could both increase the net output of the whole economy and enable households, employers and governments to get more value for their health care dollars.⁶⁰



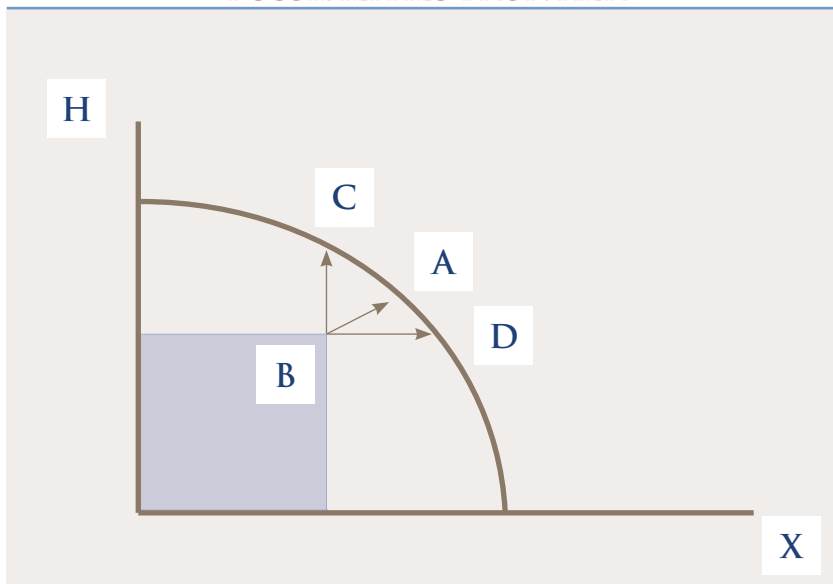
Economic Underperformance

The simplest way to convey the reality of our underperforming health sector is to recall the Economics 101 tool of a “production possibility frontier” (PPF). This illustrative device, shown in Figure 6, oversimplifies the economy into two dimensions and goods, Health (labeled H) and all else (labeled X). The PPF curve itself depicts what combinations of Health and X the economy could produce if all resources (i.e., inputs like labor, capital, etc.) were employed efficiently. A movement along the curve represents “trading” one good for another by shifting inputs from one efficient use to another. We will use this PPF construct to illustrate our assertion that a better reallocation of resources as a result of increased

efficiency in the health sector will improve economic well-being.

FIGURE 6

A SIMPLE ECONOMY'S PRODUCTION POSSIBILITIES FRONTIER



The evidence-based assertion that our health system could generate as much health as it currently does, but with fewer inputs devoted to it (and by implication, with constant input prices), amounts to recognizing that we are currently inside the PPF at a point like B. This means the economy is not functioning as efficiently as possible; it is not reaching its potential and not getting maximum value per dollar spent. In this context, more spending will increase GSP, but not as much as it would if the most-efficient production methods were in place. Therefore, improving efficiency in the health sector would enable us to move from a point inside the curve to a more optimal position along the curve where real (physical) total or gross state

product is higher than at point B. Importantly, we would make that transition without acquiring more, but instead redeploying the resources we already have. In essence, we could spend less on health and more on other goods; or, we could spend the same amount on health and get more actual health as a result of improved efficiency and buy more of X with the saved resources. Either way, we could get either a lot more health at a point like C, a lot more X (other goods) at a point like D, or more of both at a point like A. Points A, C and D all represent higher GSP than point B.

The likely outcome of increasing efficiency is that resources no longer necessary for achieving a given level of health would be spent on more of both health (H) and all other goods (X). Efficiency gains in the health sector function much like a real increase in income for the economy – they free up resources for more spending on potential output. Also, both health and all other goods are normal goods – goods that people want more of as their wealth increases. Therefore, we conclude that increasing efficiency in the health sector will have a positive effect on the economy as a whole as people spend this “new income” on more goods and services rather than on formerly inefficient health spending.

As a result, the input-output framework utilized earlier in this analysis is inappropriate because the essence of delivery system reform is about changing the efficiency of health spending. Delivery reform is not about adding resources and using fixed technology assumptions, i.e., assumptions about how much labor and capital are necessary to produce more of either X or H that are embedded in the multipliers (and which are based on current data), then tracing the effect of presumed new spending throughout the economy given those technologies and multipliers. Rather, delivery reform is about changing productivity in

the health sector and therefore changing technologies of production, input requirements and the very multipliers themselves. The RIMS II data sets provide insufficient information for us to map efficiency gains in one sector into economy-wide multiplier changes in any precise way. Therefore we must employ a more intuitive analysis of the economic impact of delivery system reform.

Maximizing System Potential

Conceptually, reductions in necessary health spending to achieve the same level of health (or even reductions in actual rates of growth of spending for the same level of health achieved) would provide households, employers and governments a windfall compared to baseline. This windfall can be categorized as a “health efficiency dividend.” This dividend can be allocated in many different ways, including passing all savings directly to households through wage increases, price decreases or tax reductions. Despite multiple possibilities, we expect employers to use at least some of the dividend to invest in their business in order to enhance competitiveness at home or abroad. We also expect state governments to spend some of the money on other priorities, like education or transportation.

Now that we have established the economics behind why delivery system reform is likely to be a boon to the economy, our task is to use the data we have assembled on the Colorado health sector and national estimates of the effects of specific delivery system reforms to estimate the magnitude of the “health efficiency dividend” that households, employers and state government might reap, if the proper reforms are combined or sequenced appropriately. We will do this by first outlining the literature on how much could plausibly be saved by various interventions. Then we will explain why and how Colorado is and can continue to be a true leader in implementing these strategies. Finally, we will estimate the magnitude of this dividend or savings for the economy. We will not, however, presume to know precisely how the economy will choose to allocate its freed-up resources.

Savings from Delivery System Reform

The key to successful delivery system reform is in structuring information and incentives so that clinician self-interest is clearly linked to delivering value – i.e., high quality and efficacious care with efficient resource use – and not to rewarding clinicians for delivering a high volume of services regardless of expected clinical value to patients. This realignment of incentives is easiest on a wide scale if it is accomplished along with the use of electronic health records coupled with decision support tools that facilitate high quality care. If these records are then shared on a community-wide basis – or information network – the records will facilitate the community’s ability to both demand and supply coordinated and integrated care. This network will in turn enable payment structures to be changed to, for example, by rewarding teams of providers for the totality of a patient’s outcome, for the quality of care processes delivered and for lowering resource use from historical trends.

At the moment, a number of different payment reforms have been suggested and merit wider testing, from bundling payments to all providers who participate in a patient’s acute episode to complete per-patient capitation and everything in between. Other experiments would include accountable care organizations that are rewarded for reducing total spending compared to historical trends, if quality is high enough; and, paying primary care clinicians more than they are currently paid to coordinate the care of medical home enrollees continually and carefully. Some integrated systems – e.g., Geisinger, Virginia Mason, Denver Health, Kaiser Permanente in Colorado, the Billings Clinic – have already organized information and incentives in ways that produce the high quality and efficiency results we envision.



The collaborative community in Grand Junction, CO, has also organized itself to produce similar, high-quality, low-cost results.⁶¹ In addition to following the fine examples of these organizations, a natural area to begin focusing refinements of these incentive models in the rest of the country is in care transitions (between a hospital and a nursing home or the patient's home, etc.); an area that is currently expensive and where suboptimal patient care and health outcomes are observed today.

Realigning Incentives Works

Delivery system reform studies illustrate the effectiveness of these types of interventions. For example, Elizabeth McGlynn and her colleagues at RAND analyzed potential options for cost-containment in Massachusetts to advise the state on how to continue to afford their groundbreaking coverage expansion. In RAND's interpretive literature review, the researchers conclude that depending on the mix of delivery system reforms implemented, health care costs could be reduced by at least 5.7 percent per year for the next decade.⁶² Other credible estimates are similarly optimistic about potential savings. For example, the Commonwealth Fund expects a combination of reforms to reduce national health costs by \$1.5 trillion over 10 years⁶³ and David Cutler, senior fellow with the Center for American Progress, expect at least 1.5 percent savings per year (off a \$2.5 trillion base).⁶⁴

Based on the findings from the RAND study, as well as studies by the Brookings Institution, Health CEOs for Health Reform and many others, we constructed two scenarios of cost savings possible in Colorado.⁶⁵ The more conservative of these scenarios projects a 1 percent per year reduction in projected health care spending growth starting in 2014 and continuing to the end of our time horizon in 2019. This conservative scenario allows plenty of time for innovations in delivery system reform and time for the effects of the reforms to be felt. Also, given the magnitude of savings deemed achievable in Massachusetts by RAND, our first scenario is very conservative and surely undercounts a reasonable expectation of what many believe could and would be saved.

The second scenario – one we believe is also eminently feasible in Colorado for the many reasons we outline further – allows for incremental increases in the cost savings starting at 0.5 percent per year in 2011 and increasing by 0.5 percent to a maximum reduction in cost growth of 3 percent per year in 2016 that continues until 2019. This more aggressive scenario, while faster-moving and progressing over time, is still well within the bounds of what state-of-the-art research tells us is possible and also what health system leaders in Colorado believe is feasible.

In the following section, we describe why we think Colorado is poised to launch widespread and effective delivery system reform within two years. We will discuss how Colorado has already executed, invested in and is preparing for delivery system reform, and what the next steps are likely to be and should be.

Delivery System Reform in Colorado

Colorado has already made considerable progress toward a more sustainable health care delivery system as envisioned by the Commission's recommendations. This progress was made possible by several long-standing delivery system reform initiatives, such as medical practice review committees, peer comparisons of provider performance and the realignment of financial incentives among providers. Incentive contracts that reward physicians for quality performance also have been a powerful quality tool for Mesa County IPA, the dominating provider group in Western Colorado Rocky Mountain Health Plans, the largest local health insurer.

Another nationally-recognized health delivery system reform success story can be found in the community of Grand Junction, CO. In Grand Junction, a shared vision about how best to organize and share information and incentives has enabled the community to create an informal "system" of independent providers, purchasers and consumers, generating a health care system with lower-than-average costs and better-than-average health outcomes.⁶⁶ Grand Junction provides a continually-innovating example of how concerted efforts at delivery system reform can both reduce costs and improve quality.



In addition to the leadership of communities like Grand Junction, which has already created its own electronic information network, called Quality Health Network (QHN), Colorado's potential for the statewide creation of the prerequisite information infrastructure is enriched by two distinct but now complementary initiatives. The first is a project funded by the Federal Communications Commission that was secured by the Colorado Hospital Association (CHA) and the Colorado Behavioral Health Council (CBHC). This initiative is managed by the Colorado Hospitals and is being used to create a high-speed broadband network that will enable nearly 400 hospitals, behavioral health centers and community health clinics to share electronic health information statewide. As a result of this FCC-funded project, the backbone of a Colorado health information highway is already being built. The second "initiative" is the foresight of the Colorado state government in centralizing the necessary coordination of planning and seeking of federal stimulus money dedicated to health information technology under one organization, the Colorado Regional Health Information Organization (CORHIO). As a result, Colorado, unlike other states, will not have cities, counties, physician groups, community health centers and hospital systems competing with one-another for national support for health information system improvements. Instead, it will have a well-thought-out and executed plan for how to create interoperable health records in every community. Therefore, modular QHNs from around the state will connect to each other via the broadband infrastructure, ensuring a statewide, interoperable health information infrastructure.

Given these and other well-established delivery system reform initiatives, as well as many more recent ones (detailed further), we believe that Colorado has as much or more potential for transformative health system change than any other state in the nation.

Federal Delivery System Reform

Conceptually, the delivery system initiatives currently underway in Colorado are very similar to the projects initiated by federal reform. This demonstrates that Colorado is well on its way and in a strong position to achieve the goals envisioned by national health reform. (More information about federal delivery system reform is available in Appendix C).

The new federal reform law takes first steps to realign provider payment incentives, moving away from the traditional fee-for-service system and toward a system that rewards value over volume. The law contains numerous Medicare and Medicaid pilot programs and demonstration projects and authorizes the Secretary of Health and Human Services to expand on successful ones. Notable pilots include accountable care organizations, medical homes and payment bundling. Using a more integrated and evidenced-based approach to care, providers will have to meet quality goals but can share in savings from Medicare or Medicaid. Additionally, federal law requires the HHS Secretary to develop and disseminate reliable quality reporting measures to enforce provider accountability and encourage a value-based purchasing system.

The new federal reform law establishes three new entities to oversee and evaluate the cost and quality of the health care system. The Center for Medicare and Medicaid Innovation will research and implement new models of payment and care delivery, with the goal of achieving higher value, lower cost and coordinated care. The Independent Payment Advisory Board (IPAB), appointed by the President and approved by the Senate, will submit recommendations to Congress on ways to slow health cost growth and improve care in both the private and public sectors.

Finally, the law establishes a private, nonprofit Patient Centered Outcomes Research Institute that will set priorities for comparative effectiveness research and carry out specific research projects. The goal of the Institute is to provide patients and doctors with the most up-to-date and accurate scientific information about tests, treatments and drugs.



Colorado Health Care Quality Initiatives

In addition to more effectively managing and strengthening its growing health information infrastructure, Colorado already has many other complementary ongoing initiatives that are designed to improve value and quality for patients while slowing the rate of health care cost growth. These delivery system reforms are discussed in detail in Appendix C, but several of the most promising among these initiatives are briefly described here:

Center for Improving Value in Health Care

The Center for Improving Value in Health Care (CIVHC) is an overarching task force originally recommended by the 208 Commission to bring provider, payer and consumer leaders together to develop and spread value-enhancing initiatives in four areas: **(1) data creation and management, (2) payment reforms, (3) consumer and patient engagement, and (4) advanced illness care.**

Improving Performance in Practice

The Patient Centered Medical Home of the Colorado Clinical Guidelines Collaborative is a multi-payer program aimed at teaching and enhancing coordinated care infrastructure, techniques and processes in 17 smaller physician group practices. These practices were chosen to be illustrative of the Colorado physician universe as it exists today.

