CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

2017 CO APCD Annual Report:

Charting the Health Care System in Colorado

COST OF CARE
CARE UTILIZATION
QUALITY OF CARE
CONDITION PREVALENCE

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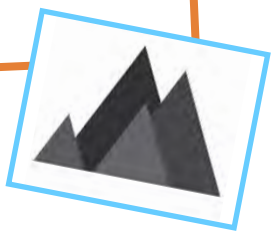
Charting the Health Care System in Colorado

Health care in the Centennial State embodies the bold and pioneering spirit of the Rocky Mountains, with many players hard at work to keep Coloradans healthy, make sure they receive the care they deserve, and get rising costs under control. The competitive market, wide variety of players, and diversity inherent in this system makes it difficult to assess its current status and even more difficult to determine what changes will have the biggest impact, and whether those changes have resulted in improvements. This report serves as that crucial survey of health care cost, utilization, quality, and chronic conditions in Colorado and as a tool to help Change Agents on the ground make the best possible decisions as they work to lower costs, improve care, and make Colorado healthier.

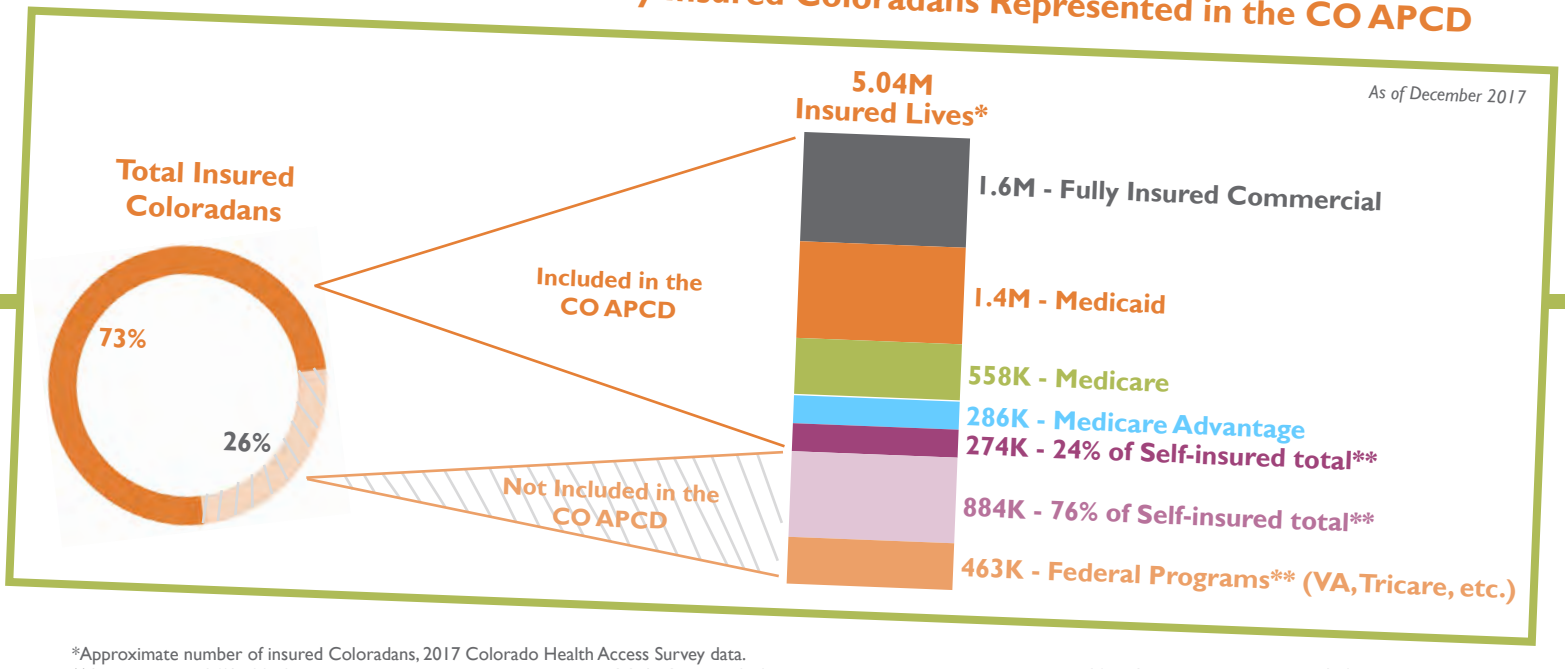


Why CIVHC and the CO APCD?

Center for Improving Value in Health Care (CIVHC) is an objective, not-for-profit organization striving to empower individuals, communities, and organizations advancing the Triple Aim of better health, better care, and lower costs. Through services, health data, and analytics, we partner with Change Agents driving towards the Triple Aim for all Coloradans. We believe that together we can alter the trajectory of health care and are privileged to serve those creating a better health system for us all.

In 2010, the Executive Director of the Colorado Department of Health Care Policy and Financing (HCPF) appointed CIVHC the administrator of the Colorado All Payer Claims Database (CO APCD). The CO APCD is a state-legislated, secure health care claims database compliant with all federal privacy laws. The complexity and scale of the database grows each month. It is the only claims repository in the state that represents the majority of insured lives in Colorado, with more than nine years of data from commercial health insurance payers, Medicaid and Medicare. These claims provide valuable insights on the health of Coloradans, how Colorado is paying for and using health care, and the quality of the care being delivered. CIVHC makes this information available publicly and on a custom basis to consumers, researchers, state agencies, advocacy organizations, nonprofits, and others working to improve health care and lower costs for Colorado residents.

Percent and Number of Medically Insured Coloradans Represented in the CO APCD



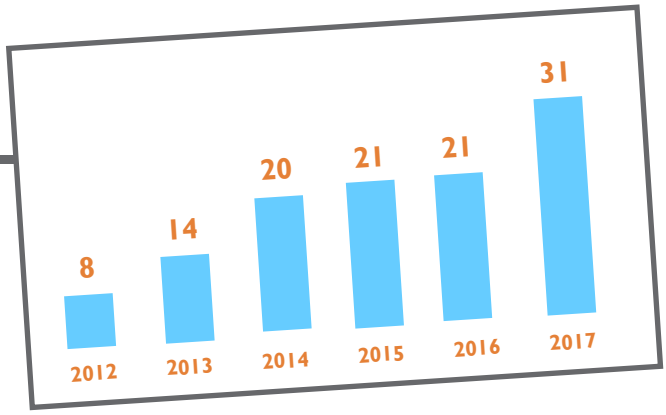
*Approximate number of insured Coloradans, 2017 Colorado Health Access Survey data.
**Approximately 24% of Self-insured claims are being submitted to the CO APCD. Total Self-insured numbers are based on data in the 2017 Colorado Employer Benefit Survey. Federal insurance programs such as VA and Tricare do not submit claims at this time.

The CO APCD does not collect claims for people covered by Federal health insurance programs such as the Veterans Administration, TRICARE federal employees, or the Indian Health Service and does not include information for uninsured Coloradans.

Additionally, due to a United States Supreme Court ruling, states cannot mandate submission of claims data from self-insured Employee Retirement Income Security Act (ERISA) plans to APCDs. Self-insured claims are estimated to represent half of the total commercially insured lives in Colorado and CIVHC estimates that the CO APCD currently contains approximately a quarter of those lives, primarily from non-ERISA based self-insured employers.

How Has the CO APCD Evolved?

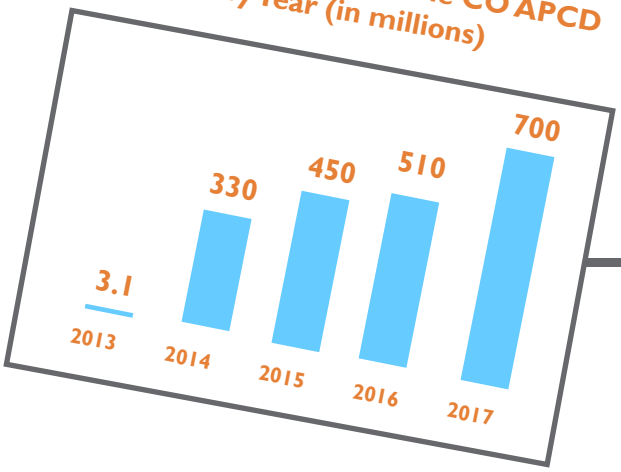
Commercial Payers in the CO APCD By Year



Enhanced processing capability of new data warehouse vendors, Human Services Research Institute (HSRI) and NORC at the University of Chicago, increased the number of submitters to the CO APCD in 2017. Additionally, HSRI/NORC also greatly enhanced the capabilities of the data and the analytics that CIVHC can provide. The CO APCD is more current, more comprehensive, and more actionable than ever before.

The CO APCD contains claims for approximately 73% of the covered lives in Colorado, with claims from 31 commercial health insurance plans, Medicare Advantage, self-insured employer plans, Medicaid and Medicare Fee-for-Service (FFS) claims.

Number of Claims in the CO APCD by Year (in millions)



New Data Warehouse Vendors (HSRI/NORC) Capabilities and Impacts

Capabilities

Data refreshes - 30 Days
Intake and error reporting process - Automated, near real-time
Data quality services - Comprehensive data quality services
Data discovery – Extensive experience with identification and correction
Medicare Qualified Entity program execution - Process complete in 3 months
Separation of Medicare FFS and Medicare Advantage claims - Separate in Warehouse
Data visualization - Reporting via Tableau
Data extracts - Up to 150/year
Standard reports - 300 standard reports
Custom reports - Up to 150/year
Online portal access - Access to data online

Impact

- More timely, actionable, high quality, comprehensive data available to stakeholders
- High quality end products while freeing up internal CIVHC resources for analytic services
- More timely Medicare claims available and ability to conduct analysis on Medicare FFS vs. Medicare Advantage populations
- Greatly enhanced ability to expand the low-cost, actionable, user-friendly reports and CO APCD data

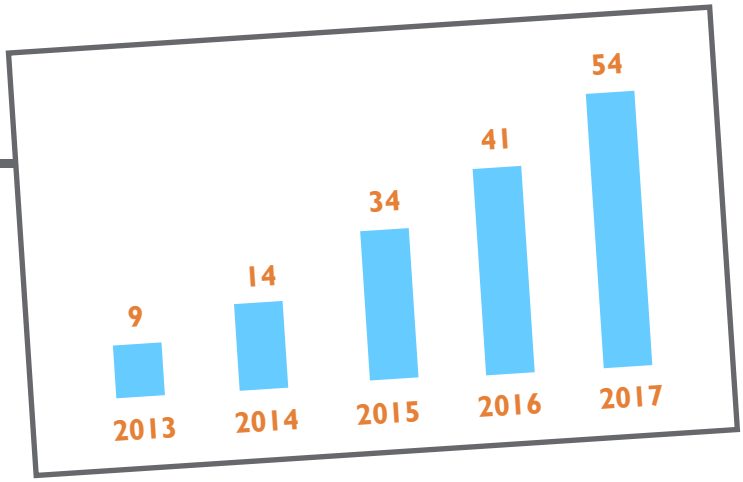
How Does the CO APCD Work?

When a Coloradan who has health insurance receives a health care service, the provider typically submits a claim for reimbursement to their health insurance company. Once the claims has been paid, the health insurance company submits the information for collection in the CO APCD.

What is the CO APCD Used For?

CIVHC releases CO APCD data in two ways: non-public custom releases, licensed by Change Agents working on specific projects to improve care for Coloradans; and public reporting, published information on civhc.org designed to foster decision-making at all levels of the health care system, from consumers to state agencies.

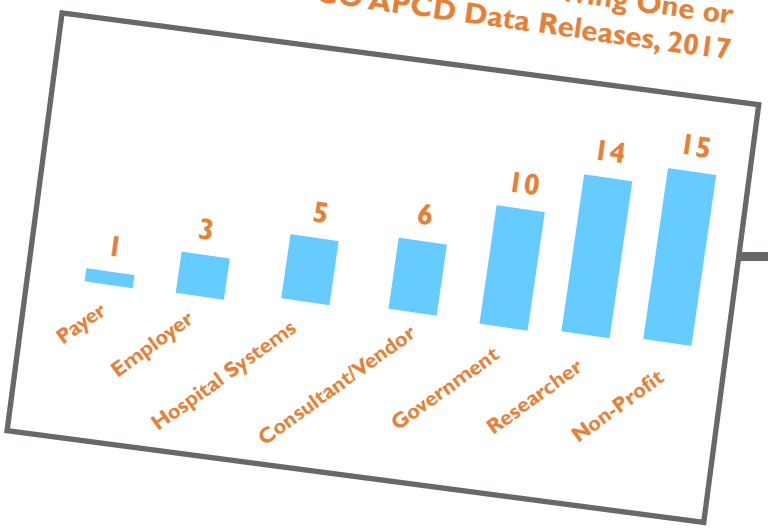
Number of Organizations that Received Custom CO APCD Data by Year



The CO APCD currently does not receive direct, ongoing operational state funding. Generous capacity building grants from HCPF, The Colorado Trust, and the Colorado Health Foundation has enabled CIVHC to develop, implement and grow the CO APCD since the initial intake of claims in 2012. The CO APCD statute permits CIVHC to license CO APCD data to qualified projects to cover costs and ensure financial sustainability. Over time, CIVHC has been able to bring down the cost of licensing data (see Pricing Schedule Appendix) and has been able to exponentially increase the number of Change Agents informing and evaluating their Triple Aim work CO APCD data.

CIVHC provides custom data sets and reports to requestors seeking to advance the Triple Aim. Every release of data must benefit Colorado, as mandated by the enabling statute of the CO APCD. Details of the requests fulfilled in 2017 are included in the appendices of this report and descriptions of earlier projects are available in the Change Agent Gallery on civhc.org.

Stakeholder Organizations Receiving One or More Custom CO APCD Data Releases, 2017



HCPF CO APCD Scholarship

The Colorado General Assembly established the HCPF CO APCD Scholarship Fund in 2014, allocating funds to offset the cost of data for requestors with limited resources. HCPF administers the funds and requestors must meet specific criteria in order to be considered for the scholarship. Twenty-five projects from the organizations listed below received funding from the scholarship in 2017.

