# Colorado
# All Payer Claims Database

## ANNUAL REPORT 2014

## Illuminating Opportunities for Better Health and Health Care

Prepared for the Governor and
General Assembly by the
Center for Improving Value in Health Care and approved
by the Colorado APCD Advisory Committee

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CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

CO MEDICAL PRICE COMPARE

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# EXECUTIVE SUMMARY

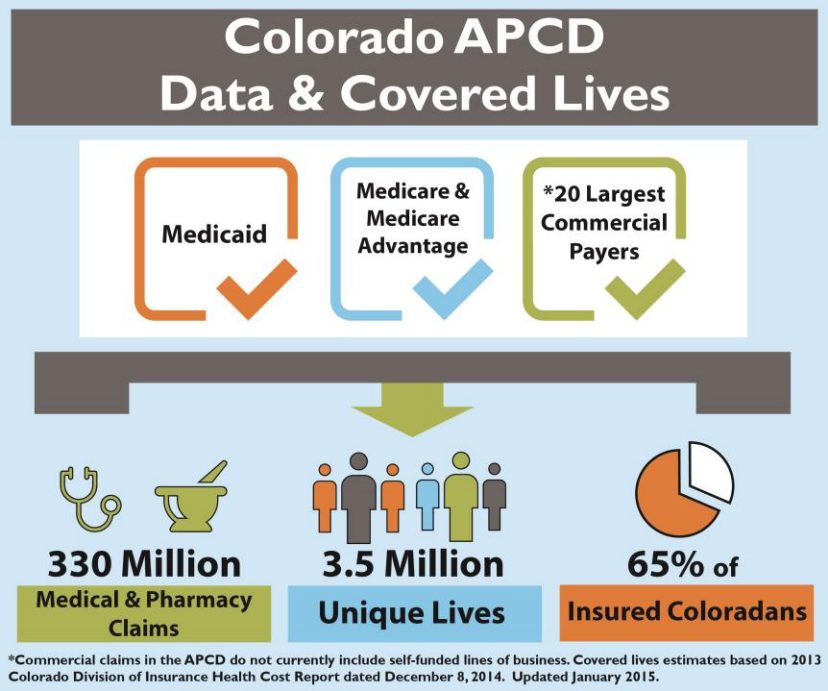
## Overview

In 2010, legislation (HB 10-1330) was passed to develop the Colorado All Payer Claims Database (CO APCD), the state's most comprehensive source of health care claims information. The goal of the CO APCD is to inform and advance the "Triple Aim" goals of better health, better care and lower costs by providing comprehensive, transparent information about health care prices, spending and utilization. The APCD is a tool for empowering decision-making by providers, policy-makers, purchasers, patients, researchers and others and is a necessary gateway to transparency to inform opportunities for positive change.

Administered by the Center for Improving Value in Health Care (CIVHC) through appointment by the Colorado Department of Health Care Policy and Financing (HCPF), the CO APCD is a unique and powerful public resource that can be used to inform innovation. The current APCD data warehouse contains claims information previously unavailable for the state.

## Keys to Colorado APCD Success

### *Unparalleled Data Set*




No other claims database of this magnitude exists in Colorado. Most data sources currently used to inform health care analysis and policy-making (e.g., the national Medical Expenditure Panel Survey, hospital discharge information, and Medicaid and Medicare data) are limited either by the population they include or the point of care at which the data is gathered. The Colorado APCD is the state's only source that gathers claims data from both the commercial insurance market and public programs, and from the full spectrum of care settings (e.g., physician offices, clinics, hospitals, surgery centers). Any health care service that generates a bill or claim to a third-party payer can be captured in the Colorado APCD. It is important to note that the types of potential analyses and level of detail available are only possible with a claims database such as the Colorado APCD. There is no comparable source for similar information.

### *Unique Design*

Colorado's APCD is pioneering in its administration, design and reporting capabilities. CIVHC, a non-profit, non-partisan organization, administers the database under authority from HCPF.

**Unique Capabilities of Colorado's APCD**

- Produce credible, objective, timely and actionable data to advance health care in the state through both public and custom reports.
- Generate financial support without the need to rely on taxpayer dollars.
- Gain support and buy-in from a wide variety of health care stakeholders.

Housing the APCD with a non-profit organization provides several benefits including the ability to provide timely, credible, actionable reports; generate non-taxpayer financial support; and gain buy-in across all stakeholder organizations.

Colorado is unique across the United States in that most APCDs do not have access to this level of information to inform patterns of health and costs of care to stakeholders outside of state agencies.

Colorado stands out as one of the states with the most robust public and non-public reporting to inform innovation and identify opportunities to effect positive healthcare change.

**APCD National Landscape**

- Only 11 states in addition to Colorado have claims data collection processes that are either operating or have operated in the past.
- 7 of the 11 have produced reports or provided data to researchers
- Few, if any, states have offered the level of public and custom access to the data that is available in Colorado.

## 2014 Accomplishments

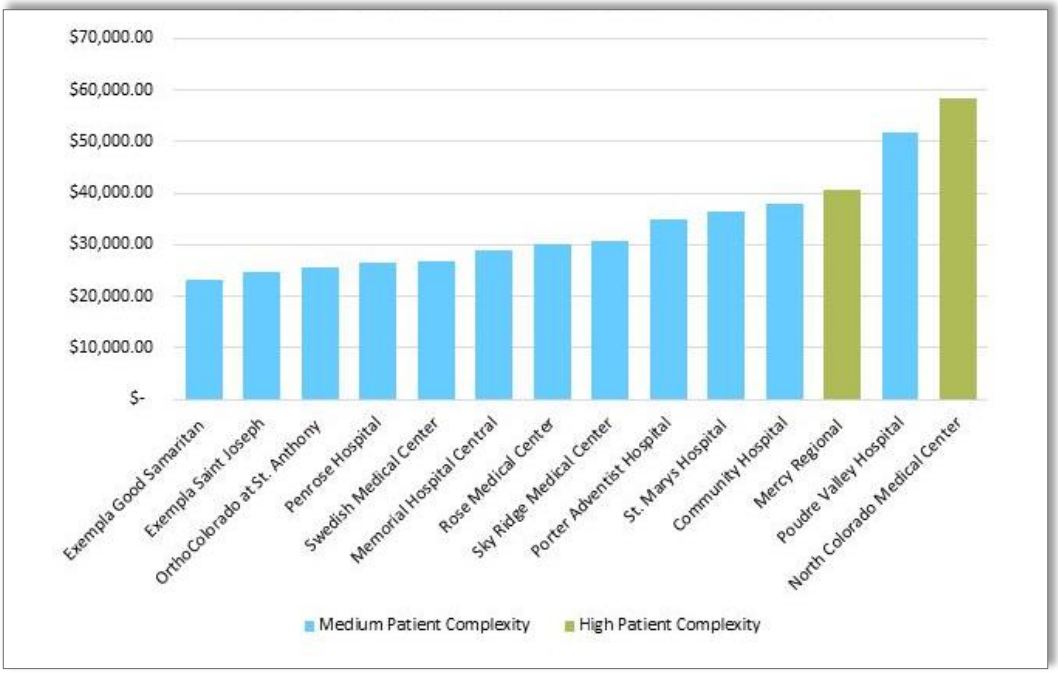
In 2014, the CO APCD grew significantly in both size and utility. Since the original launch of the public website in late 2012, numerous enhancements have been made to the site to illuminate opportunities for health care improvement. In addition, more organizations and state and national agencies are benefiting from the data sets available from the APCD to support Triple Aim efforts. Highlights from 2014 include:

### *Unveiling Price and Quality Information for Consumers*

One of the most notable achievements of 2014 was expanding the APCD website to enable consumers to shop for common medical procedures across private payers and Medicaid for the first time. The public site, now branded CO Medical Price Compare (www.comedprice.org), is unique because it features median prices paid across all commercial health insurers (including patient copays/deductibles) and Medicaid payments to a hospital, health care professional and any ancillary (transportation, lab, etc.) providers made for that procedure. Currently there are four procedures available, but, as mentioned in the upcoming milestones section below, over the next several years, the site will be expanded to include additional services including outpatient, imaging and primary care.

Other websites with price information typically contain only hospital charges which rarely reflect actual payments made by health plans and patients. Hospital charges are important for many purposes and are displayed on the site as a starting point for those without insurance, but they don't accurately reflect what an insurer actually pays. Health plans negotiate rates that are typically much lower than charged amounts, and hospital charges don't include other payments that were made to another health care provider or for ancillary services.

FIGURE 1: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED KNEE REPLACEMENT (PATIENTS < 65 YEARS OF AGE), WWW.COMEDPRICE.ORG.




For all facilities displayed above, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

Variation in prices among the four services currently displayed on the site is significant. A Coloradan with commercial insurance could pay anywhere from $25,000 to $58,000 for a total knee joint replacement. Similarly, a total hip joint replacement varies from around $25,000 to $36,000. Expectant mothers will discover prices ranging from around $5,500 on the low end to more than $11,000 on the high end for an uncomplicated vaginal birth. Cesarean sections have greater variation and can cost as much as $18,000 or as little as $10,000. A cost calculator is also available for consumers to determine estimated pricing for procedures based on payer type, deductible, and coinsurance.

Value does not depend on price alone, so the site also includes quality indicators publicly reported by the Colorado Department of Public Health and Environment and by Colorado Hospital Report Card.

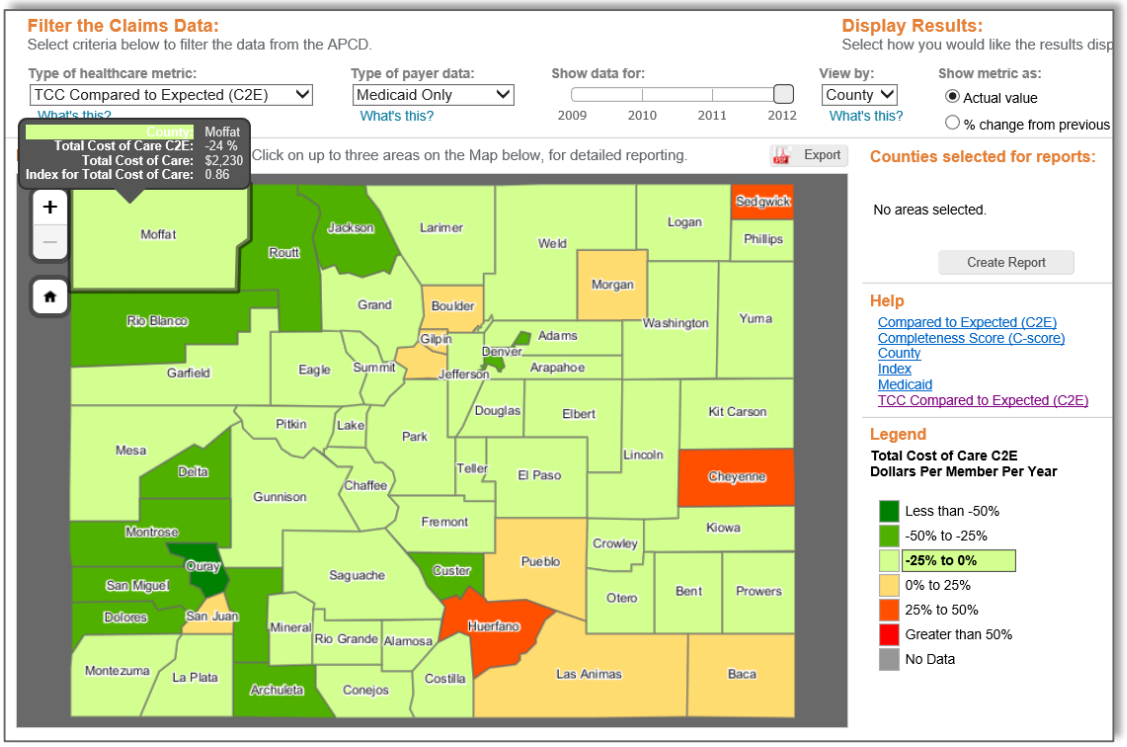
## *Identifying Opportunities and Informing Change*

In addition to procedure-specific price and quality information, the Colorado APCD provides public access to regional cost and utilization information on the public website, as well as access to custom HIPAA-compliant data sets through the Data Release Review Process. These reports provide never-before-seen opportunities to begin to understand how we can improve health care in Colorado. Beginning to ask questions about why variation exists is the first step along the journey to reduce costs and improve the health and health care of Coloradans. In 2014, numerous public and custom requests were utilized to identify opportunities, perform analyses and inform conversations around health care cost and utilization variation.

### Publicly Available Cost and Utilization Data

Since November 2012, the APCD website has provided policymakers, researchers and others with a variety of interactive reports identifying variation in Colorado health care spending and utilization patterns.

FIGURE 2: TOTAL COST OF CARE COMPARED TO EXPECTED MAP (2012, MEDICAID), WWW.COMEDPRICE.ORG




The breadth and level of analysis by year and geography available on the website surpasses the public utility of most other APCDs currently in existence. Figure 2 depicts just one example of the types of reports currently available that can inform opportunities to reduce variation in cost. This map illustrates Total Cost of Care Compared to Expected (based on use of services and relative health status of the population) by county for Medicaid only, illuminating differences across the state. Other interactive reports currently available on the website include:

- Hospital readmissions comparisons,
- Generic prescription usage,
- ER utilization and costs,
- Diabetes and asthma prevalence and costs, and
- In-depth break outs of compared-to-expected costs by health care service types and patient demographics.

Please see sample reports at the end of this section for more examples of analysis that can be performed from the information on the public APCD website. Additional planned enhancements in 2015 and beyond are listed in the upcoming milestones section below.

## Custom Data Requests

Since early 2013, the APCD has been providing custom, non-public data sets and reports under the guidance of a Data Release Review Committee (DRRC). The Administrator and DRRC follow a rigorous set of standards for approving data requests, requiring that each request meet Triple Aim objectives and that all data provided adheres to HIPAA and HITECH rules to protect privacy. Facilitating access to custom data sets is critical to enable organizations to move towards improved payment and delivery systems. Colorado is one of the only states to provide custom analytic data sets to those who can most effect change and as such is seen as a national leader in our overall APCD design and implementation. Colorado's APCD is also one of

the few in the nation leading the way in providing HIPAA-compliant data releases to support allowable research, public health and health care operational improvements.

### *HCPF Scholarship Fund*

Costs associated with developing custom reports have prohibited widespread use of this important state resource. In an effort to expand the use of the APCD data and to reduce the cost burden associated with making a data request, the Administrator and HCPF worked collaboratively to develop a scholarship fund to support data requests. In the spring of 2014, $500,000 was appropriated to HCPF by Colorado's General Assembly to offset the cost of providing custom APCD data for state agencies as well as for non-profits and researchers with annual revenues of less than $5 million per year. Funding was made available beginning July 1, 2014 and is available through June 30, 2015 or until funds are depleted. See below for some examples of projects supported through the fund in 2014.

**HCPF Scholarship Fund**

- **$500,000 in funding available**
- **Eligible organizations include non-profits and research organizations with annual revenues of less than $5 million per year and state agencies**
- **Funding available through June 2015**
- **Six projects have been awarded as of January 2015**

### *2014 Data Fulfillments*

In 2014, the APCD Administrator and the DRRC fulfilled 14 formal custom data applications for custom data for a variety of organizations including non-profits, providers and researchers. Projects included:

- Studying the impact and return on investment of home-delivered meals on improving transitions of care and reducing unnecessary medical visits ***– HCPF Scholarship Fund***
- Analyzing ED visits for non-traumatic dental services in Colorado ***– HCPF Scholarship Fund***
- Assessing the impact of cost-sharing policy changes on the use of preventive services ***– HCPF Scholarship Fund***
- Analyzing disease-specific variation in treatment cost and utilization
- Evaluating facility-specific total cost of care to move towards value-based payments

In addition, in 2014 the APCD became of particular value to inform both state and national initiatives to improve health care. Examples include:

- **Division of Insurance** – Used APCD data to evaluate the geographic rate setting regions utilized by Colorado's health insurance exchange. While the APCD was not used to actually set health insurance premiums, the cost of care information assisted the DOI in their evaluation of the appropriateness of the county groupings used to establish rates offered on the exchange. ***– HCPF Scholarship Fund***
- **Medicaid** – Received a prior coverage analysis report, depicting numbers of beneficiaries eligible for Medicaid in 2012 and covered by private insurance, Medicaid or Medicare Advantage plans in 2010 and 2011. The final summary report was used to assist Medicaid with future planning and rate setting.

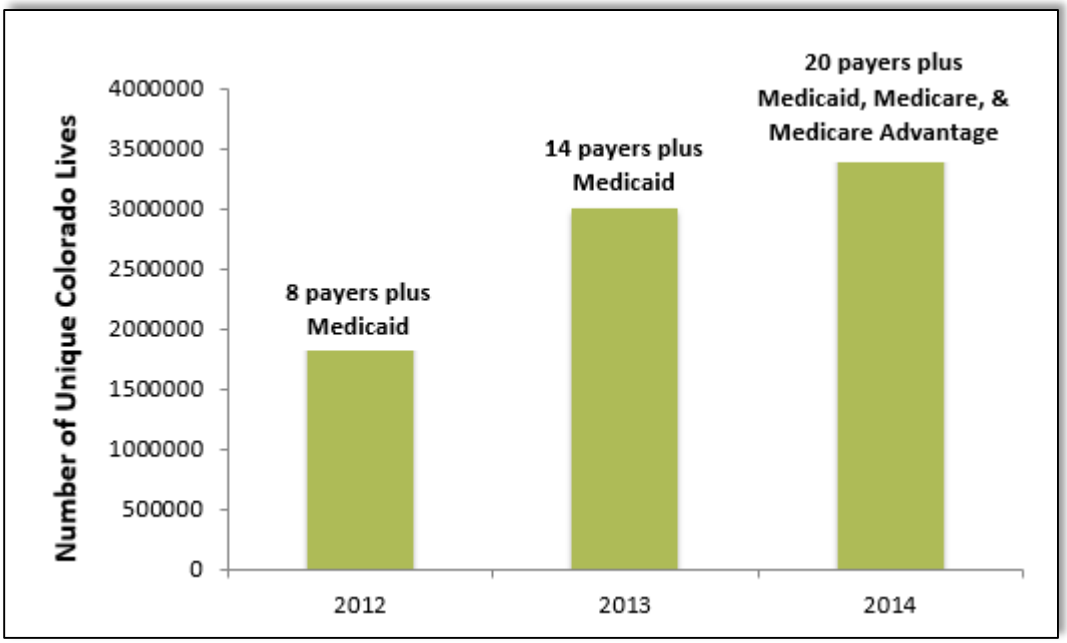
**APCD Custom Data Fulfillments**

- 14 projects were fulfilled in 2014 to support the Triple Aim
- Requests were made by a variety of organizations including:
  - State Agencies
  - Researchers
  - Non-profit organizations
  - Providers
  - Health plans

## *Data Onboarding*

Originally launched in late 2012 with claims from the eight largest commercial health insurance payers and Medicaid, the APCD now contains claims from Medicare, Medicaid, Medicare Advantage, and the 20 largest commercial payers. Commercial claims include fully-insured plans in the individual, small group and large group markets.