Colorado Medicaid Accountable Care Collaborative

The Colorado Medicaid Accountable Care Collaborative also aims to incentivize and teach various providers to function like a medical home by coordinating the care of vulnerable Medicaid enrollees. These three initiatives share the vision of equipping providers and patients – through electronic information systems, decision support tools and comparative effectiveness or best practice information – with the tools and incentives they need to continually make higher-value delivery and health behavior choices.

Colorado Foundation for Medical Care's Care Transition Project

The Colorado Foundation for Medical Care's Care Transition Project works on teaching clinicians and hospitals how to improve care outcomes and lower costs during patient transitions from one care setting to another. The Foundation has been so successful that it has been hired by the federal government (through the Center for Medicare & Medicaid Services) to teach its techniques to clinicians in 14 other states.

Rocky Mountain Patient Safety Organization

The mission of the Rocky Mountain Patient Safety Organization, an initiative spearheaded by the Colorado Hospital Association is to improve the safety of patients across the continuum of care while simultaneously creating more efficient and effective patient care. The ultimate goal is to reduce the cost of care through focused cooperation among community physicians, hospitals and the wide range of other health care providers. This organization is a potential pre-cursor to establishing sufficient trust and cooperation among differing clinicians to facilitate the adoption of bundled payment incentives and other delivery system changes. Such incentives rely on trust, coordination and cooperation across sites of care in order to work as designed.

Colorado Collaborative Quality Improvement Project

The Colorado Collaborative Quality Improvement Project (CCQIP) is a "first of its kind" joint initiative among the Colorado Medical Society, the American Medical Association and United Health Care. The project will facilitate care improvement by enabling physicians to compare the quality of their outcomes to those of their colleagues and to best practices around the country and world.

The existence of these impressive and potentially catalytic initiatives lends credence to our argument that Colorado is already implementing many of the essential delivery system reform recommendations of the Commission. Further, many of Colorado's initiatives are representative of reforms included in national health system reform. In addition, the stellar examples of high-quality and efficient care being delivered in Grand Junction, by Denver Health,⁶⁷ Kaiser Permanente Colorado,⁶⁸ and in other systems and communities around the state mean there is a critical mass of forward-thinking practitioners in Colorado. The task of reformers – in government, the employer community and the provider community – is to marry these initiatives with the concrete examples on the ground to catalyze and spread the commitment to constantly improving high-value care statewide.

This process of catalyzing and spreading initiatives is neither simple nor mathematical, and thus cannot be guaranteed. Actual, rather than projected, success will depend upon leadership and concrete conditions on the ground. In our judgment, given government and statewide provider commitment to delivery system reform evident in the initiatives and examples already underway, there remain only two potential obstacles: **1) the political will to enforce insurance market reforms and finance the coverage expansions that will change the incentive environment for insurers, and 2) the will of employers to use their clout and purchasing power to encourage insurers to help make delivery reform a reality.** As this report analyzes the implications of reform and therefore assumes that the political will for reform exists, our remaining question is whether employers are prepared to force their health insurers to cooperate with the delivery reform effort. This would include holding insurers to prior pledges of compliance and nudging others to agree to participate.

Working With The Insurance Industry

Insurers are heterogeneous; thus, passage of the new federal reform law (which closely resembles the Commission's recommendations) means that some insurers will have to change their fundamental business model more than others. Now that provisions such as guaranteed issue, modified community rating, an individual mandate and risk adjustment across plans are law, insurers will no longer benefit from simply selecting good risks and worrying little about the price or quality of care of their relatively-healthy insured population. Instead, all insurers in the reformed world have strong incentives to help all enrollees find better value in the health care delivery system. Comprehensive reform will change the inertia that has been so strong in preventing serious insurer cooperation in revamping care delivery processes and measurement incentives in Colorado's and the nation's history.

Given the proper incentives, why would most insurers not be interested in cultivating the most efficient delivery system possible? All other things equal, insurers would invest in efficiency, but three impediments to maximum support for delivery system reform would remain.

First, insurers may worry that the benefits from more efficient care delivery would benefit other insurers, since except for Kaiser, most providers are covered, in network or out, by all insurers. This would mean that insurers would not capture all of the returns of their own investment in delivery system reform. As a result, insurers might underutilize delivery system improvement techniques – an important public good.

Second, some insurers lack market power relative to existing providers and provider groups. This contributes to their habit of selling insurance products that emphasize maximum provider choice and include access to all providers, rather than only the leading edge providers (thus turning necessity into a marketing virtue). This market power inequality allows insurers to place the responsibility for improving the quality and efficiency of care on unorganized providers and poorly-informed patients. Without changing this imbalance, insurers are limited in what they can do to improve the efficiency of care delivery processes.



Third, insurers may fear that highly-efficient and fully-integrated provider systems (like accountable care organizations) will soon or eventually not need insurers to bear risk and set “premiums” or per person expected costs. As insurance market rules push insurers to more community rating, the relative ability of integrated care delivery systems to set accurate premiums will also be enhanced. Thus, they may fear being asked to help innovate themselves out of existence. These three forces lead to what looks like inertia or indifference about care process organization on the part of insurers, but in fact is a perfectly understandable combination of self-interest, weakness and fear.

Using Employer Market Power

Given the changes in insurance markets in the Commission’s proposal, only employers have the power to both force and allow insurers to participate effectively in delivery system reform.

First, employers have the most clout and the most to gain from forcing insurer cooperation and collaboration. These potential savings are a powerful source of motivation that will be necessary to encourage employers to effectively pressure insurers into complying. While individually employers do not have a greater share of market power than providers or insurers, collectively they are at least as big a buyer of health services as Medicare in virtually every community in the United States.⁶⁹ Thus, if they come together as a group with the government when appropriate, they can demand similar measurement and performance standards and refuse payment for ineffective or inefficient care. Because of their sheer size, insurers and providers would have little choice but to comply. If all employers in a given community refuse to permit mediocre care to be rewarded, insurers with business models that might be more profitable or easier, but are not as efficient, would no longer be feasible.

Therefore, employers hold the key to the best, innovative payment and delivery system reform initiatives. Employers can “seal the deal” and make sure there is no return to unaccountable fee-for-service medicine. By refusing to indulge the inefficient practices of insurers and providers, employers and government buyers can work hand in hand with provider leaders to demand a more efficient health system.

Accordingly, we think that the likelihood of catalytic all-payer payment and delivery reforms building on existing Colorado examples and initiatives is relatively high. It is at least high enough to justify the savings projections we extract from the cited literature in the two scenarios we modeled. In what follows, we outline the magnitude of a 1 percent to 3 percent reduction in cost growth in terms of future health spending and the cost of health insurance in Colorado in the future.

Magnitude of Delivery System Reforms

Though a 1-percent-per-year reduction in health care cost growth sounds like a relatively small increase, these lower rates generate cumulative savings over time that can be allocated to the rest of the economy. For example, if we were able to slow the overall rate of health care cost growth by 1 percent for the final five years of our project’s timeline, health spending would be \$11.2 billion lower from 2014 to 2019 compared to what it would be with coverage expansion but without delivery system reform. This level of savings represents a total reduction of health care spending of about 2.2 percent over the decade.



TABLE 17

**HEALTH SPENDING WITH DELIVERY SYSTEM REFORM (IN BILLIONS),
PESSIMISTIC SCENARIO, 2009-2019**

	Health Spending Net of Financing	Reduction in Cost Growth	Health Spending Net of Financing with DSR	Difference
2009	\$32.2	0.0%	\$32.2	\$0.0
2010	\$35.3	0.0%	\$35.3	\$0.0
2011	\$37.7	0.0%	\$37.7	\$0.0
2012	\$40.3	0.0%	\$40.3	\$0.0
2013	\$43.0	0.0%	\$43.4	\$0.0
2014	\$46.0	1.0%	\$45.6	\$0.4
2015	\$49.2	1.0%	\$48.3	\$0.9
2016	\$52.6	1.0%	\$51.1	\$1.5
2017	\$56.2	1.0%	\$54.1	\$2.1
2018	\$60.1	1.0%	\$57.4	\$2.8
2019	\$64.3	1.0%	\$60.8	\$3.5
Total	\$516.8	2.2%	\$505.6	\$11.2

Because we do not know precisely how these savings would be re-allocated within the overall economy in Colorado, we cannot determine the specific effects on economic output or employment. Despite this uncertainty, we do know that any money freed-up by delivery system savings that is devoted to new spending will have a multiplier effect with a value greater than one. So, if any share of the savings is used for business investment or returned to households in the form of higher incomes, lower taxes or new government spending, it will generate more economic output and new jobs relative to the dollar amount in savings.

A more aggressive but still feasible level of cost reduction from delivery system reform could generate far more savings. In fact, if we assume that savings can be reaped more quickly and grow over time to a high of a 3 percent reduction in historical trends, the economy would save nearly \$39 billion in health spending from 2009 to 2019. This level of savings represents a 7.5 percent reduction in health care spending versus what spending would be with a coverage expansion but without delivery system reform.

TABLE 18

**HEALTH SPENDING WITH DELIVERY SYSTEM REFORM (IN BILLIONS),
OPTIMISTIC SCENARIO, 2009-2019**

	Health Spending Net of Financing	Reduction in Cost Growth	Health Spending Net of Financing with DSR	Difference
2009	\$32.2	0.0%	\$32.2	\$0.0
2010	\$35.3	0.0%	\$35.3	\$0.0
2011	\$37.7	0.5%	\$37.5	\$0.2
2012	\$40.3	1.0%	\$39.7	\$0.6
2013	\$43.0	1.5%	\$41.8	\$1.2
2014	\$46.0	2.0%	\$43.9	\$2.1
2015	\$49.2	2.5%	\$45.8	\$3.4
2016	\$52.6	3.0%	\$47.6	\$5.0
2017	\$56.2	3.0%	\$49.5	\$6.7
2018	\$60.1	3.0%	\$51.4	\$8.7
2019	\$64.3	3.0%	\$53.4	\$10.8
Total	\$516.8	7.5%	\$478.1	\$38.6



What we can definitively conclude from both the economics and data described is that delivery system reforms will make purchasing health goods and services cheaper for other sectors, making their employment costs lower and their profits higher. The economic impact of the savings will depend almost completely, however, on how they are reallocated. There will likely be short-run returns to households, businesses and government as the price of health care is reduced. It is unknown whether the bulk of the savings will be returned to workers in higher wages or lower prices as consumers of lower cost health care or instead whether a portion will be reinvested in more, higher-value medical care to help perpetuate the savings realized through delivery system reform. Nonetheless, as long as delivery system reform is effective, it will clearly benefit the Colorado economy. The public cost of engendering such reforms, estimated by the Governor's Office to be less than \$20 million over 10 years, pales by comparison to the likely savings of \$11 billion to \$39 billion.

NET IMPACT ON COLORADO EMPLOYER-BASED PREMIUMS

In the absence of health care reform, the Urban Institute projects that family premiums for employer-sponsored insurance will rise to \$22,706 by 2019. Comprehensive health care reform is expected to change the trajectory of private premiums in three important ways:

Reduced uncompensated care

Uncompensated care – care that is delivered but not paid for – will be reduced as more Coloradans become insured. According to Urban, in 2019, uncompensated care will cost \$1.8 billion dollars. With more insured patients, hospitals will not need to raise private rates as much to make up for unpaid medical bills. As a result, private payers will bargain for new, lower rates in the context of greater coverage levels. Due to uncertainty and historical bargaining power relationships, private payers will likely be unable to reduce the amount they pay hospitals by the exact amount that hospitals gain through more insured patients. Therefore, as shown in Table 19, we conservatively assume that private payers can effectively negotiate hospital rates that reflect 40 percent to 75 percent of the reduction in uncompensated care costs, \$1.8 billion in 2019. As a result, private premiums should be reduced by more than 2 percent because of lower uncompensated care costs.

Increased Medicaid provider payment rates

All Medicaid programs reimburse providers below market rates and often below provider costs. Both the Commission and the Colorado Legislature recognize that Medicaid payment rates burden the ability of Colorado's health system to function sustainably. While the Commission proposed to increase Medicaid payment rates to providers, Colorado has since taken additional action to address this issue by approving the Health Care Affordability Act of 2009, which is in the process of being implemented. The Act seeks to increase Medicaid hospital payments from 55 percent to 85 percent of costs, among other provisions. As such, Medicaid payment rates will “only” underpay providers by 15 percent under the Act. Again, assuming that private payers can only achieve savings equal to between 40 percent and 75 percent of increased payments to hospitals as a result of higher Medicaid payment rates, private payers should see a 1.3 percent to 2.5 percent reduction in premiums. The Commission Proposal increases Medicaid provider payment rates to average cost. Another 0.7 percent to 1.3 percent private premium savings could be achieved if health reform – at either the state or federal level – commits to raising Medicaid payment rates closer to average costs. The new federal health reform law takes steps to start equalizing Medicaid reimbursement levels; the law requires that Medicaid payments to primary care physicians be at or above Medicare levels in 2013 and 2014.⁷⁰

**Reformed delivery system**

Improving the way care is delivered in Colorado is the best way to sustain lower premium growth over time. As discussed previously, building and using a health information infrastructure, clinical effectiveness data, decision-support tools, new provider payment incentives and consumer engagement are expected to reduce health care cost growth. Unlike other effects of health reform discussed previously, employers should be able to capture the majority of the savings from delivery system reform in exchange for demanding higher quality and more efficient health services for their employees. Because most active employer purchasers in Colorado are self-insured, these cost reductions are immediately reflected in their cash flow bottom lines. Those that purchase fully insured products from commercial insurers can learn through brokers what the self-insured experience has been, so they can, in turn, demand similar premium reductions. As a result, we estimate that delivery system reform in Colorado could reduce private insurance premiums and create employer savings equal to between 5.5 percent and 17 percent in 2019.⁷¹

TABLE 19**POTENTIAL SAVINGS FOR EMPLOYERS FROM HEALTH REFORM IN 2019**

	Percent Savings		Premium per Worker		ESI Family Premium	
Cost of health insurance with no reform*	N/A		\$11,375		\$22,706	
Effects of Reform						
	<i>Conservative Estimate</i>	<i>Optimistic Estimate</i>	<i>Conservative Estimate</i>	<i>Optimistic Estimate</i>	<i>Conservative Estimate</i>	<i>Optimistic Estimate</i>
Uncompensated Care Savings	-2.20%	-4.10%	\$11,125	\$10,909	\$22,206	\$21,775
Raising Medicaid Payment Rates to 85% of Costs	-1.34%	-2.52%	\$10,975	\$10,634	\$21,908	\$21,227
Raising Medicaid Payment Rates from 85% to 100% of Costs	-0.67%	-1.26%	\$10,902	\$10,500	\$21,761	\$20,960
Delivery System Reform Savings	-5.47%	-16.93%	\$10,305	\$8,722	\$20,570	\$17,411
Cost of health insurance after reform**	-9.69%	-24.81%	\$9,307	\$6,559	\$18,578	\$13,092

*Figures are from Urban Institute, "Health Reform: Cost of Failure in Colorado," August 2009.