2017 Scholarship Recipients

- University of Colorado Denver
- Lanig Family Fund
- Colorado Children's Access Program
- CIVHC
- Young Invincibles
- Boston College
- University of Massachusetts Amherst
- University of California, San Francisco Center for Healthcare Value
- Duke University
- Northwestern
- Colorado Department of Public Health and the Environment
- Doctors Care
- New Hampshire Insurance Department
- Colorado Community Managed Care Network
- Colorado Health Institute
- Harvard University
- Colorado Commission for Affordable Health Care
- San Luis Valley Public Health Partnership
- Family Intercultural Resource Center

Public Reporting

The purpose of the CO ACPD is explicit in its enabling statute: transparent public reporting of health care information. In 2017, CIVHC unveiled a redesigned website with content and analyses geared toward educating and amplifying Change Agents. 2018 will bring facility cost and quality information for procedures such as colonoscopies, breast biopsies, knee and hip replacements to civhc.org as well as new blogs, Spot Analyses, and Data Bytes.

Publications Available

Interactive Reports

- Cost of Care
- Utilization
- Quality of Care
- Condition Prevalence (coming soon!)
- Facilty Cost and Quality Information (coming soon!)

Spot Analyses

- Regional Variation
- State Innovation Model Measures
- Drug Cost Savings - Vimovo and Duexis

Data Bytes

- ED Severity Levels by Payer
- Medicaid Frostbite Claims
- Coloradans with Pre-Existing Conditions
- Prescription Trends of Opioid Drug Subsys

Educational Content

- Plaintalk Blogs
- Change Agent Profiles
- CIVHC Status Blogs
- Change Agent Chats

Charting Colorado's Health Care System in 2017

Meaningful change is only possible when all factors that push and pull the health care system are considered. Using the CO APCD, Colorado's health care system can be examined through four primary levers: cost of care (how much are we spending), utilization (how many and what types of services people are getting), quality of care (how appropriate is the care they received), and chronic conditions (how healthy are Coloradans overall). Here are the results of that examination and featured Change Agents working in each category.

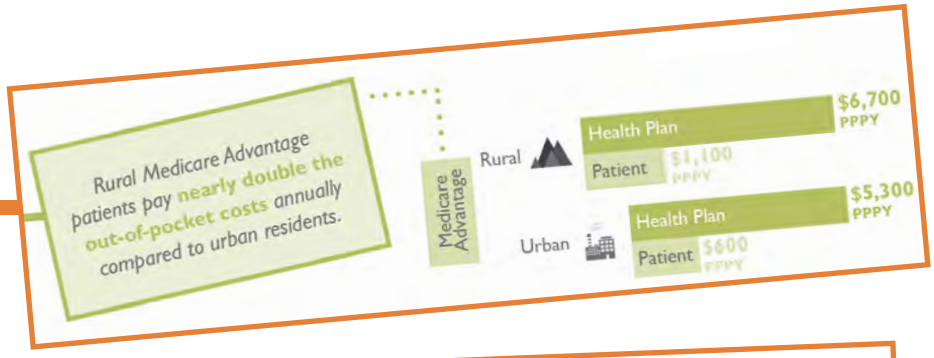
Cost of Care

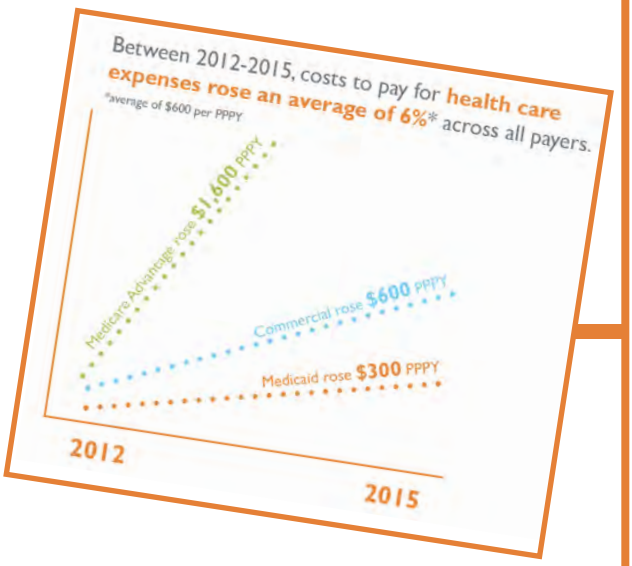
The national health care system is entrenched in payment models that drive up the cost of care without necessarily improving quality and outcomes. The practice of paying for volume, not value, often results in expensive and unnecessary tests or services instead of more effective and strategic ways keep patients healthy. In recent years, alternative methods of payment have gained ground as rising costs inch toward economically unsustainable levels.

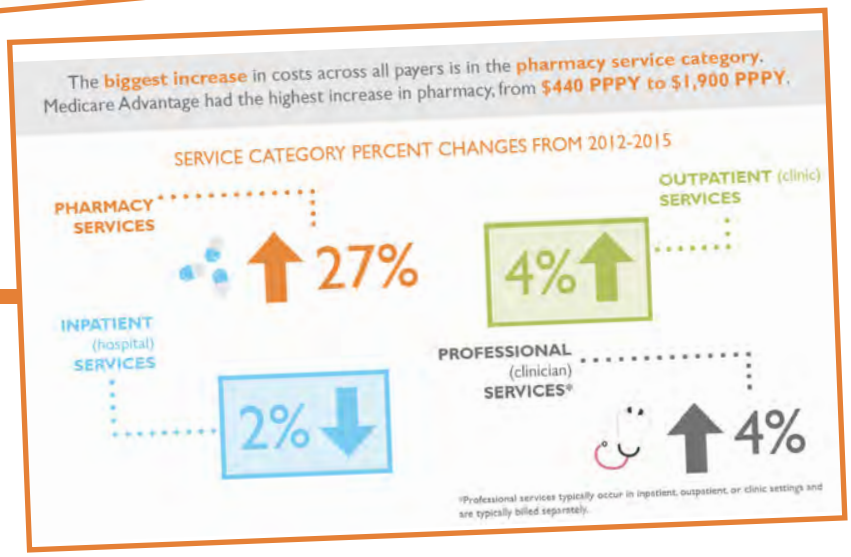
Cost of Care Insights from Public Interactive Reports at civhc.org

Costs to provide care to insured Coloradans varies depending on where you live and what health insurance payer you have, which results in higher premiums in certain areas. Understanding how costs differ across the state helps communities, policy makers and others begin to identify solutions to reduce variation in spending.

Combined, it takes nearly **$4,000 Per Person Per Year** (PPPY) to cover the health care needs of most Coloradans with Medicaid, Commercial, & Medicare Advantage.







Change Agent Highlights

Use Case: Understanding Physical Rehabilitation Service Utilization and Cost

Profile: The Colorado Chapter of the American Physical Therapy Association (APTA) is a non-profit, professional organization serving nearly 2500 members.

Project Summary: The Colorado Chapter of the APTA used CO APCD data to investigate what percentage physical rehabilitation services (Physical Therapy, Occupational Therapy, and Chiropractic) make up of total commercially-insured health care expenditures in Colorado.

Benefit to Colorado: This project allowed the Colorado Chapter of the APTA to gain a better understanding of physical rehabilitation service utilization and cost and was central to designing legislation to help minimize out-of-pocket costs of physical therapy and other physical rehabilitation services. It also helped educate consumers and governmental agencies about health expenditures related to the physical therapy component of managing care for Coloradans with physical impairments.

Use Case: Evaluating the Cost of Sepsis at Colorado Hospitals

Profile: The Coalition for Sepsis Survival (C4SS) is a nonprofit organization committed to encouraging early recognition and effective treatment of sepsis and decreasing mortality rates through partnerships focused on public awareness and support to hospitals. C4SS links within a network of resources, utilizing the most effective tools, for achieving the best, demonstrated practice in the management of sepsis.

Project Summary: With this project, C4SS used CO APCD data to help increase the quality of inpatient care while lowering costs by investigating the correlation between the cost of care and the procedures used in hospitals with low sepsis mortality rates. An element of their mission is to evaluate higher performing hospitals to those with higher sepsis mortality rates and explore what savings are possible with different methods of care.

Benefit to Colorado: This project could lead Colorado to become the #1 state in the US with the lowest sepsis patient mortality rate achieving a 90% chance of survival, without residual disabilities. By analyzing sepsis mortality rates in Colorado, this study will improve health care, lower patient costs, and improve health outcomes.

Use Case: Reducing Avoidable ED VIsits in Northwest Colorado

Profile: The Northwest Colorado Community Health Partnership (NCCHP) is made up of community and safety net organizations, health care providers, and government agencies covering Grand, Jackson, Moffat, Rio Blanco and Routt counties.

Project Summary: NCCHP used CO APCD data to evaluate ED visits and potentially avoidable costs in the rural counties they serve.

Benefit to Colorado: Results of this data could be used to design educational campaigns and initiatives to help reduce emergency department (ED) visits for health issues that could be treated in a doctor's office, clinic, or urgent care settings, ultimately saving costs for the health care system.

Health Care Utilization

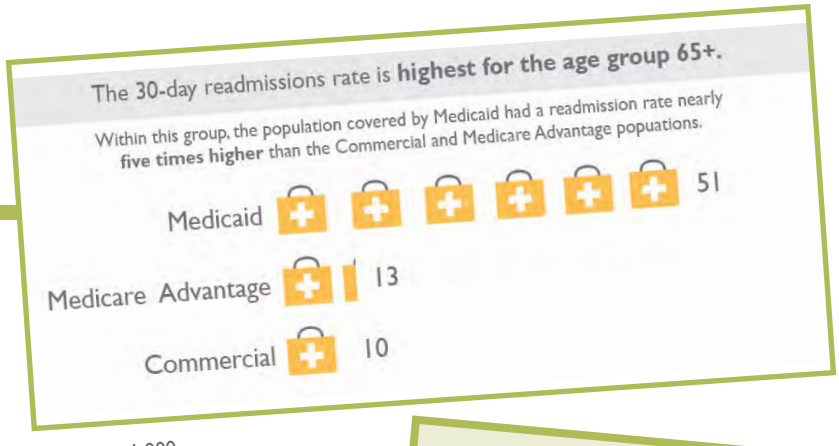
Breaking down how Coloradans use the health care system can help providers, facilities, and public health advocates design situation-specific interventions including patient education, enhanced coordination among providers and care givers, and increased access to outpatient offices and clinics at night and on the weekends.

Utilization Insights from Public Interactive Reports at civhc.org

Understanding where and how much patients are accessing health care is an important first step towards the achieving the goal of "the right care at the right time and the right place."

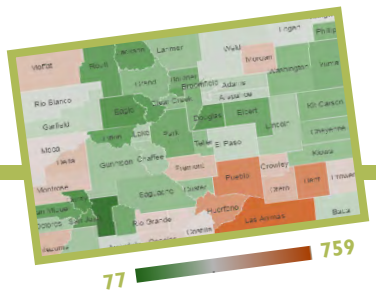
In general, **Rural** counties have more **OUTPATIENT SERVICES*** than **Urban** counties. **Western Slope counties Mesa and Delta** have some of the highest rates of outpatient services.

*Health care visits received in a hospital-based outpatient setting or ambulatory surgery center.



*Rate per 1,000

Counties in **Southern CO** have the **highest levels of ER visits in all age groups.**



*Rate per 1,000

Change Agent Highlights

Use Case: Investigating Where Patients Go For Care

Profile: One of Colorado's rural Critical Access Hospitals (CAHs), Melissa Memorial Hospital (MMH), is located in Holyoke, Colorado and offers specialty and emergency as well as primary care and pharmacy services to rural residents in their community.

Project Summary: MMH used CO APCD data to understand where patients in their service area were going for care beyond their hospital and clinics and what services they received elsewhere.

Benefit to Colorado: MMH used the data to determine that Orthopedics, Chemotherapy and eye services were the major reasons people were leaving. To improve access to care, MMH implemented a robust orthopedic program, added an optometry clinic that provided 1500 visits in 2017, and is in the process of implementing chemotherapy services. As a result of CO APCD data, Eastern Plains Coloradans now have more local access to care.

Use Case: Competition in the Health Insurance Exchange

Profile: Graduate student researchers at Duke University.

Project Summary: The goal of this project was to investigate the effect of Colorado's health exchange on health care utilization, and how the variation in exchange health insurance premiums across the state impacted market structure and where patients went for care.

Main Findings:

- Individuals who purchase insurance on their own (including through Connect for Health Colorado) use health care services more than those who receive health care from their employer.
- In 2014, higher risk Coloradans were more likely to purchase an individual health insurance plan.
- Narrow networks are an effective tool that insurers can use to negotiate lower prices with health care providers.

Benefit to Colorado: The results of this analysis offered a rare insight into of the impact of the Affordable Care Act (ACA) Health Insurance Marketplaces on Colorado's system. Findings can be used by policymakers seeking to understand how policy changes like the ACA drive changes in the system, and by insurance companies seeking to lower costs and improve outcomes.

Use Case: Understanding Hep C Screening in Colorado

Profile: The mission of the Colorado Department of Public Health and the Environment's (CDPHE) Viral Hepatitis Program (VHP) is to stop the spread of Hepatitis B and C and limit the progression of these infections to liver disease.

Project Summary: CDPHE used CO APCD data to help them estimate how many Coloradans are living with Hepatitis C, better understand hepatitis screening/testing patterns and disparities across the state, and identify whether or not Coloradans are receiving care for their infection.