FIGURE 3: CLAIMS DATA GROWTH FROM 2012- 2014




**Medicare Data Inclusion**

Under the state agency Medicare request process, the APCD received its first Medicare claims in 2014. Medicare claims information from 2009-2013 are available now, within the limits set by the Centers for Medicare & Medicaid Services (CMS), through the data release process and will be included in the data on the public website in 2015. The inclusion of Medicare data added approximately 650,000 lives to the database and is an important step towards realizing the vision of the APCD as the most complete set of claims information available for Colorado.

## *National Projects and Recognition*

Because of the unique way in which the Colorado APCD is administered and executed, other states continue to turn to Colorado for advice on developing and administrating an APCD. As one example, Dr. Len Nichols, Director of the Center for Health Care Policy Research and Ethics at George Mason University, issued Colorado's APCD a letter of commendation (see Appendix A) highlighting the value of consumer-focused price information and how the CO APCD differentiates health care price transparency in a way unlike any other APCD in the country.

In addition to public recognition, Colorado's comprehensive APCD and the Administrator's analytic capabilities are being leveraged by national research and academic organizations as well as multi-state initiatives that are advancing health care. Examples include:

- Healthcare Regional Cost Measurement & Transparency (HRCMT) Project led by the Network for Regional Healthcare Improvement (NRHI) and funded by Robert Wood Johnson Foundation (RWJF)
- Center for Healthcare Transparency (CHT) Regional Data Center Collaborative

## Upcoming Milestones

### *Public Website Enhancements*

The APCD website is planned to be enhanced in 2015 to increase the value to consumers shopping for health care price and quality information as well as to provide additional statewide cost and utilization comparisons.

**Planned Price and Quality Enhancements in 2015**

- Prices for services at additional facility types beyond hospitals:
  - Outpatient surgery centers (also known as Ambulatory Surgery Centers)
  - Endoscopy centers
- Services in addition to births and knee and hip joint replacements:
  - Emergency Room Visits
  - Knee Arthroscopy
  - Breast Biopsy
  - Skin Lesion Removal
  - Gall Bladder Removal
  - Hernia Repair
  - Kidney Stone Removal
  - Tonsillectomy/Adenoidectomy
  - Colonoscopy
- Addition of five National Quality Forum (NQF) based quality measures

Throughout 2015 and into 2016, plans are also in place to add imaging services and physician-group level service prices and quality measures. It is important to note that price and quality information on the APCD website is made available to facilities and practices for review purposes before it is made publicly available.

**Planned Statewide Cost and Utilization Enhancements in 2015**

- Addition of Medicare price, utilization and cost information on both the policy and consumer portions of the website
- Claims for all of 2013 for the price, utilization and cost portions of the website
- Compared to expected comparisons by payer type (currently combined for Medicaid and commercial)
- Health Statistics Region comparisons (currently state, county and Zip Code Level 3 available)
- Observation Stay reports and map comparisons

### *Data to Inform Future State and National Projects*

As a result of multi-stakeholder efforts in 2014 to establish key initiatives in the state, it is anticipated that the APCD will be utilized to inform several additional innovative projects in the upcoming years including:

- **State Health Care Cost Containment Commission** – Multi-stakeholder commission charged with identifying ways to contain health care costs in Colorado. APCD data may be used to identify patterns in utilization and pricing and their geographic variation. It is anticipated that these patterns will inform the Commission's search for greater health care value for all Coloradans.
- **State Innovation Model** – $65 Million in funding from Centers for Medicare & Medicaid Services (CMS) to integrate behavioral and physical health across the state. APCD data will be utilized as a key source of information for providers in combination with electronic medical record data.
- **Comprehensive Primary Care Initiative** –Multi-payer primary care redesign initiative supported by CMS. APCD data may be used to look at cost and utilization at the practice level for population management in primary care. Both public and private health insurance companies are participating, and the APCD will provide claims information to inform providers on their performance compared to their peers and to the state average.

### *Data Inclusion*

- **Self-funded claims** – With the addition of Medicare claims in 2014, the APCD is relatively complete with the exception of self-funded claims which represent approximately 27 percent of the insured population in the state. The Administrator and HCPF are planning to propose a rule change in 2015 that would expand the definition of 'payer' to include Third Party Administrators (TPAs) and Administrative Services Only (ASO) divisions that administer claims on behalf of their employer clients. If such a change to the regulations is promulgated, it is anticipated that the first self-funded claims would be submitted to the APCD by the end of 2015.
- **Dental claims** – Dental claims from four payers are currently being collected in the APCD, and that number is planned to increase to approximately 12 payers in 2015.
- **Claims from Staff Model HMO payers** – Plans that operate under capitation do not generate claims in the usual sense. Although these HMO plans have been submitting encounter data to the APCD, these plans have received waivers from the Administrator for payment-related data submissions. These plans are working with the Administrator to develop strategies for submitting pricing information to the APCD and will continue to do so in 2015 in order to bring them into full compliance with APCD rules.

## Sustainability

CO APCD operations are currently supported by grants from the Colorado Health Foundation and The Colorado Trust which expire in 2016. As a condition of those grants, the foundations required the Administrator to develop a plan for long-term sustainability of the APCD. That sustainability plan includes covering expenses through a combination of providing custom, non-public data sets and reports and participating in special projects and grants that support health care improvement.

The Colorado pricing model for custom data and reports is commensurate with that of other APCDs that charge fees for data to cover costs to maintain the APCD. In 2014 the Administrator met its target for cost recovery which represented a portion of actual operational costs on the ramp up towards full sustainability. However, there is an inherent tension between the need to make APCD data broadly available in order to improve quality and control costs, and the pricing necessary to cover the costs of maintaining the database. Simply put, many important users (e.g., state agencies, small non-profit organizations) that need APCD data to inform their work cannot afford the cost. While the Administrator and HCPF intend to continue to offset costs for those most in need through the HCPF scholarship fund, it is possible that long-term sustainability for the APCD may require multiple funding sources including earned revenue, foundation funding and some public support.

## Summary

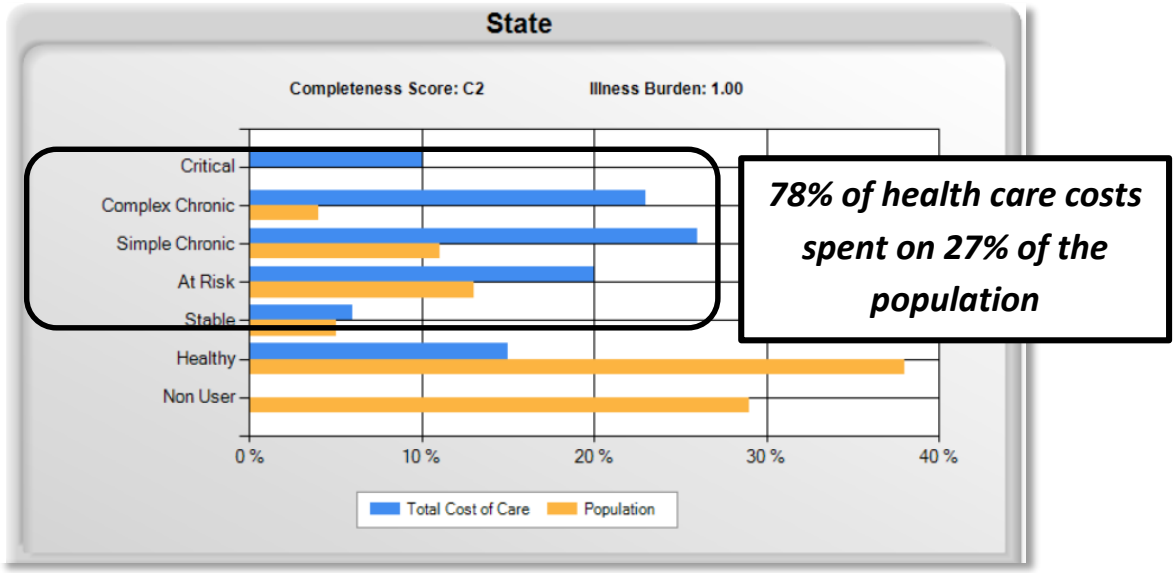
The Colorado APCD provides the transparency essential to making markets work. It is one of the most advanced in the country, and is a unique resource for policymakers, purchasers and many other entities seeking to understand and address variations in costs, spending and utilization as well as consumers seeking to make high value decisions related to seeking health care. These data are particularly important now as policymakers seek to understand regional variations in costs and insurance premiums and identify opportunities to bend the cost curve while enhancing the quality of care being provided in Colorado. Since 2012, the APCD has grown significantly, not only in the size and completeness of the claims data, but also in the public and custom reporting capabilities. This important state resource will continue to become even more valuable as the data continues to expand and analytic capabilities are enhanced to equip patients, providers, policymakers, researchers and purchasers with the tools and information they need to reduce costs, improve care and support a healthier Colorado, all while diligently protecting Coloradans' privacy.

# APCD SAMPLE REPORTS

The Colorado APCD serves as a tool to identify innovative solutions to improve Colorado's health care system. Consumers, communities, policy analysts, payers, providers, businesses and consumers can drive change into the market when equipped with the power of data to inform and transform health care payment, delivery and purchasing. The sample reports below represent just a few of the types of analysis that are possible with the Colorado APCD and demonstrate how the APCD can begin to shed light on opportunities to reduce variation.

These samples illustrate the type of reports currently available on the public APCD website, www.comedprice.org. In addition, as described later in this report, the Administrator makes custom data sets and reports available to state agencies, researchers, providers and others, subject to strict privacy and anti-trust rules, for purposes of improving quality and controlling costs.

FIGURE 4: COLORADO HEALTH CARE EXPENDITURES BY HEALTH STATUS OF POPULATION (2012)



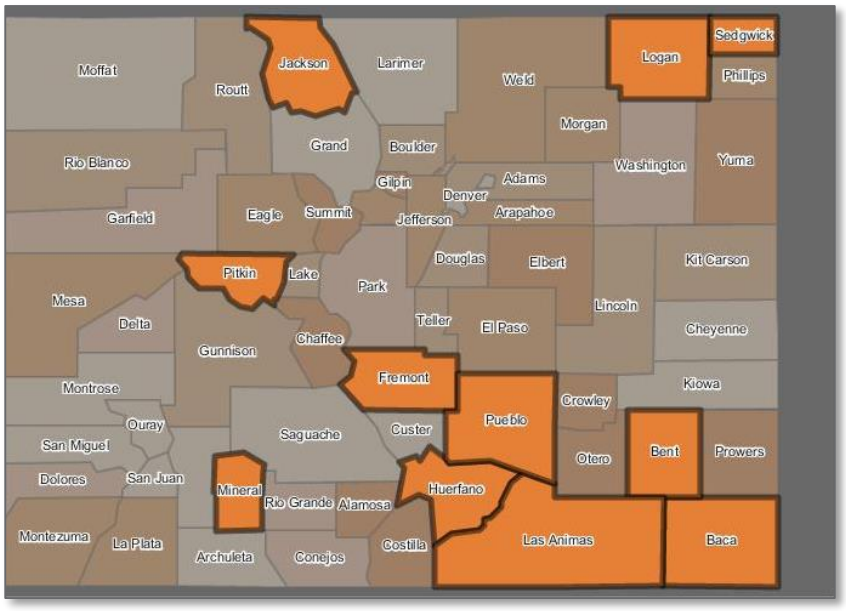




FIGURE 5: COUNTIES WITH TOTAL COST OF CARE GREATER THAN $3,500 (2012 COMMERCIAL PAYERS ONLY)