**Cost of health insurance after reform may not sum due to rounding. All figures show cumulative effects of health reform.



CONCLUSION

This paper details the economic impact of comprehensive reform as envisioned by the 208 Commission. That proposal included the expansion of Medicaid, insurance market reforms for the small group and individual markets, sliding scale subsidies for lower income individuals who are not eligible for Medicaid and a host of delivery system reforms designed to make Colorado's health system more sustainable over time.

The best evidence and analysis that we can bring to bear suggests the net impact of comprehensive reform on the Colorado economy will be positive even without delivery system reform, but has the potential to lower health costs for employers and households considerably if delivery reform is carried out in appropriate and feasible ways. More of new health spending, compared to other spending, remains in Colorado as its multiplier effects spread through the economy, so reducing other spending – through taxation – to finance increases in health spending has a net positive impact on gross state product over time. The scale of the coverage expansion envisioned by the 208 Commission would generate roughly 1 percent more GSP in 10 years than would otherwise be the case. At the same time, delivery system reform projects that are planned, already in place or underway in Colorado have the potential to lower employer premiums by 10 percent to 25 percent off baseline in 10 years. This too could serve to increase GSP, as the least efficient health spending is eliminated and the effects of more productive health spending and freed up non-health spending reverberate through the economy.

These net gains will not come without cost. Colorado must, as the 208 Commission envisioned, come to a political agreement upon the goals and desirability of the outcomes of reform so that sufficient taxes can be raised to finance Colorado's share of the reform bill. Increased taxation and spending would generate net economic gain to the state as a whole, not just to the health sector, but there is no doubt that the proverbial piper must be paid. None of the anticipated gains are achievable unless Colorado agrees to tax itself. That is precisely why public dialogue is necessary to resolve ongoing health reform debates. This paper aims to contribute to that debate, but Colorado must decide if on balance, the economics of expansion outweigh the distaste for higher taxes.

The federal health reform law is very similar to the 208 Commission proposal, but there are a few key differences. In the absence of federal reform, Colorado would have had to fully finance its share (50 percent) of Medicaid expansion and the full cost of private insurance subsidies for those not qualified for Medicaid. Federal coverage expansion is more than half financed with delivery system savings, specifically, in the Medicare program, thus easing any potential burden on Colorado taxpayers to help finance federal health spending. Finally, federal delivery system reform initiatives will strengthen and accelerate delivery system reform activities in Colorado mostly because Medicare is the single largest payer in the state. If Medicare is on board for key incentive realignment, it is easier to entice local payers to do the same. In turn, it will make it easier and more rewarding for providers to shift to more efficient modalities of care delivery sooner, which could lower premiums even more than our optimistic case in the long run. Thus, on balance, if state reform is expected to be a net positive for Colorado's economy, as our modeling suggests, federal reform will be even more of a benefit to Colorado.



APPENDIX A: STEP BY STEP METHODOLOGY FOR ECONOMIC OUTPUT CALCULATIONS

To estimate the effect of health reform – positive or negative – on Colorado’s GSP, we started by constructing our best estimate of likely health spending and GSP growth over the timeline of our project, 2009 – 2019.

The baseline estimates for health spending were created by taking current levels of health care spending, as estimated by the Lewin Group in 2007/2008 trending them forward based on the rates of health care cost growth presented by the Urban Institute and by CMS. Tabel A shows 2007-2008 levels of spending, the applicable yearly growth rates, spending by payer total and spending for each year of our timeline.

TABLE A

BASELINE HEALTH SPENDING, 2007/2008-2019 (IN MILLIONS)

	2008*	Growth Rate	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Out-of-Pocket	\$4,152	6.00%	\$4,401	\$4,665	\$4,945	\$5,242	\$5,556	\$5,890	\$6,243	\$6,618	\$7,015	\$7,436	\$7,882
Employer Workers	\$11,929	7.00%	\$12,764	\$13,658	\$14,614	\$15,636	\$16,731	\$17,902	\$19,155	\$20,496	\$21,931	\$23,466	\$25,109
Employer Retirees	\$1,287	7.00%	\$1,377	\$1,473	\$1,577	\$1,687	\$1,805	\$1,931	\$2,067	\$2,211	\$2,366	\$2,532	\$2,709
Non-Group	\$1,188	7.00%	\$1,271	\$1,360	\$1,455	\$1,557	\$1,666	\$1,783	\$1,908	\$2,041	\$2,184	\$2,337	\$2,501
Medicare	\$5,810	8.41%	\$6,299	\$6,828	\$7,403	\$8,025	\$8,700	\$9,432	\$10,225	\$11,085	\$12,017	\$13,028	\$14,123
Medicaid/CHIP	\$2,972	5.00%	\$3,121	\$3,277	\$3,440	\$3,612	\$3,793	\$3,983	\$4,182	\$4,391	\$4,611	\$4,841	\$5,083
CHAMPUS/TriCare	\$752	6.10%	\$798	\$847	\$898	\$953	\$1,011	\$1,073	\$1,138	\$1,208	\$1,281	\$1,359	\$1,442
Other Public	\$574	6.10%	\$609	\$646	\$686	\$727	\$772	\$819	\$869	\$922	\$978	\$1,038	\$1,101
Workers Compensation	\$714	6.10%	\$758	\$804	\$853	\$905	\$960	\$1,019	\$1,081	\$1,147	\$1,217	\$1,291	\$1,370
Other Private	\$721	6.10%	\$765	\$812	\$861	\$914	\$969	\$1,029	\$1,091	\$1,158	\$1,228	\$1,303	\$1,383
Total	\$30,099	6.85%	\$32,162	\$34,369	\$36,731	\$39,259	\$41,964	\$44,859	\$47,959	\$51,276	\$54,828	\$58,631	\$62,702

**TABLE B**
**BASELINE GSP GROWTH,
2009-2019 (IN BILLIONS)**

Year	Colorado GSP	Year over Year Growth Rate
2009	\$246.98	-0.93%
2010	\$253.68	2.71%
2011	\$264.59	4.30%
2012	\$277.42	4.85%
2013	\$291.30	5.00%
2014	\$305.87	5.00%
2015	\$324.23	6.00%
2016	\$344.71	6.32%
2017	\$366.24	6.24%
2018	\$387.91	5.92%
2019	\$410.27	5.76%

The second baseline estimate necessary was that of GSP growth. These calculations come from the CBEF's adjusted model. Particularly, the Colorado-macroeconomic model was adjusted to account for our current economic downturn. Our assumptions about GSP levels and growth rates are presented in Table B.

Now that we have determined the comparison points for judging whether reform either raises or lowers spending or increases or decreases economic output, we must move on to quantifying the costs of health reform and particularly the costs of reform that Colorado must bear alone.

In order to calculate the costs of reform, we turned to the Lewin Group's determination of the cost of the Commission's Proposal. Relying on tables from their detailed Appendix on the Commission's Plan, we found the two following tables (Table C and Table D) that form the basis of our cost calculations.

Table C outlines the new public program costs of expanding health insurance coverage based on the Commission's proposal. In 2008 dollars, it would cost \$2.3 billion to provide subsidies to low-income families to purchase insurance and increase Medicaid eligibility. Of that, \$165 million would offset current spending on safety-net programs, which would bring the total public cost of a coverage expansion to \$2.1 billion in 2008.

Because Table C only provides an accounting of public costs, we also need to determine the change in private spending as a result of reform. This will help us determine both how much and what kind of new spending will be introduced into the Colorado economy. According to Lewin's analysis, outlined in Table D, the public subsidies provided to low-income Coloradans, will actually replace former spending on health services, freeing up money to spend in other portions of the economy.

TABLE C
**CHANGE IN PUBLIC SPENDING UNDER
THE COMMISSION'S PROPOSAL (IN MILLIONS)**

Category of Spending	Change in Spending 2007/2008
Medicaid / CHP+ Expansion	\$1,621.4
Premium Subsidies	\$553.7
Administration of Subsidies	\$23.0
Cover Colorado	\$95.3
Funding for Local Public Health and Nursing Services	\$23.0
Total New Program Costs	\$2306.9 ⁷²
Savings to Current Safety Net Programs	-\$164.8
Total Public Cost of Expansion	\$2,142.1

Source: Figure 17 Lewin Group, "Appendix G: The Commission Proposal for Health Reform," December 2007.

the Colorado economy. In effect, the 208 Commission's reform proposal would create \$1.2 billion in new disposable income for Coloradans.

Specifically, Table D shows that of the \$2.1 billion (from Table C) being introduced into the health sector of the Colorado economy, \$1.2 billion of those dollars actually replace former health spending by Colorado residents. This means that only \$926 million (\$2.1 billion minus \$1.2 billion) is new money being introduced into the health sector.

The remaining \$1.2 billion, while not technically new spending in the Colorado economy, is newly freed-up wealth. As Coloradans have formerly private spending on health replaced by public subsidies, their \$1.2 billion in freed-up dollars, allows them to spend that money in other portions of



Thus, these two tables show us the two, separate “injections” of new spending that will flow into the Colorado economy as a result of health spending. The first is the new money going directly to the health sector, \$926 million in 2007-2008. The second is the reduction in private health spending of \$1.2 billion that will now be spent in the rest of the Colorado economy and not necessarily in the health sector.

But, like the other data from Lewin, these numbers are for 2007/2008 and therefore must be updated to current dollars and projected forward to the end of our timeline. To do so, we projected forward the total injection amount (\$2.1 billion) by the weighted average of health care cost growth, 6.85 percent (as seen in Table A). From that, we subtracted the health-only injection, grown by 6.85 percent to leave us with the “household injection” that results from freeing up private spending on health and redirecting it to the economy at large. The results of these calculations are shown in Table E.

As mentioned in the paper, Colorado must fully fund its share of the cost of health reform. Colorado’s share, however, is not simply all new spending as a result of health reform. A large portion of the coverage expansion proposed by the Commission would result in increased Medicaid enrollment.

Medicaid is a public program whose financing is shared jointly by the state and federal governments. In Colorado, that financing is split evenly by the two governments. Therefore, in order to determine how much Colorado must finance, we need to know the total cost of the coverage expansion, the cost of the Medicaid expansion and the federal government’s share of the Medicaid expansion. In Table F, we show the original data from the Lewin Group on these levels of spending in 2007-2008. We then, grow each category of spending (total and Medicaid-only) by their respective growth rates of 6.85 percent and 5 percent over our 10 year timeline (as determined in Table A). By multiplying the total new Medicaid spending by 50 percent, we can determine the federal government’s share of the coverage expansion. Colorado’s share is simply the difference between the total public cost of the coverage expansion (shown in Table C) and the federal share of reform (which is half of the cost burden of new Medicaid spending.)

TABLE D**IMPACT OF COMMISSION PROPOSAL ON FAMILY HEALTH SPENDING (IN MILLIONS)**

Category of Spending	Change in Spending 2007/2008
Change in Premiums	-\$236.6
<i>Change in Family Premiums</i>	\$412.4
<i>Premium Subsidies</i>	-\$553.7
<i>Cover Colorado Subsidies</i>	-\$95.3
Change in Out-of-Pocket Payments	-\$606.8
<i>Acute and Primary Care</i>	\$-516.9
<i>Services covered under HCBS waivers</i>	-\$89.9
Section 125 Plans	-\$372.9
Total Change in Spending	-\$1,216.3

Source: Figure 20 in Lewin Group, “Appendix G: The Commission Proposal for Health Reform,” December 2007

TABLE E**INJECTIONS AS A RESULT OF HEALTH REFORM (IN MILLIONS)**

Year	Total Injection	Health Injection	Household Injection
2008	\$2,142	\$926	\$1,216
2009	\$2,289	\$989	\$1,300
2010	\$2,446	\$1,057	\$1,389
2011	\$2,613	\$1,130	\$1,484
2012	\$2,793	\$1,207	\$1,586
2013	\$2,984	\$1,290	\$1,694
2014	\$3,189	\$1,378	\$1,810
2015	\$3,407	\$1,473	\$1,935
2016	\$3,641	\$1,573	\$2,067
2017	\$3,890	\$1,681	\$2,209
2018	\$4,157	\$1,797	\$2,360
2019	\$4,442	\$1,920	\$2,522



TABLE F

FINANCING HEALTH REFORM IN COLORADO (IN MILLIONS)

	Column A	Column B	Column C	Column D
	Total Injection/ Total Public Cost	New Medicaid Spending	Federal Share of Medicaid	Colorado's Share of Financing
Source or Calculation	Table C & Table E	Table C (grown by data in Table A)	50% * Column B	Column A - Column C
2008	\$2,142.10	\$1,621.40	\$810.70	\$1,331.40
2009	\$2,288.92	\$1,702.47	\$851.24	\$1,437.69
2010	\$2,445.81	\$1,787.59	\$893.80	\$1,552.01
2011	\$2,613.45	\$1,876.97	\$938.49	\$1,674.96
2012	\$2,792.58	\$1,970.82	\$985.41	\$1,807.17
2013	\$2,983.99	\$2,069.36	\$1,034.68	\$1,949.31
2014	\$3,188.52	\$2,172.83	\$1,086.42	\$2,102.10
2015	\$3,407.07	\$2,281.47	\$1,140.74	\$2,266.33
2016	\$3,640.59	\$2,395.55	\$1,197.77	\$2,442.82
2017	\$3,890.13	\$2,515.32	\$1,257.66	\$2,632.46
2018	\$4,156.76	\$2,641.09	\$1,320.54	\$2,836.22
2019	\$4,441.67	\$2,773.14	\$1,386.57	\$3,055.10

Now we have collected all the necessary inputs for executing the RIMS II input-output analysis to discover the actual economic output generated by expanding health insurance coverage.