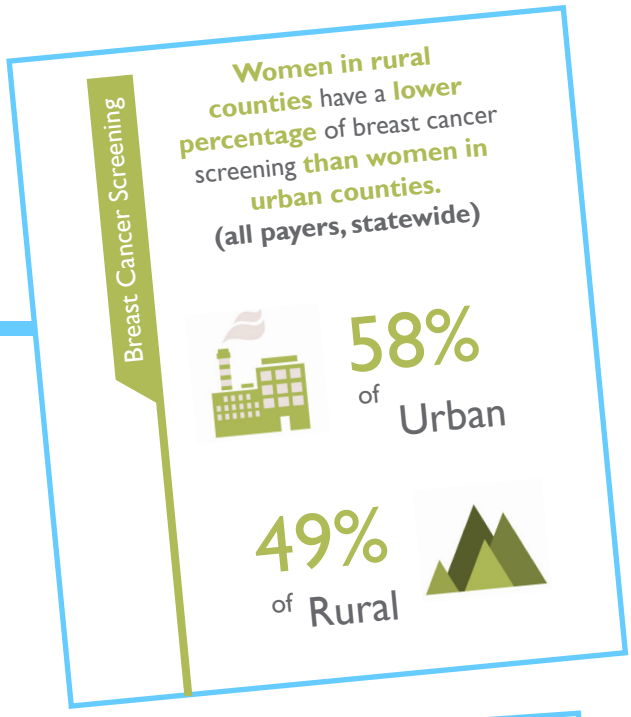
Benefit to Colorado: CO APCD data allowed CDPHE to obtain a better count of immunizing providers in the state, access to providers by county, and helped determine required dose level. This will allow providers to better serve patients with HCV and pinpoint where immunizing gaps exist.

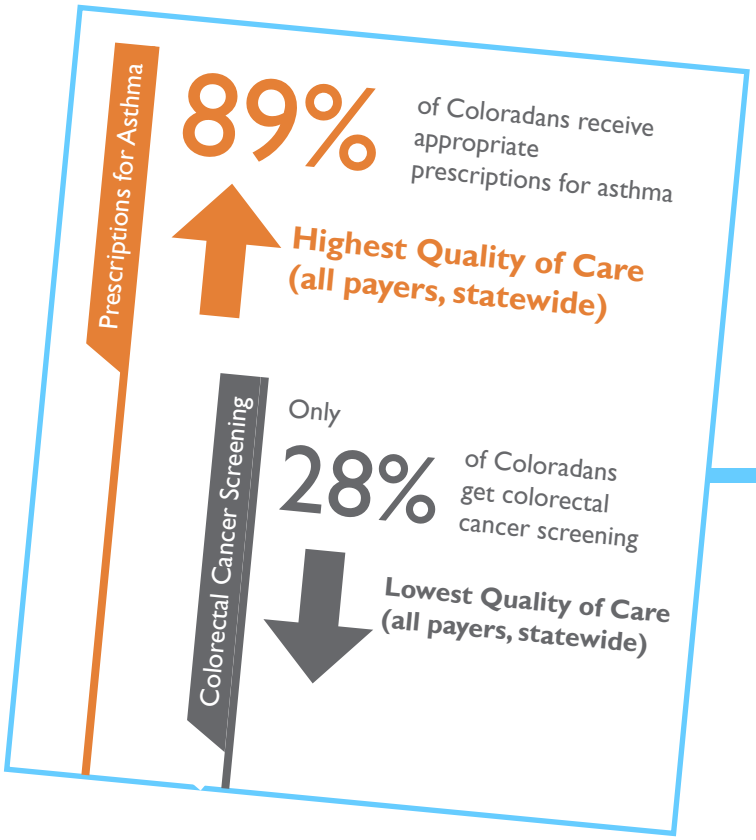
Quality of Care

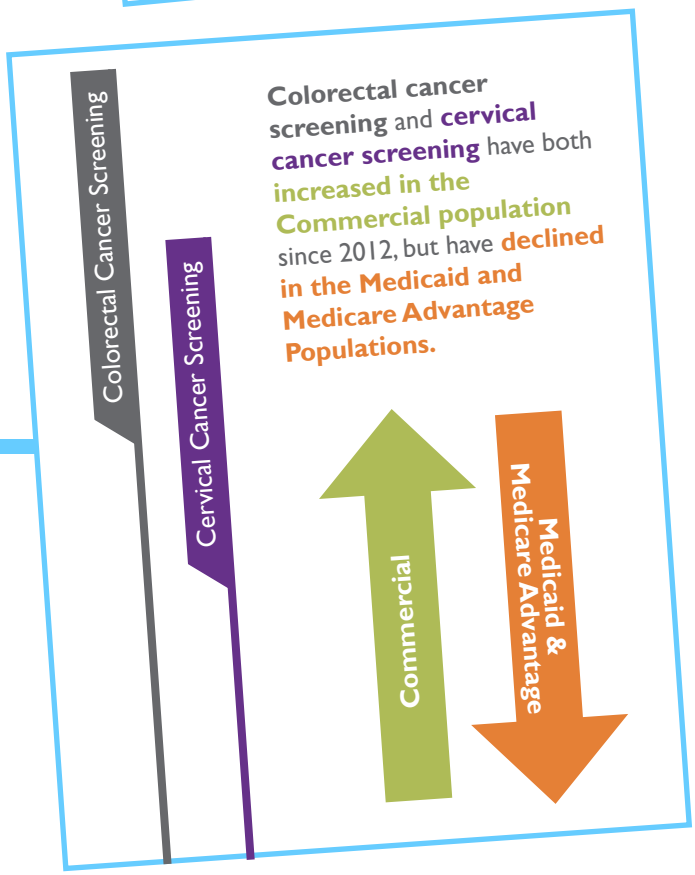
Your chances of receiving appropriate care for a chronic condition like diabetes and the likelihood of getting preventive screening for things like breast and colon cancer vary depending on what part of the state you live in. Understanding and addressing inequities in the quality of care starts with understanding where disparities exist.

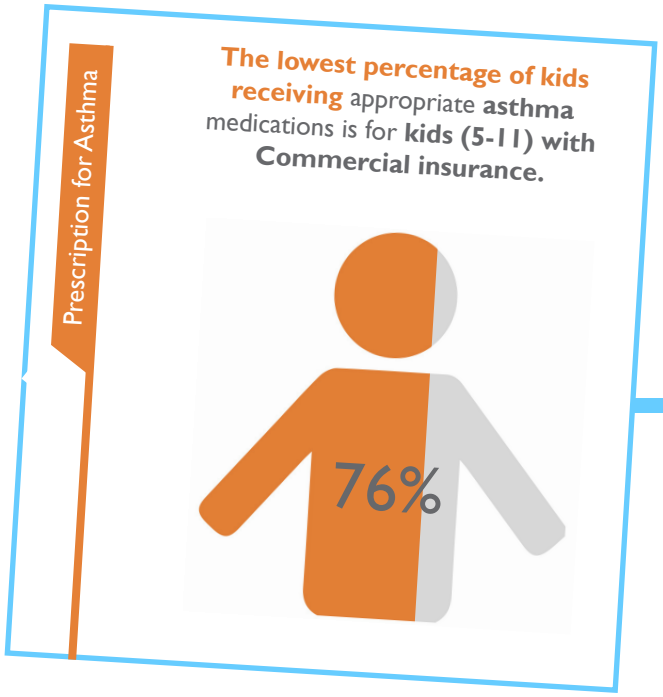
Quality Insights from Public Interactive Reports at civhc.org

Paramount to advancing the health of our state is ensuring that Coloradans receive high quality care to keep them healthy, prevent disease and identify concerns early. National, evidence-based standards for care exist to guide providers and patients in understanding what care should be received when. However, in spite of these guidelines, significant variation exists nationally and across the state.









Change Agent Highlights

Use Case: Reducing Readmissions for Vascular Surgery Patients

Profile: The University of Colorado Hospital (UCHealth) is an academic medical health care system focused on specialized care in Colorado.

Project Summary: UC Health used CO APCD data to identify rates of readmission, costs of care, risk factors, and outpatient care received for patients receiving common vascular procedures.

Benefit to Colorado: This study improves researchers' understanding of the reasons for patient readmission following vascular and oncologic surgical procedures. By identifying these risk factors, providers can improve patient outcomes by intervening early to prevent readmission, leading to a reduction in health care costs. Additionally, specialized care in Colorado is often limited in rural areas, and this study can help researchers understand the impact of patient migration and how to better align access and coordination to benefit patients.

Use Case: Efficacy of Immunosuppressants

Profile: Arbor Research Collaborative for Health conducts major studies in epidemiology and public health by collaborating with faculty and researchers from other major research organizations in the United States and around the world.

Findings: Overall, the use of generic immunosuppressants in transplantation increased rapidly after the introduction of the first few generics and has greatly exceeded brand-name product usage.

Project Summary: Immunosuppressant medications prevent transplant recipients from rejecting their new organs. FDA-approved versions of generic immunosuppressant medications are now available. Arbor Research used CO APCD data to estimate the proportions of generic and brand name immunosuppressant medications dispensed over time. The study was funded by a grant from the FDA. This research aims to identify patterns of generic medication adoption and investigate the implications of generic substitution.

Benefit to Colorado: These analyses highlighted trends in prescriptions dispensed for generic and brand name immunosuppressant medications among transplant recipients. Arbor Research was able to document the trend in generic drug prescriptions shortly after the approval of each drug. Moving forward, the results of this project could inform efforts to improve care for transplant patients in Colorado and across the nation.

Use Case: Improving Care for Medically Complex Children

Profile: Children's Hospital Colorado (CHCO) was founded in 1908 with the mission to improve the health of children through the provision of high-quality, coordinated programs of patient care, education, research and advocacy.

Project Summary: CHCO is using CO APCD data to assess variation in care for high risk populations in which their services must interface with other health systems, such as home health, mental health services, durable medical equipment, pharmacy, other ancillary services and with other community providers.

Benefit to Colorado: CO APCD data helps CHCO identify ways to address all three aspects of the Triple Aim – better health, better care and lower costs – for children with complex medical needs. Their work directly benefits medically complex children with intense medical and coordination of care needs that are not well met by existing health care models.

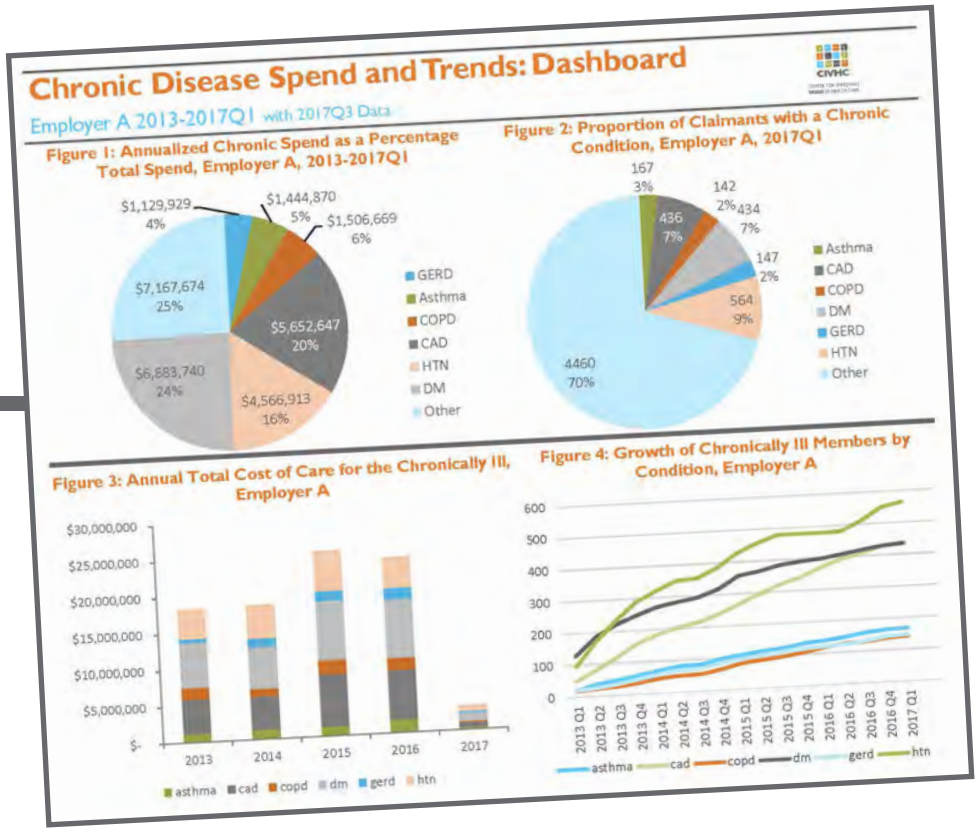
Condition Prevalence

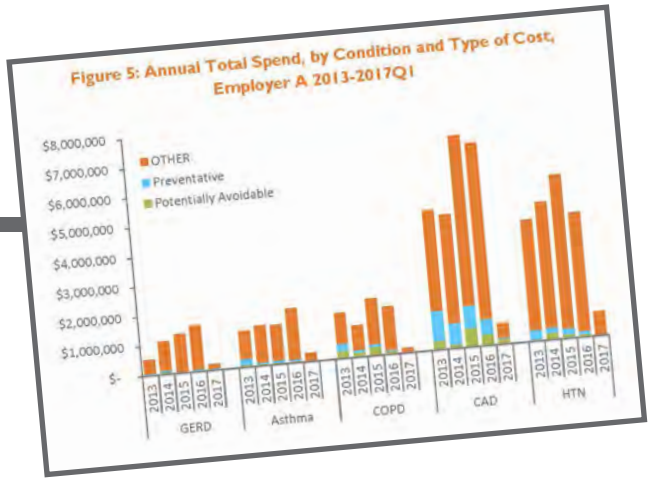
Colorado's mixed geography creates challenges that no single solution can overcome. From rural plains and mountain regions to more populous and diverse urban areas, the needs of communities vary greatly. Successful programs geared toward enhancing health and the quality of life or reducing chronic disease must meet the specific needs of each unique community.

Condition Prevalence Insights from Public Interactive Reports

CIVHC is committed to using data to inform innovation and increase transparency in the health care marketplace while identifying opportunities to improve the health of Coloradans. CO APCD data related to chronic disease prevalence, cost to treat, and health care service utilization allows stakeholders to target interventions and ensure that public health dollars are spent in areas most in need.

In the upcoming months, CIVHC will publish a new interactive Condition Prevalence Report on civhc.org. The below information is from reports generated through our new partnership with the Colorado Business Group on Health (CBGH). CIVHC provides analytics such as these to participating employer members of CBGH each quarter, helping them to lower health costs and improve the health of their employees.