**FIGURE 6: COLORADO 30-DAY ALL CAUSE READMISSIONS BY COUNTY (MEDICAID, 2012)**

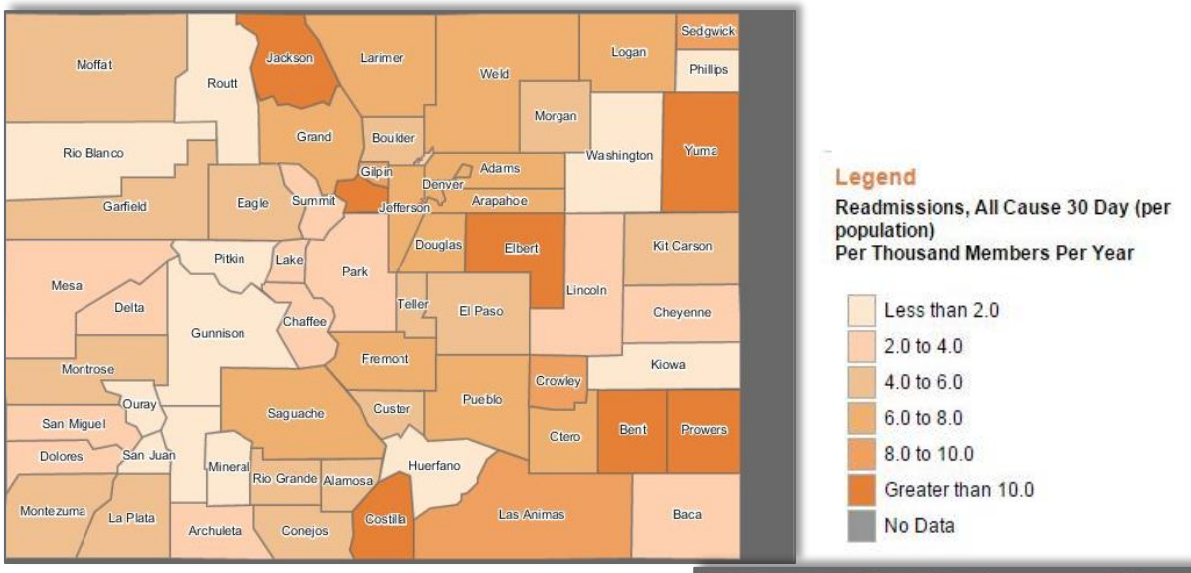



**FIGURE 7: COLORADO EMERGENCY ROOM VISITS BY COUNTY (COMMERCIAL PAYERS, 2012)**

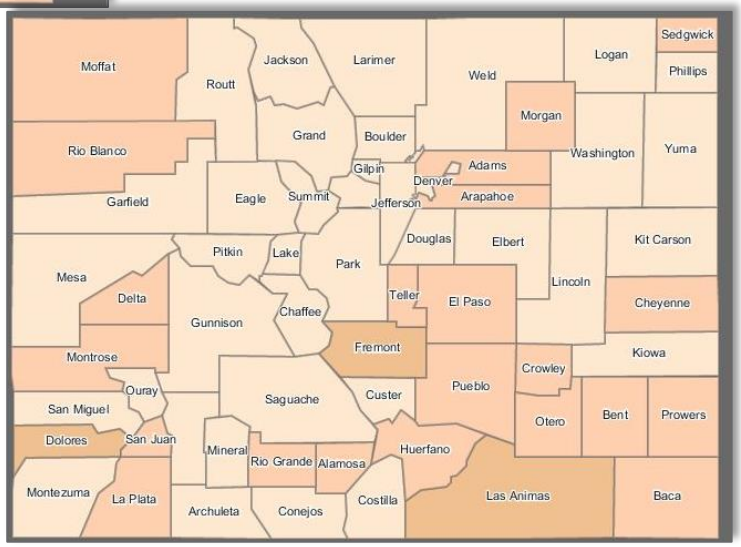




**FIGURE 8: COLORADO EMERGENCY ROOM VISITS BY COUNTY (MEDICAID, 2012)**

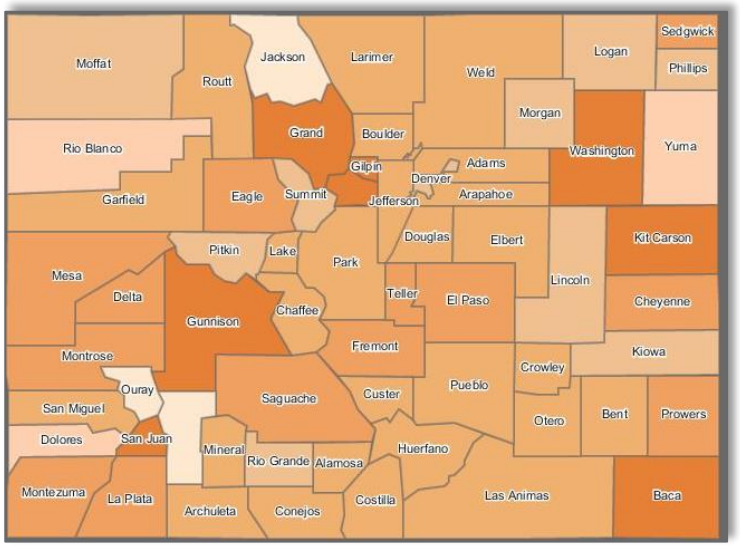


**FIGURE 9: INPATIENT UTILIZATION TRENDS FOR BOULDER, SUMMIT, AND DENVER COUNTY COMPARED TO THE STATE (2009-2 012)**

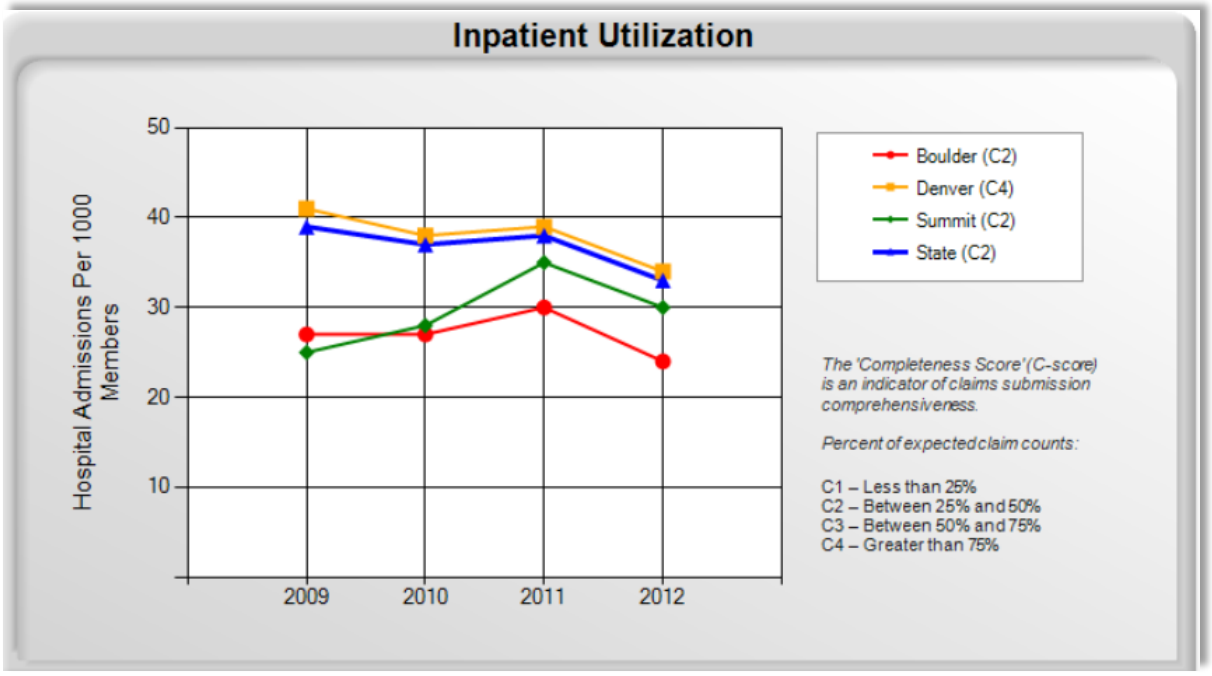



**FIGURE 10: OUTPATIENT UTILIZATION TRENDS FOR BOULDER, SUMMIT, AND DENVER COUNTY COMPARED TO THE STATE (2009-2 012)**

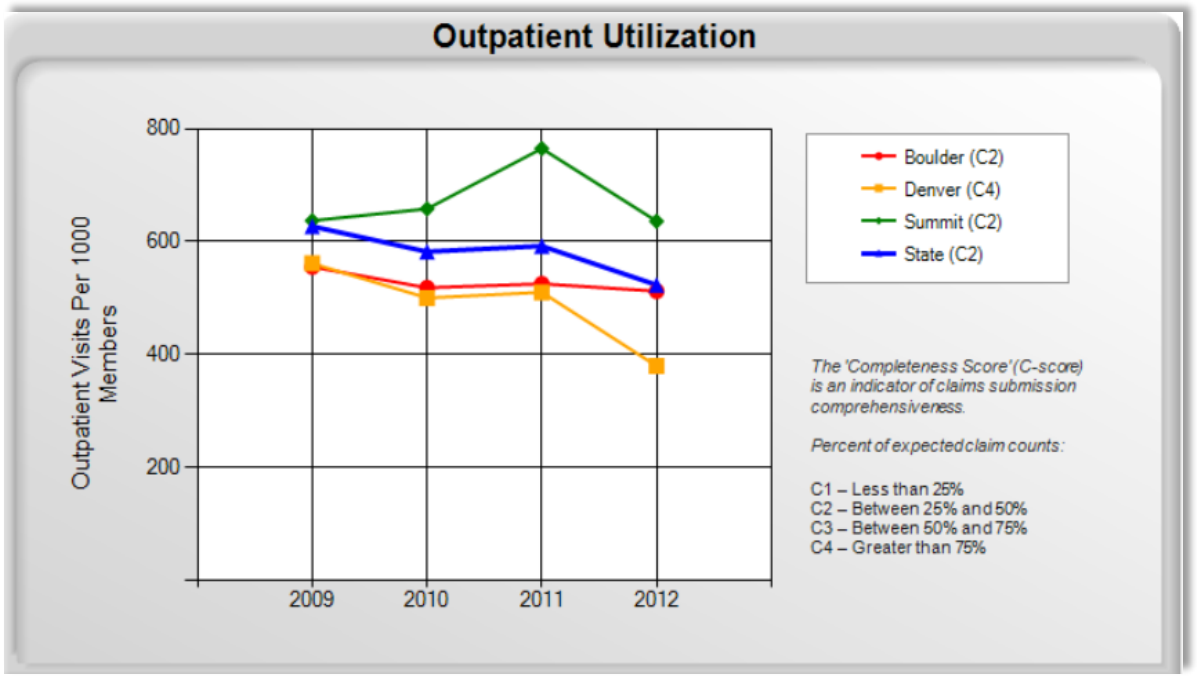


FIGURE 11: ER UTILIZATION TRENDS FOR BOULDER, SUMMIT, AND DENVER COUNTY COMPARED TO THE STATE (2009-2 012)

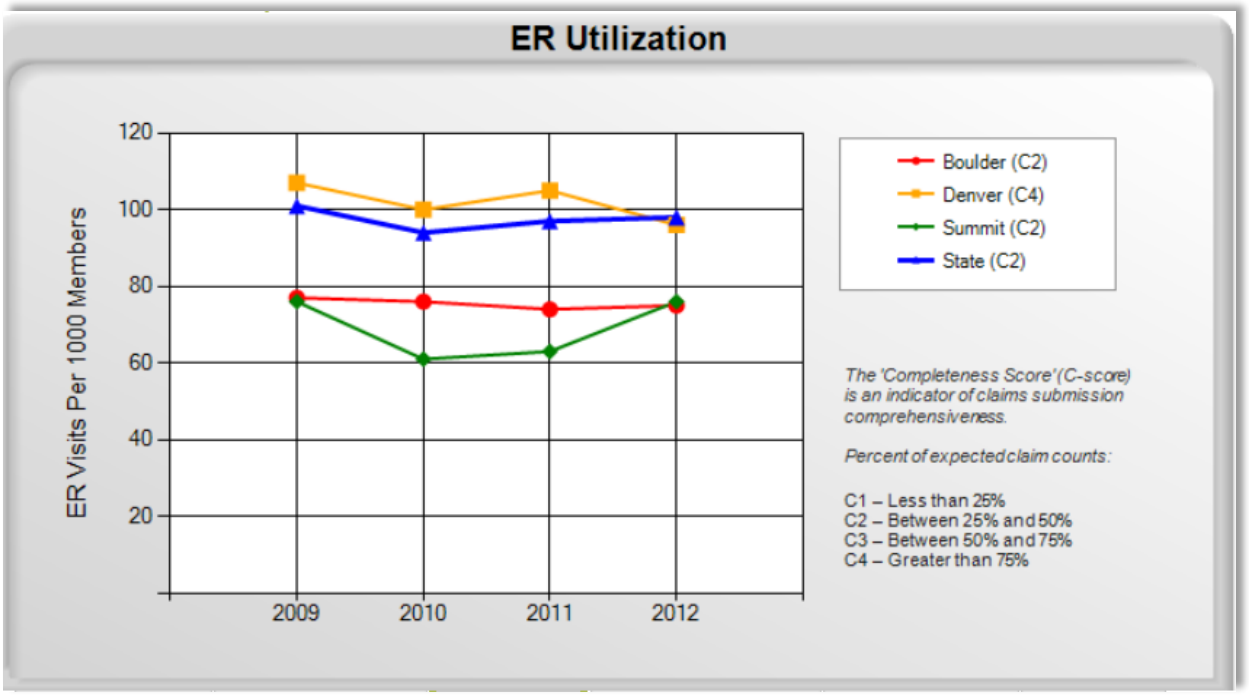
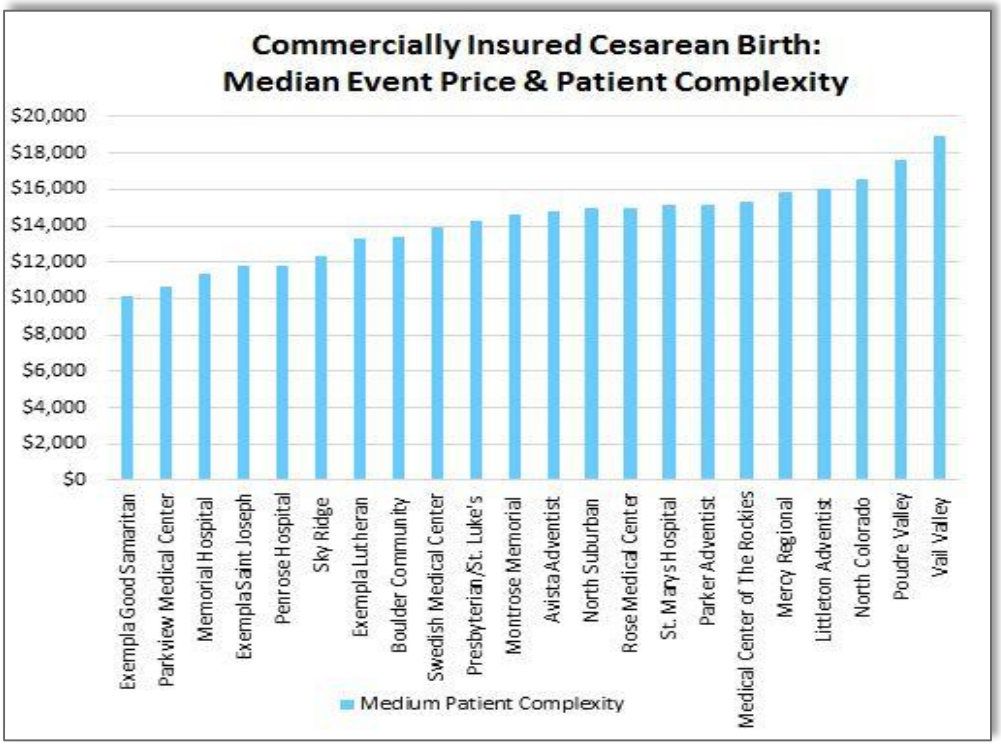
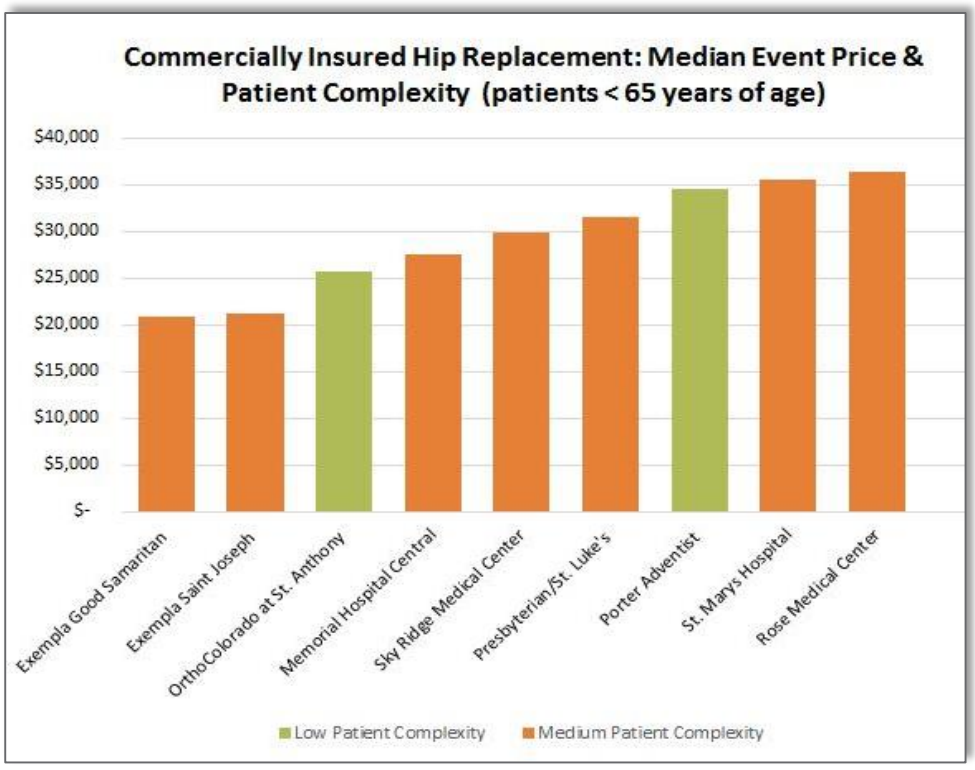



FIGURE 12: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED CESAREAN BIRTH, WWW.COMEDPRICE.ORG.



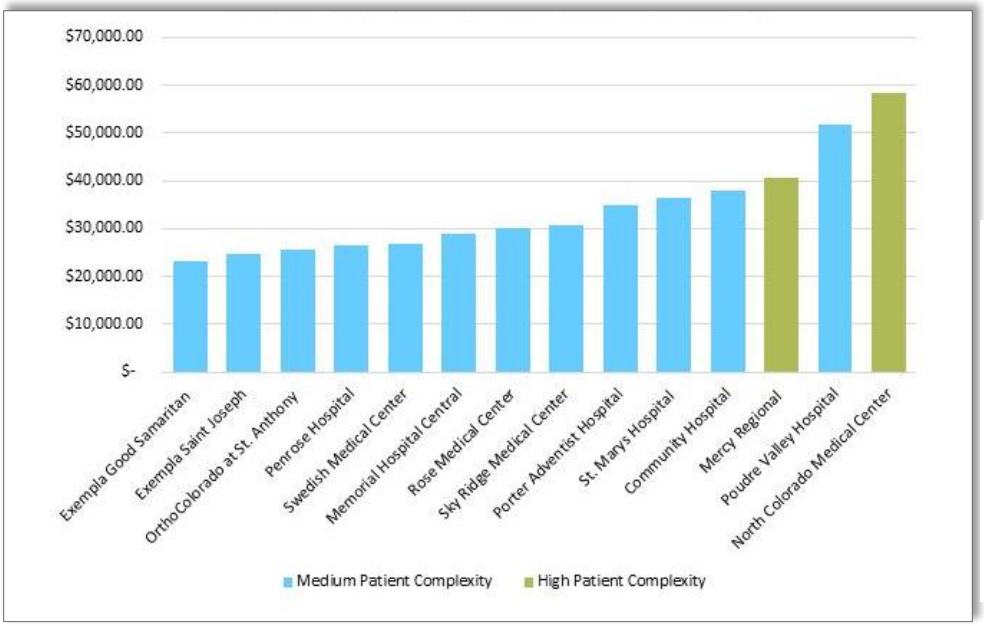

For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

**FIGURE 13: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED HIP REPLACEMENT (PATIENTS < 65 YEARS OF AGE), WWW.COMEDPRICE.ORG.**



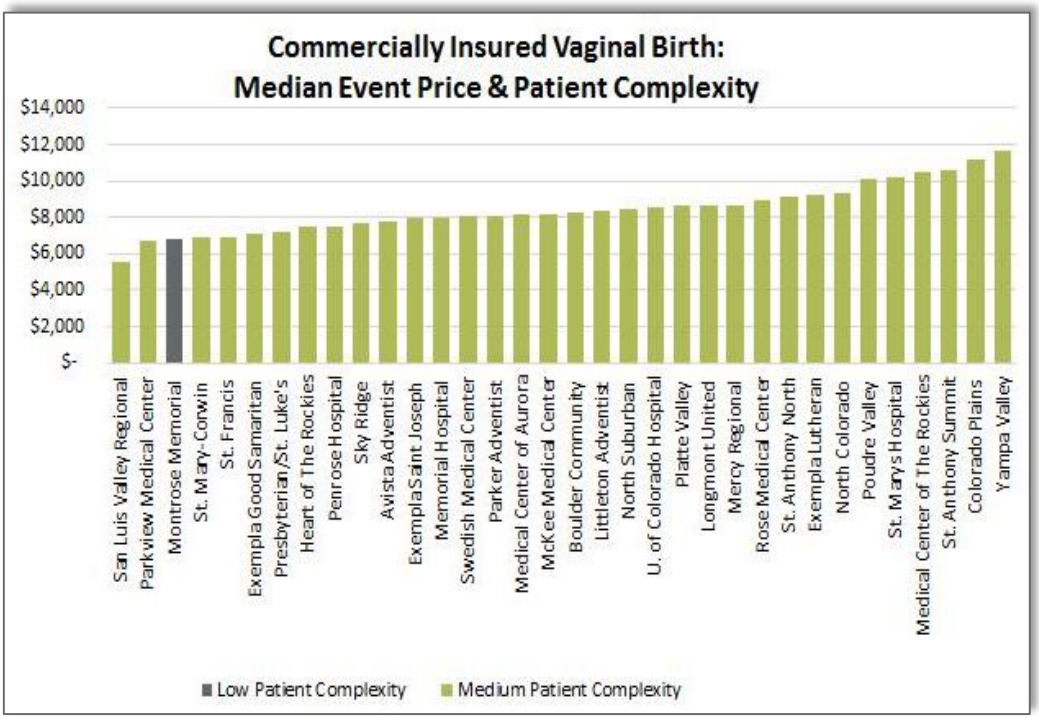

For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

**FIGURE 14: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED KNEE REPLACEMENT (PATIENTS < 65 YEARS OF AGE), WWW.COMEDPRICE.ORG.**



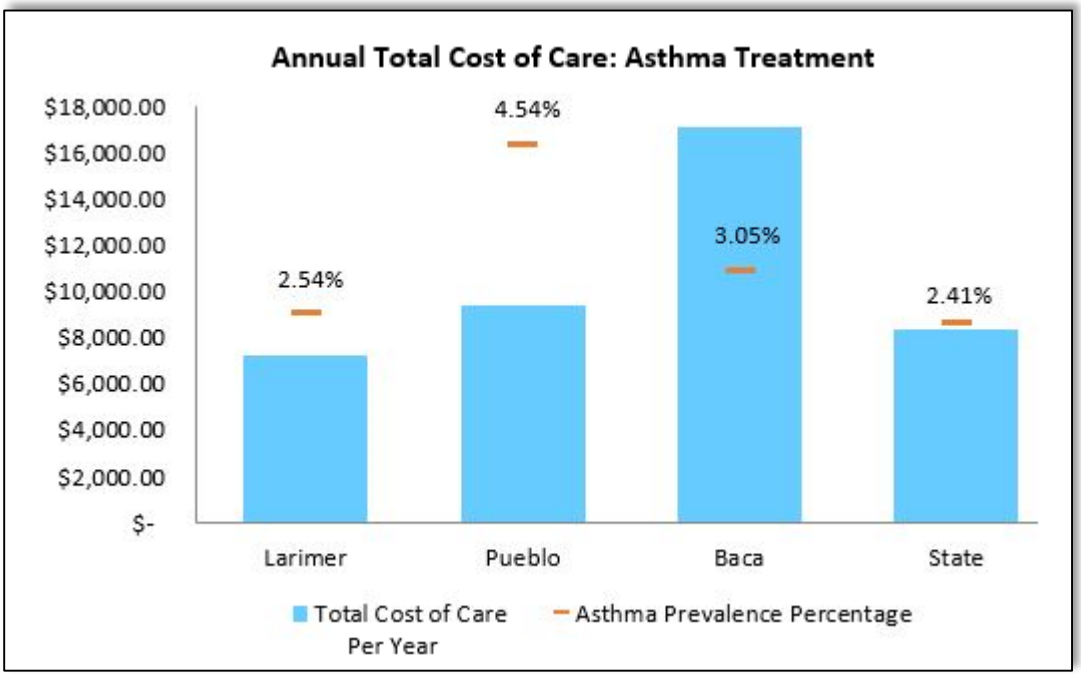

For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

FIGURE 15: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED VAGINAL BIRTH, WWW.COMEDPRICE.ORG.




For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

FIGURE 16: ASTHMA PREVALENCE AND MEDIAN COST OF CARE BY COUNTY (2012, WWW.COMEDPRICE.ORG)



# COLORADO'S PIONEERING APCD

## Background

One of the characteristics of an efficient market is access to adequate information for those who purchase and sell goods and services. Unfortunately, health care has never operated in this fashion. Traditionally, consumers have had little information about the price and quality of the health care they receive, nor have providers been aware of their price and performance in comparison to their peers. Transparent information enables consumers and employer purchasers to choose high-value care, as defined by the combination of price and quality, and is the starting point for providers to identify opportunities to improve quality of care and reduce costs.