To execute the first step of the RIMS analysis, we need to take the two types of injections determined in Table E and multiply them by the relevant multipliers for health and household spending. Those calculations are summarized in Tables G, H and I.

Table G focuses on the effect of the coverage expansion on just the health sector. It tells us the direct/indirect induced spending within the health sector resulting from an injection of new public funds into the health sector. Baseline health spending, as determined in Table A is included to show the total effect of the injection and its multiplier effect on the health sector. Current health spending levels plus the effect of the RIMS multiplier on the new injection of health spending to expand coverage gives us the total health sector spending after the coverage expansion.

Table H expands on Table G by showing the effect of a coverage expansion on the whole economy, not just the health sector. But, as a result it is also a bit more complicated. There are two separate "injections" of spending into the economy, new public dollars to finance reform and new private spending freed-up by those public subsidies. Columns A through C in Table H outline the effect of the injection of these new public dollars on the economy. In Columns D through F, the table outlines the effect of the new, freed-up money that households can spend in the economy. Column G adds the total economic impact from both injections, column H provides baseline (non-reform) GSP for a comparison point Column I shows GSP with a coverage expansion.

It is important to note that while we are again using a "health" multiplier (like in Table G) in the calculations in Table H, this multiplier encompasses the direct/indirect induced effects of injecting money into the health sector on the whole economy (not just on the health sector). Therefore, the multiplier used in Table G is, in fact, a component of the multiplier used in Table H; it is not an additional economic effect.



TABLE G

COVERAGE EXPANSION ALONE, EFFECT ON HEALTH SECTOR

	Column A	Column B	Column C	Column D	Column E
	Injection of Health Spending	Health Sector Multiplier	New Health Sector Spending	Baseline Health Spending	Size of Health Sector After Coverage Expansion
Source or Calculation	Table E	RIMS	Column A * Column B	Table A	Column C + Column D
2009				\$32.16	
2010	\$1.06	1.12	\$1.18	\$34.37	\$35.55
2011	\$1.13	1.12	\$1.27	\$36.73	\$38.00
2012	\$1.21	1.12	\$1.35	\$39.26	\$40.61
2013	\$1.29	1.12	\$1.44	\$41.96	\$43.41
2014	\$1.38	1.12	\$1.54	\$44.86	\$46.40
2015	\$1.47	1.12	\$1.65	\$47.96	\$49.61
2016	\$1.57	1.12	\$1.76	\$51.28	\$53.04
2017	\$1.68	1.12	\$1.88	\$54.83	\$56.71
2018	\$1.80	1.12	\$2.01	\$58.63	\$60.64
2019	\$1.92	1.12	\$2.15	\$62.70	\$64.85

TABLE H

COVERAGE EXPANSION ALONE, EFFECT ON WHOLE ECONOMY

	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I
	Injection of Health Spending	Total Health Spending Multiplier	New Spending as a result of health injection	Injection of Household Spending	Household Multiplier	New Spending by Households	Total New Spending (New Economic Output)	Baseline GSP	New GSP from Injection
Source or Calculation	Table E	RIMS	Column A * Column B	Table E	RIMS	Column D * Column E	Column C + Column F	Table B	Column G + Column H
2009								\$247.0	
2010	\$1.06	2.44	\$2.58	\$1.39	1.66	\$2.31	\$4.88	\$253.7	\$258.57
2011	\$1.13	2.44	\$2.76	\$1.48	1.66	\$2.46	\$5.22	\$264.6	\$269.81
2012	\$1.21	2.44	\$2.94	\$1.59	1.66	\$2.63	\$5.58	\$277.4	\$283.00
2013	\$1.29	2.44	\$3.15	\$1.69	1.66	\$2.81	\$5.96	\$291.3	\$297.26
2014	\$1.38	2.44	\$3.36	\$1.81	1.66	\$3.01	\$6.37	\$305.9	\$312.24
2015	\$1.47	2.44	\$3.59	\$1.93	1.66	\$3.21	\$6.80	\$324.2	\$331.04
2016	\$1.57	2.44	\$3.84	\$2.07	1.66	\$3.43	\$7.27	\$344.7	\$351.98
2017	\$1.68	2.44	\$4.10	\$2.21	1.66	\$3.67	\$7.77	\$366.2	\$374.00
2018	\$1.80	2.44	\$4.38	\$2.36	1.66	\$3.92	\$8.30	\$387.9	\$396.22
2019	\$1.92	2.44	\$4.68	\$2.52	1.66	\$4.19	\$8.87	\$410.3	\$419.14



Table I simply summarizes our findings from Table G (size of health sector after coverage expansion) and Table H (new GSP from health and household injections) to show the effect on both the health sector and the economy of expanding health insurance coverage in Colorado.

TABLE I
SUMMARY IMPACT OF COVERAGE EXPANSION ALONE

	Column A	Column B	Column C
	Size of Health Sector After Coverage Expansion	New GSP from Injection	Health Spending as a % of GSP
Source or Calculation	Table G	Table H	Column A / Column B
2010	\$ 35.55	\$258.57	13.75%
2011	\$ 38.00	\$269.81	14.08%
2012	\$ 40.61	\$283.00	14.35%
2013	\$ 43.41	\$297.26	14.60%
2014	\$ 46.40	\$312.24	14.86%
2015	\$ 49.61	\$331.04	14.99%
2016	\$ 53.04	\$351.98	15.07%
2017	\$ 56.71	\$374.00	15.16%
2018	\$ 60.64	\$396.22	15.31%
2019	\$ 64.85	\$419.14	15.47%

As explained previously, Colorado must fully fund its share of health reform by raising taxes, which will ultimately be paid by households. Therefore, we must subtract out the negative multiplier effect of raising taxes (and therefore lowering disposable income). As in our analysis of the effect of the coverage expansion alone, we parse out the impact of financing reform on both the health sector in isolation and on the economy as a whole. As before, the effect on the health sector is simply a portion of the whole impact and not in addition to it.

To determine the negative effect of financing reform on the health sector, we multiply Colorado's share of the financing (Column A) times the relevant multiplier (Column B) to yield the cost, in terms of GSP, of financing (Column C). This, in turn, is subtracted from the increase in economic activity from the coverage expansion (Column D) to yield the net new health spending after implementing and financing reform (Column E). Next, by subtracting the drag on the economy determined in Column C from the total health sector after the coverage expansion (Column F), we yield the new size of the health sector, net of financing reform (Column G).

In Table K, we determine the effect of financing reform on the whole economy. To do this, we multiply Colorado's share of the financing (Column A) times the economy-wide household multiplier (Column B) to yield the cost, in terms of GSP, of financing (Column C). This, in turn, is subtracted from the increase in economic activity from the coverage expansion (Column D) to yield the net new economic activity (or GSP) after implementing and financing reform (Column E). Next, by subtracting the drag on the economy determined in Column C from total GSP after the coverage expansion (Column F), we yield the new measure of GSP or the new size of the Colorado economy, net of financing reform (Column G).



TABLE J

EFFECT OF HEALTH REFORM NET OF FINANCING ON HEALTH SECTOR

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	CO Share of Coverage	Health Sector Households Multiplier	Cost in GSP to Health Sector of Financing Reform	New Health Sector Spending From Coverage Expansion	New Health Sector Spending Net of Financing	Total Health Sector After Coverage Expansion	Total Health Sector Net of Financing
Source or Calculation	Table F	RIMS	Column A * Column B	Table G	Column D – Column C	Table G	Column F – Column C
2009							
2010	\$1.55	0.19	\$0.29	\$1.18	\$0.89	\$ 35.55	\$35.26
2011	\$1.67	0.19	\$0.32	\$1.27	\$0.95	\$ 38.00	\$37.68
2012	\$1.81	0.19	\$0.34	\$1.35	\$1.01	\$ 40.61	\$40.27
2013	\$1.95	0.19	\$0.37	\$1.44	\$1.07	\$ 43.41	\$43.04
2014	\$2.10	0.19	\$0.40	\$1.54	\$1.14	\$ 46.40	\$46.00
2015	\$2.27	0.19	\$0.43	\$1.65	\$1.22	\$ 49.61	\$49.18
2016	\$2.44	0.19	\$0.46	\$1.76	\$1.30	\$ 53.04	\$52.57
2017	\$2.63	0.19	\$0.50	\$1.88	\$1.38	\$ 56.71	\$56.21
2018	\$2.84	0.19	\$0.54	\$2.01	\$1.47	\$ 60.64	\$60.10
2019	\$3.06	0.19	\$0.58	\$2.15	\$1.57	\$ 64.85	\$64.27

TABLE K

EFFECT OF HEALTH REFORM NET OF FINANCING ON WHOLE ECONOMY

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	CO Share of Coverage	Total Household Multiplier	Cost in GSP of Financing Reform	New Spending from Coverage Expansion	New Spending Net of Financing	GSP From Coverage Expansion	GSP Net of Financing
Source or Calculation	Table F	RIMS	Column A * Column B	Table H	Column D – Column C	Table H	Column F – Column C
2009							
2010	\$1.55	1.66	\$2.58	\$4.88	\$2.31	\$258.57	\$255.99
2011	\$1.67	1.66	\$2.78	\$5.22	\$2.44	\$269.81	\$267.03
2012	\$1.81	1.66	\$3.00	\$5.58	\$2.58	\$283.00	\$280.00
2013	\$1.95	1.66	\$3.24	\$5.96	\$2.72	\$297.26	\$294.02
2014	\$2.10	1.66	\$3.49	\$6.37	\$2.88	\$312.24	\$308.75
2015	\$2.27	1.66	\$3.76	\$6.80	\$3.04	\$331.04	\$327.27
2016	\$2.44	1.66	\$4.06	\$7.27	\$3.22	\$351.98	\$347.93
2017	\$2.63	1.66	\$4.37	\$7.77	\$3.40	\$374.00	\$369.63
2018	\$2.84	1.66	\$4.71	\$8.30	\$3.59	\$396.22	\$391.51
2019	\$3.06	1.66	\$5.07	\$8.87	\$3.80	\$419.14	\$414.07



Table L summarizes our findings about the change in the size of the health sector, GSP the share of GSP consumed by the health sector post-reform. It is presented mostly for comparison with Table I.

TABLE L
SUMMARY EFFECT OF HEALTH REFORM NET OF FINANCING

	Column A	Column B	Column C
	Size of Health Sector After Coverage Expansion	New GSP from Injection	Health Spending as a % of GSP
Source or Calculation	Table J	Table K	Column A / Column B
2010	\$35.26	\$255.99	13.77%
2011	\$37.68	\$267.03	14.11%
2012	\$40.27	\$280.00	14.38%
2013	\$43.04	\$294.02	14.64%
2014	\$46.00	\$308.75	14.90%
2015	\$49.18	\$327.27	15.03%
2016	\$52.57	\$347.93	15.11%
2017	\$56.21	\$369.63	15.21%
2018	\$60.10	\$391.51	15.35%
2019	\$64.27	\$414.07	15.52%

By following the formulas provided in the tables and in-text, these tables and calculations should be easily reproducible. In certain cases, some results may not calculate correctly due to rounding error.



APPENDIX B. STEP BY STEP METHODOLOGY FOR EMPLOYMENT CALCULATIONS

The employment calculations follow the same procedure as the economic output calculations in Appendix A. We start by determining the baselines, then we determine the cost of reform, new spending as a result of reform and the share of reform that must be financed by Colorado. Next, these injections and financing requirements are run through the RIMS analysis. The difference for the employment calculations is that we start with different public costs, new spending amounts and financing requirements due to the fact that it is real rather than nominal growth that creates jobs.

As explained in the paper and in Appendix A, there are two separate injections into the economy from reform, the health spending injection and the new household spending freed-up by reform. We cannot simply grow it by the rate of growth of health care costs (6.85 percent) as we did previously. We cannot do this because pure price inflation does not create jobs. Therefore, we first had to subtract economy-wide inflation from the 6.85 percent growth rate. According to the Urban Institute, economy-wide inflation in Colorado was 2 percent.

That leaves us with about a 5 percent growth rate. But medical inflation has two major components: the first is price inflation, the second is increase in utilization. A PricewaterhouseCoopers report from 2008⁷³ estimates that 55 percent of medical inflation not accounted for in general inflation is price inflation specific to this sector. According to their calculations, 45 percent of medical inflation comes from increases in utilization through, for example, newly available procedures as well as increased demand generated by the aging of the population.