Key Takeaways:

- A significant portion of Employer A's total spend (75% or $21.2 million per year) is associated with people with one of the six chronic conditions.
- 30% of the Employer A's claimant population have one of the six chronic diseases (1,890 total people).
- $21.2 million was spent on people with one of the six chronic conditions in 2016. Hypertension, Coronary Artery Disease and Diabetes Mellitus drive most of the spend.
- Hypertension, Coronary Artery Disease, and Diabetes Mellitus are the three most quickly increasing disease groups.
- Persons with one (or more) of these six chronic conditions are very expensive to the plan. Hypertension, Coronary Artery Disease, and Diabetes Mellitus are areas where interventions are recommended.

Change Agent Highlights

Use Case: Cost Savings from Medically-Tailored Meals for the Chronically Ill

Profile: Project Angel Heart provides medically-tailored, customized, home-delivered meals, free of charge, to critically-ill Coloradans.

Project Summary: CO APCD data was used to examine the cost and health benefit of their home-delivered meals on chronically-ill individuals compared to a control group of similar patients in the CO APCD who did not receive their services.

Benefit to Colorado: Results from this study show significant cost savings for Project Angel Heart patients and will help them to grow their program by sharing quantifiable impact data. Results of this study prove the effectiveness of home-delivered meals in terms of health care dollars saved, enabling Project Angel Heart to seek new government and public/private partnerships, and expand coverage to more Coloradans.

Use Case: Breast and Cervical Cancer Screening Rates

Profile: Colorado Department of Public Health and the Environment's (CDPHE) Women's Wellness Connection (WWC) is actively engaged in increasing breast and cervical cancer screening rates in Colorado.

Project Summary: WWC received CO APCD data to evaluate cancer screening rates by payer (Medicaid, Medicare, and Commercial) over time to compare to those rates reported by clinics through their Electronic Health Record.

Benefit to Colorado: By evaluating the CO APCD cancer screening rates across all payers, this project has the potential to increase cancer screening rates, save lives, and promote health equity by helping CDPHE make more informed decisions around where to target programs.

Use Case: Assessing the Medical Needs of Children in CO After Traumatic Brain Injury

Profile: The Adult and Child Consortium for Health Outcomes Research and Delivery Science (ACCORDS) a collaborative of the Colorado Health Outcomes Program and the Children's Outcomes Research Program, focuses on the entire life spectrum as well as on "delivery science," encompassing comparative effectiveness, patient-centered outcomes and implementation and dissemination research.

Project Summary: Little is known about the medical needs of children who suffer from Traumatic Brain Injury (TBI), so CO APCD data was used to understand utilization of health care services across the spectrum of care and identify outcomes of children who survive their initial TBI and are discharged from the hospital.

Benefit to Colorado: This project benefits Colorado by generating information about effective ways to care for injured children in order to help guide decision-making and planning at the state level. It also provides information about the medical needs of children after TBI, which can help providers and policy-makers better prepare to meet those needs.

Colorado APCD Financial Information and Fee Schedule

Cost of administering the CO APCD in FY17 - **$4.4 million**
CO APCD Earned Revenue - **$2.5 million**
CO APCD Grant Revenue – **$1.9 million**
Total CO APCD Amount Taken In - **$4.4 million**

CO APCD Eligible Projects:

Access to the Colorado All Payer Claims Database (CO APCD) must meet specific criteria to satisfy state and federal statutory and regulatory requirements. Custom data sets and reports that inform and support projects to improve the Triple Aim (better health, better care, and lower costs) are eligible. Examples include (but are not limited to):

- Evaluating health plan benefit design and opportunities to reduce price variation
- Analyzing outcomes and cost benefits of programs such as palliative care and community-based care transitions work
- Developing alternative payment options such as bundled payments or population based per member/month payments for Accountable Care Organizations or medical home models

Licensing Fees:

Data Offering	Licensing Fee
Standard Reports[1]	***$500-$5,000/year**
Custom Report[2]	***$1,500 - $20,000**
Custom De-identified Dataset[3]	***$10,000 - $25,000**
Custom Limited Dataset[4]	***$20,000 - $35,000**
Identifiable Dataset[5]	***$35,000 - $50,000**
*Note: Pricing is based on a number of factors including: indirect costs (including legal fees); labor costs/time required; number of unique and specific data elements; output type (Tableau, Excel, pivot tables, etc.); any professional services/consultation requested, and recurring subscription options	

How to Apply

To apply for access to the CO APCD, applicants must follow the existing CO APCD data request process administered by CIVHC. For more information about the data release application process, visit www.civhc.org, email ColoradoAPCD@civhc.org or call CIVHC directly at 720-583-2095.

Scholarship Opportunities

The Department of Health Care Policy and Financing offers scholarship funding to support non-profits, researchers and state agencies with licensing fees. Visit www.civhc.org for more information.

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[1] *A Standard Report means a report generated based on one of our pre-prepared outputs that has been predefined by CIVHC.*

[2] *A Custom Report means any report generated based on the APCD that is not provided as a Public Facing Report available through www.civhc.org Custom Reports contain a summary or analysis of data derived from the Colorado APCD database.*

[3] *Custom Dataset with De-Identification of Protected Health Information (PHI): Health information that does not identify an individual and with respect to which there is no reasonable basis to believe that the information can be used to identify an individual is not individually identifiable health information (45 CFR § 164.514(a)).*

[4] *Limited Data Set: A limited data set contains some PHI data elements but must exclude direct identifiers of the individual or of relatives, employers, or household members of the individual (see 45 C.F.R. 164.5 14(e)(2)). Such requests must be reviewed and recommended for approval by a Data Release Review Committee (DRRC) and meet all HIPAA and HITECH data privacy and security standards.*

[5] *Identifiable Dataset: A dataset containing patient level Protected Health Information (PHI) can only be released under very stringent HIPAA and HITECH guidelines. In addition to the Limited Data Set criteria, these releases generally require Institutional Review Board (IRB) approval as well.*

Custom CO APCD Data Requests 2017

Stakeholder Type	Scholarship Recipient	Project Description	Request Type
Consultant/Vendor		Use data to develop health data technology solutions to solve health care problems and further efforts toward the Triple Aim of better health, better care, and lower costs.	De-Identified Data Set
Consultant/Vendor		Understand the utilization of the chronic care codes for transition and ongoing chronic care management.	Standard Dataset
Consultant/Vendor		Supplement data analytics provided to payers and provider groups participating in the Colorado Comprehensive Primary Care+ initiative – an extension of the CPCI program designed to foster collaboration to strengthen primary care.	Fully-Identifiable Data Set
Consultant/Vendor		Determine prevalence of medical conditions potentially related to the consumption of drinking water containing elevated concentrations of molybdenum.	Custom Report
Consultant/Vendor		Assess the number of claims for patients with an over active bladder diagnosis.	De-Identified Data Set
Consultant/Vendor	Yes	Evaluate impact of targeted digital advertising on preventive care patterns and access to care for 18-34 year-old rural Coloradans.	Custom Report
Employer		Analysis of spending on health care services for covered members.	Standard Report
Employer		Analysis of spending on health care services for covered members.	Standard Report
Employer		Analysis of spending on health care services for covered members.	Standard Report
Government	Yes	Support increased access and use of Long Acting Reversible Contraceptives (LARCs) among women using contraceptives in Colorado.	Custom Report
Government		Support enhancing state programs and by identifying and responding to emerging issues that could affect Colorado's public and environmental health.	Limited Data Set
Government		Help characterize the hepatitis C virus (HCV) epidemic in Colorado and evaluate screening practices and clinical outcomes related to HCV in the state.	Limited Data Set
Government	Yes	Analysis of price variation for hip replacement, knee replacement, colonoscopy, and CT, MRI and other imaging procedures across different regions of the state.	Limited Data Set
Government		Evaluate impact of community-based programs in terms of the health care savings and outcomes.	Limited Data Set
Government		Determine how variation in different health care markets' competitive structures drives variation in health care provider prices.	Limited Data Set

Custom CO APCD Data Requests 2017

Stakeholder Type	Scholarship Recipient	Project Description	Request Type
Government		Measure transitions between Medical Assistance programs (Medicaid and CHP+) and private insurance plans offered through the health exchange or fully insured employer sponsored plans and assess consequences for those experiencing coverage transitions.	Limited Data Set
Government	Yes	Determine medical cost drivers and their impact on premiums in the state and compared to other states.	De-Identified Data Set
Government		Determine ways to measure and address the opioid problem and develop tools to help combat the opioid epidemic.	Limited Data Set
Government		Analyze, evaluate, and model claims data to support integration of behavioral health care services with physical health care services in primary care settings.	Custom Report
Hospital System		Assess variation in care for high-risk populations and interface across health systems, such as home health, mental health services, durable medical equipment, pharmacy, other ancillary services and other community providers.	Fully-Identifiable Data Set
Hospital System		Identify disparities in payments for top CPT codes in order to understand reimbursement and volume by specialty to inform discussions with health plans and physicians.	Custom Report
Hospital System		Analyze changes in enrollment for across different payers.	Custom Report
Hospital System		Understand patient care patterns outside of the community to inform enhancing service offerings to better meet the needs of the population.	Standard Report
Non Profit		Improve understanding of the diagnosis and treatment of asthma and COPD in Colorado residents.	Limited Data Set
Non Profit		Assist legislative efforts to show the costs of prescription drugs by geography, district, pharmacy, and payer for a specific chronic condition.	Standard Report
Non Profit		Understand out-of-pocket costs in light of the changes with the Affordable Care Act to support patient access to care.	Standard Report
Non Profit	Yes	To develop, pilot, and evaluate a scalable plan to ensure children with Medicaid receive the right care, at the right time, in the right location.	Fully-Identifiable Data Set
Non Profit	Yes	Integration of data from the CO APCD with Electronic Health Record data to produce utilization, cost and quality indicator reports to support safety net population health improvements.	Fully-Identifiable Data Set
Non Profit		Examine rates of utilization of preventive services among commercially insured and Medicaid enrollees.	Custom Report

Custom CO APCD Data Requests 2017

Stakeholder Type	Scholarship Recipient	Project Description	Request Type
Non Profit	Yes	Build capacity to enhance viral hepatitis programs by developing and utilizing epidemiologic profiles to document, interpret, and frame the dimensions and burden of the epidemic in local terms.	Custom Report
Non Profit		Support building a comprehensive decision-support tool package that guides health care customers/consumers to research and locate their health insurance plan.	De-Identified Data Set
Non Profit	Yes	Assess the cost impact of providing premium sponsorship to individuals shopping on Colorado's health insurance exchange who would otherwise not be able to afford insurance or who would have chosen a Bronze plan based on the cost of the premium.	Fully-Identifiable Data Set
Non Profit	Yes	Analyze claims data and data from self-funded employer sponsored plans to address potential factors which may be driving costs in their region.	Standard Dataset
Non Profit	Yes	Identify prevalence, cost, and services utilized by patients with spinal cord injuries and overlay it with reliable demographic data.	Custom Report
Non Profit		Understand how the prices that insurers pay physicians for medical care respond to the public sector's reimbursement rates.	Limited Data Set
Non Profit		Determine how total cost of care and use of health care services at the practice level varies across different regions of the U.S. and Colorado to help physicians identify ways to improve quality and lower costs.	Custom Report
Non Profit		Determine outcomes and cost savings as a result of providing targeted nutrition services to patients with chronic conditions.	Custom Report
Non Profit	Yes	Understand the baseline for care provided outside a defined geography to track gaps in services, travel costs within the local community, resident health status, and health-sector workforce shortages.	Standard Report
Payer		Examine patient characteristics and risk factors associated with complications of opioid use, assess the use of naloxone (a medicine to treat overdose) among patients, and determine the risk of adverse events from naloxone administration.	Fully-Identifiable Data Set
Researcher	Yes	Study the effects of policies designed based on Behavioral Economics that have the potential to increase the welfare of Colorado residents and maintain the stability of the non-group health insurance market.	Limited Data Set
Researcher		Characterize changes in insurance coverage among Medicaid beneficiaries over time and evaluate the impact of Colorado's Medicaid expansion on continuity of Medicaid coverage.	Limited Data Set
Researcher	Yes	Understand clinical resources congenital heart disease adult patients with chronic complex childhood conditions need and what policies help them obtain those resources.	Limited Data Set

Custom CO APCD Data Requests 2017

Stakeholder Type	Scholarship Recipient	Project Description	Request Type
Researcher	Yes	Investigate the effect of Colorado's health exchange on health care utilization, and how the variation in exchange premiums across the state is affected by the interaction of market structure, selection, and location.	Limited Data Set
Researcher	Yes	Identify variation in utilization, health care costs, and quality of care received by low income adults enrolled in Medicaid versus those enrolled in private plans.	Limited Data Set
Researcher		Study the extent of adverse selection problems in three markets, the Colorado ACA Marketplace, Medicare Advantage, and Medicaid Managed Care.	Limited Data Set
Researcher	Yes	Assess the health effects associated with unconventional natural gas development (UNGD).	Fully-Identifiable Data Set
Researcher	Yes	Investigate the relationship between coordination of care and utilization patterns and cost, access, quality, and utilization outcomes.	Limited Data Set
Researcher	Yes	Develop a state-wide population-based surveillance system of congenital heart defects among individuals aged 11 to 64 years in Colorado.	Fully-Identifiable Data Set
Researcher		Develop a health care data warehouse for four health care provider institutions in Colorado designed to support their needs for clinical, translational, population, and public health research.	Limited Data Set
Researcher	Yes	Identify some of the mechanisms by which the transition to adult care settings occurs within an ACO and leveraging social network analysis (SNA) provide Researcher with a way to measure care coordination that does not require surveys or access to patient medical records.	Limited Data Set
Researcher		Compare and contrast prescribing and treatment patterns at different cancer stages by provider type, insurance reimbursement model, and by distance to specialized care.	Limited Data Set
Researcher	Yes	Identify provider barriers to attaining adequate immunization of adolescents with HPV vaccine, and understand provider barriers, attitudes and practices towards HPV vaccination.	Limited Data Set
Researcher		Link and evaluate CO APCD data with the Colorado Central Cancer Registry (CCCR) data.	Fully-Identifiable Data Set
Researcher		Validate methods to identify low-value cardiac stress tests, and identify effective ways to decrease these tests, thereby improving patient outcomes and reducing health care expenditures.	Fully-Identifiable Data Set