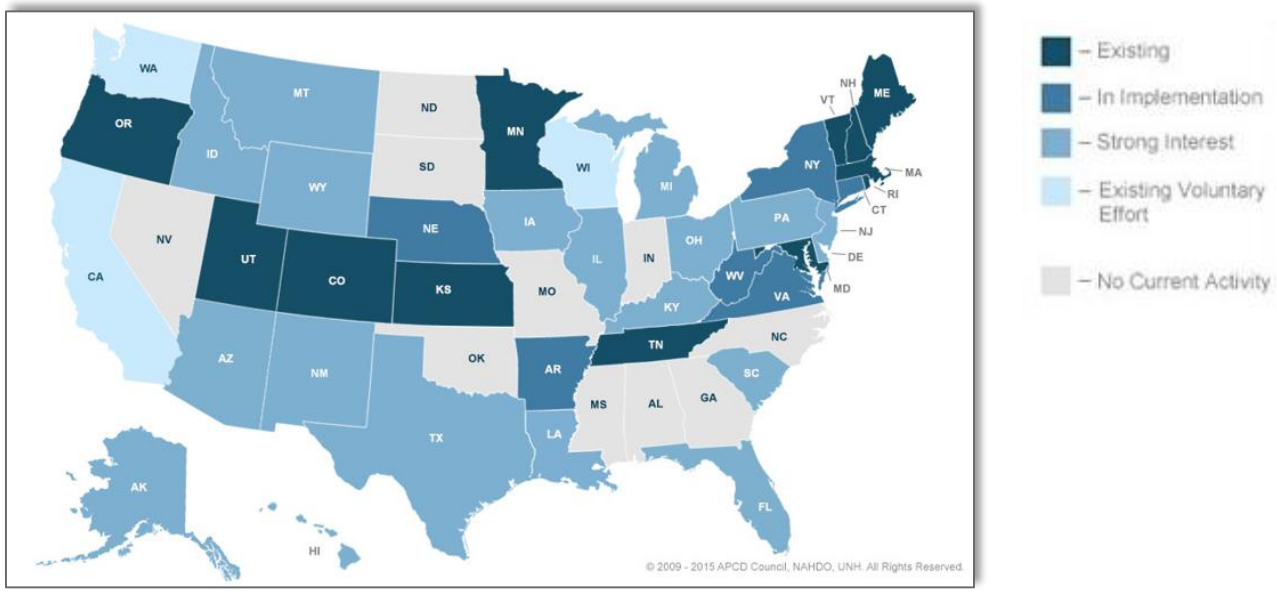
Availability of such data is essential to identifying variation and illuminating ways of driving down costs and improving quality of health care. That is why, in 2008, the Blue Ribbon Commission for Healthcare Reform recommended the creation of a Colorado APCD as an essential first step to advance health care in the state. (See Appendix B for more information on the history and legislation enacted to develop the Colorado APCD.)

APCDs are currently gaining momentum across the US. To date, there are 11 legislatively mandated APCDs across the nation (health plans are required by law to submit claims), including Colorado's, as well as three voluntary ones. However, nearly 20 additional states are strongly interested or are currently implementing APCDs. The map below illustrates APCD activity around the country.

### APCD National Landscape

- Only 11 states in addition to Colorado have claims data collection processes that are either operating or have operated in the past.
- 7 of the 11 have produced reports or provided data to researchers.
- Few, if any, states have offered the level of public and custom access to the data that is available in Colorado.

FIGURE 17: MAP OF APCDS ACROSS THE UNITED STATES



## Unparalleled Data Set

Most data sources currently used to inform health care analysis and policy-making (e.g., the national Medical Expenditure Panel Survey, hospital discharge information, and Medicaid and Medicare data) are limited either by the population they include or the point of care at which the data is gathered. The Colorado APCD is the state's only source that gathers claims data from both the commercial insurance market and public programs, and from the full spectrum of care settings (e.g., physician offices, clinics, hospitals, surgery centers). Any health care service that generates a bill or claim to a third-party payer can be captured in the Colorado APCD. The only health services that are not portrayed in the Colorado APCD are those that are provided free of charge or are paid directly by an individual to a provider without participation by an insurer.

TABLE 1. COMMON INCLUDED AND EXCLUDED DATA ELEMENTS IN APCDS

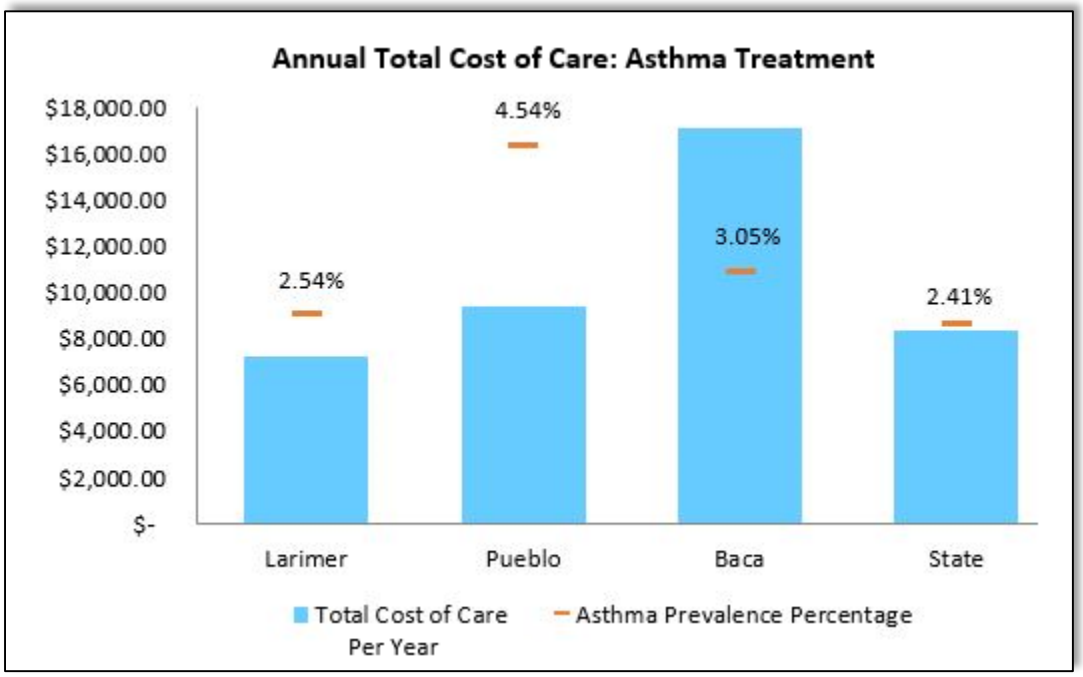
| Information Typically Collected in an APCD | Data Elements Typically Not Included in an APCD |
|---|---|
| • Encrypted member identification code | • Clinical information including medical history |
| • Patient demographics (DOB, gender, ZIP code) | • Services provided to uninsured |
| • Location of services and facility type | • Denied claims |
| • Service dates | • Workers' compensation claims |
| • Information on service provider | • Premium information |
| • Diagnosis, procedure, and National Drug Codes | • Capitation fees and incentive payments |
| • Pharmacy claims information | • Administrative fees |
| • Revenue codes | • Back end settlement amounts |
| • Type of health plan (HMO, POS, indemnity, etc.) | • Referrals |
| • Type of contract (single person, family, etc.) | • Test results from lab work, imaging, etc. |
| • Type and date of bill paid | • Provider affiliation with group practice |
| • Health plan payment (allowed amounts) | • Provider networks |
| • Member payment responsibility | • Social Security Numbers |

The Colorado APCD provides a reputable, comprehensive, impartial source of information to support making important health care improvement decisions. It can show, at a glance, variation and trends in spending and prices associated with specific services, providers, and facilities; how often those services are accessed; where care is typically delivered (e.g., physician offices, emergency rooms); comparisons based on the relative health of the population; and how care aligns to best practice recommendations. Such information is essential for identifying interventions, in both health care delivery and payment, which can help to stem increasing costs and opportunities to improve the quality of care.

Figure 18 below provides an example of the types of insights Coloradans can glean from data currently available on the APCD public website. According to 2012 data available, Baca County, in the rural southeast corner of the state, has a slightly higher prevalence of asthma than the state, and their total cost of care to treat those patients is almost $9,000 higher than the statewide cost to treat asthma patients each year.

Looking deeper into the data, the majority of costs are attributed to outpatient facility visits. Health care providers and other stakeholders in that area can use this information to compare themselves with other regions, identify areas to target and to track improvements over time.

FIGURE 18: ASTHMA PREVALENCE AND MEDIAN COST OF CARE BY COUNTY (2012, WWW.COMEDPRICE.ORG)




The CO APCD also has the ability to support health care purchasers, researchers, providers and policymakers through detailed data sets and custom reports. A wide variety of stakeholders can use the CO APCD to answer important questions.

- **Local health alliances and communities** can use APCD information to identify opportunities for improvement, establish baselines and track trends in cost of care, utilization and population health.
- **Legislators, policymakers and public health officials** can use APCD data to evaluate trends such as regional variations in spending and disease prevalence, and to estimate impacts of policy changes.
- **Consumers** can use the APCD to select high value health care services. In 2014, the CO APCD achieved an important milestone: it published price and quality comparisons for hospital-based health care services across the state. The consumer focused reports are explained in more detail in the milestones below.
- **Employer purchasers** (both private and public sector) can use the APCD to analyze impacts of different benefit designs and make value-based decisions about insurance coverage for their employees.
- **Providers and Facilities** can benchmark costs and utilization compared to their peers in order to identify ways to improve care delivery. They can also use APCD data to develop new payment strategies in collaboration with payers.
- **Researchers and Academic Institutions** can use APCD data to conduct targeted research projects related to issues such as disease prevalence and treatments, health trends and cost implications.

## Unique Design of Colorado's APCD

Colorado's APCD is pioneering in its administration, design and execution. The Center for Improving Value in Health Care (CIVHC), a non-profit, non-partisan organization, administers the database under authority from the Department of Health Care Policy and Financing (HCPF). Most APCDs in existence are directly administered by the state or a state agency. Having an impartial organization whose mission is to support and advance the Triple Aim has several benefits including the ability to:

- **Produce credible, objective, timely and actionable data** to advance health care in the state.
- **Generate financial support** without the need to rely on taxpayer dollars.
- **Gain support and buy-in** from a wide variety of health care stakeholders and provide actionable data through both public and custom reports.

Colorado's APCD has gained notoriety at a national level for its structure and benefits. As one example, in the 2014 Robert Wood Johnson analysis, "Realizing the Potential of All-Payer Claims Databases," Colorado's APCD is specifically mentioned for its success in working collaboratively with a variety of stakeholders and setting clear expectations of what the APCD was intended to do. It notes that as a result of this collaboration, Colorado has been able to produce "meaningful reporting outputs" on time and on budget.[1] Dr. Len Nichols, Director of the Center for Health Care Policy Research and Ethics at George Mason University, issued Colorado's APCD a letter of commendation (see Appendix A) highlighting the value of consumer-focused price information and how the CO APCD differentiates health care price transparency in a way unlike any other APCD in the country.

**Colorado's APCD has received national recognition for its financial model, ability produce meaningful reports and ability to gain stakeholder buy-in.**

Because of the unique way in which the Colorado APCD is administered and executed, other states turn to Colorado for advice on developing and administrating an APCD. In 2014, the Administrator met with and provided presentations to several states, including Washington, California, North Carolina, Kansas and Kentucky, to provide insights on Colorado's unique design in support of APCD development.

The unique benefits of Colorado's APCD design are explained in more detail below.

### *Credible, Objective, Timely and Actionable Data*

**Timely Data Analyses Released in 2014:**

- **Physical Therapy/Occupational Therapy** - *Analysis of trends in utilization over time*
- **Cesarean Sections Reduction** - *Identifying opportunities to bend the cost curve in CO*
- **Generic Prescription Drugs** - *Analysis of increases in prices of generic prescription drugs in Colorado*

The Colorado APCD's strong governance structure, with oversight from HCPF, the APCD Advisory Committee, the Data Release Review Committee and the Data and Transparency group, results in a credible, trusted and objective source of data for stakeholders across the state and nation. (See Appendices C-E for members of each committee). All of the governing committees have multi-stakeholder representation and play a critical role in reviewing and validating the current data and future direction of the APCD. (See Appendix F for more information on the APCD governance structure.)

[1] Realizing the Potential of All-Payer Claims Databases
http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2014/rwjf409989, January 2014

The design of the Colorado APCD allows for timely fulfillment of customized data reports and data sets for organizations and researchers looking for opportunities to advance the Triple Aim for Colorado: better health, better care, lower costs. Colorado's Data Release Review process strictly adheres to all HIPAA and HITECH patient protection standards and anti-trust laws, while enabling providers and others at the point of care to identify opportunities to improve care and lower costs for Coloradans (see Appendix G for details).

**Custom APCD Data in Action**

- **Requestor:** Colorado Division of Insurance
- **Data Usage:** Evaluate the statewide geographic insurance rate regions being used to establish premiums.
- **Project Goal:** Determine why some mountain resort areas of the state were experiencing high premiums on Colorado's health insurance exchange. Results of the analysis are available on the DOI website.

### *Financial Model*

Housing the APCD within a non-profit entity has enabled access to private foundation funding for development and implementation, thereby minimizing the burden on Colorado taxpayers. In addition, non-profit administration allows for the Administrator to support ongoing operations through a combination of custom data fulfillments and grant and special project opportunities. Please refer to the 2014 Achievements section for more information on custom data fulfillments and special projects.

### *Stakeholder Engagement*

Finally, it is important to note the broad participation and support from key stakeholders in the development and expansion of Colorado's APCD, as well as ongoing outreach efforts on the part of the Administrator. These include:

- HCPF and the Administrator worked closely with commercial health plans to develop the APCD statute and regulations governing the plans' data submissions. This close partnership has continued as the health plans and the Administrator work together to modify and improve the data submission process annually.
- Prior to the launch of the APCD in 2012, the Administrator conducted extensive outreach with stakeholders from across the state to gain input and buy-in prior to public report development.
- The Administrator has worked closely with provider groups including the Colorado Medical Society, Colorado Hospital Association and the Colorado Association of Ambulatory Surgery Centers to gain buy-in from their members on the development and launch of the consumer price and quality information on www.comedprice.org.
- The Administrator conducted focus groups with consumers and advocates prior to the launch of the consumer information, and will continue to conduct focus groups in an effort to ensure that the price comparison site is user-friendly and engaging.
- During 2014, the Administrator continued to connect with a broad array of key stakeholders and groups to get input on the future priorities and current value of public reports available on the APCD website. The Administrator communicates with nearly 3000 stakeholders in 500+ organizations across Colorado and nationally. The audience continues to grow through strategic communications and outreach, and organically as people learn about the APCD.

# 2014 ACHIEVEMENTS

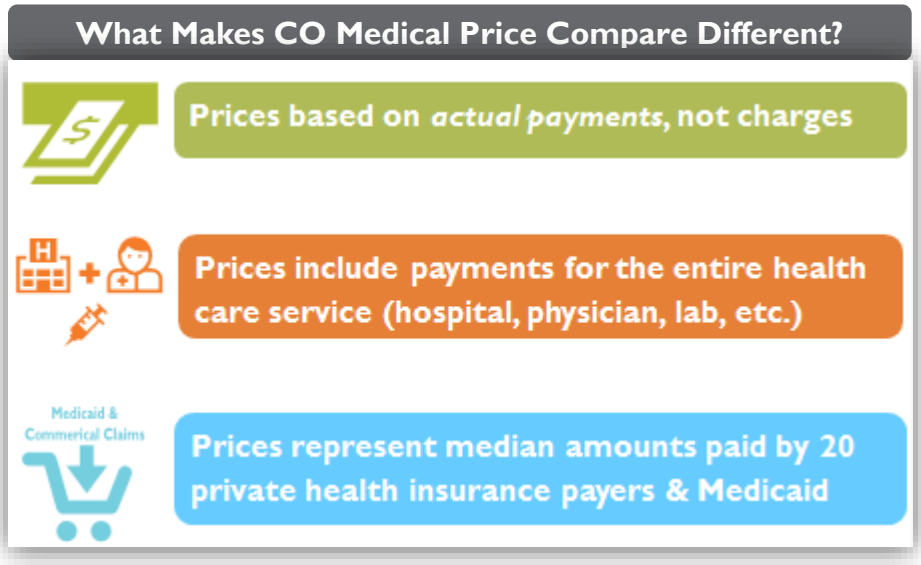
In 2014, the CO APCD achieved several significant milestones, including enhancing the public website to include consumer price and quality information, developing a scholarship fund for data requests, onboarding Medicare data, informing local and national innovative projects and receiving national recognition.

## Public Access to Health Care Transparency

Over the last year, Colorado's APCD continued to mature and become progressively more detailed, enabling the provision of more meaningful public and non-public data to promote cost containment and quality improvement. Since the initial launch of the public website in November of 2012, the public APCD site has undergone four significant upgrades, each with enhanced reporting capabilities. Most recent and of significant value is the release of price and quality information for consumers.

### *Equipping Consumers with Information to Drive the Market*

Over the last decade, rising insurance costs have led to significant shifts of costs to consumers through higher deductibles and co-pays. While the market is requiring consumers to be more responsible for their health care spending, with few exceptions, it has not provided the basic tools that make any market work: access to meaningful and transparent information on the price and quality of medical care. On July 31, 2014, the APCD Administrator released price and quality information for a limited number of procedures on www.comedprice.org, enabling consumers to shop for health care procedures for the first time.




Although there are several websites containing price information, including a Colorado hospital comparison website and Medicare sites, both resources only provide information on charges, not actual amounts paid by health insurance plans and patients. While charges are provided on the APCD site as a reference point for those without insurance, charges are similar to the list price of a car: they are the starting point for negotiations with insurers and individuals. Charges do not reflect ultimate prices and as such are not particularly useful to consumers or providers. Most sites also only include the price for the facility (typically a hospital) and leave out other payments a patient might be responsible for like physician and ancillary (lab, transportation, etc.) fees.