Therefore, we must also subtract out that inflation (or 55 percent of the growth) out of the health spending injection. So, 45 percent of 5 percent growth equals about 2.2 percent growth per year. The health injection is grown by 2.2 percent and the household injection is simply adjusted for inflation. The injection values are outlined in Table A.

Again, reform must be fully funded. But just as it is only real (rather than nominal) growth that creates jobs, we only need subtract the impact of the real (i.e., inflation-adjusted) cost of financing from the total number of jobs that we expect reform to create. Table B shows Colorado's Share of Financing (from Appendix A, Table F, Column D) adjusted for inflation.

TABLE A

HEALTH REFORM INJECTIONS FOR EMPLOYMENT (IN MILLIONS)

Year	Health Injection	Household Injection
2008	\$926	\$1,216
2009	\$946	\$1,277
2010	\$967	\$1,341
2011	\$988	\$1,408
2012	\$1,010	\$1,478
2013	\$1,032	\$1,552
2014	\$1,055	\$1,630
2015	\$1,078	\$1,711
2016	\$1,102	\$1,797
2017	\$1,126	\$1,886
2018	\$1,151	\$1,981
2019	\$1,176	\$2,080

TABLE B

FINANCING RESPONSIBILITIES FOR EMPLOYMENT (IN MILLIONS)

Year	CO Share of Financing
2008	\$1,331
2009	\$1,411
2010	\$1,496
2011	\$1,586
2012	\$1,681
2013	\$1,782
2014	\$1,889
2015	\$2,002
2016	\$2,122
2017	\$2,249
2018	\$2,384
2019	\$2,527



Finally, in order to understand our findings about the impacts of health reform, we must compare them to a baseline situation. Included in Table C are our baseline expectations for employment growth in Colorado. They are drawn from the same managed version of the CBEF forecast of important macroeconomic indicators in Colorado.

Now that we have identified the differences in injection values and Colorado financing responsibilities between the economic output and employment calculations and determine our baseline for comparison, the formulas for the final RIMS analysis are the same as those described in Appendix A. Their outcome is shown in tables D through I.

TABLE C

BASELINE EMPLOYMENT

Year	Baseline Jobs
2009	2,897,262
2010	2,891,519
2011	2,920,434
2012	2,970,082
2013	3,029,483
2014	3,090,073
2015	3,145,694
2016	3,196,025
2017	3,235,017
2018	3,274,484
2019	3,314,433

TABLE D

IMPACT OF COVERAGE EXPANSION, WHOLE ECONOMY

	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I
	Health Sector Injection	Health Spending Multiplier	New Jobs From Health Injection	Household Injection	Household Multiplier	New Jobs from Household Injection	All New Jobs	Baseline Jobs	Total State Employment
Source or Calculation	Table A	RIMS	Column A * Column B	Table A	RIMS	Column D * Column E	Column F + Column C	Table C	Column G + Column H
2009								2,897,262	2,897,262
2010	\$967	21.5	20,804	\$1,341	13.2	17,696	38,501	2,891,519	2,930,020
2011	\$988	21.5	21,262	\$1,408	13.2	18,581	39,843	2,920,434	2,960,277
2012	\$1,010	21.5	21,730	\$1,478	13.2	19,510	41,240	2,970,082	3,011,322
2013	\$1,032	21.5	22,208	\$1,552	13.2	20,486	42,694	3,029,483	3,072,177
2014	\$1,055	21.5	22,696	\$1,630	13.2	21,510	44,207	3,090,073	3,134,280
2015	\$1,078	21.5	23,196	\$1,711	13.2	22,586	45,781	3,145,694	3,191,475
2016	\$1,102	21.5	23,706	\$1,797	13.2	23,715	47,421	3,196,025	3,243,446
2017	\$1,126	21.5	24,228	\$1,886	13.2	24,901	49,128	3,235,017	3,284,145
2018	\$1,151	21.5	24,761	\$1,981	13.2	26,146	50,906	3,274,484	3,325,390
2019	\$1,176	21.5	25,305	\$2,080	13.2	27,453	52,758	3,314,433	3,367,191

**TABLE E****SUMMARY IMPACT OF COVERAGE EXPANSION**

Year	Baseline Jobs	All New Jobs	Total Employment after Injection
2009	2,897,262		2,897,262
2010	2,891,519	38,501	2,930,020
2011	2,920,434	39,843	2,960,277
2012	2,970,082	41,240	3,011,322
2013	3,029,483	42,694	3,072,177
2014	3,090,073	44,207	3,134,280
2015	3,145,694	45,781	3,191,475
2016	3,196,025	47,421	3,243,446
2017	3,235,017	49,128	3,284,145
2018	3,274,484	50,906	3,325,390
2019	3,314,433	52,758	3,367,191

TABLE F**IMPACT OF REFORM NET OF FINANCING, WHOLE ECONOMY**

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	CO Share of Coverage	Household Multiplier	Cost (in Jobs) of Financing Coverage	New Jobs from Coverage Expansion	Net New Jobs After Financing Coverage	Total Employment After Expansion	Net Total Employment After Financing Coverage
Source or Calculation	Table B	RIMS	Column A * Column B	Table D	Column D - Column C	Table E	Column F - Column C
2009						2,897,262	2,897,262
2010	\$ 1,496	13.2	19,747	38,501	18,754	2,930,304	2,910,273
2011	\$ 1,586	13.2	20,931	39,843	18,912	2,960,555	2,939,346
2012	\$ 1,681	13.2	22,187	41,240	19,053	3,011,592	2,989,135
2013	\$ 1,782	13.2	23,519	42,694	19,175	3,072,438	3,048,658
2014	\$ 1,889	13.2	24,930	44,207	19,277	3,134,530	3,109,350
2015	\$ 2,002	13.2	26,426	45,781	19,356	3,191,714	3,165,050
2016	\$ 2,122	13.2	28,011	47,421	19,410	3,243,671	3,215,435
2017	\$ 2,249	13.2	29,692	49,128	19,437	3,284,356	3,254,454
2018	\$ 2,384	13.2	31,473	50,906	19,433	3,325,583	3,293,917
2019	\$ 2,527	13.2	33,362	52,758	19,397	3,367,366	3,333,830

**TABLE G****SUMMARY IMPACT OF REFORM NET OF FINANCING**

Year	Baseline Employment	All New Jobs After Financing	Total Employment Net of Financing
2009	2,897,262		2,897,262
2010	2,891,519	18,754	2,910,273
2011	2,920,434	18,912	2,939,346
2012	2,970,082	19,053	2,989,135
2013	3,029,483	19,175	3,048,658
2014	3,090,073	19,277	3,109,350
2015	3,145,694	19,356	3,165,050
2016	3,196,025	19,410	3,215,435
2017	3,235,017	19,437	3,254,454
2018	3,274,484	19,433	3,293,917
2019	3,314,433	19,397	3,333,830



APPENDIX C: ONGOING DELIVERY SYSTEM INTERVENTIONS IN COLORADO

COMMUNITY LEADERSHIP

Expanding Access and Increasing Efficiency Through Telehealth

Connected Care

Connected Care is a new program developed by the State of Colorado, UnitedHealthcare, Centura Health, the Colorado Hospital Association, the Colorado Telehealth Network and the Colorado Rural Health Center. The purpose of the program is to improve access to health care services in rural Colorado using telehealth technology. Connected Care programs will build on Colorado's existing rural health care clinic network and utilize new technology to allow patients to receive care from physicians when an in-person visit is not possible or requires traveling hundreds of miles.

Connected Care clinics will be built within several existing rural health clinics in Colorado. Before the end of 2010, Connected Care clinics will be established at rural Colorado medical facilities at the Buena Vista Family Practice in Buena Vista, High Plains Community Health Center in Lamar and St. Vincent General Hospital in Leadville.⁷⁴ The clinics will feature sophisticated high-definition video technology enabling patients to connect with medical specialists located hundreds of miles away, facilitating coordinated care between primary care physicians located in rural communities and specialists located elsewhere. Cisco HealthPresence will be one of the principal technologies enabling Connected Care, using technology to create an experience remarkably similar to an in-person visit with a doctor. Connected Care is being built on an open network that will integrate multiple vendors' technologies with Electronic Health Records and other IT platforms. The program will facilitate care coordination and enhance the efficiency of the health care system, permitting real-time connectivity and consultations among doctors, nurses health system professionals located across the country. State employees who select UnitedHealthcare coverage will have access to the Connected Care program.

Healthy Connections

Last year, the Colorado Health Foundation's "Healthy Connections" program allocated \$2.5 million to 21 health clinics and medical centers across the state. The goal of the Healthy Connections program is to strengthen the quality of care delivered by providers who serve vulnerable populations – low-income and uninsured Coloradans. Support from the program helps providers improve their health IT capacity so they can reduce preventable medical errors, increase efficiency work to eliminate disparities in the quality of care delivered to underserved populations.

The grant funding helps clinics plan for and implement health information technology (HIT). For example, Clinica Tepeyac in Denver successfully utilizes HIT to carry out scheduling and billing, but wants to expand its HIT capacity to include data gathering and a medical notes system.⁷⁵ The clinic believes this expansion will save many hours of staff time and will make it possible to accurately and quickly track patient demographics and care outcomes. The clinic also envisions technology-based outreach programs where volunteers could talk to women in the community about their health and record data (such as blood pressure readings) from the field using laptops. Ultimately, the clinic hopes for a unified central server that many small, rural clinics could connect to and use to share information about patient health, demographics outcomes.



Medicaid Payment Reform – Colorado Accountable Care Collaborative

One of several concurrent initiatives in Medicaid reform is the Colorado Accountable Care Collaborative. The Accountable Care Collaborative is designed to optimize client health and self-sufficiency and increase the efficiency of the delivery of care through promotion of regional collaboratives. Regional entities will act as “macro integrators,”⁷⁶ entities that can pool the resources of numerous organizations to form a virtual system to support a defined population and ensure the system is optimized for the sake of the defined population. The Accountable Care Collaborative aims to link actual achievement of improved health outcomes as reflected by functional, morbidity and mortality goals and healthy behaviors such as obesity rates, tobacco use rates with improvement in the delivery of health care services. The Colorado Department of Health Care Policy and Financing (“the Department”) is currently collecting information from stakeholders who wish to participate in the Collaborative project.

The Collaborative is expected to achieve several objectives, including:

- 1) Provide accountability for the \$4 billion per year the Department spends on Medicaid services
- 2) Develop standardized statewide performance metrics in collaboration with stakeholders and determine how to best achieve them (with the support of the statewide Data and HIT entity and the Department.) Wherever possible, financial incentives should be tied to clinical outcomes and Program objectives
- 3) Build on the Medical Homes for Children program that the Department has implemented over the past several years by promoting coordination among providers, social services, local and state governments advocacy and client service organizations
- 4) Create a regional entity which will be responsible for achieving health, health care cost outcomes by integrating the Medical Home for Children program into the Accountable Care Collaborative
- 5) Reduce avoidable and inappropriate health care resource utilization; find ways to achieve a value-based, cost-effective and sustainable cost of care
- 6) Encourage the use of health information technology to generate or obtain outcomes data, adopt Electronic Health Record (EHR) technology to promote health care quality and the exchange of health care information integrate information from Department and other health-related program areas into a Statewide Data and Analytics Organization, a single, unified electronic data warehouse environment.

Per Member Per Month (PMPM) administrative payments to regional entities are anticipated under this program. The amounts may be variable, depending upon the degree to which local providers assume responsibility to perform regional entity functions for themselves potentially by the risk characteristics of the covered population.

Regional entities (Regional Care Coordination Organizations) would be accountable for achieving cost, health, utilization, satisfaction access goals. The Department anticipates sharing 40 percent to 50 percent of savings with the regional entities and expects that the savings will be used to incent and reward providers and organizations responsible for achieving desired outcomes. The infrastructure and investment will also be used to promote proactive, community based services and interventions and facilitate regional collaboration with other business, social, education government entities, encouraging community health, independence and social integration. The Department anticipates separate initiatives to promote

value based payment reform for its contractors and providers. The gain sharing model provides a powerful mechanism for rewarding quality care rather than a pure volume-driven fee-for-service system. The Department is considering giving a percentage of the gains to providers and the community giving the balance to the regional entity.

The Department intends to launch the Accountable Care Collaborative program in late 2010 hopes to begin with 60,000 clients enrolled. Over the next several years, when a specific region demonstrates success, it will be permitted to expand.

Quality Improvement and Cost Containment: CIVHC

On January 31, 2008, the Colorado Blue Ribbon Commission for Health Care Reform (also called the 208 Commission) submitted a number of recommendations to reform health care in Colorado. The 208 Commission recommended the creation of a permanent multi-stakeholder authority. This group would address issues including administrative costs, preventive care consumer information and choice. In accordance with the recommendation, the Center for Improving Value in Health Care (“CIVHC”) was born. It was established by an executive order on February 13, 2008, part of the “Building Blocks to Health Care Reform” plan. The Center was created to establish an interdisciplinary, multi-stakeholder entity to identify and pursue strategies for quality improvement and cost containment. Led by Executive Director Phil Kalin, the Center brings consumers, businesses, health care providers, insurance companies state agencies together to identify, implement evaluate quality improvement strategies. The Center’s goal is to achieve a high-value health care system in Colorado.

In early 2008, the Department of Health Care Policy and Financing began the process of developing the Center, assembling a group of health care providers, advocates, quality experts state officials. This group met monthly to discuss quality improvement initiatives already underway in Colorado, identify opportunities to increase collaboration locate areas in need of quality improvement. The group was asked to provide recommendations to the Department. In their final report, submitted to Governor Bill Ritter in December 2008, the group outlined plans to establish, by mid-2009, CIVHC’s leadership, structure, staffing and financing level of stakeholder involvement.