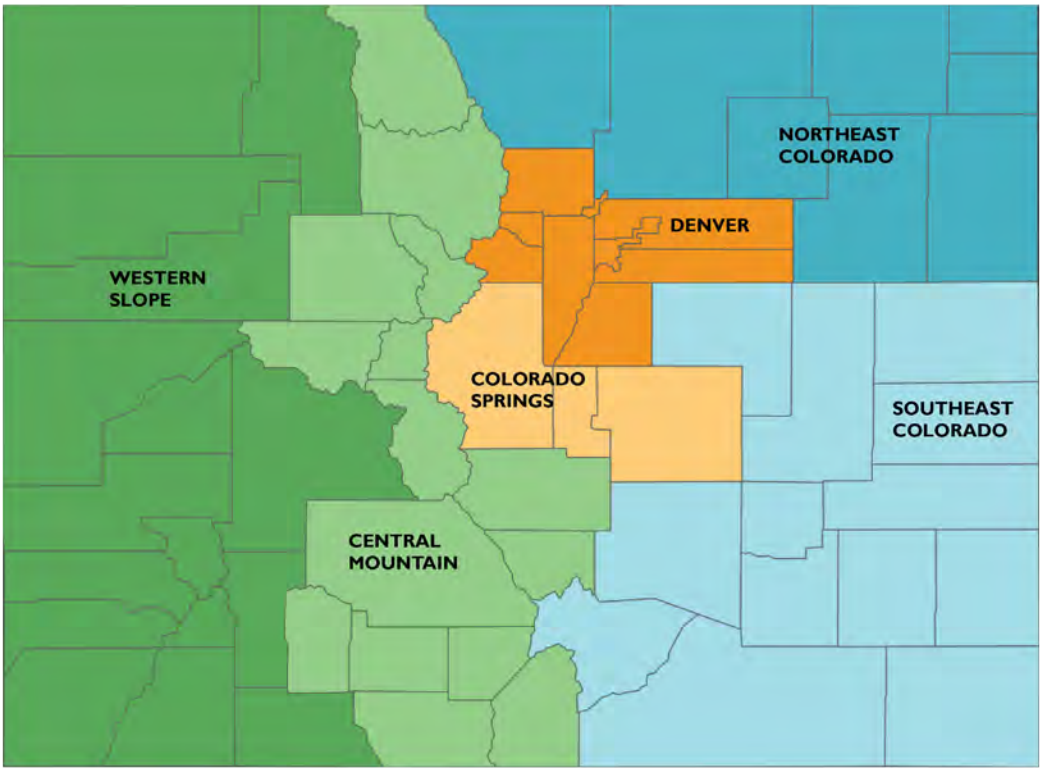
Cost Driver Spot Analysis: Regional Price Variation for High Volume Services January 2017

CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

Health care spending in the United States is projected to equal over 20 percent of the Gross Domestic Product by 2020.[i] As health care costs rise, experts work to pinpoint the reasons and rationales behind the increases. Recent studies have shown that residents in certain areas of Colorado pay more for certain procedures and based on this information, it is tempting to conclude that all health care costs in those regions are higher than the rest of the state. [ii]

On the contrary, a recent analysis provided to the Colorado Commission on Affordable Health Care utilizing data from the Colorado All Payer Claims Database (CO APCD) suggested that it is impossible to draw general conclusions about health care prices based on geography or volume of services performed. Median payments made by commercial health insurance companies and their members indicate that while one health care service may be particularly high cost for one region in the state, other services may be right in line with or actually lower than the state average.

Figure I. Colorado Counties Represented in Geographic Groupings



All Over the Map

The analysis focused on 2014 commercial claims for high volume procedures and services in six regions across Colorado: Western Slope, Central Mountain, Denver, Colorado Springs, Northeast Colorado, and Southeast Colorado (see Figure 1). Median paid amounts (by both the health insurance payer and member) indicate that cost variation between regions was inconsistent and varied by procedure.

For example, in 2014, the Western Slope had the highest median paid amount for brain MRIs, yet they were not the highest cost region for any other service analyzed (see Figure II).

While Coloradans living in the Northeast region of the state paid over $15,000 more than the statewide median for dorsal/lumbar spinal surgery, and over $36,200 and $25,000 more than the statewide average for hip and knee replacement respectively, they were not the highest cost region for colonoscopies or head CTs.

The Colorado Springs region had the lowest costs for colonoscopies and dorsal/lumber spine fusion, yet they were the highest cost region for abdominal echo exams, further demonstrating that relative prices are not determined solely based on geography.

Figure II. Highest and Lowest Median Paid Amount Regions Compared to CO Statewide Median, CO APCD 2014

Category	Procedure	Highest Paid Region	Amount Above State Median	State Median Paid Amount	Amount Below State Median	Lowest Paid Region
Orthopedic Surgery	Hip Joint Replacement	Northeast	$36,200	$24,800	-$1,700	**Denver (HV)
	Knee Joint Replacement	Northeast	$25,100	$26,800	-$3,700	**Denver (HV)
	Dorsal/Lumbar Surgery	*Northeast (LV)	$15,100	$63,200	-$5,900	CO Springs
Colonoscopy	Diagnostic Colonoscopy	*Central Mountain (LV)	$1,200	$700	-$200	CO Springs
	Colonoscopy/Biopsy	*Central Mountain (LV)	$1,400	$1,100	-$500	CO Springs
	Colonoscopy w/Lesion	*Central Mountain (LV)	$2,300	$900	-$400	CO Springs
Imaging	CT Head/Brain	*Central Mountain (LV)	$400	$800	$0	**Denver (HV)
	CT Abdomen/Pelvis	*Central Mountain (LV)	$1,000	$800	-$100	Southeast CO
	MRI	Western Slope	$1,400	$1,100	-$200	**Denver (HV)
	Echo Abdomen	CO Springs	$100	$400	-$100	*Central Mountain (LV)

* (LV) Indicates regions with the lowest volume of procedures compared to all other regions analyzed in that time period

** (HV) Indicates regions with the highest volume of procedures compared to all other regions analyzed in that time period

Volume as a Potential Driver

Costs for CT scans of the head or brain were lowest in the Denver region, at $800. Yet in the Mountain region, prices are the highest for CTs at $400 more than the statewide median, or $1,200. Some health care experts hypothesize that lower costs in large, metropolitan areas such as Denver can be explained by the relatively large number of procedures performed. However, as Figure II reflects, prices were highest in the lowest volume regions for only six of the ten services analyzed, whereas prices were lowest in the highest volume region for only five of the ten procedures. Additionally, the Central Mountain region, while lowest volume and highest price for all of the colonoscopy services and CT scans, was lowest volume but also had the lowest median paid amount for Echo of the Abdomen.

Change Over Time

Variation is not limited to geographic differences. Investigation into five-year cost trends within each region also point to annual pricing fluctuation. For some procedures in some regions, prices spike high one year only to drop markedly the following year (see Addendum). Other regions appear to be trending downward for some services while upward for others, and some regions appear to have relatively flat paid amounts over time.

Making Sense of Variation

These analyses indicate that there is more driving health care prices than simply geography and procedure volume. While it is tempting to draw simple conclusions to make sense of the significant variation that exists, the reality is that variation in health care costs is far more complex. Payments vary based on an assortment of factors in addition to geography and volume, including cost of living, demographics of the population, extent of provider networks, and degree of health plan and provider competition. The CO APCD allows Coloradans to identify pieces of the puzzle and to begin to understand where variation exists, identify trends, and generate benchmarks that allow meaningful comparisons across regions. However, understanding why prices vary widely and whether observed price variation is warranted or not requires additional information to inform local and statewide policy discussions.

The move toward greater transparency in the health care industry will allow for further insights into the drivers behind costs. Insights such as these have the potential to inform new ways to improve care, lower costs, and create a healthier Colorado.

Powered, in part, by generous grants from:
The Colorado Health Foundation | The Colorado Trust

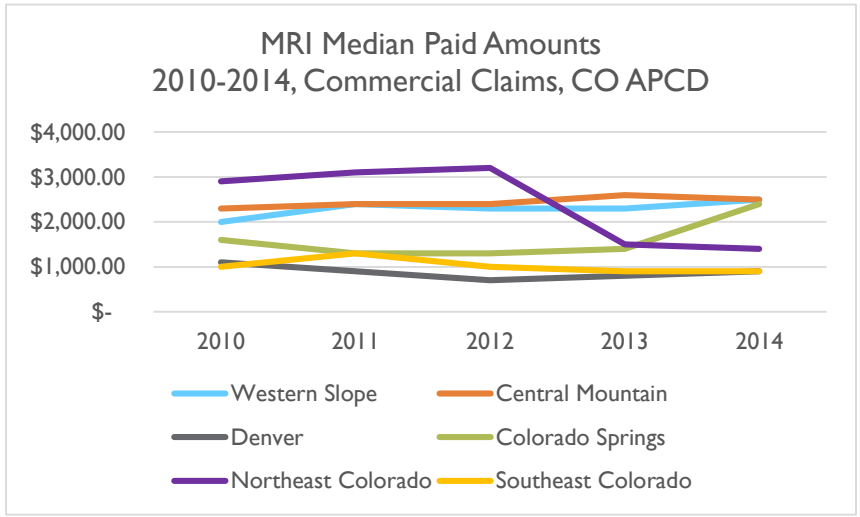
Sources and Methodology

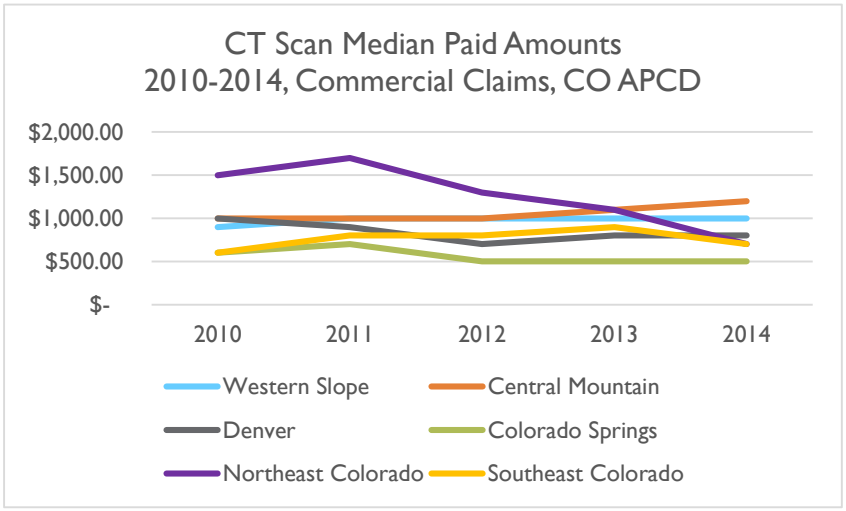
[i] Centers for Medicare & Medicaid Services. (2014). National Health Expenditure Projections 2015-2025. Retrieved November 2016, from https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2015.pdf

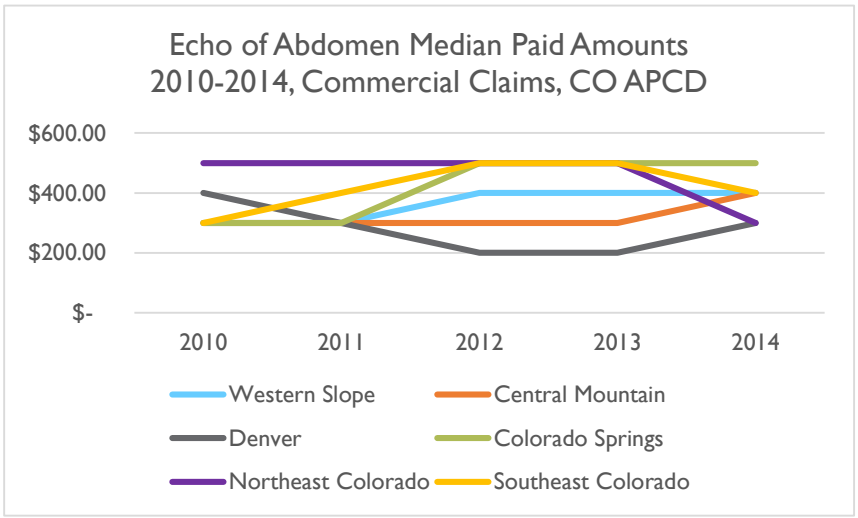
[ii] Quealy, K., & Sanger-Katz, M. (2015, December 15). The Experts Were Wrong About the Best Places for Better and Cheaper Health Care. The New York Times. Retrieved November 2016, from http://www.nytimes.com/interactive/2015/12/15/upshot/the-best-places-for-better-cheaper-health-care-arent-what-experts-thought.html?_r=0

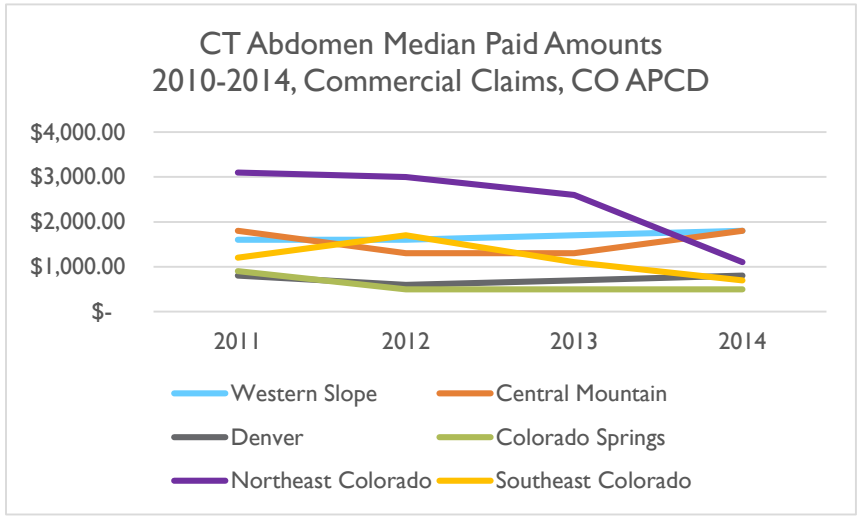
Analysis includes 2014 commercially insured claims. Median paid amounts represent both member liability and plan paid amounts for inpatient and outpatient facilities, and include professional and facility fees. Procedures represented in this analysis include APR-DRGs 301, 302, 304, and CPTs 45378. 45380, 45385, 70450, 70553, 74176, 76705.