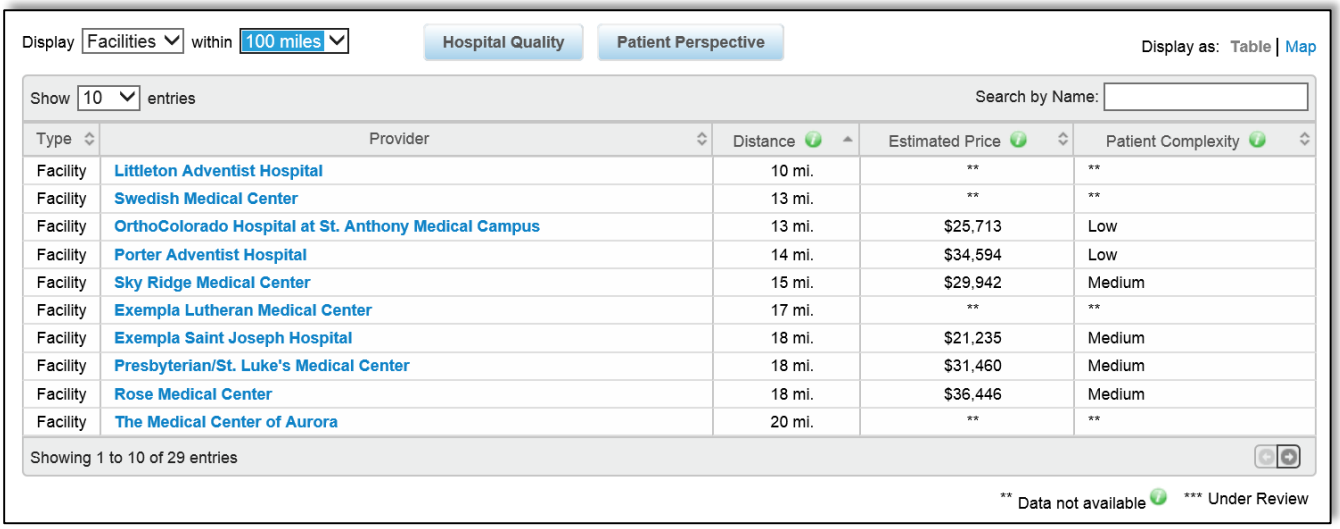
CO Medical Price Compare is unlike other websites in that it provides:

- Price information based on *actual payments* made by health insurance plans and patients.
- Median prices paid for the entire health care service including all prices paid to a hospital, health care professional and any ancillary (transportation, lab, etc.) payments made for that service, as opposed to just the hospital payment.

- The most comprehensive view of price information available in Colorado, representing over 20 private health insurance payers and Medicaid for hospital-based procedures.

Price and quality information for four hospital-based services are currently available – total knee joint replacement, total hip joint replacement, uncomplicated vaginal birth, and cesarean birth. The figures below show search results for cesarean births and hip joint replacement.

**FIGURE 19: 2012 HIP JOINT REPLACEMENT PRICES AVAILABLE FOR COMMERCIAL INSURANCE ON WWW.COMEDPRICE.ORG (SEARCH FROM 80127)**



Display Facilities within 100 miles | Hospital Quality | Patient Perspective | Display as: Table | Map

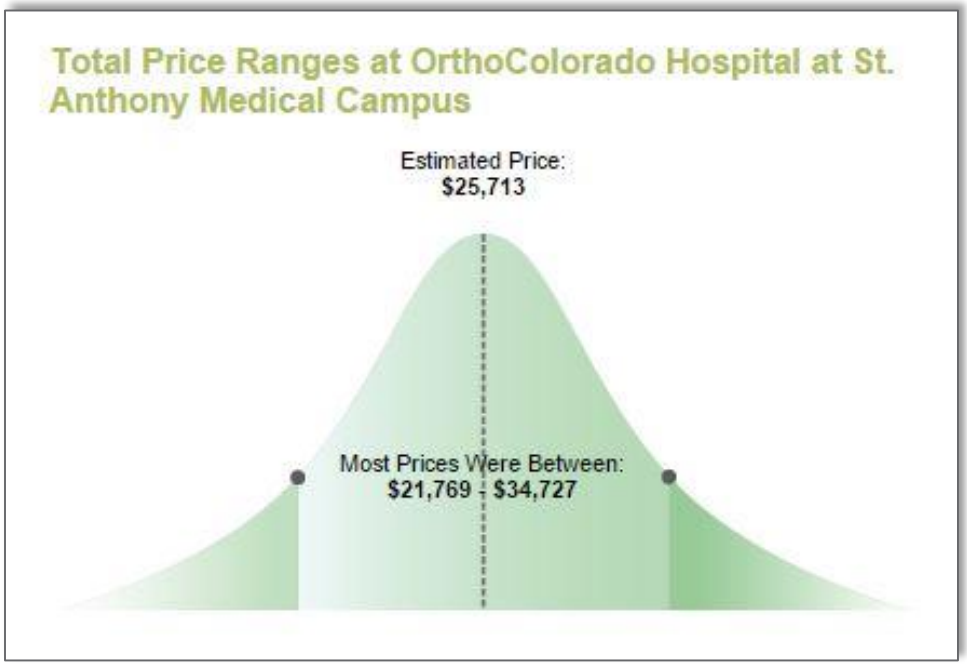
Show 10 entries | Search by Name:

| Type | Provider | Distance | Estimated Price | Patient Complexity |
|---|---|---|---|---|
| Facility | Littleton Adventist Hospital | 10 mi. | ** | ** |
| Facility | Swedish Medical Center | 13 mi. | ** | ** |
| Facility | OrthoColorado Hospital at St. Anthony Medical Campus | 13 mi. | $25,713 | Low |
| Facility | Porter Adventist Hospital | 14 mi. | $34,594 | Low |
| Facility | Sky Ridge Medical Center | 15 mi. | $29,942 | Medium |
| Facility | Exempla Lutheran Medical Center | 17 mi. | ** | ** |
| Facility | Exempla Saint Joseph Hospital | 18 mi. | $21,235 | Medium |
| Facility | Presbyterian/St. Luke's Medical Center | 18 mi. | $31,460 | Medium |
| Facility | Rose Medical Center | 18 mi. | $36,446 | Medium |
| Facility | The Medical Center of Aurora | 20 mi. | ** | ** |

Showing 1 to 10 of 29 entries

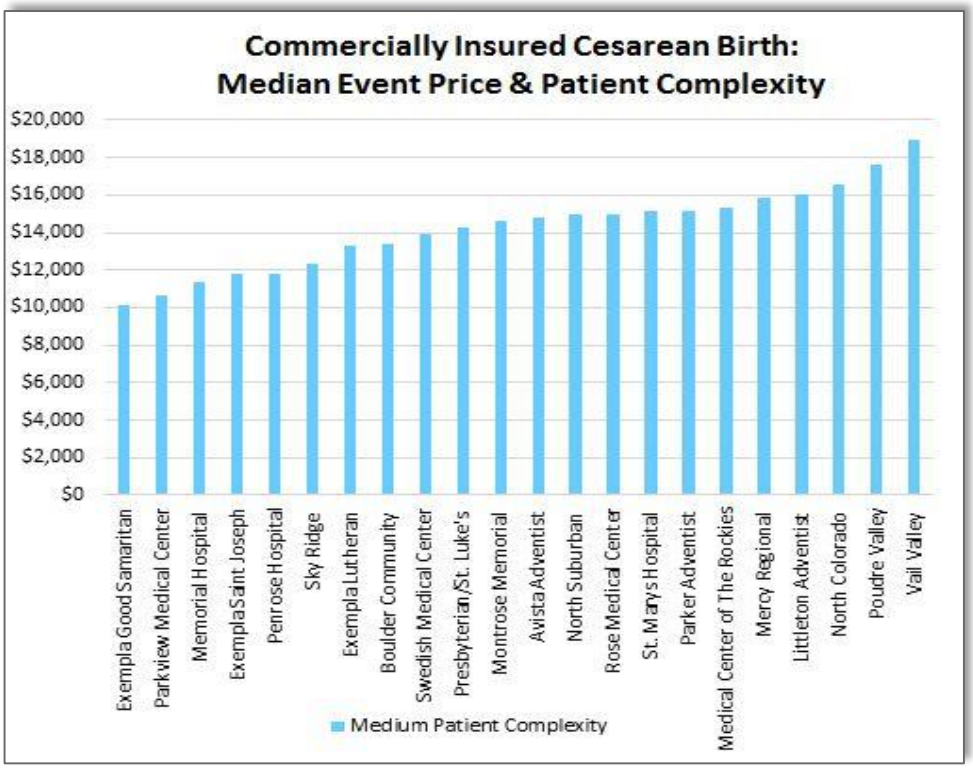
** Data not available *** Under Review

**FIGURE 20: 2012 HIP JOINT REPLACEMENT PRICE RANGE AT ORTHOCOLORADO AT ST. ANTHONY MEDICAL CAMPUS**




Variation in prices among the four services currently available is significant. As is evident in Figures 21 – 23 below, a Coloradan could pay anywhere from $25,000 to $58,000 for a total knee joint replacement. Similarly, a total hip joint replacement varies from around $25,000 to $36,000. Expectant mothers will discover prices ranging from around $5,500 on the low end to more than $11,000 on the high end for an uncomplicated vaginal birth. Cesarean sections have greater variation and can cost as much as $18,000 or as little as $10,000.

**FIGURE 21: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED CESAREAN BIRTH, WWW.COMEDPRICE.ORG.**




For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

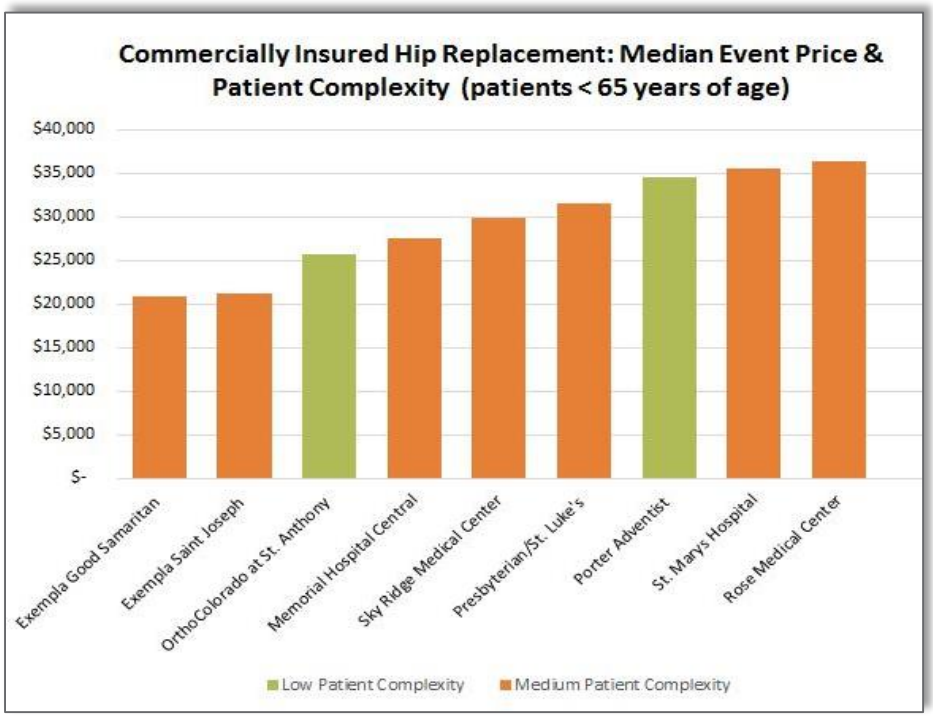
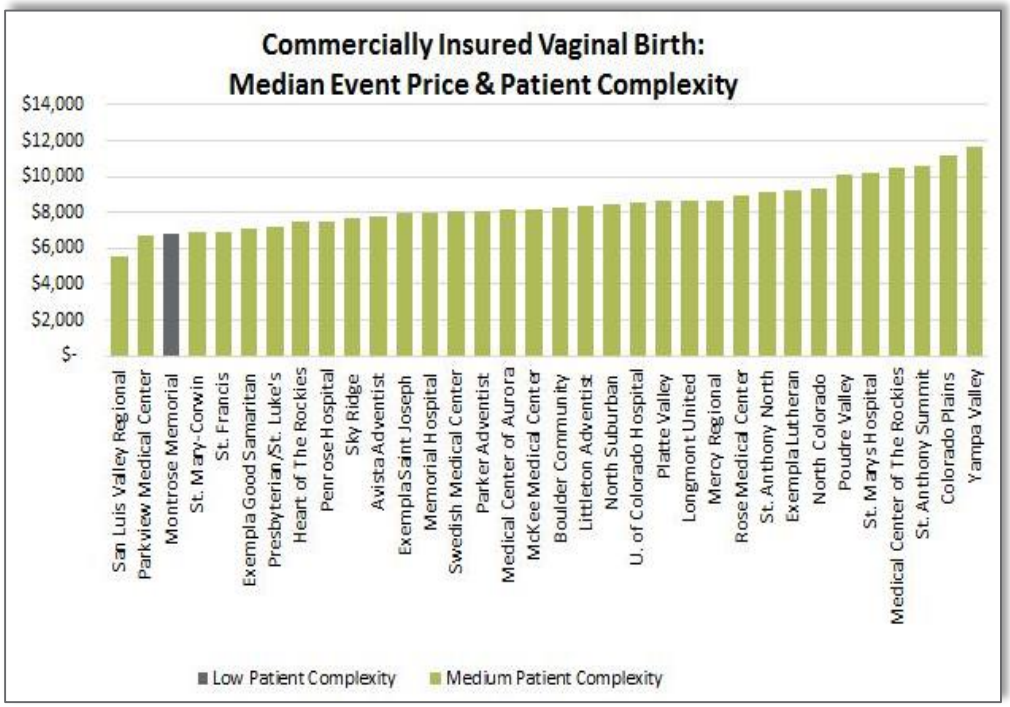



**FIGURE 22: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED HIP REPLACEMENT (PATIENTS < 65 YEARS OF AGE), WWW.COMEDPRICE.ORG.**

For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

FIGURE 23: MEDIAN EVENT PRICE & PATIENT COMPLEXITY: COMMERCIALLY INSURED VAGINAL BIRTH, WWW.COMEDPRICE.ORG.




For all facilities displayed, including Good Samaritan and St. Joseph Hospital, prices reflect median payments made by health plans and patients. These payments include facility, physician and ancillary payments. Prices reflect 2012 data available on www.comedprice.org.

Plans are in place to add services and facility types in 2015 which will bring the total number of searchable services available to roughly 25. See the future plans section of this report for a table detailing provider types and services planned in 2015 and 2016.

The release of price information on www.comedprice.org also marks the first time hospitals have seen their commercial and Medicaid health insurance median paid amounts alongside those of their peers. Transparent price information is a first step towards identifying opportunities to bend the cost curve. Hospitals displayed on the website were provided an opportunity to review and validate their information prior to the release and to contact the Administrator to ask questions regarding their data.

Value does not depend on price alone, so the site also includes quality indicators publicly reported by the Colorado Department of Public Health and Environment and Colorado Hospital Report Card. Additional quality indicators available on the site include relative health status information and an indication of completeness of available data, relative to the total volume of procedures available at each hospital listed on the site, which consequently provides consumers additional insights.

**Quality Measures Available on COMedicalPrice.org:**

- Hip Replacement Mortality Rate
- Hernia Procedure Surgical Site Infection Rate
- Breast Procedure Surgical Site Infection Rate
- Hip Replacement Surgical Site Infection Rate
- Knee Replacement Surgical Site Infection Rate
- Colon Procedures Surgical Site Infection Rate
- Pressure Sore Rate
- Post-surgical Blood Clot (DVT) / Lung Artery Clot (PE) Rate
- Postoperative Bloodstream Infection (Sepsis) Rate

Transparent health care pricing is important for consumers, and is equally important because it prompts questions as to why variation exists. There are many reasons that prices can vary between facilities: sicker

patients, higher cost structure (e.g., because a hospital trains medical residents), market power, even reputation. Regardless of whether the reasons for the variation are perceived to be justified, an understanding of the differences in pricing is essential to identifying the right ways to moderate prices.

### *Illuminating Variation in Cost and Utilization*

In addition to consumer price information, the public APCD website provides extensive views into the cost and utilization of health care across the state. In general, these reports provide population-based views of variation in health care utilization and spending by geography, gender and age group.

The APCD public website now offers a total of 17 comprehensive reports. The table below demonstrates the depth of the available reports. See the future plans section for details on additional reports that are planned to be available in 2015.

TABLE 2: REPORTS NOW AVAILABLE ON THE APCD WEBSITE FOR COMPARISONS FROM 2009-2012 ON A COUNTY AND ZIP CODE LEVEL 3 (FIRST THREE ZIP CODE DIGITS)

| Category | Maps and Reports Available on www.comedprice.org |
|---|---|
| **Access** | Provider density by type (total providers, primary care providers by type, and specialty providers) |
| **Population** | Reports on prevalence and costs to treat chronic disease (asthma and diabetes) |
| | Illness burden (relative health status and utilization) of the population |
| | Reports on illness burden categories and contribution to overall spending |
| **Total Cost of Care** | Annual percentage change in per capita expenditures for primary care services and non-primary care services (hospital, specialty care, etc.) |
| | Compared to expected values for spending based on risk-adjusted data |
| | Per capita expenditures associated with emergency department use |
| | Percentage change in per capita expenditures for health services from year to year |
| **Utilization** | Inpatient, Outpatient and ER utilization by service line and compared to expected based on risk-adjusted data |
| | 30-day all cause readmissions (both population based and potentially preventable measures) |
| | Proportion of inpatient hospital admissions that result in re-admissions within 30 days |
| | Potentially preventable readmission rates |
| | Percent generic drug penetration |
| | Utilization of health care services per 1,000 residents (e.g., imaging, emergency department, inpatient hospital, outpatient, professional services) |
| | Compared to expected values for utilization of services based on risk-adjusted data |

## Website Utilization

Between the launch of the APCD public website in November 2012 and December 31, 2014, the APCD website has had over 31,000 total visits and over 150,000 page views (see Figure 24). Users of the website spend an average of more than five minutes on the site, and only 2.7 percent "bounce" or leave the site immediately after arriving. These numbers indicate that users find the information on the site of value and are exploring the data available.