There are five important CIVHC work groups underway: **1) end-of-life care, 2) aligning benefits and finances, 3) consumer engagement, 4) data sharing, and 5) improving delivery systems.** The Aligning Benefits and Finances work group is exploring the all-payer database concept in an attempt to realign incentives to reward outcomes, not volume. CIVHC is the right place to have this conversation; it provides a platform for discussion among both private and public stakeholders.

Current CIVHC projects include the support for the State Quality Improvement Institute and the All Payer Claims Database.⁷⁷ The All Payer Claims Database, passed in 2010 as Colorado House Bill 10-1330, will create a database using information from both public and private payers. The database will empower consumers, businesses, providers, payers and policymakers with the cost and quality data they need to make informed decisions, identify opportunities for improvement within the health care system, assess quality improvement initiatives establish clinical guideline measurements related to quality, safety continuity of care.⁷⁸ AcademyHealth and The Commonwealth Fund selected Colorado to participate in the State Quality Improvement Institute, an intensive effort to help states plan and implement action plans to improve performance across targeted quality indicators.

Colorado Patient Centered Medical Home Pilot – CCGC

Colorado is participating in a Multi-Payer, Multi-State Patient Centered Medical Home Pilot project. There are participants at both the local and national level. The Patient Centered Medical Home (PCMH) is not a place; it is a specific approach to providing continuous, comprehensive, coordinated care to patients. It encourages a partnership between patients and their personal health care team, creating an integrated medical neighborhood.



The Medical Home project attempts to coordinate and/or integrate care across all sectors of the health care system. For example, the project aims to improve quality and safety by promoting prevention, proactively managing chronic illness, engaging patients in their care, making it easier for patients to contact their personal health care team utilizing electronic systems. To help practices make this transformation, the PCMH model realigns payment to include standard fee for service, a monthly care management fee and a bonus for meeting or exceeding quality outcomes. This 'blended' payment model shifts the focus of care delivery away from acute, episodic care and moves it toward more comprehensive, holistic care, incorporating characteristics associated with both lower costs and improved outcomes.

The PCMH model will be tested in sixteen different Family Medicine and Internal Medicine practices (17 sites) across the Colorado Front Range. It will also be tested in several practices throughout Ohio, Colorado's partner state. Payment for the two-year PCMH Pilot began in 2009, after practices met specific requirements to achieve at least a Level 1 NCQA Medical Home designation. By early 2010, almost all sites achieved a NCQA designation of Level 3.⁷⁹ As the program progresses, practices will receive modified payments for up to 30,000 patients covered by the participating health plans, including Anthem-Wellpoint, United Healthcare, Humana, Aetna, CIGNA, Colorado Medicaid and Colorado Access.

The Colorado Clinical Guidelines Collaborative (CCGC) will serve as the Convening Organization and provide technical assistance for the PCMH Pilot practices in Colorado, including in-office coaching and innovative technology. Funding for the pilot has been generously provided by The Colorado Trust and The Commonwealth Fund.

Colorado Foundation for Medical Care's Care Transition Projects

The Colorado Foundation for Medical Care's Care Transition project will train clinicians and hospitals in seamless patient care transition practices. The target community for the Foundation's Care Transition project includes two major hospitals and numerous nursing homes, home health agencies, primary care providers, hospice and other medical outpatient and inpatient medical settings in northwest Denver.

The Foundation prioritizes medication management, post-discharge follow-up and patient-centered care. By improving the lines of communication between providers and patients, providers are able to better understand and address the drivers for readmission in their community.⁸⁰ The Foundation has been so successful that it was hired by the federal government (through the Center for Medicare & Medicaid Services) to train clinicians in 14 other states.

Rocky Mountain Patient Safety Organization

The Rocky Mountain Patient Safety Organization (RMPSO) was designated a federally qualified Patient Safety Organization by the U.S. Department of Health and Human Services on January 21, 2009. Currently, RMPSO is organized under the Colorado Center for the Advancement of Patient Safety, a 501(c) (3) subsidiary of the Colorado Hospital Association (CHA). It expects to be fully operational by late 2010.

The goal of the Rocky Mountain Patient Safety Organization, an initiative spearheaded by the Colorado Hospital Association, will be to improve the safety of patients across the continuum of care while simultaneously creating more efficient and effective patient care. The ultimate goal will be to reduce the cost of care through focused cooperation among community physicians, hospitals the wide range of other health care providers. This organization is a potential pre-cursor to establishing sufficient trust and cooperation among differing clinicians to facilitate the adoption of bundled payment incentives and other delivery system changes. Such incentives rely on trust, coordination and cooperation across sites of care in order to work as designed.



Colorado Collaborative Quality Improvement Project

The Colorado Medical Society, United Health Group and the American Medical Association are working together to establish the Colorado Collaborative Quality Improvement Project (CCQIP) in 2010. The CCQIP will allow participating physicians to compare their treatment methods with their peers based upon best practices recommended by state and national medical organizations. The partnering organizations will work with specialty societies and Colorado physicians to identify and promote the best medical practices in the state.

The main task of CCQIP is to examine areas of overuse and misuse in the treatment of a few high-cost, high-variation conditions. It will scrutinize data from Colorado physicians through the lens of the Physician Consortium for Performance Improvement (PCPI). The PCPI is the organization that the AMA convenes and staffs; virtually all specialties and many states participate. Teams of local and national physician experts, drawn from participating medical specialty societies and jointly appointed by CMS, AMA and UnitedHealth Group, will then determine best practice guidelines.

The PCPI will share information regarding how physician treatment approaches compare to those of their peers and to best practices. The program also features incentives and physician tools to spur the adoption of the best practice guidelines as identified by the organization. The goal is to improve quality and value; any savings will be shared with participating physicians.

STATE & LEGISLATIVE EFFORTS

Colorado Healthcare Affordability Act

The Colorado Healthcare Affordability Act of 2009 (“CHAA”), is expected to provide health coverage for up to 100,000 uninsured Coloradans. It also attempts to prevent cost shifting, or burdening small businesses and the privately insured with higher premiums because of uncompensated care provided by hospitals. The Act was signed into law by Colorado Governor Bill Ritter on April 21, 2009. In April 2010, the Centers for Medicare and Medicaid Services approved the CHAA’s provisions and allowed implementation of the law to begin.

Annually, Colorado hospitals incur more than \$375 million in uncompensated care costs by serving Medicaid patients; hospitals are reimbursed less than 55 percent of the total cost for treating these lower-income Coloradans. By assessing a provider fee on hospitals, Colorado expects to generate an additional \$600 million a year to provide coverage to the uninsured, when fully implemented, will receive \$600 million in federal matching funds. The combined \$1.2 billion, in conjunction with other coverage provisions in the Act, is expected to cover the more than 100,000 currently uninsured Coloradans through Medicaid and the Child Health Plan Plus (CHIP+). The funds will also improve hospital reimbursement rates for service provided through those programs and the Colorado Indigent Care Program (CICP).

The CHAA is expected to secure increased hospital funding for Medicaid and uninsured patients thereby reduce cost-shifting to private payers by:

- Increasing Medicaid hospital inpatient rates up to 100 percent of Medicare rates
- Increasing Medicaid hospital outpatient rates up to 100 percent of costs
- Increasing hospital Colorado Indigent Care Program (CICP) reimbursements up to 100 percent of costs.



State Health Access Program

In September 2009, Colorado was awarded a five-year competitive federal grant to support health care expansion efforts linked to the HCAA. The federal Health Resources and Services Administration (HRSA) awarded Colorado \$9.96 million for the first year of its program under the State Health Access Program (SHAP). The HRSA SHAP grant is part of a new federal program to support states in their efforts to expand health care coverage. Colorado's SHAP proposal, the Colorado Comprehensive Health Access Modernization Program, or CO-CHAMP, includes a variety of projects that will lead to greater access to health care, increase positive health outcomes and reduce cost-shifting.

Several CO-CHAMP projects are linked to the implementation of the HCAA which expands coverage to more than 100,000 uninsured Coloradans over the next five years. Colorado received \$9.96 million for the first year of the program, the third highest award. The Department requested \$42.9 million over the five-year period; however, states must reapply each year. Additional funding is contingent upon both meeting performance benchmarks and the availability of federal funding. Evaluation criteria include whether or not CO-CHAMP projects led to the successful enrollment of newly eligible Coloradans, if enrollees accessed services and if this led to improved health and quality of life outcomes.⁸¹

Preferred Drug List in Medicaid

In January 2007, the Governor of Colorado signed an executive order to implement a Preferred Drug List (PDL) for Colorado Medicaid. The Department has been working to design a PDL that encourages the cost-effective, safe and clinically proven utilization of pharmaceuticals. The PDL was developed for classes of medications where there are multiple drug alternatives available and supplemental rebates from drug companies; it enables Colorado to provide medications at the lowest possible cost. The current PDL was updated in April 2010, after a review of clinical data, drug formulations, dosage forms strengths, as well as testimony and public comments.⁸²

Colorado State Employee Plan

For fiscal year 2010, the State of Colorado will offer all eligible employees and their families two self-funded health insurance options or either a Kaiser HMO or HSA alternative. The State's self-funded plan, offered to about 32,000 state employees and their families, is currently administered by Great-West Healthcare, now part of CIGNA; however, a new five year contract with UnitedHealthcare will begin in mid 2010.

Colorado is exploring how its state vendors can encourage and administer high-value, member-centric health care to its employee population. Its new administrator, UnitedHealthcare, was recognized in 2009 by the National Business Coalition on Health and presented an eValue8 Health Plan Innovation Award for its initiatives to achieve better health outcomes at lower costs. Its Patient Centered Medical Home program and Diabetes Health Plan were specifically highlighted.

Colorado's state health plans have already initiated several programs throughout the state. For example, the Diabetes Initiative, administered by the State of Colorado and Great-West Healthcare, reduced the cost of prescription co-pays for all diabetic medications, supplies and insulin to Tier 1, or the lowest co-pay option, in an effort to encourage program participants to adhere to their treatment schedule and manage their disease. Results have been mixed. Colorado learned that lowering co-pays improved compliance with prescribed therapy initially but that the effect eventually wore off and adherence slipped back over time. This strategy by itself does not sustain improvement in diabetes self-management but could be integral to a disease management program.

Also, Great-West Healthcare currently offers the Healthy Frontiers wellness program to all employees and families enrolled in the state's self-funded medical plan. Healthy Frontiers features online and telephonic health information and provides enrollees with resources to better identify health risks, adopt healthier lifestyles and access health advice.



As part of the national Bridges to Excellence initiative, The Colorado Business Group on Health is currently coordinating the Diabetes Care Link and Cardiac Care Link programs in Colorado Springs. Both programs feature pay-for-performance incentives, intended to improve the quality of care provided to patients with cardiovascular disease and diabetes. The State of Colorado is participating in these two innovative programs along with several other Colorado Springs employers.

FEDERAL DELIVERY SYSTEM REFORM

President Barack Obama signed the Senate's Patient Protection and Affordable Care Act of 2009 (P.L. 111-148) into law on March 23, 2010. Minor changes were made to the bill by the Health Care and Education Reconciliation Act (P.L. 111-152), signed March 30, 2010. In addition to major insurance market reforms and coverage expansion, the Patient Protection and Affordable Care Act ("PPACA") contains significant delivery system reforms to improve the quality and efficiency of health care delivery in the United States. Conceptually, the delivery system initiatives currently underway in Colorado are very similar to the projects initiated by federal reform. This demonstrates that Colorado is well on its way and in a strong position to achieve the goals envisioned by national health reform.

The PPACA starts to realign provider payment incentives and moves us away from the traditional fee-for-service system toward a system that rewards value over volume. The Act contains numerous Medicare and Medicaid pilot programs and demonstration projects and authorizes the Secretary of Health and Human Services to expand on successful ones. Notable pilots include accountable care organizations, medical homes payment bundling. Using a more integrated and evidenced-based approach to care, providers will have to meet quality goals but can share in savings from Medicare or Medicaid.

The PPACA requires the HHS Secretary to develop and disseminate reliable quality reporting measures to enforce provider accountability and encourage a value-based purchasing system. For example, the Act gives the Secretary permission to adjust physician payment according to quality and resource use and reduce payments by one percent to hospitals with a 25th percentile or higher rate of hospital acquired infections.⁸³

The PPACA establishes three new entities to oversee and evaluate the cost and quality of the health care system. The Center for Medicare and Medicaid Innovation will research and implement new models of payment and care delivery, with the goal of achieving higher value, lower cost coordinated care. The Independent Payment Advisory Board (IPAB), appointed by the President and approved by the Senate, will submit recommendations to Congress on ways to slow health cost growth and improve care in both the private and public sector.⁸⁴ Finally, the PPACA establishes a private, nonprofit Patient Centered Outcomes Research Institute that will set priorities for comparative effectiveness research and carry out specific research projects. The goal of the Institute is to provide patients and doctors with the most up-to-date and accurate scientific information about tests, treatments and drugs.



APPENDIX D: UNIVERSITY OF DENVER METHODOLOGICAL AUDIT

THE ROLE OF THE UNIVERSITY OF DENVER'S CENTER FOR COLORADO'S ECONOMIC FUTURE

The sponsors engaged the Center for Colorado's Economic Future (hereinafter "DU team") to provide a methodological audit and to ensure a correct Colorado context for the paper. To complete its analysis, the DU team completed the following tasks:

- The DU team participated on weekly project calls from November 2008 to early 2010. The purpose of these calls was to establish a research design, review economic and methodological assumptions for the project discuss findings of the research.
- The DU team conducted a series of business outreach activities to raise awareness of the study and to understand the perspective of a variety of business community members on health care issues.
- The DU team participated in several detailed discussions and work sessions with New America Foundation analysts regarding the economic modeling. In particular, DU and NAF jointly developed forecasts for state gross state product (GSP) and employment. These forecasts serve as the baseline status quo case for the state. The effects of reform were measured against this baseline. The DU team also collaborated on and reviewed the calculations and assumptions regarding the change in spending that would occur with coverage expansion. This process resulted in changes to the original analysis. These changes improved the predictive power of the model.
- The DU team participated in a series of roundtable discussions with NAF and health policy experts from around the state. The purpose of these discussions was to assess the potential for achieving cost savings through delivery system reform efforts in the state.
- The DU team was fortunate to draw from the expertise of Tracy Johnson, PhD. Tracy's role as President of Health Policy Solutions and technical advisor for the 208 Commission made her an invaluable resource to the DU team during the process of reviewing NAF's analysis.