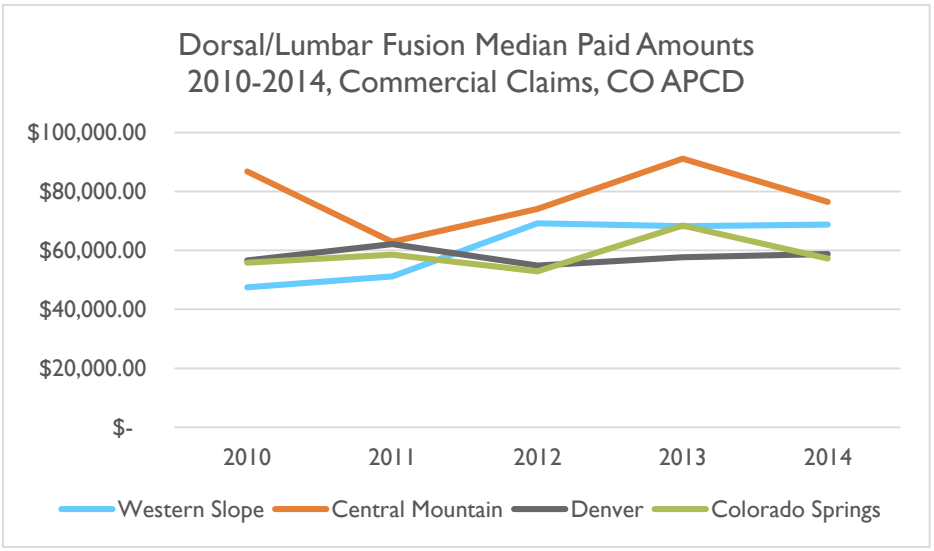
Addendum – Median Paid Amounts by Region 2010-2014

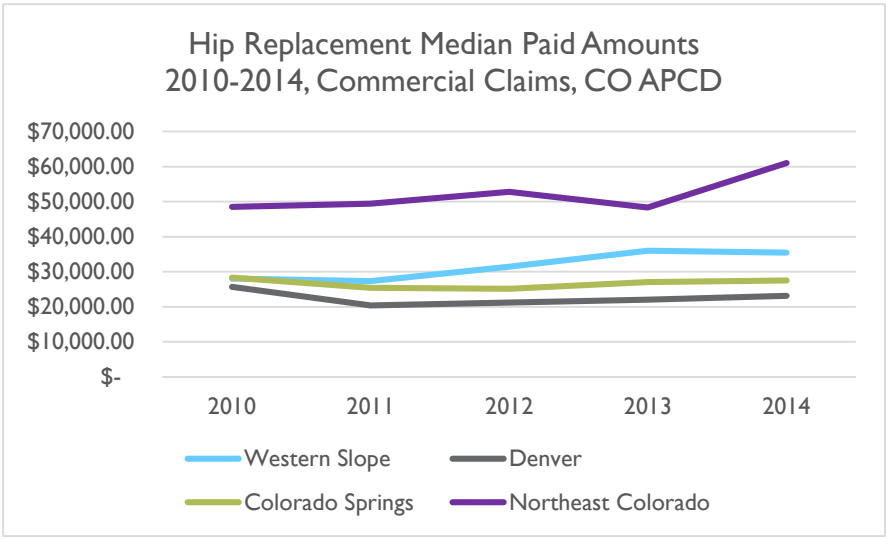


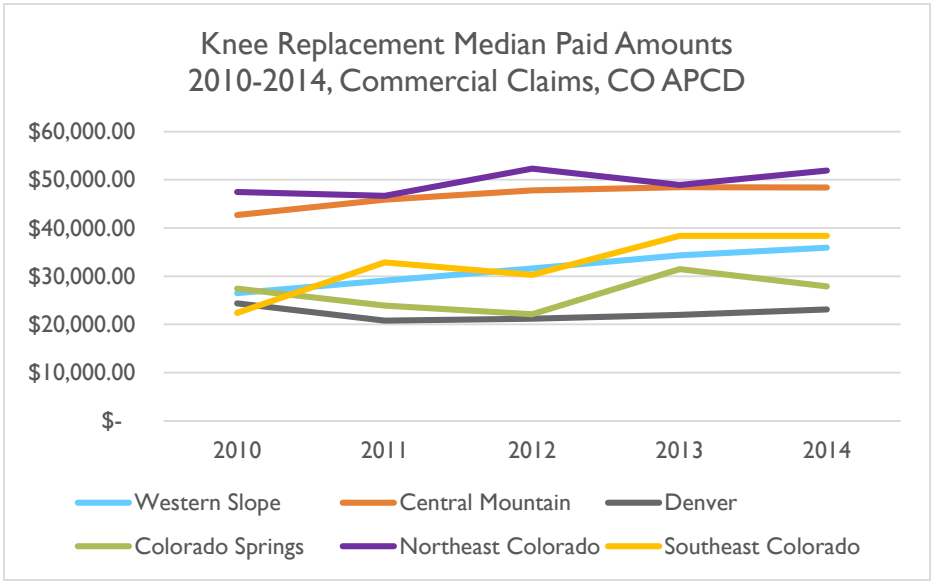


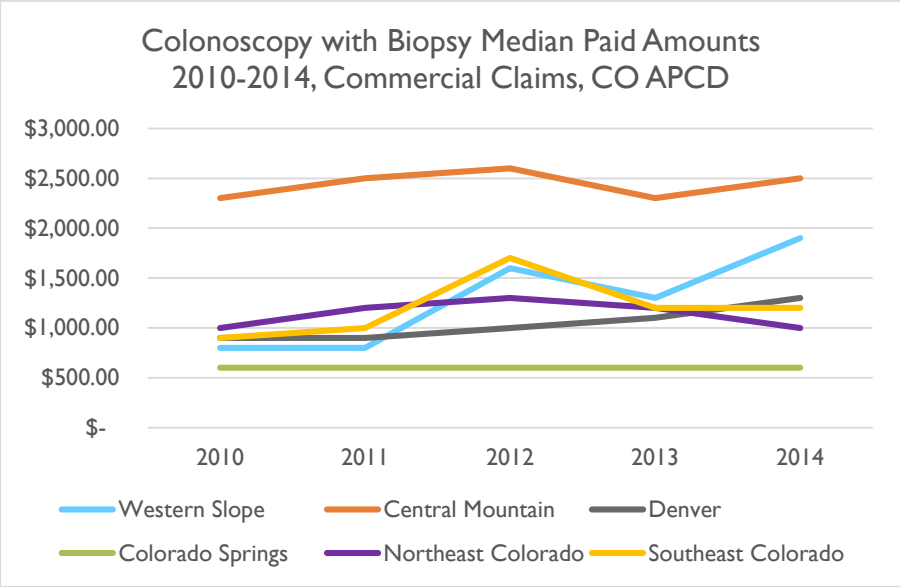


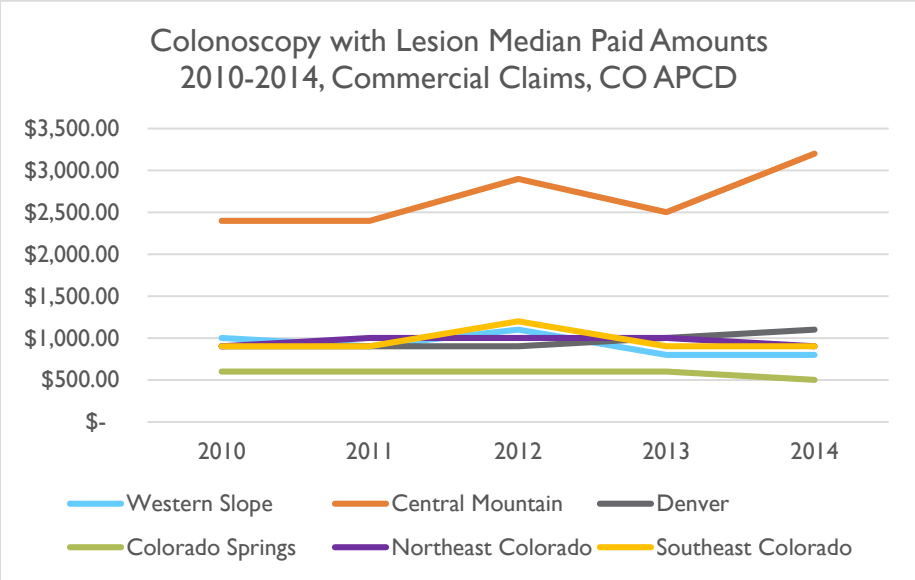


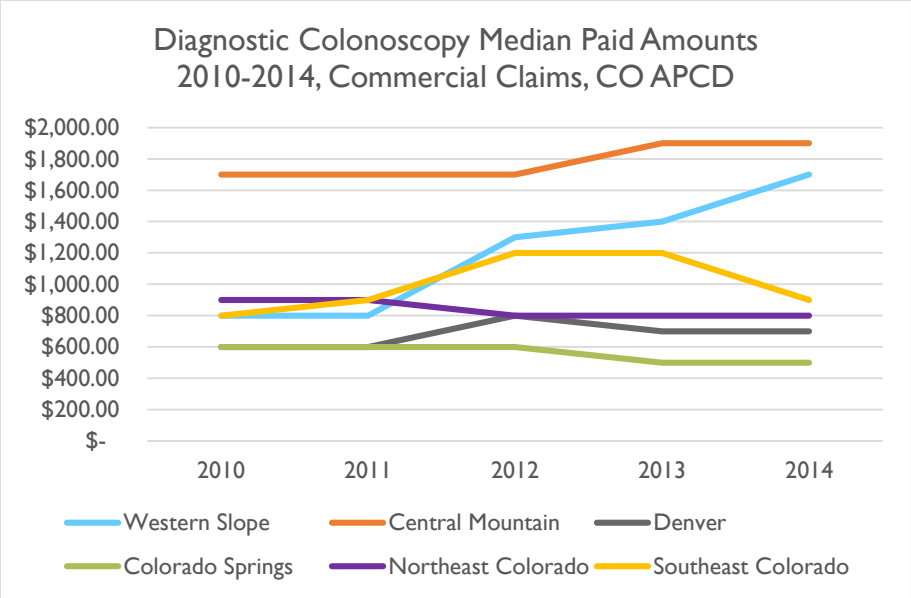

Dorsal/Lumbar Fusion Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$100,000.00
$80,000.00
$60,000.00
$40,000.00
$20,000.00
$-
2010
2011
2012
2013
2014
Western Slope
Central Mountain
Denver
Colorado Springs


Hip Replacement Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$70,000.00
$60,000.00
$50,000.00
$40,000.00
$30,000.00
$20,000.00
$10,000.00
$-
2010
2011
2012
2013
2014
Western Slope
Denver
Colorado Springs
Northeast Colorado


Knee Replacement Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$60,000.00
$50,000.00
$40,000.00
$30,000.00
$20,000.00
$10,000.00
$-
2010
2011
2012
2013
2014
Western Slope
Central Mountain
Denver
Colorado Springs
Northeast Colorado
Southeast Colorado


Colonoscopy with Biopsy Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$3,000.00
$2,500.00
$2,000.00
$1,500.00
$1,000.00
$500.00
$-
2010
2011
2012
2013
2014
Western Slope
Central Mountain
Denver
Colorado Springs
Northeast Colorado
Southeast Colorado


Colonoscopy with Lesion Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$3,500.00
$3,000.00
$2,500.00
$2,000.00
$1,500.00
$1,000.00
$500.00
$-
2010
2011
2012
2013
2014
Western Slope
Central Mountain
Denver
Colorado Springs
Northeast Colorado
Southeast Colorado


Diagnostic Colonoscopy Median Paid Amounts
2010-2014, Commercial Claims, CO APCD
$2,000.00
$1,800.00
$1,600.00
$1,400.00
$1,200.00
$1,000.00
$800.00
$600.00
$400.00
$200.00
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2010
2011
2012
2013
2014
Western Slope
Central Mountain
Denver
Colorado Springs
Northeast Colorado
Southeast Colorado

STATE INNOVATION MODEL (SIM) PROXY MEASURE: DIABETES

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OVERVIEW

In 2012, the Center for Medicare and Medicaid Innovation (CMMI) launched the ambitious State Innovation Model (SIM) to improve health care and lower costs across the nation. Colorado is one of 25 states implementing a plan to influence the health of 80 percent of Coloradans by 2019.

The CO APCD is one of the sources for data and analytics for the Colorado SIM effort. In collaboration with the SIM Office, CIVHC developed innovative ways to use the CO APCD to assess how integrated behavioral and physical health influences patient health and cost of care. The health care community calls these "quality measures."

Using nationally accepted specifications, methodologies were established using health insurance claims across Medicare, Medicaid and commercial payers in the CO APCD to create claims-based quality measures. These quality measures allow benchmarking between payers and providers across the entire state to identify opportunities to create targeted, meaningful interventions that improve population health, improve care, and lower costs for Colorado.

DIABETES is a leading cause of death and disability in the U.S.

MEASURING CARE FOR DIABETES

- For patients diagnosed with Diabetes, it is important to keep the amount of glucose (sugar) in the blood within a normal range.
- Providers test for glucose control by measuring the amount of glycohemoglobin in the blood. Patients should receive this test once a year. This CO APCD proxy quality measure provides the percentage of Diabetic patients who received blood testing for glycemic control in 2015.
- This measure aligns with National Quality Forum Measure (NQF) #0059 and Clinical Quality Measure (CQM) 122v5 developed by the Centers for Medicare & Medicaid.