FIGURE 24: CO APCD PUBLIC WEBSITE USAGE STATISTICS SINCE LAUNCH (NOVEMBER 2012 – DEC 31, 2014)

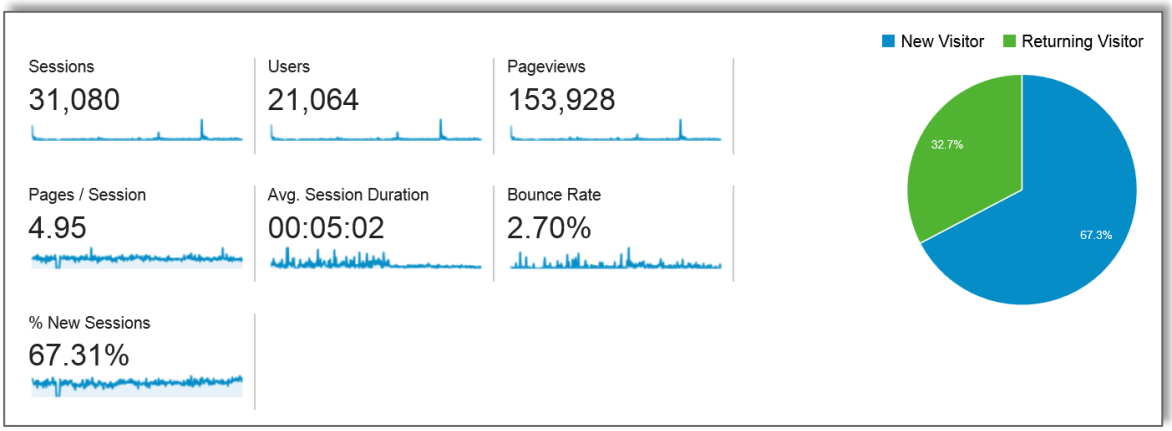
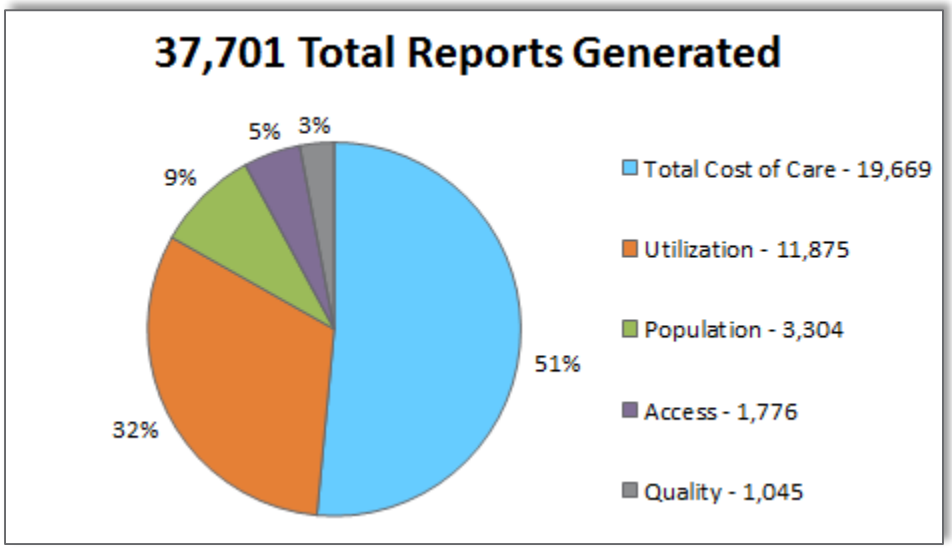



Figure 25 depicts the number of and type of reports generated by APCD website users since the launch of the website in late 2012. Nearly 38,000 reports have been generated in total, with just over half of the reports accessed being total cost of care reports followed by utilization of health care services (32 percent).

FIGURE 25: CO APCD PUBLIC WEBSITE TOTAL NUMBER AND TYPES OF REPORTS SELECTED SINCE NOV. 2012




Since the launch of the consumer price information on CO Medical Price Compare in July of 2014, the site has had over 44,000 page views and has been visited over 9,000 times.

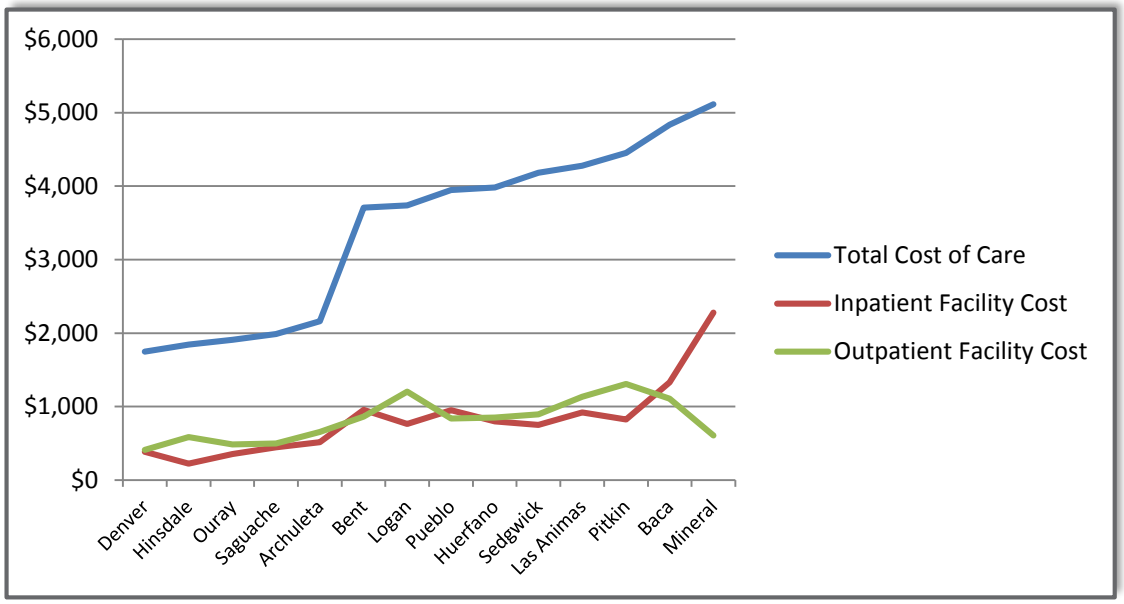
## Media Coverage

The CO APCD website continues to gain both local and national media attention, and over the course of 2014, multiple media outlets ran stories referencing or using the data in the APCD. In addition, the Administrator has seen a significant increase in the number of interview requests, articles and op-ed pieces being distributed regarding the CO APCD. In total, the Colorado APCD has been mentioned and/or data has been used to support more than 50 health care articles and opinion pieces. See Appendix I for a full list of media coverage.

As mentioned in previous sections, in 2014 the Colorado APCD was used to inform important discussions regarding variation in health insurance premiums in the state. In particular, the total cost of care information on the APCD website has been used as a source of information when trying to understand high premiums.

Figure 26 was featured in an article published by Health News Colorado in February 2014. It demonstrates the wide variation in total cost of care across the state, and inpatient and outpatient facility cost variation.

FIGURE 26: 2012 TOTAL COST OF CARE FOR RESIDENTS IN THE 5 LEAST EXPENSIVE AND 10 MOST EXPENSIVE COLORADO COUNTIES (MEDICAID AND COMMERCIAL PAYERS)
SOURCE: HEALTH NEWS COLORADO WITH DATA EXTRACTED FROM WWW.COMEDPRICE.ORG




## Custom, Non-Public Reports to Support the Triple Aim and APCD Sustainability

Because the APCD receives no state funds, its operations must be sustained through other mechanisms. As described in "Operations and Sustainability," the Administrator received four-year start-up funding from the Colorado Health Foundation and The Colorado Trust. However, long-term sustainability depends upon covering costs through charging fees for custom, non-public data sets and reports.

Providers, purchasers, researchers and other organizations can request, for a fee, limited custom reports and data sets to support the Triple Aim of improving care for individuals, improving health for populations and lowering costs. The APCD Data Release process (see Appendix G) was established in early 2013 with a rigorous set of standards for approving data requests so that each request meets Triple Aim objectives. The process strictly adheres to HIPAA and HITECH rules for data release to protect patient privacy, and the Administrator only releases claims data in a manner that complies with federal anti-trust law. Colorado regulation, 10 CCR 2505-5-1.200.5, requires that a Data Release Review Committee advise the Administrator regarding requests for data release. The DRRC (see Appendix D for a list of Committee

### Custom APCD Data in Action

- **Requestor:** Project Angel Heart, a Denver based non-profit, which provides free nutritionally appropriate meals to patients with specific chronic conditions and mobility concerns as prescribed by a physician.
- **Data Usage:** Data from Project Angel Heart is being combined with claims data from all payers and various socio-economic markers for the year prior to receiving services, the duration of service delivery, and one year after service delivery.
- **Project Goal:** This project will allow Project Angel Heart to demonstrate the impact of appropriate nutrition on health care utilization and costs. If a significant reduction in costs, readmissions and other markers is found, Project Angel Heart will be working with payers to gain reimbursement for their services in order to support ongoing work.

members) was established in September 2012 and meets on a monthly basis to review data requests. The CO APCD only provides the minimum data elements necessary to accomplish a particular research goal or project, and only fulfills requests when the intended use of the data supports reaching the Triple Aim of better health, better care and lower cost, as required by Colorado's APCD statute (Colo. Rev. Stat. 25.5-1-204).

### *HCPF Scholarship Fund*

For many non-profits, researchers and state agencies, costs associated with developing custom reports have prohibited access to this important state resource. In an effort to expand the use of the APCD data to achieve the Triple Aim and to reduce the cost burden associated with making data requests, the Administrator and HCPF worked collaboratively to develop a scholarship fund for those in need of financial support. During the 2014 legislative session, $500,000 was appropriated to HCPF by Colorado's General Assembly to offset the cost of providing custom APCD data and for state agencies as well as for non-profits and researchers with annual revenues of less than $5 million per year. Funding was made available beginning July 1, 2014 and is available through June 30, 2015 or until funds are depleted. See the table below for ways organizations are using the HCPF funding.

**HCPF Scholarship Fund**

- **$500,000 in funding available**
- **Eligible organizations include non-profits and research organizations with annual revenues of less than $5 million per year and state agencies**
- **Funding available through June 2015**
- **Six projects awarded as of January 2015**

Including scholarship fund recipients, in 2014 the Administrator approved and fulfilled 14 custom data applications from entities across Colorado seeking data to inform innovative health care projects and programs. This is a substantial increase from nine custom report fulfillments made in 2013. In addition to the 14 projects fulfilled, eight additional projects were approved in 2014 and will be fulfilled in early 2015. The table below provides a summary of the projects that were informed by APCD data in 2014. To view all projects fulfilled to date, visit the Colorado APCD Data Showcase at www.comedpriceshowcase.org.

TABLE 3: APCD CUSTOM DATA PROJECTS FULFILLED IN 2014

| Entity | Project Summary |
|---|---|
| **Non-Profit** | • Identify care outcome improvement opportunities by combining medical claims with EMR data for approximately 100,000 Medicaid patients over a four year period. |
| **Research Entity** | • Comparative cost study for specific disease treatments and support activities around those treatments. |
| **Provider** | • Assist in the creation of a 21st century ambulatory health care model with scalable and replicable solutions to improve current limitations. |
| **State Agency** | • Prior coverage analysis for Medicaid. |
| **Health Plan** | • Support participating in a bundled payment learning collaborative to develop expertise on this type of payment reform model and to reduce/eliminate potentially avoidable complications. |
| **Lockton** | • Support direct contracting between employers and providers, as well as to encourage greater carrier activity in selected areas, which would improve cost management. |
| **Health System** | • Identify opportunities to move towards a more value-based model focused on cost containment, quality outcomes, and patient satisfaction. |

| Entity | Project Summary |
|---|---|
| Colorado Network | • Evaluate rates for high cost/high utilized DRGs at a rural facility. |
| Betterpath | • Improve the health care quality, cost, and outcomes for Colorado residents who have been diagnosed with Irritable Bowel Disease. |
| Colorado Health Institute* | • Analyze the efficacy of Affordable Care Act policy changes. |
| Division of Insurance* | • Analyze the medical trends in Colorado and determine the appropriate average trend to be used by insurance carriers in their 2015 rate filings. The data and resulting report will be used in conjunction with rate review of individual, small group and large group rate filings. |
| | • Study the appropriateness of the geographic rating areas used for health insurance premiums on the Colorado health insurance exchange. |
| Oral Health Colorado* | • Evaluate geographic variation in ED patients with dental care diagnosis to reduce the number of ED visits for non-traumatic dental disorders. |
| Colorado Consumer Health Initiative* | • Hospital-specific price information for uninsured across multiple services. |

*HCPF Scholarship Fund Recipient

## Data Acquisition from Additional Payers

Claims from Medicare plus six additional commercial health plans were incorporated into the APCD in 2014, bringing the total number of health insurance payers in the database to 20 plus Medicare, Medicare Advantage, and Medicaid. These additional payers increase the number of unique lives represented in the database from 2 million at the launch of the APCD in 2012 to over 3.5 million in 2014. This brings the APCD to full participation by Colorado health plans of significant market size, in compliance with the original APCD rule. As mentioned in the future plans section below, the remaining self-funded commercial market segment is anticipated to be added in 2015 pending a rule change.

## Statutory Changes

In 2014, the Administrator worked in collaboration with the health insurance payers to evaluate, update and improve the data submission guide. The reauthorization process enables the Administrator to make changes to the data submission guide and allows the APCD to evolve with the changing health care landscape. For example, in 2014, health plans began identifying claims resulting from plans purchased on Colorado's health insurance exchange, the type of plan (Platinum, Gold, Silver, or Bronze) and the actuarial value. Updating the data submission guide improves the data collection process and normalization of the data, and ultimately improves the value of the APCD to Colorado stakeholders.

# FUTURE APCD ENHANCEMENTS

Since the inception of the APCD in 2012, the Administrator has continued to make enhancements to the database to increase the value of this important Colorado resource. In 2015 and beyond, strategic plans are in place to add the remaining payers to the database, enhance public reporting, and evaluate combining the APCD with other data sources to enhance the potential uses of custom analytics.

**Custom APCD Data in Action**

- **Requestor:** Colorado Consumer Health Initiative, an organization which helped pass Senate Bill 134; which limits the amount that hospitals can charge low income uninsured patients for emergency and medically necessary services to the lowest negotiated rate with a private payer.
- **Data Usage:** Analysis of the lowest commonly occurring facility price for commercial data at various hospitals for selected DRGs.
- **Project Goal:** Data from this project will provide a baseline for consumers to evaluate whether they are being charged appropriately. This project benefits Colorado residents by making information on hospital charges more transparent and accessible and ultimately helps consumers to become better consumers of health care.

## Data Acquisition

With the addition of Medicare data in 2014, the APCD contains the majority of the large segments of claims in the state with the exception of self-funded payer information. Over the next year, plans are in place to add self-funded payer claims (pending a rule change) in addition to dental and payment-related information for HMO lines of business. With the inclusion of the self-funded market in the APCD, the database will have the potential to reflect nearly all of Colorado's insured population.

- **Self-funded data** – The Administrator has worked diligently over the last three years to try to secure claims data from self-funded employers. However, the absence of a requirement for those employers' administrators to submit the data has stymied these efforts. Accordingly, HCPF is proposing a rule change in 2015 to expand the definition of 'payer' to include Third Party Administrators (TPAs) and Administrative Services Only (ASO) organizations that administer claims on behalf of their employer clients. The proposed rule change will likely suggest an 'opt out' clause for employers who do not wish to have their data submitted to the APCD. This is a proposed rule change in 2015, and the Administrator is planning to conduct multiple outreach meetings and webinars to inform employers, TPAs, and ASOs to gather their concerns and questions. If promulgated, it is anticipated that the first self-funded claims would be submitted to the APCD by the end of 2015.
- **Dental claims** – Currently there are approximately four commercial payers submitting dental claims information to the APCD. The Administrator has identified additional payers to begin submission and anticipates that by the end of 2015 dental claims data from approximately 12 different payers will be included in the APCD.
- **Claims from HMO payers** – Plans such as Kaiser Foundation Health Plan of Colorado and the Denver Health Medical Plan operate a significant portion of their business under capitated models that do not generate claims in the usual sense. Accordingly, these plans have been submitting encounter data, but have received waivers from the Administrator for payment-related data submissions. Both plans are working with the Administrator to develop strategies for submitting pricing information to the APCD and will continue to do so in 2015 in order to bring them into full compliance with APCD rules.

## Public Reporting

The table below illustrates current and planned phases for release of consumer price information on the public website, www.comedprice.org.

TABLE 4. CURRENT AND PLANNED PRICE INFORMATION ON CO MEDICAL PRICE COMPARE

| Timeline | Facility/ Provider Types | Health Care Services (Prices by named facility) | Payers | Year Represented |
|---|---|---|---|---|
| **Current** | • Hospitals | • Total Knee Replacement<br>• Total Hip Replacement<br>• Uncomplicated Vaginal Birth<br>• Uncomplicated Cesarean Birth | • 20 Commercial Insured<br>• Medicaid | • 2012 |
| **Planned for 2015** | • Ambulatory Surgery Centers<br>• Endoscopy Centers | • Emergency Room Visits<br>• Knee Arthroscopy<br>• Breast Biopsy<br>• Skin Lesion Removal<br>• Gall Bladder Removal<br>• Hernia Repair<br>• Kidney Stone Removal<br>• Tonsillectomy/ Adenoidectomy<br>• Colonoscopy | • Additional display of Medicare prices | • 2013 |
| **Planned for 2015 /2016** | • Imaging Centers<br>• Physician Groups | • Imaging Services (CT Scans, MRIs, Ultrasounds, X-Rays)<br>• Annual preventive visits<br>• Various types of primary care visits including new patient and mild to moderate complexity exams | • Self-funded claims added | • 2014 |

**Additional reporting is planned for 2015-2017 including:**

- **Observation Stay Utilization**
- **Compared to Expected Reports by Payer Type**
- **Medication Adherence Rates for Diabetes and Hypertension**
- **Dental Utilization/ Dental Cost**

## Supplemental Data Sources for Increased Value

Based on feedback from stakeholders and national and local health care trends, the Administrator believes that claims data on its own, though critically important, should ultimately be supplemented with other health and health care data sources in order to achieve the level of analytics necessary to continue to advance health care. As a result, the Administrator will continue to work with key Colorado and national stakeholder organizations to evaluate supplementing the APCD with information such as capitation, settlement, and incentive payments; vital-statistics; socio-economic determinants of health; clinical outcomes information; and enhanced patient experience and quality metrics.

# OPERATIONS AND SUSTAINABILITY

## Financial Plan for Sustaining Operations

### *Current Funding Sources and Budget*

No ongoing state funds are allocated to support costs associated with Colorado's APCD. The CO Administrator was therefore required to raise the necessary funds to build and sustain the database. The Administrator received generous grant funding from local foundations through the beginning of 2016 from the following sources for the initial planning and subsequent development, implementation and administration of the CO APCD:

**CO APCD Planning:**

- Colorado Department of Health Care Policy and Financing – $400,000, expired
- The Colorado Trust – $180,000, expired
- The Colorado Health Foundation – $1.2 million, expired

**CO APCD Development and Implementation:**

- The Colorado Trust – $2 million, expiring spring 2016
- The Colorado Health Foundation – $2.5 million, expiring spring 2016
- Colorado Department of Health Care Policy and Financing (2011/2012) - $200,000, expired
- Colorado Department of Health Care Policy and Financing (2012/2013) - $200,000, expired

The annual operating costs to cover the maintenance, continued data onboarding and updates to the APCD public resources are approximately $2.7 million with depreciation costs. Funding to cover these costs beyond 2016 must come from the delivery of customized APCD reports and data sets for organizations meeting the requirements outlined in the Data Release section above. In addition, the APCD Administrator will continue to seek participation in national and state grants that improve the overall value, data and analytic services available to health care stakeholders. In order to become sustainable in two years, the Administrator is currently ramping up its earned revenue and special projects work as implementation grant funding phases out.