BEYOND THE SCOPE

The primary role of the DU team, as determined by the project's sponsors, was to evaluate the modeling of the plan presented in the NAF paper: basically an expansion of health coverage based largely on the 208 Commission and a discussion of delivery system reform opportunities. The DU team was not asked to develop alternative plans or to compare this plan against different changes to the health system, such as a move to a single-payer system. While readers of this report may prefer other solutions or policy choices as they relate to health care reform, those options were outside the scope of this research.

We would also report that during our business outreach, two issues came up frequently. First, many business people are concerned about maintaining a medical liability environment that is conducive to keeping costs low. Second, there are many issues related to rural health care access in Colorado and we heard this concern in some of our outreach efforts. We believe the study's sponsors are aware of these concerns and note these issues for completeness and to recognize the valuable feedback we received in our outreach.

The following sections contain the DU team's evaluation of the major components of the NAF study: coverage expansion and delivery system reform.

REVIEW OF ECONOMIC MODEL OF THE IMPACT OF COVERAGE EXPANSION

The moral case for coverage expansion has been argued extensively. Largely missing in the discussion of health care reform in Colorado has been an evaluation of its economic impact. The contribution of this study is its analysis of the economic impact of coverage expansion.

As described in the body of the paper, the methodology used by NAF to evaluate the economic impact of coverage expansion was multiplier analysis. The economic literature is replete with multiplier studies and the DU team concurs that this approach was the appropriate one for this evaluation. Multiplier analysis measures the total economic impact of increased local spending on a new program, in this case the expansion of health insurance to currently uninsured Coloradans.

Many multiplier studies measure only the positive impact of new program spending in the local economy without regard for the fact that funding the program often requires a local expenditure. In cases in which some or all of the program is funded locally, this approach overstates the total economic impact. A major contribution of the NAF methodology was the explicit modeling of the offsetting impact on the economy from financing a portion the coverage expansion through local taxes.

Both the 208 Commission report and this study assumed that Colorado's share of financing coverage expansion would come from taxing households. While the new programmatic spending for additional health care spending has an expansionary effect on the economy, taking disposable income from households in the form of additional taxation has a dampening effect. NAF correctly reported the net of these effects as the economic benefit to the state from coverage expansion. In addition, NAF did not include in its aggregate analysis any monetized benefits of a healthier workforce or other possible benefits of health reform. In these ways, the NAF estimate errs on the conservative side. Given the uncertainty in monetizing many of these benefits, the DU team concurs that this was the appropriate approach.

NAF's model shows that Colorado's economy, as measured by gross state product, would be slightly less than 1 percent larger with fully financed health care expansion than it would have been under the status quo. In 2010, this translates into a \$2.31 billion increase in GSP, growing to \$3.80 billion by the end of the study period in 2019. Under NAF's modeling, employment will also experience a multiplier effect, resulting in 19,397 more jobs with health coverage expansion than under the baseline scenario. There are two major reasons for economic expansion with coverage expansion. First, an expanding health care sector re-circulates dollars in the state more than household spending does. While health care providers generally hire and purchase locally, households tend to purchase goods imported from elsewhere, thus exporting the economic impact of the spending out of the state. Second, a portion of Colorado's health care expansion will be financed with federal dollars⁸⁵ for Medicaid. Those infusions of federal dollars then circulate within Colorado, causing a multiplier effect. The DU team's evaluation is consistent with the NAF findings with respect to the direction of the change. The economy would be unambiguously larger under this expansion proposal than under the status quo. We do recognize, however, that models contain forecast error and thus consider the NAF estimated change to be within a reasonable confidence interval rather than an explicit point estimate.

Micro Economic Considerations – Impacts at the Household Level

The NAF analysis is a macro evaluation of the resulting size of the total state economy. While the macro economy of the state would be larger with coverage expansion, at the microeconomic level there is only the potential, but not a guarantee, that every household would be better off under this program. Current estimates are that one out of every six Coloradans is uninsured. Therefore, coverage expansion means that five out of six households contribute through increased household taxes but receive no direct benefit in terms of health insurance. For some of these households the larger economy will provide offsetting benefits, but there is no guarantee that this will hold for all households.



The larger economy also provides some benefit to the state's ability to generate tax revenue and fund services. However, the 1 percent expansion of the economy does not raise tax revenue sufficient to cover the cost of health care expansion. In fact, if the current relationship between the state's GSP and state tax revenue were to hold, the 1 percent larger economy would generate revenue to fund only 9 percent to 10 percent of the investment necessary to achieve coverage expansion.

In summary, the DU team is comfortable with the analysis and conclusions concerning coverage expansion and its effect on the state's economy. Compared to baseline, the state's economy would be larger if coverage were extended. The exact magnitude of the increase is difficult to measure, but the NAF estimate may appropriately be considered to be within a reasonable margin of error. The impact on individual households is more difficult to measure, with the likely outcome that some households would be better off and some would not under this plan for coverage expansion. One strategy for potentially distributing net benefits to Colorado households is to implement a series of delivery system reforms along with coverage expansion. This, of course, requires that the reforms be designed with such a goal in mind. It is more realistic to expect any savings from delivery system reforms to be shared among both providers and consumers of health care services.

The second half of the NAF study considers delivery system reform. While the DU team participated in many discussions related to these reforms, for reasons described further, DU is not in a position to evaluate the impacts reported in the NAF study.

EVALUATING THE POTENTIAL FOR DELIVERY SYSTEM REFORM

Delivery system reform is an emerging concept in health policy. While there is increasing recognition that system reform is necessary, there is a lack of longitudinal experience with system reform efforts. As a result, models to assess the impact of such reforms are not fully developed. The NAF analysis for Colorado acknowledges lack of data and models necessary to perform a quantitative analysis and as a substitute, NAF researchers opted for a more qualitative and scenario-based approach. While the DU team participated in many of the discussions concerning delivery system reform, the analytic approach selected by NAF precluded a more quantitative review as was performed for the analysis of coverage expansion. For this portion of the study, the DU team's role was somewhat consultative, as we made recommendations and observations during meetings with NAF and community members that participated in this process. It is in this role that we can certify that the scenario-based conclusions in the NAF analysis resulted from an appropriate and well-designed process.

The NAF conducted a series of in-depth interviews with Colorado health care experts and principals. The results of this work, supplemented by new research from the RAND Corporation for the Commonwealth of Massachusetts and 208 Commission reform recommendations, form the basis for the scenarios presented in the delivery system reform section.

In Colorado, many reform efforts are underway. According to the NAF analysis, Colorado is considered a national leader in health care delivery system reform. As such, the NAF work correctly built off of initiatives underway,⁸⁶ analyzing the magnitude of the savings possible under two scenarios for the rate and trajectory of captured benefits from cost savings through to the end of the 2019 study period.

NAF bounded its analysis with an optimistic scenario⁸⁷ and pessimistic scenario,⁸⁸ both of which assumed some net benefit from system reforms. These scenarios were developed from a discursive process undertaken by NAF investigators; they are the result of a series of roundtable discussions and focus group-type meetings with system-reform experts throughout the state. While the DU team is not in a position to independently evaluate the feasibility of achieving the level of savings estimated in the scenarios, we concur that the process undertaken to develop them was thorough and appropriate.

In terms of potential impact on the economy, health care delivery system reform is important, easily as important as universal coverage. It is delivery system reform that holds the greatest promise in extending cost savings to the five out of six Colorado households who currently have health coverage and are facing upward pressure on costs to maintain that coverage. Despite this importance, the DU team maintains a concern that the processes to reform the delivery system in Colorado do not contain mechanisms to ensure that savings ultimately accrue to households. Our analysis has revealed a flawed and distorted market for health care in the state, one in which true competition is lacking. In a distorted market environment, cost savings from system reform are not guaranteed to accrue ultimately to households. They are at least somewhat likely to remain with providers in the form of excess profits. As with coverage expansion, the success of these reforms in Colorado depends upon developing a mechanism for the net benefits of the larger economy and cost savings to flow through to the state's households. As policy makers in the state continue to work to reform the system, more attention must be dedicated toward ensuring that Colorado's households are the primary beneficiaries.

CONCLUSION

Consistent with our role in the project, the DU team has reviewed the analysis of coverage expansion and delivery system reform performed by the New America Foundation. With respect to coverage expansion, the DU team concurs that the state's economy will be larger if the 208 Commission reforms are implemented. While the DU team is not in a position to render an opinion on the magnitude of the possible savings from delivery system reforms, we do certify that the process to ascertain those estimates was thorough and appropriate. As such, it is likely that system reforms underway in the state will render cost savings when fully implemented. In the future, as reform proceeds, the new imperative will be to structure the health care market in the state such that the benefit from reform ultimately accrues to Colorado's households. When Colorado households recognize the benefit from coverage and expansion and system reform, the programs will be a success.



ENDNOTES

- ¹ Sarah Axeen and Elizabeth Carpenter, "The Cost of Doing Nothing," *New America Foundation*, November 2008.
- ² These projections are based on historical trends. Colorado Business Group on Health, "Health Care and Business: The Bottom Line," available at: <http://www.coloradoguidelines.org/pdf/pcmh/employers/BusinessHealth-Brochure.pdf>.
- ³ Findings from the American Community survey, available at: http://www.census.gov/hhes/www/hlthins/acs08paper/2008ACS_healthins.pdf. The Colorado Health Institute estimates that nearly 14 percent of all Coloradans (approximately 690,000 individuals) were uninsured in the first quarter of 2009 and that nearly 20 percent were uninsured at some point in the previous twelve months; according to the Urban Institute, 776,000 Coloradans were uninsured in 2009.
- ⁴ Len M. Nichols and Sarah Axeen, "Employer Health Costs in a Global Economy: A Competitive Disadvantage for U.S. Firms," *New America Foundation*, May 2008.
- ⁵ Jonathan Gruber, "The Economic Impact of Healthcare Reform on Small Business," *Small Business Majority*, June 11, 2009. Available at: http://www.smallbusinessmajority.org/pdfs/SBM-economic_impact_061009.pdf.
- ⁶ Colorado Joint Budget Committee Fiscal Year 2009-10 Appropriations Report, p. 14.
- ⁷ The Lewin Group, "Cost and Coverage Impacts of Five Proposals to Reform the Colorado Health Care System," *The Colorado Blue Ribbon Commission for Health Care Reform*, December 29, 2007.
- ⁸ For example, the Commission proposed several potentially cost-saving delivery system reforms including: implementation of medical homes and disease management programs, adoption of health information technology, provider payment based on performance, transparency in pricing improving end-of-life care, among other strategies.
- ⁹ The 208 Commission recommended seeking a 1115 waiver for federal matching funds for the population which would buy private insurance but are still low income enough to need a subsidy. Since the proposal also called for a substantial expansion of Medicaid up to 205 percent of the federal poverty level for all citizens since so few states extend Medicaid eligibility for childless adults even up to poverty, we assumed the Federal government would be reluctant to grant a waiver allowing Colorado to get matching funds for the subsidized population buying non-Medicaid private insurance above 205 percent of poverty. In this way, we have conservatively estimated that Colorado would have had to finance a larger share of insurance subsidies than the 208 Commission hoped. Given the passage of federal health reform, Colorado will not have to finance insurance subsidies for its low income citizens.
- ¹⁰ Carmen De-Navas Walt, et al., "Income, Poverty Health Insurance Coverage in the United States: 2008," *U.S. Census Bureau*, September 2009.
- ¹¹ Urban Institute, "Health Reform: Cost of Failure in Colorado," August 2009.
- ¹² Peter R. Orszag, "The Long-Term Budget Outlook and Options For Slowing The Rate of Growth of Health Care Costs," *Testimony before the Senate Committee on Finance*, June 17, 2008.
- ¹³ Authors' calculations based on data from U.S. Census Bureau and Medical Expenditure Panel Survey, sponsored by the Agency for Healthcare Research and Quality.
- ¹⁴ Sarah Axeen and Elizabeth Carpenter, "The Cost of Doing Nothing," *New America Foundation*, November 2008.
- ¹⁵ Ibid.
- ¹⁶ Authors' calculations based on data from the Medical Expenditure Panel Survey, Insurance Component, sponsored by the Agency for Healthcare Research and Quality.
- ¹⁷ Len M. Nichols and Sarah Axeen, "Employer Health Costs in a Global Economy: A Competitive Disadvantage for U.S. Firms," *New America Foundation*, May 2008.
- ¹⁸ Axeen & Carpenter, "The Cost of Doing Nothing."
- ¹⁹ The Urban Institute's assumptions about baseline health care cost growth are more optimistic than some, like the Colorado Business Group on Health previously cited. This is because their assumptions are based on longer-run and national trends.
- ²⁰ Douglas McCarthy, Sabrina K. H. How, Cathy Schoen, Joel C. Cantor Dina Belloff, "Aiming Higher: Results from a State Scorecard on Health System Performance, 2009," *Commonwealth Fund*, October 2009. Available at: <http://www.commonwealthfund.org/Content/Publications/Fund-Reports/2009/Oct/2009-State-Scorecard.aspx>.
- ²¹ Douglas W. Elmendorf, "Preliminary Analysis of Specifications for the Chairman's Mark, American's Healthy Future Act," *Congressional Budget Office*, September 16, 2009; Douglas W. Elmendorf, "Preliminary Analysis of America's Affordable Health Choices Act," *Congressional Budget Office*, July 17, 2009; Douglas W. Elmendorf, "Preliminary Analysis of Affordable Health Choices Act," *Congressional Budget Office*, July 2, 2009.