ACROSS THE NATION

Over **29 million** Americans have diabetes. In 2010, over **69,000 people died** from causes related to diabetes, and it was the **7th leading cause of death** in the U.S. [ii]

IN COLORADO

Over **419,000 people** in Colorado have diabetes, and it costs Colordans an estimated **$3.6 billion annually** in medical treatment and loss of productivity. [iii]

SIM PRACTICES

Adults with Diabetes, Aged 18-75, Who Received Glycohemoglobin Testing in 2015

SIM Practices	72.3%
Statewide	67.8%

TAKEAWAYS

- As expected, a larger percentage of Coloradans aged 18 to 75 years cared for by SIM providers receive glycohemoglobin blood tests when compared to others with diabetes across the state.
- The majority of individuals with diabetes in Colorado receive the recommended blood test, however, a significant percentage of people with diabetes may not.

IMPROVING CARE FOR DIABETES

- Large programs, like SIM, focused on improving the quality of care for diabetics are producing better care.
- These proxies and other measures create opportunities for providers and public health agencies to target communication campaigns and outreach interventions to entire populations.

SOURCES

[i] TriStar Horizon Medical Center. (2017, January). What Does Quality in Health Care Mean? Retrieved from TriStar Horizon.com: http://tristarhorizon.com/about/newsroom/what-does-quality-in-health-care-mean

[ii] Centers for Disease Control and Prevention. (2017, January). National Diabetes Statistics Report, 2014. Retrieved from cdc.gov: https://www.cdc.gov/diabetes/pdfs/data/2014-report-estimates-of-diabetes-and-its-burden-in-the-united-states.pdf

[iii] American Diabetes Association. (2017, January). The Burden of Diabetes in Colorado. Retrieved from cdc.gov: http://main.diabetes.org/dorg/PDFs/Advocacy/burden-of-diabetes/colorado.pdf

STATE INNOVATION MODEL (SIM) PROXY MEASURE: HYPERTENSION

CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

OVERVIEW

In 2012, the Center for Medicare and Medicaid Innovation (CMMI) launched the ambitious State Innovation Model (SIM) to improve health care and lower costs across the nation. Colorado is one of 25 states implementing a plan to influence the health of 80 percent of Coloradans by 2019.

The CO APCD is one of the sources for data and analytics for the Colorado SIM effort. In collaboration with the SIM Office, CIVHC developed innovative ways to use the CO APCD to assess how integrated behavioral and physical health influences patient health and cost of care. The health care community calls these "quality measures."

Using nationally accepted specifications, methodologies were established using health insurance claims across Medicare, Medicaid and commercial payers in the CO APCD to create claims-based quality measures. These quality measures allow benchmarking between payers and providers across the entire state to identify opportunities to create targeted, meaningful interventions that improve population health, improve care, and lower costs for Colorado.

HYPERTENSION is also known as high blood pressure and is a significant health concern in the United States.

MEASURING CARE FOR HYPERTENSION

- Patients with hypertension are at risk for heart attacks, strokes, and heart failure.
- Medication can help control hypertension; this quality measure provides the percent of patients diagnosed with hypertension who filled a 90-day prescription of medication designed to control blood pressure.
- This measure aligns with National Quality Forum Measure (NQF) #0022 and Clinical Quality Measure (CQM) 165v4 developed by the Centers for Medicare & Medicaid.

ACROSS THE NATION

1 in 3 adults in the US has high blood pressure - about **75 million people**.

High blood pressure costs the US **$46 billion each year**.[ii]

IN COLORADO

31% of Coloradans **between 45-64** and **53%** of those 65+ had high blood pressure in 2016.[iii]

SIM PRACTICES

Percentage of Adults with High Blood Pressure Who Filled a 90-day Medication Prescription in 2015

SIM Practices	46.8%
Statewide	37.4%

TAKEAWAYS

- Coloradans with providers who are part of the SIM significantly outpaced the rest of the state in fulfillment of blood pressure medication in 2015.
- A significant percentage of Coloradans with high blood pressure may not be taking their medications regularly.

IMPROVING CARE FOR HYPERTENSION

- Low measurement of medication adherence may be due to increased out-of-pocket purchase of generics high blood pressure medications (data not captured in the CO APCD), drop off in medication adherence over time, and the occurrence of undesirable medication side effects.
- Significant opportunities exist for targeted interventions and outreach surrounding hypertension management.
- These proxies create opportunities for public health agencies to target communication campaigns and outreach interventions to entire populations.

SOURCES

[i] TriStar Horizon Medical Center. (2017, January). What Does Quality in Health Care Mean? Retrieved from TriStar Horizon.com: http://tristarhorizon.com/about/newsroom/what-does-quality-in-health-care-mean

[ii] Centers for Disease Control and Prevention. (2017, January). High Blood Pressure Facts. Retrieved from cdc.gov: https://www.cdc.gov/bloodpressure/facts.htm

[iii] America's Health Rankings. (2017, January). Measure - High Blood Pressure. Retrieved from americashealthrankings.org: http://www.americashealthrankings.org/explore/2016-annual-report/measure/Hypertension/state/CO

STATE INNOVATION MODEL (SIM) PROXY MEASURE: ASTHMA

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OVERVIEW

In 2012, the Center for Medicare and Medicaid Innovation (CMMI) launched the ambitious State Innovation Model (SIM) to improve health care and lower costs across the nation. Colorado is one of 25 states implementing a plan to influence the health of 80 percent of Coloradans by 2019.

The CO APCD is one of the sources for data and analytics for the Colorado SIM effort. In collaboration with the SIM Office, CIVHC developed innovative ways to use the CO APCD to assess how integrated behavioral and physical health influences patient health and cost of care. The health care community calls these "quality measures."

Using nationally accepted specifications, methodologies were established using health insurance claims across Medicare, Medicaid and commercial payers in the CO APCD to create claims-based quality measures. These quality measures allow benchmarking between payers and providers across the entire state to identify opportunities to create targeted, meaningful interventions that improve population health, improve care, and lower costs for Colorado.

ASTHMA is a chronic condition requiring ongoing care and active treatment.

MEASURING CARE FOR ASTHMA

- Patients with persistent asthma are ideally prescribed and are using one or more maintenance medications.
- For patients between 5 and 64 years of age diagnosed with persistent asthma, this quality measure provides the percent of patients who filled one or more prescription asthma medications during 2015.
- This measure aligns with National Quality Forum Measure (NQF) #0036 and Clinical Quality Measure (CQM) 126v3 developed by the Centers for Medicare & Medicaid.

ACROSS THE NATION

Over **24 million people** have asthma, resulting in over **439,000 hospitalizations**, **1.6 million ER visits**, and **3,600 deaths annually**.[ii]

IN COLORADO

Over **343,000 people have asthma**, and **in 2014**, asthma was the underlying cause of **46 deaths in the state**.[iii]

SIM PRACTICES

Use of Appropriate Asthma Medications (One or More Prescription Medications Filled)

	All Ages	5-11 years	12-18 years	19-50 years	51-64 years
SIM Practices	44.2%	49.6%	41.6%	41.5%	43.1%
Statewide	44.8%	48.3%	42.6%	42.4%	45.6%

TAKEAWAYS

- For the majority of age groups and overall, Coloradans with SIM providers appear to have about the same adherence to their asthma medication when compared to others with asthma across the state.
- Most Coloradans with asthma are not filling one asthma prescription medication each year.

IMPROVING CARE FOR ASTHMA

- Coloradans' lack of medication adherence may be due to increasing use of over-the-counter medications, lower symptoms leading to poor medication adherence, and high cost of medications.
- Asthma remains a significant health issue in Colorado, and programs designed to increase medication compliance will improve the lives of people with asthma.
- These proxies create opportunities for public health agencies to target communication campaigns and outreach interventions to entire populations.

SOURCES

[i] TriStar Horizon Medical Center. (2017, January). What Does Quality in Health Care Mean? Retrieved from TriStar Horizon.com: http://tristarhorizon.com/about/newsroom/what-does-quality-in-health-care-mean

[ii] Centers for Disease Control and Prevention. (2017, January). Most Recent Asthma Data - National Health Care Use - Adult Prevalence and Mortality. Retrieved from cdc.gov: https://www.cdc.gov/asthma/most_recent_data.htm

[iii] Centers for Disease Control and Prevention. (2017, January). Most Recent Asthma Data - State or Territory Data - Adult Prevalence and Mortality. Retrieved from cdc.gov: https://www.cdc.gov/asthma/most_recent_data_states.htm

STATE INNOVATION MODEL (SIM) PROXY MEASURE: BREAST CANCER SCREENING

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OVERVIEW

In 2012, the Center for Medicare and Medicaid Innovation (CMMI) launched the ambitious State Innovation Model (SIM) to improve health care and lower costs across the nation. Colorado is one of 25 states implementing a plan to influence the health of 80 percent of Coloradans by 2019.

The CO APCD is one of the sources for data and analytics for the Colorado SIM effort. In collaboration with the SIM Office, CIVHC developed innovative ways to use the CO APCD to assess how integrated behavioral and physical health influences patient health and cost of care. The health care community calls these "quality measures."

Using nationally accepted specifications, methodologies were established using health insurance claims across Medicare, Medicaid and commercial payers in the CO APCD to create claims-based quality measures. These quality measures allow benchmarking between payers and providers across the entire state to identify opportunities to create targeted, meaningful interventions that improve population health, improve care, and lower costs for Colorado.

BREAST CANCER SCREENING by mammography is an important tool associated with better health outcomes.

MEASURING CARE FOR BREAST CANCER SCREENING

- The U.S. Preventive Services Task Force (USPSTF) recommends that women aged 50 to 75 years receive mammography screening every two years. Women under 40 should assess their risk and needs before opting for mammography.
- This proxy measure shows the percentage of women 50 to 75 years of age who had a breast cancer screening mammogram during the two-year period, 2014 - 2015.
- This measure aligns with National Quality Forum Measure (NQF) #2372 and Clinical Quality Measure (CQM) 125v5 developed by the Centers for Medicare & Medicaid.

ACROSS THE NATION

Breast Cancer makes up **30% of new cancer cases** estimated in 2017; **41,000 women will die from the disease that same year**. Breast cancer is the **2nd leading cause of cancer death in women**.

IN COLORADO

Almost **4,000 women** in Colorado will receive a breast cancer diagnosis in 2017, almost **600 women will die from breast cancer** in Colorado in 2017. [ii]

SIM PRACTICES

Percentage of Women Aged 50 to 75 Years Receiving Screening Mammogram During the Period, 2014-2015

SIM Practices	59.0%
Statewide	59.4%

TAKEAWAYS

- Coloradans with providers that are part of the SIM effort appear to adhere to breast cancer screening recommendations at about the same rate as the rest of the state.
- Most women in Colorado are receiving a mammogram as recommended.

IMPROVING CARE FOR BREAST CANCER SCREENING

- Colorado appears to have good breast cancer screening rates but a significant number of women still may not be receiving recommended mammograms, and opportunities exist for targeted interventions designed to increase breast cancer screening across the state.
- These proxies create opportunities for public health agencies to target communication campaigns and outreach interventions to entire populations.

SOURCES

[i] TriStar Horizon Medical Center. (2017, January). What Does Quality in Health Care Mean? Retrieved from TriStar Horizon.com: http://tristarhorizon.com/about/newsroom/what-does-quality-in-health-care-mean

[ii] American Cancer Society. (2017, January). Cancer Facts & Figures 2017. Retrieved from cdc.gov: https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2017/cancer-facts-and-figures-2017.pdf

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Cost of Care in Colorado

Insights from the Colorado All Payer Claims Database interactive public reports @ www.civhc.org

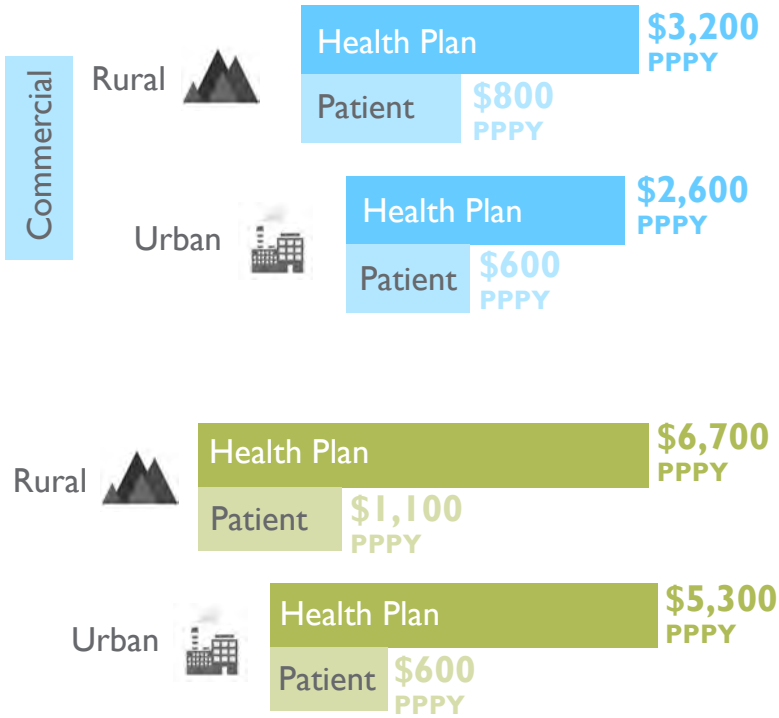
Overview

It takes nearly **$4,000** Per Person Per Year (PPPY) to cover the health care needs of most Coloradans*

*Medicaid, Commercial, & Medicare Advantage covered lives

Rural vs. Urban

In general, **expenses for rural Coloradans are higher.**

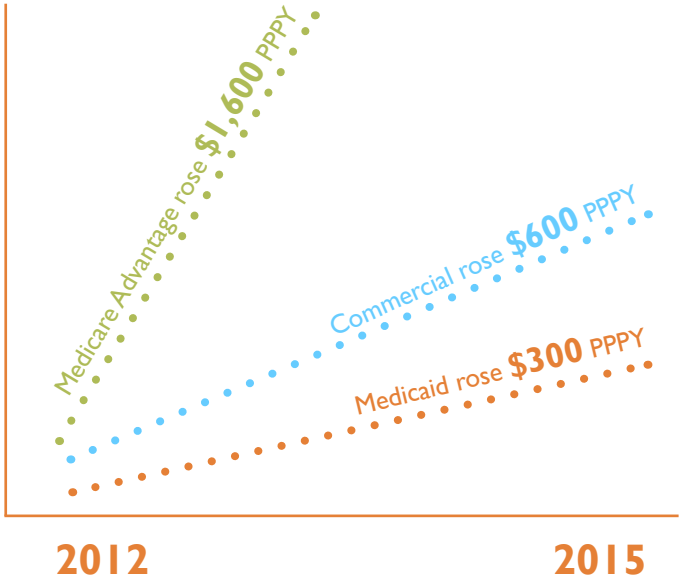


Rural Medicare Advantage patients pay **nearly double the out-of-pocket costs** annually compared to urban residents.