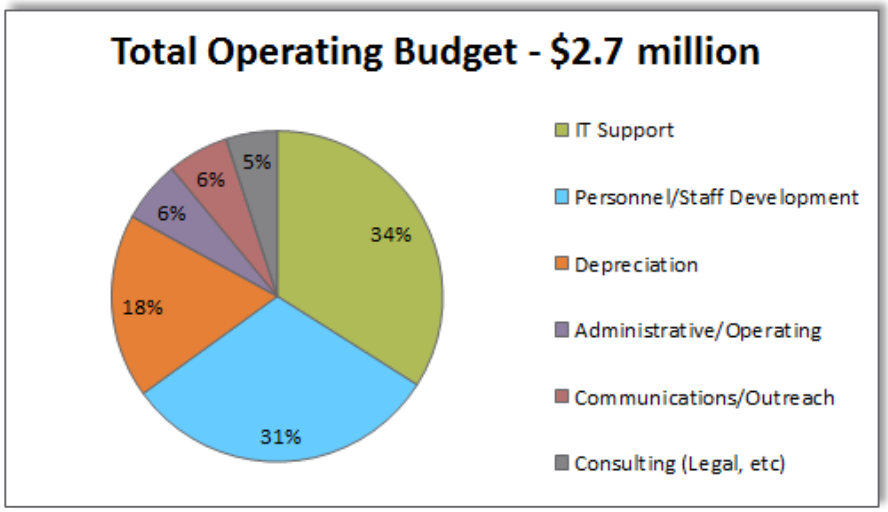



FIGURE 27: APCD ANNUAL OPERATING BUDGET BREAKDOWN ($2.7 MILLION TOTAL)

The Colorado APCD projected annual operating costs are significantly less those of other APCDs of similar size, which range from $3.5-$4 million. In addition, Colorado produces a significant amount of public reporting and also fulfills custom data requests—indicating the lean operation of Colorado's APCD.

### *Pricing and Business Model Projections*

The Administrator conducts an annual market analysis to support the pricing model for customized APCD data sets and reports. In addition, the Administrator has engaged a national provider of market intelligence and advisory services to review and provide guidance on the current fees and business model. Currently, the Colorado APCD pricing is in alignment with similar data products available on the market locally and nationally.

The table below provides a breakdown of the projected revenue targets and price ranges for APCD custom reports and anticipated grant and special project revenue to reach the $2.7 million in annual operating costs to administer the APCD.

TABLE 5: APCD CUSTOM DATA AND GRANT REVENUE PROJECTIONS

| Type of Revenue | # of Fulfillments Projected | Cost Range | Projected Revenue |
|---|---|---|---|
| **Grants and Special Projects** | 2-5 | $50,000 - $250,000 | $300,000 |
| **Standard Template Custom Reports** | 25-50 | $1,500 - $10,000 | $300,000 |
| **Custom Reports** | 10 | $1,500 - $50,000<br>Average anticipated per custom report:<br>10 at $30,000 | $300,000 |
| **Data Sets (De-identified & Limited** | 30-55 | $25,000 - $150,000<br>Average anticipated per data set:<br>20 at $50,000 | $1,000,000 |
| **Annual Subscriptions** | 3-6 | $40,000 - $250,000 | $800,000 |
| **Total** | | | **$2,700,000** |

In 2014, the data requests fulfilled allowed the APCD Administrator to reach the 2014 target and recoup more than $500,000 in costs. In addition, the Administrator received five grant awards totaling nearly $160,000 to provide data analytics which also supports APCD operations.

While the Administrator is confident of the value of the data and the competitiveness of its pricing model, there continues to be an inherent tension in sustaining a public utility such as the APCD through earned revenue. Many would-be public and non-profit data users, who need APCD data and reports to help control costs, reduce variation and improve quality, cannot afford even our greatly discounted rates. While the HCPF Scholarship fund helps alleviate resource constraints to some degree, in order to ensure affordable access to all appropriate users, it is possible that long-term sustainability for the APCD may require multiple funding sources: earned revenue, foundation funding and some public support.

# Appendix A: Letter of Commendation, George Mason University

GEORGE MASON UNIVERSITY | **Center for Health Policy Research and Ethics**

College of Health and Human Services
4400 University Drive, MS 2D7, Fairfax, Virginia 22030
*Phone*: 703-993-9490 *Fax*: 703-993-1555 *Web*: chpre.gmu.edu

August 25, 2014

Ana English, CEO
CIVHC
950 S. Cherry St., Suite 208
Denver, Colorado 80246

Dear Ms. English,

I write just to let you know just how much I appreciate the WONDERFUL resource your web portal to Colorado's all payer claims data base actually is. As a health economist and policy analyst for over 30 years, and as someone who has frequently testified before state legislators and before the US Congress on how local health systems are performing, I have often struggled to piece together relevant local information. Requests for public testimony rarely come with the time to formally request release of the specific data in question, much less to learn idiosyncrasies within (there are always some) and analytically process the millions of claims necessary to generate the meaningful statistics everyone wants: how much do we spend on health care, how do we compare to others, and if some or all of our costs are higher, why?

CO Health Price Compare, in contrast to every other state's APCD website in this nation (and among the few who actually have an APCD), is a veritable beacon of best practices. The world class interactive map and report generator allows web-based users to produce, with a few cursor moves and mouse clicks, how one county's expenditures compare to reasonable actuarial expectations, to others, and to the whole state, by payer type, and what service lines (e.g., inpatient, ER, professional fees, etc.) are driving any meaningful deviations. At the same time, the data base informs these simple graphical and chart comparisons with the overall relative risk of the counties in question, as well as how comprehensively the currently available data capture health expenditures in each county, i.e., how reliable are the estimates provided. In my experience, data web sites designed to support analytic judgments about health care costs do not get any better than this.

Please keep up the good work, and do what you can to shame other states into emulating your fine example.

Sincerely,

Len M. Nichols, Ph.D.
Director, Center for Health Policy Research and Ethics
Professor of Health Policy
College of Health and Human Services
George Mason University

# Appendix B: CO APCD History & Legislation

### Colorado APCD History

The need for meaningful data on quality and cost can be traced back to the work of the Blue Ribbon Commission for Health Care Reform. Their January 2008 report to the General Assembly explicitly recommended the creation of a statewide warehouse combining claims information from public and private payers in order to gain a comprehensive picture of health care costs and utilization in Colorado. That recommendation led to the introduction of HB 10-1330 to establish the CO APCD. HB 10-1330 was subsequently enacted as CRS 25.5-1-204.

### Overview of Legislation (CRS 25.5-1-204)

The statute authorizes the Executive Director of HCPF to appoint a broad-based advisory committee that is charged to:
…make recommendations regarding the creation of the framework and implementation plan for a Colorado all-payer claims database for the purpose of facilitating the reporting of health care and health quality data that results in transparent and public reporting of safety, quality, cost, and efficiency information at all levels of health care.

The statute further directs the Executive Director to appoint an administrator of the database to produce and disseminate reports and data, and grants wide authority for data collection and reporting. The statute also lays out a series of deadlines for achieving key milestones. The legislation makes no provision for state funding for the CO APCD.

To view the complete CRS, visit:
http://www.leg.state.co.us/CLICS/CLICS2010A/csl.nsf/fsbillcont3/7772EFE1E998E627872576B700617FA4?Open&file=1330_enr.pdf

### Colorado APCD Historical Timeline through Initial Public Website Launch

- The APCD was recommended by the Blue Ribbon Commission for Health Care Reform in January 2008 in their Final Report to the General Assembly.
- Colorado HB 10-1330 directed the Department of Health Care Policy and Financing (HCPF) to appoint an APCD administrator.
- CIVHC was appointed in August 2010 as APCD Administrator by the Executive Director of HCPF.
- The Executive Director of HCPF appointed the APCD Advisory Committee in August 2010 to make recommendations on the creation of the framework and implementation plan for a Colorado APCD.
- The APCD Advisory Committee met in a series of monthly meetings beginning in September 2010 (continuing now on a quarterly basis) to provide input and recommendations on the APCD.
- CIVHC and the Advisory Committee submitted the first, required annual report to the Governor and the General Assembly on March 1, 2011. The report described the work completed to date and the Advisory Committee's recommendations for the design, operation and administration of the APCD.
- CIVHC collaborated with the payers to develop a Data Submission Guide describing the format, source and applicable references for data that will be submitted to the APCD.
- Received a planning grant from The Colorado Trust to enable preliminary work. CIVHC received implementation funding from the Colorado Health Foundation and The Colorado Trust.
- CIVHC drafted technological and operational specifications for the APCD technology and, in January 2011 solicited RFIs from technology vendors. A competitive RFP followed.

- The Executive Director of HCPF approved the rules and the Data Submission Guide on August 24, 2011. The rules became effective on October 15, 2011.
- In November 2011, the Executive Director of HCPF notified the Reviser of Statutes that sufficient funding was in place to create the APCD, meeting the January 1, 2012 statutory deadline.
- In December 2011, CIVHC selected Treo Solutions (now part of 3M) as the APCD vendor, and began one-on-one meetings with the top 12 payers and Medicaid, who comprised the first group to submit data to the APCD.
- March 31, 2012, received first round of test data from largest 8 carriers plus Medicaid.
- June 30, 2012, received three years of historical data from largest 8 carriers plus Medicaid.
- November 1, 2012, launched the initial public APCD website.

# Appendix C: Members of the CO APCD Advisory Committee

| First Name | Last Name | Title & Organization | Representation (as defined in SB 13-149) |
|---|---|---|---|
| Bob | Jamieson | Boulder Valley School District | Self-insured employers |
| Chris | Underwood | Rates Manager, Department of Health Care Policy and Financing | Department of Health Care Policy and Financing |
| Chris | Wells | State Health IT Coordinator & Program Director, Governor's Office of Information Technology | Governor's Office of Information Technology |
| Daniel | Tuteur | Chief Strategy Officer, Colorado HealthOP | A representative of health insurers - non-profit |
| David | Ornelas | Administrator, Flatirons Surgery Center | A statewide association of Ambulatory Surgical Centers |
| Debra | Judy | Policy Director, Colorado Consumer Health Initiative | Consumer health care advocates |
| Jack | Feingold | WellDyneRx | Pharmacy benefit managers |
| Janak | Joshi | State Representative – District 16 | Colorado General Assembly |
| John | Kefalas | State Senator – District 14 | Colorado General Assembly |
| Justin | Aubert | Chief Financial Officer, Quality Health Network | Non-profit organizations that facilitates health information exchanges to improve health care for all Coloradans |
| Kristi | Gjellum | Account Executive & Practice Lead, Employee Benefits, NPN 1623974/ IMA, Inc. | Organizations that process insurance claims or certain aspects of employee benefit plans for a separate entity |
| Bethany | Pray | Health Care Attorney, Colorado Center for Law and Policy | Consumer health care advocates |
| Lalit | Bajaj | Associate Professor of Pediatrics, Physician, University of Colorado/The Children's Hospital | Academia with experience in health care data and cost efficiency research |
| Marjie | Harbrecht | Chief Executive Officer/Physician, HealthTeamWorks | Physicians and surgeons |
| Matt | Cassady | Program Integrity Manager, Delta Dental of Colorado | Dental insurers |
| Nathan | Wilkes | Owner/Principal Consultant, Headstorms, Inc. | Consumer health care advocate with experience in privacy issues |
| Philip | Lyons | Director of Regulatory Affairs, United Healthcare | For profit health insurers |
| Richard | Doucet | Chief Executive Officer, Community Reach Center | Community mental health centers with experience in behavioral health data collection |

| First Name | Last Name | Title & Organization | Representation (as defined in SB 13-149) |
|---|---|---|---|
| Robert | Smith | BTE/Prometheus Project Director, Colorado Business Group on Health | Non-profit organizations that demonstrate experience working with employers to enhance value and affordability in health insurance |
| Scott | Anderson | Vice President, Professional Activities, Colorado Hospital Association | Statewide association of hospitals |
| Susan | Eusser | Vice President / Administration, Young Americans Center for Financial Education | Small employers that purchase group health insurance for employees |
| Tracey D. | Campbell | Dir. of APCD, CIVHC | The Executive Director or His or Her Designee, Serving as an Ex Officio Member |
| Tracy | Johnson | Director, Health Care Reform Initiatives, Denver Health and Hospital Authority | Large employers that purchase group health insurance for employees |
| Val | Kalnins | Executive Director, Colorado Pharmacists Society | Pharmacists or an affiliate society |
| Wes | Skiles | Lobbyist, Kaiser Permanente | Integrated multi-specialty organizations |
| Brian | Braun | CFO, CORHIO | Non-profit organizations that facilitates health information exchanges to improve health care for all Coloradans |
| Mitchell | Bronson | Actuarial Statistician | Colorado Division of Insurance |

*Current as of February 2015

# Appendix D: Data Release Review Committee Members

| First Name | Last Name | Title & Organization | Representation |
|---|---|---|---|
| Scott | Anderson | Vice President, Professional Activities, Colorado Hospital Association | Hospital |
| Amy | Downs | Senior Director for Policy and Analysis, Colorado Health Institute | Additional Perspective |
| Rene | Horton | Business Analysis Section Manager, CO Department of Health Care Policy and Financing | Public Payer |
| Alma | Jackson | Associate Professor, Loretto Heights School of Nursing, Regis University | Non-Physician Provider |
| Jonathan | Mathieu | Director of Data & Research, CIVHC | Committee Chair |
| Mark | Miller | Senior Manager of Business Intelligence, Kaiser Permanente | Payer (nonprofit) |
| Ako | Quammie | Director of Information Systems, Integrated Physicians Network | Physician Provider |
| Bob | Semro | Health Policy Analyst, The Bell Policy Center | Additional Perspective |
| Nathan | Wilkes | Owner/Principal Consultant, Headstorms, Inc. | Additional Perspective |
| Vacant | | | Payer |
| Vacant | | | Additional Perspective |

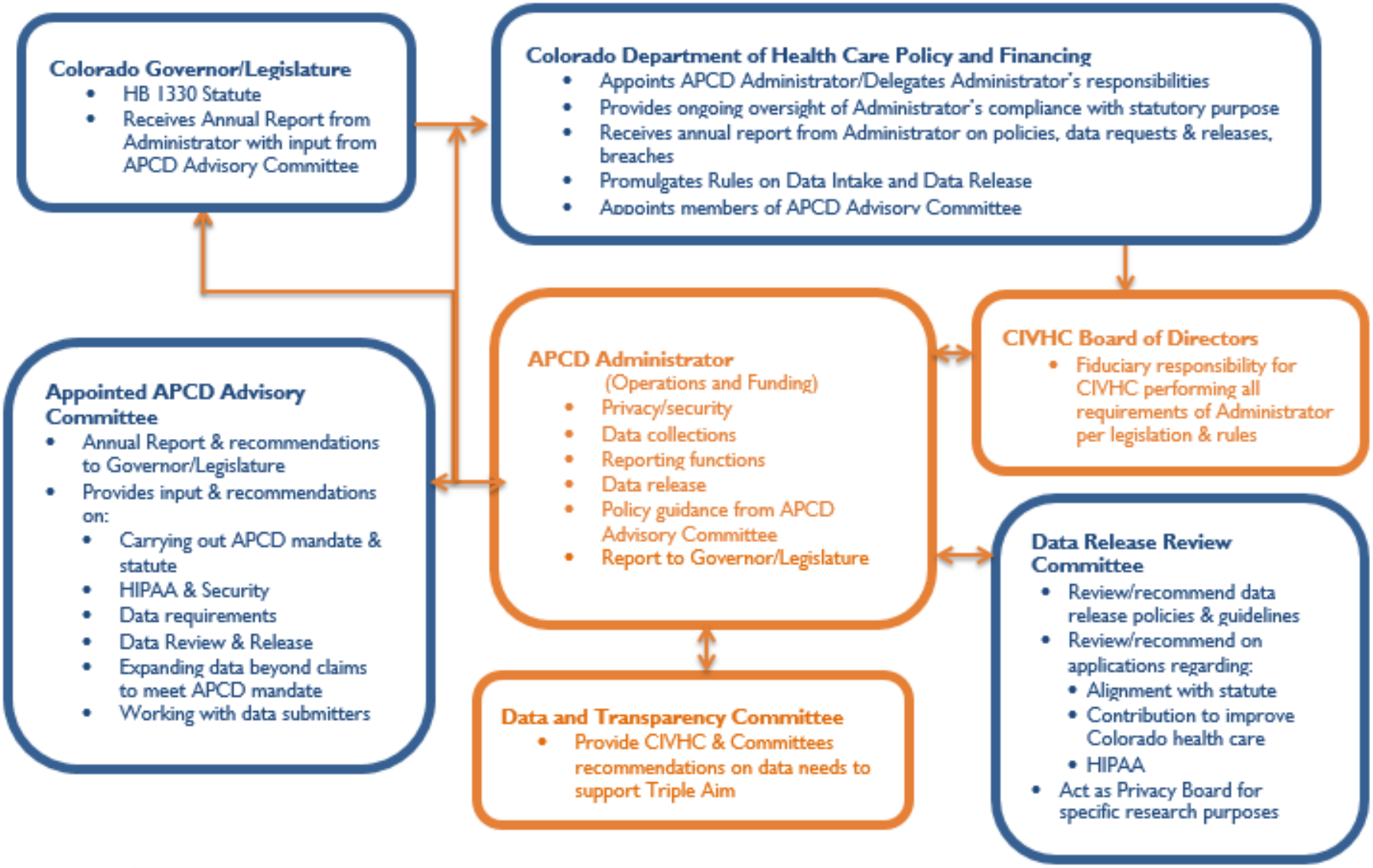
*Current as of February 2015

# Appendix E: Data and Transparency Group

| First Name | Last Name | Title | Organization |
|---|---|---|---|
| Phyllis | Albritton | Consumer | P-Cubed Partners |
| Scott | Anderson | Vice President of Professional Activities | Colorado Hospital Association |
| Adam | Atherly | Chair, Associate Professor | University of Colorado Denver |
| Katie | Brookler | Quality Improvement Behavioral Health Section Manager | Department Health Care Policy & Financing |
| Joel | Dalzell | Section Manager, Health Data Strategy | Department Health Care Policy & Financing |
| Amy | Downs | Senior Director for Policy and Analysis | Colorado Health Institute |
| Rosalie | Einspahr | Past President | CASCA |
| Mark | Gritz | Associate Professor, Associate Director of Business Development | Division of Health Care Policy and Research, Colorado Health Outcomes Program, University of Colorado Denver |
| Kate | Horle | Dir. State and Federal initiatives | CORHIO |
| Kate | Kiefert | Colorado Health Implementation Coordinator - State HIT Coordinator | Colorado Governor's Office |
| Maureen | O'Brien | Senior Scientist | Colorado Foundation for Medical Care |
| Cindy | Palmer | CEO | Colorado Choice Health Plans |
| Richard | Penaloza | Internal Medicine | University of Colorado Denver |
| Alok | Sarwal | Executive Director | Colorado Asian Health Education and Promotion |
| A.W. | Schnellbacher | Volunteer | AARP |
| Alyson | Shupe | Chief of Health Statistics | CDPHE |
| Tasia | Sinn | Research Associate | Colorado Health Institute |
| Dan | Tuteur | Chief Strategy Officer | Colorado HealthOp |
| Lynn | Van Arsdale | Researcher | University of Colorado |
| Nathan | Wilkes | Owner/Principal Consultant | Headstorms, Inc. |
| Judy | Zerzan | Medicaid Medical Director | Department Health Care Policy & Financing |

*Current as of February 2015

# Appendix F: APCD Oversight Roles and Relationship



# Appendix G: Data Release Process

**Data Release Process:** An entity interested in obtaining data from the CO APCD is required to submit a written application that describes the purpose of the project, the methodology, the qualifications of the organization and the project staff, capacity to maintain data confidentiality and security, and experience with similarly complex data sets. The application must include justification for each data element that is needed for the project.