- ²² The Lewin Group, “Cost and Coverage Impacts of Five Proposals to Reform the Colorado Health Care System,” *The Colorado Blue Ribbon Commission for Health Care Reform*, December 29, 2007.
- ²³ Colorado Center on Law and Policy, “The Cost of Care: Can Coloradans Afford Health Care,” *The Colorado Trust*, 2009. Available at: <http://www.coloradotruster.org/online-publications/online-newsletters/communityconnections-2009-summer-edition/expand-health-coverage-/colorado-affordability-of-health-care-study>.
- ²⁴ Bureau of Economic Analysis. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*. Department of Commerce. (Third Edition, 1997).
- ²⁵ The Lewin Group.
- ²⁶ National Academy of Engineering and Institute of Medicine. *Building a Better Delivery System*. (Washington D.C.: National Academies Press, 2005).
- ²⁷ See for example, Health CEOs for Health Reform, “Realigning U.S. Health Care Incentives to Better Serve Patients and Taxpayers,” *New America Foundation*, June 2009.
- ²⁸ Douglas McCarthy, Sabrina K. H. How, Cathy Schoen, Joel C. Cantor, Dina Belloff, “Aiming Higher: Results from a State Scorecard on Health System Performance, 2009,” *Commonwealth Fund*, October 2009.
- ²⁹ Cooperative efforts of the Colorado Medical Society and the Colorado Hospital Association are driving numerous changes in the state. It is also true that Colorado has long had outstanding pockets of care leaders like the Grand Junction community and the Denver Health system. Other superior examples of delivery system reform leadership include The Colorado Foundation for Medical Care’s Quality Improvement Organization, Center for Improving Value in Health Care (“CIVHC”) and Colorado Clinical Guidelines Collaborative’s Patient Centered Medical Home pilot program.
- ³⁰ Institute of Medicine, *Hidden Costs, Value Lost: Uninsurance in America*, (Washington, D.C.: National Academies Press, 2003).
- ³¹ Axeen & Carpenter, “The Cost of Doing Nothing.”
- ³² Dick Mendel, “Leave No Parent Behind,” *American Prospect*, November 1, 2004.
- ³³ Phillip B. Levine, Diane Whitmore Schanzenback, “The Impact of Children’s Public Health Insurance Expansions on Educational Outcomes,” *NBER Working Paper No. 14671*, January 2009.
- ³⁴ Sarah Axeen and Elizabeth Carpenter, “Why Does Health Insurance matter?” *New America Foundation*, February 2008; Guy Clifton and Hannah Graff, “Ambulance Diversions,” *New America Foundation*, September 2008.
- ³⁵ Michael S. Hendryx, et al., “Access to Health Care and Community Social Capital,” *Health Services Research* 37, no. 1 (February 2002): 85 – 101.
- ³⁶ Urban Institute, “Health Reform: Cost of Failure in Colorado,” August 2009.
- ³⁷ Ibid.
- ³⁸ Center for Medicare and Medicaid Services, Office of the Actuary, “Health Expenditures by State of Residence, 1991 – 2004,” *National Health Expenditure Data*, accessed April 2009.
- ³⁹ Specifically, in contrast to the Center for Business & Economic Forecasting report, personal income is projected by our model to grow at 5 percent in 2013 and 2014 and at 6 percent in 2015. Our gross state product forecast is a function of this personal income growth projection. The jobs forecast was modified to account for the recession by setting it to 1 percent in 2011 and 1.7 percent in 2012, consistent with the legislative council forecast rate, then at 2 percent in 2013-2014, 1.8 percent in 2015, 1.6 percent in 2016 before reverting to a compound annual growth rate of 1.22 which is consistent with the historical average of the period 2002-2008.
- ⁴⁰ Due to internal inconsistencies in the Lewin Group’s Appendix G outlining the specific costs and changes resulting from the Commission’s proposal, the gross cost of \$2.3 billion that we utilize does not match the more publicized cost of \$2.7 billion. Ostensibly, in their final Figure 17, they omitted some of the cost of the HCBS waivers and aged and disabled expansions and medically needy waivers, which very nearly account for the cost discrepancy. In addition, because our analysis is inherently conservative, we are not modeling the effect of coverage expansions granted to the elderly. Since money granted to elderly populations is a large chunk of the discrepancy between our estimate and publicized estimates, there is little need to include the missing \$300 million into our estimates.
- ⁴¹ Numbers do not sum in Lewin’s original calculations. We use their total rather than the sum of the component parts.
- ⁴² We use a 50 percent split between state and federal funding to simplify the calculations. Our best reading of the Lewin report shows that the net split in federal and state spending is very close to 50-50. For some programs there is more state funding and for others more federal funding. Because of these differences as well as inconsistencies in Lewin’s tables and our inability to presume which programs might draw federal funding and which would not, we chose the 50-50 split to reflect our assumption that spending would be shared moving forward from reform.



- ⁴³ IMPLAN (Impact analysis for PLANNing) data and software is a product of the Minnesota IMPLAN Group, Inc. (<http://implan.com/v3>).
- ⁴⁴ “Regional Economic Models, Inc. (REMI) is the single provider of both PI+ (the next generation of Policy Insight), the leading economic-forecasting and policy-analysis model and TranSight, a tool for evaluating the total economic effects of transportation improvements.” (<http://www.remi.com/>)
- ⁴⁵ Tim Lynch, “Analyzing the Economic Impact of Transportation Projects Using RIMS II, IMPLAN REMI,” Office of Research and Special Programs, *U.S. Department of Transportation* (2000); Dan S. Rickman and R. Keith Schwer, “A comparison of the multipliers of IMPLAN, REMI RIMS II: Benchmarking ready-made models for comparison,” *The Annals of Regional Science* 29 (1995): 363-374.
- ⁴⁶ Douglas C. Frechtling and Endre Horvath, “Estimating the Multiplier Effects of Tourism Expenditures on a Local Economy through a Regional Input-Output Model,” *Journal of Travel Research* 37, no. 4 (May 1, 1999): 324-332.
- ⁴⁷ Bay Area Economics, “Using RIMS II to Estimate the Economic Impact of Supportive Housing,” November 2004.
- ⁴⁸ Ellen Burnes, Dennis Wichelns John W. Hagen, “Economic and policy implications of public support for ethanol production in California’s San Joaquin Valley,” *Energy Policy* 33, no. 9 (June 2005): 1155-1167.
- ⁴⁹ Amber Daves, Brian Rowley and Brandon Tartler, “The Economic Impact of Child Care in La Plata County,” Fort Lewis College (2005).
- ⁵⁰ Anthony Roso Jr and Richard L. Dukes, “The space center at Colorado Springs,” *The Social Science Journal* 25, no. 4 (1988): 477-484.
- ⁵¹ We explicitly model required Colorado taxes because that is the money that Colorado must decide to collect from itself if it chooses to pursue reform as recommended by the Commission. The required state tax increase is the net cost of reform over which Colorado has control. We do not explicitly model federal tax implications of the 208 Commission proposal, because we have no way of knowing how the federal government might choose to finance its share in either the short or the long runs. We did perform an analysis assuming that Colorado’s share of any new federal tax burden is the same as Colorado’s share of current federal tax burden in doing so verified that the qualitative conclusions of this report still hold (i.e., the net economic impact of fully financed reform is positive), though obviously the quantitative specifics would be different. Since federal tax decisions are made in Washington while state tax decisions are made in Denver, we believe the state taxes required are the relevant ones for this kind of analysis.
- ⁵² Bureau of Economic Analysis, “Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II),” *Department of Commerce* (Third Edition, 1997).
- ⁵³ The average of “Ambulatory health care services” and “Hospitals and nursing and residential care facilities” multipliers.
- ⁵⁴ Bureau of Economic Analysis, “Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II),” *Department of Commerce* (Third Edition, 1997).
- ⁵⁵ The RIMS II manual includes as one of its examples a scenario in which it estimates the economic impact of closing a military base and converting it into a factory. As it explains for this case: “It is assumed that the net impacts occur in 1 year; in practice, it is likely to take several years to shut down the base before conversion can begin.” (Ibid, page 16). In our analysis of additional spending within the health care industry, the assumption that most of the economic impacts will cycle through the economy within a short timeframe is much more realistic.
- ⁵⁶ For a more detailed description of these numbers and how they were determined, please see: Axeen & Carpenter, “Cost of Doing Nothing”.
- ⁵⁷ PriceWaterhouse Coopers, “The Factors Fueling Rising Health Care Costs 2008,” December 2008.
- ⁵⁸ Bureau of Labor Statistics, “The Employment Situation,” September 2009,” <http://www.bls.gov/news.release/pdf/empst.pdf>; Bureau of Labor Statistics, “Regional and State Employment and Unemployment, September 2009,” <http://www.bls.gov/news.release/pdf/laus.pdf>.
- ⁵⁹ National Academy of Engineering and Institute of Medicine, *Building a Better Delivery System* (Washington D.C.: National Academies Press, 2005).
- ⁶⁰ Council of Economic Advisors, “The Economic Case for Health Reform,” *Executive Office of the President*, June 2009. Available at: http://www.whitehouse.gov/assets/documents/CEA_Health_Care_Report.pdf.
- ⁶¹ Len M. Nichols, Micah Weinberg, Julie Barnes, “Grand Junction, Colorado: A Health Community that Works,” *New America Foundation*, August 2009; Health CEOs for Health Reform, “Realigning U.S. Health Care Incentives to Better Serve Patients and Taxpayers,” *New America Foundation*, June 2009; Douglas McCarthy, Kimberly Mueller Jennifer Wrenn, “Geisinger Health System: Achieving the Potential of System Integration Through Innovation, Leadership, Measurement Incentives,” *Commonwealth Fund*, June 22, 2009.
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- ⁶³ Cathy Schoen, Stuart Guterman, Anthony Shih, Jennifer Lau, Sophie Kasimow, Anne Gauthier, Karen Davis. “Bending the Curve: Options for Achieving Savings and Improving Value in U.S. Health Spending,” *Commonwealth Fund*, December 2007.

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- ⁶⁶ Len M. Nichols, Micah Weinberg, Julie Barnes, “Grand Junction, Colorado: A Health Community that Works,” *New America Foundation*, August 2009.
- ⁶⁷ Patricia A. Gabow, “Reforming the Healthcare System,” *Testimony Before the House Committee on Energy and Commerce, Subcommittee on Health*, June 25, 2009.
- ⁶⁸ Kaiser Permanente News Center, “NCQA and *U.S. News & World Report* Ranking Lists Kaiser Permanente Colorado No. 1 in Medicare,” November 12, 2009.
- ⁶⁹ Len M. Nichols and Ann S. O’Malley, “Hospital Payment Systems: Will Payers Like The Future Better Than The Past?,” *Health Affairs* 25, no. 1 (2006): 81-93.
- ⁷⁰ H.R. 3590, 111th Cong. (enacted). <http://democrats.senate.gov/reform/patient-protection-affordable-care-act-as-passed.pdf>. Section 1202.
- ⁷¹ The 5.5 to 17 percent is derived by taking the total savings from delivery system reform in 2019 (available in tables 17 and 18) and multiplying them by the share of total health spending contributed by employers (as determined by taking the original data from Lewin and growing it at appropriate growth rates) in 2019, or 43 percent. Then, that product is divided by the total amount of employer spending in 2019 (again, taking the original amount calculated by Lewin and growing it at appropriate growth rates) to yield the percent reduction in premiums from delivery system reform.
- ⁷² Numbers do not sum in Lewin’s original calculations. We use their total rather than the sum of the component parts.
- ⁷³ PriceWaterhouse Coopers, *The Factors Fueling Rising Health Care Costs 2008*, December 2008.
- ⁷⁴ Connected Care, “Three Rural Colorado Medical Facilities to Participate in UnitedHealthcare and Centura Health’s New Connected Care Telehealth Program,” *UnitedHealth Group*, Oct. 2009, http://www.connectedcareamerica.com/news-article.php?page=16&keepThis=true&TB_iframe=true&height=450&width=850.
- ⁷⁵ “What’s Working: Making the Connection: IT Improves Care, Links Clinics,” *The Colorado Health Foundation*, Summer 2008, <http://www.coloradohealth.org/landing.aspx?id=1930>.
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- ⁸³ H.R. 3590, 111th Cong. (enacted). <http://democrats.senate.gov/reform/patient-protection-affordable-care-act-as-passed.pdf>. Sections 3007 and 3008.
- ⁸⁴ *Ibid*, Section 3403.



⁸⁵ While the NAF study correctly dampened the economic impact by accounting for the financing of Colorado's portion of expansion, it did not do the same for the federal contribution toward Medicaid expansion in the state. While technically this results in an overstatement of the expansion, we recognize that Colorado taxpayers' contributions toward federal financing are relatively small compared to the larger states in the nation. As such, while recognizing this as an omission, we concur with the NAF assumption that it is immaterial on the analysis in Colorado.

⁸⁶ These include initiatives to incorporate health information infrastructure, clinical effectiveness data, decision support tools, new provider payment incentives consumer engagement into the delivery system in Colorado.

⁸⁷ The optimistic scenario assumed gradually increased rates of cost savings from 0 percent in 2010 to 3 percent annual savings by the year 2019.

⁸⁸ The pessimistic scenario assumed no cost savings until the year 2014 and 1 percent savings per year from 2014 through 2019.