The Data Release Review Committee (DRRC) reviews applications and advises the CO APCD Administrator whether release of the data is consistent with the statutory purpose of the CO APCD, contributes to efforts to improve health care for Colorado residents, and complies with the requirements of HIPAA, HITECH and DOJ guidelines received by experts.

The data release processes established by the CO APCD Administrator contemplates the following types of data release:

- A custom report or a de-identified data set as defined under HIPAA, especially 45 CFR §164.514(a). De-identification by CIVHC and the CO APCD will be achieved by removing all 18 identifiers enumerated by the HIPAA de-identification standards at 45 CFR § 164.514(b)(2). Protected data elements will never appear in a de-identified file; all dates are shown as year only; zip codes will be reduced to three digits; if a zip code has fewer than 20,000 residents it will show as "000."
- A Limited Data Set as defined under HIPAA, especially 45 CFR § 164.514(e). Limited Data Sets may not include name, street address, or Social Security Number. Dates related to the individual may be included. Users of the Limited Data must apply a minimum cell size rule (also known as a "cell suppression rule") in any reports or outputs to prevent identifying individuals by inference.
- An Identified Data set is any identifiable Protected Health Information (PHI), as defined by HIPAA regulations, beyond a Limited data set.

As the chart below illustrates, the CO APCD collects only eight of the 18 direct and indirect identifiers, as defined under the HIPAA regulations. De-identified data and the Limited Data Set files will make use of only two of those eight collected data elements: zip code and date fields. Neither the De-identified data nor a Limited Data Set will ever include a patient's name, street address, Social Security number or other directly identifiable data.

HOW THE COLORADO APCD DE-IDENTIFIED DATA AND LIMITED DATA SETS TREATS HIPAA'S 18 DIRECT PATIENT IDENTIFIERS

| Data Element | De-Identified Data | Limited Data Set |
|---|---|---|
| **1. Names** | Not available | Not available |
| **2. All geographical identifiers smaller than a state** | First 3 digits of zip code[2] | 5 digits |
| **3. Dates directly related to an individual[3]** | YY | DDMMYY |
| **4. Phone numbers** | Not collected | Not collected |
| **5. Fax numbers** | Not collected | Not collected |
| **6. Email addresses** | Not collected | Not collected |
| **7. Social Security numbers** | Not available | Not available |
| **8. Medical record numbers** | Not available | Not available |
| **9. Health insurance beneficiary numbers** | Not available | Not available |
| **10. Account numbers** | Not available | Not available |
| **11. Certificate/license numbers[4]** | Not available | Not available |
| **12. Vehicle identifiers and serial numbers, including license plate numbers;** | Not collected | Not collected |
| **13. Device identifiers and serial numbers;** | Not collected | Not collected |
| **14. Web Uniform Resource Locators (URLs)** | Not collected | Not collected |
| **15. Internet Protocol (IP) address numbers** | Not collected | Not collected |
| **16. Biometric identifiers, including finger, retinal and voice prints** | Not collected | Not collected |
| **17. Full face photographic images and any comparable images** | Not collected | Not collected |
| **18. Any other unique identifying number, characteristic, or code except the unique code assigned by the investigator to code the data** | Not collected | Not collected |

[2] Reporting by the first three digits of a zip code is permitted in de-identified data if the geographic unit formed by combining all zip codes with the same initial three digits contains more than 20,000 people. This analysis will be performed prior to releasing any Colorado CO APCD de-identified data.

[3] De-identified data may contain age ranges, for example, 40-45 years of age, or may include year of birth or age on date of service.

[4] Member certificate/license numbers are not collected. Physicians' license numbers are collected.

# Appendix H: Data Warehouse Manager and Privacy and Security

## Data Warehouse Manager

In 2011, the CO APCD Advisory Committee, with input from subcommittees and local and national experts, developed warehousing, privacy/security and analytic/reporting requirements consistent with the intent of the APCD statute regulations. At the end of 2011, the Administrator contracted with Treo Solutions, a data management vendor. Treo Solutions was selected as the best vendor to meet the following key requirements:

- Demonstrated expertise in data privacy and security protection (no security breaches in over 10 years managing large volumes of data across many organizations across the country);
- Strong technical capabilities and experience with both public (Medicaid and Medicare) and commercial payers;
- The competitive cost of the proposed technology solution;
- The ability for the Colorado APCD to maintain ownership of intellectual capital; and
- Vision for an evolving approach to developing reports that are consistent with the scope of the language in the CO APCD statute.

In April of 2014, 3M Health Information Systems acquired Treo Solutions, the data warehouse manager for the APCD. The Administrator renewed its contract with 3M as the APCD Data Warehouse Manager for three more years in 2014 with the current term ending in June, 2017.

## Privacy and Security

All data transmissions occur over secure lines; accordingly, there is no opportunity for identifiable data to be downloaded on to discs or hard drives from outside the warehouse. The CO APCD does not permit access to the files in the original form as submitted by health plans. The CO APCD Data Warehouse Manager has expertise in providing secure solutions that comply with HIPAA, the HITECH Act, and Federal Information Processing Standards as well as conforming to other standards published by the National Institute of Standards and Technology (NIST). The Data Warehouse Manager partners with a security advisory firm that conducts quarterly "hacker" simulation testing and annual review of all the company's data security operations, policies and procedures. The CO APCD also requires regular third party security operations audits. The Data Warehouse Manager uses state of the art encryption, biometrics and intrusion prevention and detection technologies to secure its facilities.

**Data Security:** When carriers submit files to the CO APCD, the data sets are encrypted in transit and sent over a secure connection to the CO APCD Data Warehouse Manager. This connection is limited to a pre-determined list of users and IP addresses (internet locations) reserved for the carriers submitting the data. The servers holding CO APCD data are "hardened" to prevent data from being downloaded to a laptop, USB drive, disc or other device. Remote access to the CO APCD is not permitted (e.g., from an employee's home computer). Further, the Data Warehouse Manager conducts quarterly "penetration" (hacker) testing of the CO APCD to detect potential areas of vulnerability.

When the Data Warehouse Manager receives a file, security protocols run automatically in a secure, access-restricted environment to confirm that the files contain the expected information before further processing and storage in the data warehouse.

The CO APCD data warehouse is housed in a highly secure facility in Albany, NY that is protected in the following ways:

- The building is monitored by closed circuit television.
- Security personnel monitor access to the facility.

- Access requires a proximity card, an identity card, and a key.
- The CO APCD data is hosted on dedicated equipment in secure enclosures.
- The equipment has been installed using best practice methods published by the National Institute of Standards and Technology (NIST).

Access to the database is strictly controlled with multiple levels of security:

- The CO APCD is structured to only allow the minimum amount of access to data absolutely necessary for a particular project related task. Access is based on specific roles and security clearance.
- Electronic access is carefully monitored, verified, recorded and controlled.
- Computer and network security staff are located in full view of physical access points during business hours.
- Firewalls, intrusion prevention systems, and other technologies maintain constant privacy and separation from the outside world.

Data encryption techniques offer additional protection. All CO APCD data is encrypted both while in motion (or being transmitted) and at rest (while stored). Encrypted data can only be decrypted by the party receiving the data or by the Data Warehouse Manager during secure, internal data processing. This methodology is used throughout the CO APCD. An example of encryption is as follows:

EXAMPLE OF DATA ENCRYPTION METHODOLOGY

| Un-encrypted Data | →→→Becomes→→→ | Encrypted Data |
|---|---|---|
| Name: Jane Doe | →→→→→→→→→→ | 3INDzLjr2SnG8ma4wvLoXw==z |
| DOB: 1/1/1980 | →→→→→→→→→→ | 5IZB3CeWebVUYm2u9b1+ |
| Gender: F | →→→→→→→→→→ | 9D4QK0mn5hE1/2F5 |
| Admit Date: 2/1/2010 | →→→→→→→→→→ | bF6R7dA9rdz3k2dez |
| Discharged: 2/5/2010 | →→→→→→→→→→ | s7J51mWcr7WQ4CmN |

**De-identification**: Protected data elements such as name, street address and Social Security number are removed as part of initial processing and replaced with a unique member identification number. Depending upon the type of data requested, birth date is replaced with age or age range, and zip code data is aggregated to the first three digits. Data suppression rules are in place to prevent the release of any information which may make it possible to identify any individual represented in the CO APCD database.

# Appendix I: 2014 CO APCD Media Mentions and Publications

| Date | Publication | Article Title | Link |
|---|---|---|---|
| 1/2/2014 | 4-traders.com | 2013 Innovation in Data Dissemination Award Presented to Treo Solutions & the Center for Improving Value in Health Care | http://www.4-traders.com/news/2013-Innovation-in-Data-Dissemination-Award-Presented-to-Treo-Solutions--the-Center-for-Improving-V--17742873/ |
| 1/2/2014 | Yahoo Finance | 2013 Innovation in Data Dissemination Award Presented to Treo Solutions & the Center for Improving Value in Health Care | http://finance.yahoo.com/news/2013-innovation-data-dissemination-award-153600225.html |
| 1/8/2014 | Treo Solutions Blog | APCD Data Collection: Common Issues and Solutions | http://www.treosolutions.com/blog/2014/01/apcd-data-collection-common-issues-and-solutions |
| 1/10/2014 | KSFR.org | Oct. 7 First News; Think Tank Suggests Health Care Prices and Quality Comparison Website | http://ksfr.org/post/oct-7-first-news-think-tank-suggests-health-care-price-and-quality-comparison-website-listen |
| 1/29/2014 | Health News Colorado | Remote Care, Monopolies and Pricy Injuries Hike Resort, Rural Health Costs | http://www.healthnewscolorado.org/2014/01/29/remote-care-monopolies-and-pricy-injuries-hike-resort-rural-health-costs/?utm_source=Health+News+Colorado&utm_campaign=86971ee298-0129141_29_2014&utm_medium=email&utm_term=0_12ed436cd7-86971ee298-292899741 |
| 2/3/2014 | Kaiser Health News | The 10 Most Expensive Insurance Markets In The U.S. | http://www.kaiserhealthnews.org/Stories/2014/February/03/most-expensive-insurance-markets-obamacare.aspx |
| 2/3/2014 | Market Watch- The Wall Street Journal | The 10 Most Expensive Areas to Buy Health Insurance in the U.S. | http://blogs.marketwatch.com/health-exchange/2014/02/03/the-10-most-expensive-areas-to-buy-health-insurance-in-the-u-s/ |
| 2/4/2014 | Health News Colorado | Garfield County May Sue, Accuses State of Rubberstamping Insurance Lobbyists' Plan | http://www.healthnewscolorado.org/2014/02/04/garfield-county-may-sue-accuses-state-of-rubberstamping-insurance-lobbyists-plan/?utm_source=Health+News+Colorado&utm_campaign=cd4453e6df-0204142_4_2014&utm_medium=email&utm_term=0_12ed436cd7-cd4453e6df-220961833 |
| 2/4/2014 | Telluride Daily Planet | County Residents Pay Less for Health Insurance Than Other Colorado Ski Resort Areas | http://www.telluridenews.com/articles/2014/02/07/news/doc52f41a1f50af6794061840.txt |
| 2/9/2014 | Denver Post | Colorado Mountain Towns Pay Highest | http://www.denverpost.com/news/ci_25095594/colorado-mountain-towns-pay-highest-health-premiums-u |

| Date | Publication | Article Title | Link |
|---|---|---|---|
| | | Health Premiums in U.S. | |
| 2/12/2014 | Denver Business Journal | Long-Distance Medicine Draws Patients | http://m.bizjournals.com/denver/print-edition/2014/02/14/cover-story-a-bad-break-for-colorado.html?ana=e_den_rdup&s=newsletter&ed=2014-02-14&r=full |
| 2/19/2014 | National Public Radio | Elusive Goal: A Transparent Price List For Health Care | http://www.npr.org/blogs/health/2014/02/12/276001379/elusive-goal-a-transparent-price-list-for-health-care |
| 3/18/2014 | KevinMd.com | Can Transparency in Health Care Happen in the United States? | http://www.kevinmd.com/blog/2014/03/transparency-health-care-happen-united-states.html |
| 4/17/2014 | Behavioral Healthcare | Price Transparency in Healthcare: A Movement Takes Hold | http://www.behavioral.net/print/article/price-transparency-healthcare-movement-takes-hold |
| 6/19/2014 | MedCity | Debating the Value of an All-Payer Claims Database | http://medcitynews.com/2014/06/debating-value-payer-claims-databases/ |
| 6/22/2014 | Denver Post | 16 Colorado Hospitals Likely to Face Penalties for Patient Care | http://www.denverpost.com/news/ci_26009684/16-colorado-hospitals-likely-face-penalties-patient-care |
| 7/25/2014 | Denver Business Journal | Database Arms Consumers to do Battle with Health-Care Costs | http://www.bizjournals.com/denver/print-edition/2014/07/25/database-arms-consumers-to-do-battle-with-health.html |
| 7/30/2014 | Colorado Managed Care Newsletter | Reducing Cesarean Deliveries Could Save Colorado $6.5 Million Annually and Improve the Health of Mothers and Babies | http://www.colorado.hcbusinessnews.com/?p=3687 |
| 7/31/2014 | Denver Business Journal | Big Price Differences for Medical Procedures, New Colorado Database Shows | http://www.bizjournals.com/denver/news/2014/07/31/new-coloradocost-comparison-database-shows-major.html?ana=twt |
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| 7/31/2014 | Health News Colorado | Wild Price Variations for Giving Birth, Hip, Knee Surgeries | http://www.healthnewscolorado.org/2014/07/31/wild-price-variations-for-giving-birth-hip-knee-surgeries/ |
| 7/31/2014 | Fiercehealthfinance.com | Website Reports Colorado Hospital Prices | http://www.fiercehealthfinance.com/story/website-reports-colorado-hospital-prices/2014-07-31?utm_content=buffer849e2&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer#.U9uXoN9-QHc.twitter |

| Date | Publication | Article Title | Link |
|---|---|---|---|
| 7/31/2014 | KVDR Fox 31 | Website Will Help Colo. Consumers Compare Hospital Prices | http://kdvr.com/2014/07/31/website-will-help-colo-consumers-compare-hospital-prices/ |
| 7/31/2014 | 9news.com | Big Price Differences for Medical Procedures | http://www.9news.com/story/money/business/2014/07/31/new-colorado-cost-comparison/13417591/ |
| 7/31/2014 | The Denver Post | Colorado Consumers get New Tool to Compare Hospital Prices | http://www.denverpost.com/news/ci_26251340/colorado-consumers-get-new-tool-compare-hospital-prices |
| 8/1/2014 | Rocky Mountain PBS iNews | Colorado State of Mind | http://video.rmpbs.org/program/colorado-state-mind/ |
| 8/1/2014 | Health News Colorado | Opinion: Employers Should Welcome Health Care Transparency | http://www.healthnewscolorado.org/2014/08/01/opinion-employers-should-welcome-health-care-price-transparency/ |
| 8/1/2014 | Seattle Business | How Washington Came Close to Establishing a Transparent Claims Database | http://seattlebusinessmag.com/article/how-washington-came-close-establishing-transparent-claims-database |
| 8/5/2014 | Huffingtonpost.com | Website Allows Colorado Consumers to Compare Prices for Hospital Procedures | http://www.huffingtonpost.com/bob-semro/website-allows-colorado-c_b_5652226.html |
| 8/5/2014 | Bell Policy Center Newsletter | Straight Talk on Health Reform: Website Allows Consumers to Compare Prices for Hospital Procedures | http://campaign.r20.constantcontact.com/render?ca=b1e229c1-466c-4985-81d8-9e7edd8615c5&c=16074330-82d0-11e3-829d-d4ae52843dc7&ch=160ce880-82d0-11e3-829d-d4ae52843dc7 |
| 8/7/2014 | BeckersASC.com | 7 Things for ASC Leaders to Know for Thursday | http://www.beckersasc.com/asc-turnarounds-ideas-to-improve-performance/7-things-for-asc-leaders-to-know-for-thursday-august-7-2014.html |
| 8/15/2014 | Rocky Mountain PBS iNews | New Website Allows Coloradans to Compare Medical Procedure Prices | http://inewsnetwork.org/2014/08/15/new-website-allows-coloradans-to-compare-medical-procedure-prices/?utm_medium=facebook&utm_source=twitterfeed |
| 8/19/2014 | Confluence - denver.com | Colorado Medical Price Compare Offers Clearer View of Medical Costs | http://www.confluence-denver.com/innovationnews/colorado_medical_price_compare_launches_081914.aspx |
| 8/21/2014 | Cortez Journal | Local Births Among Costly in Colorado | http://www.cortezjournal.com/article/20140821/NEWS01/140829965/Local-births-among-most-costly-in-Colorado- |

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|---|---|---|---|
| 8/22/2014 | Health News Colorado | Hope for Health Costs Cuts High as Commission Launches | http://www.healthnewscolorado.org/2014/08/22/hopes-for-health-cost-cuts-high-as-commission-launches/?utm_source=Health+News+Colorado&utm_campaign=1afbf80445-0822148_22_2014&utm_medium=email&utm_term=0_12ed436cd7-1afbf80445-292893325 |
| 8/30/2014 | NRHI Newsletter | August Newsletter | https://t.e2ma.net/message/s2f5g/4zpokd |
| 9/5/2014 | Rocky Mountain PBS iNews | 2008 Colorado Health Reform Recommendations Coming to Fruition | http://inewsnetwork.org/2014/09/05/2008-colorado-health-care-reform-recommendations-coming-to-fruition/ |
| 9/17/2014 | Huffingtonpost.com | Hospital Executives Beware: Impatient Patients are Taking Charge | http://www.huffingtonpost.com/tasha-eurich-phd/hospital-executives-bewar_b_5826432.html?utm_hp_ref=business&ir=Business |
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| 10/17/2014 | Healthcare Dive | How Will MA's New Price Transparency Mandate Affect its Healthcare Market? | http://www.healthcaredive.com/news/how-will-mas-new-price-transparency-mandate-affect-its-healthcare-market/321114/ |
| 11/1/2014 | Colorado Medicine | APCD Harnesses the Power of the Internet | http://www.cms.org/communications/all-payer-claims-database |
| 12/1/2014 | NEHI Issue Brief | All Payer Claims Databases: Unlocking the Potential | http://www.nrhi.org/uploads/apcd_brief_nehi_draft_1210_final.pdf |
| 12/3/2014 | MarketWatch.com | Colorado Health Plans Collaborate to Create Data-Sharing Solutions for Care Providers | http://www.marketwatch.com/story/colorado-health-plans-collaborate-to-create-data-sharing-solution-for-care-providers-2014-12-03 |
| 12/8/2014 | Government Health IT | More Payers Take on HIE | http://www.govhealthit.com/news/more-payers-take-hie |
| 12/18/2014 | Health News Colorado | My Prescription is How Much? | http://www.healthnewscolorado.org/?utm_source=Health+News+Colorado&utm_campaign=216b9fa146-12181412_18_2014&utm_medium=email&utm_term=0_12ed436cd7-216b9fa146-292893325 |