Trends

Between 2012-2015, costs to pay for **health care expenses rose an average of 6%*** across all payers.

*average of $600 per PPPY



Across all payers, **Females cost more than Males** *PPPY.*

...and females are most expensive between ages 35-64, and 65+.

Service Costs

The **biggest increase** in costs across all payers is in the **pharmacy service category**. Medicare Advantage had the highest increase in pharmacy, from **$440 PPPY to $1,900 PPPY**.

SERVICE CATEGORY PERCENT CHANGES FROM 2012-2015

PHARMACY SERVICES

↑ 27%

OUTPATIENT (clinic) **SERVICES**

↑ 4%

INPATIENT (hospital) **SERVICES**

↓ 2%

PROFESSIONAL (clinician) **SERVICES***

↑ 4%

*Professional services typically occur in inpatient, outpatient, or clinic settings and are typically billed separately.

County Profiles

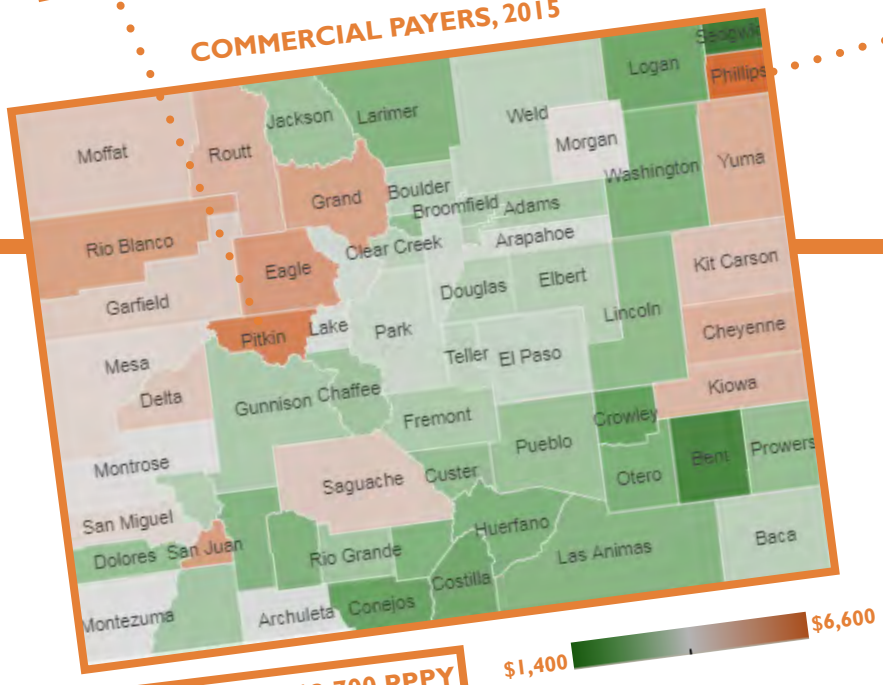
$6,000 PPPY

Pitkin County is 68% above the median per person per year cost for the state.

$6,600 PPPY

Phillips County is 83% above the median per person per year cost for the state.

COMMERCIAL PAYERS, 2015



Statewide Median $3,700 PPPY

In 2015 Commercially insured annual costs were **higher in some Western Slope areas and Eastern Plains areas,** *and* **lower in the Front Range and Southeast areas** *of the state.*

To learn more, visit us at:
www.civhc.org/get-data/interactive-data/statewide-metrics/cost-of-care

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Drug Cost Savings Potential Vimovo and Duexis

Patients who suffer from chronic pain and conditions like arthritis are likely to receive prescriptions for high doses of nonsteroidal anti-inflammatory drugs (NSAIDs) to help manage their pain. Use of NSAIDs is growing as clinicians explore non-opioid treatment regimens in an effort to combat the opioid abuse epidemic. NSAIDs can cause gastrointestinal bleeding, perforation, or obstruction and many providers recommend that patients take acid-reflux drugs to prevent these serious side effects.[i] However, studies have demonstrated that patients don't always adhere to instructions requiring them to take both medicines.[ii]

In 2010 and 2011, a pharmaceutical company launched two new drugs, Vimovo and Duexis, designed to help patients take NSAIDs while still protecting their stomachs. Both drugs are combinations of two medications available separately over-the-counter: Vimovo is comprised of naproxen and esomeprazole magnesium (Aleve and Nexium), and Duexis is a combination of ibuprofen and famotidine (Advil and Pepcid).[iii, iv]

These combination pills seem to be an ideal solution to the problem of medication adherence for patients taking high doses of NSAIDs, but, unfortunately, they come with a hefty price tag. The base components of these drugs are available over the counter for a fraction of the cost that patients and health insurance companies are paying.

Impact on Colorado

RISING COSTS

Data from the Colorado All Payer Claims Database (CO APCD) suggests that from 2012-2016, over 30,500 prescriptions were filled in Colorado for Vivomo and Duexis across Medicaid and Commercial payers. Not considering dosage or drug rebates received after the fact, the total paid for these drugs by payers and patients was over $24 million dollars.

During the same five years, the average total cost per prescription filled has risen over 2,000% for both drugs and the total combined cost rose nearly 10 million dollars.

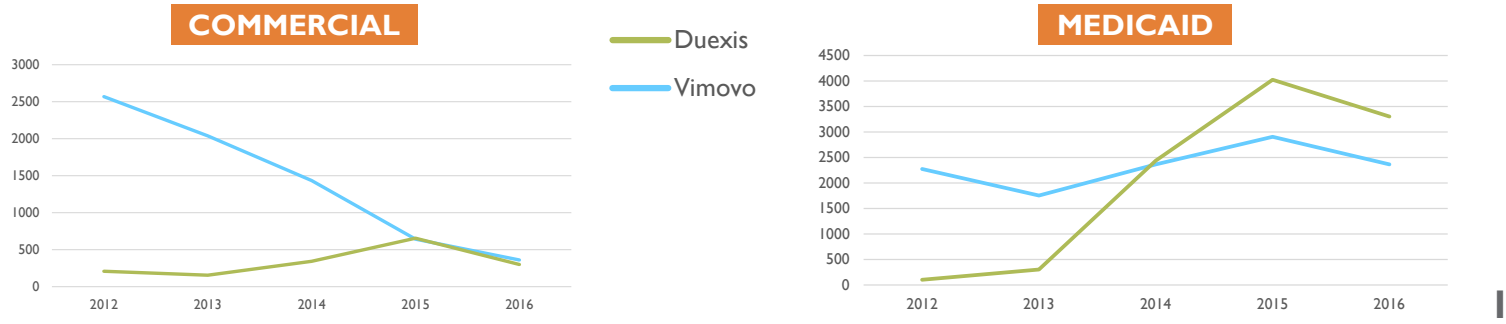
Year	Vimovo price per Rx*	Vimovo Total Spend	Duexis price per Rx*	Duexis Total Spend	Combined Total Spend
2012	$70	$322,870	$60	$19,920	$342,780
2013	$90	$346,420	$450	$207,680	$554,110
2014	$580	$2,219,950	$760	$2,106,700	$4,326,650
2015	$1,270	$4,498,220	$1,210	$5,653,340	$10,151,560
2016	$1,510	$4,105,160	$1,430	$5,143,690	$9,248,860
Total		**$11,492,620**		**$13,131,330**	**$24,623,960**

*Majority of prescriptions used to calculate the price per Rx were for 30-day supply quantities for both Duexis and Vimovo.

Prescribing Trends

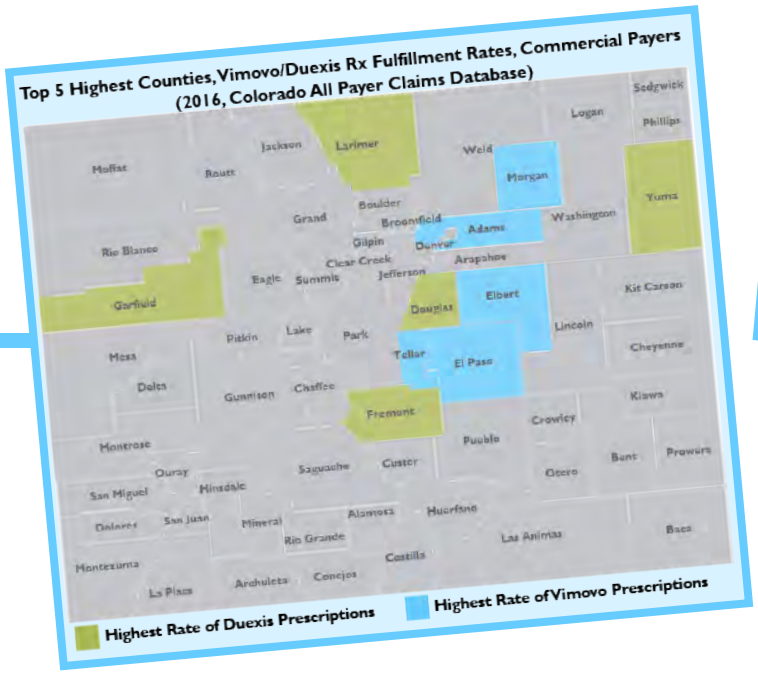
CO APCD data also indicates that during the years analyzed, prescriptions for Vimovo saw steady decline among commercially insured patients while those for Medicaid recipients generally rose until 2015 when they also began to decline.

NUMBER OF VIMOVO AND DUEXIS PRESCRIPTIONS BY YEAR (2012-2016, CO APCD)



Geographic Variation

Many counties across Colorado have residents filling Vimovo or Duexis prescriptions, however, there are certain counties that have higher rates of patients receiving the medications than others. In 2016, commercially insured patients had the highest rate of Duexis prescriptions in Garfield, Larimer, Douglas, Fremont, and Yuma counties while Vimovo was most prescribed in Morgan, Adams, Elbert, Teller, and El Paso counties.



Park, Kit Carson, Pueblo, and Conejos counties saw the highest Duexis prescription rates for Medicaid recipients in 2016 and Broomfield, Denver, Arapahoe, and Archuleta were the counties where the most Vimovo was prescribed. Jefferson County ranked in the highest tier for both drugs for Medicaid recipients.

Opportunities

This analysis highlights trends in pharmacy spending and geographic variation in rates of prescriptions, identifying where education and interventions could possibly affect provider decisions and patient outcomes while lowering costs. More research is necessary to discover the reasons behind these trends, but this data provides key initial takeaways for stakeholders, including providers, health plans, patients and their caregivers:

- Patients and providers should be aware that these types of combination drugs exist, discuss potential alternatives, and understand that the convenience might not outweigh the total cost.
- Although both drugs have programs to offset patient out-of-pocket costs and both public and private insurers may realize savings negotiated with the manufacturer, health plans and providers should be aware of the potentially high costs associated with these medications.
- Health plans and providers should discuss appropriate prescribing of combined NSAID/acid reduction drugs, and should also consider implementing educational programs to drive patient adherence to over-the-counter alternatives.
- Given that new drugs will likely be used to stem the opioid abuse epidemic, payers and providers should consider whether integrated behavioral, physical, and exercise-based medicine might be cost-effective alternatives for chronic pain conditions.

SOURCES

[i] Lanas, A., & Hunt, R. (2006). Prevention of anti-inflammatory drug-induced gastrointestinal damage: Benefits and risks of therapeutic strategies. Annals of Medicine, 38(6), 415-428. Retrieved September 14, 2017, from http://www.tandfonline.com/doi/abs/10.1080/07853890600925843

[ii] Lanas, A., Polo-Tomás, M., Roncales, P., Gonzalez, M., & Zapardiel, J. (2012). Prescription of and adherence to non-steroidal anti-inflammatory drugs and gastroprotective agents in at-risk gastrointestinal patients. The American Journal of Gastroenterology, 107(5), 707. Retrieved September 14, 2017, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3368233/

[iii] Horizon Pharma. (2015, September 14). Vimovo.com. Retrieved September 14, 2017 from About Vimovo: http://www.vimovo.com/patient/osteoarthritis-pain-treatment

[iv] Horizon Pharma. (2017). duexis.com. Retrieved September 14, 2017, from About Duexis: https://www.duexis.com/patient/about-duexis

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COST OF COVERING INDIVIDUALS IN HIGH RISK POOLS IN 2015

(top 2% of claims) Per Person Per Year (PMPY)

Data reflects 2015 allowed amounts for commercial claims for individuals under 65 included in the Colorado, New Hampshire and Virginia state All Payer Claims Databases (APCD). Virginia methodology reflects proxy allowed amount dollars. Pharmacy costs are not included. Data was provided by the state APCD administrators or data users to the APCD and published by the National Academy for State Health Policy in their blog High Risk Pools Déjà vu – Lessons from States, Questions for Policymakers, January 31, 2017.

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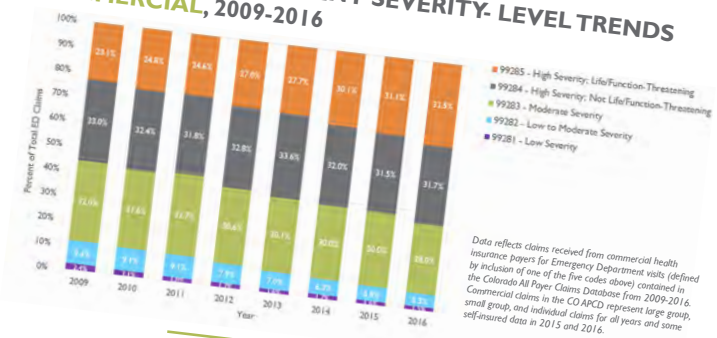
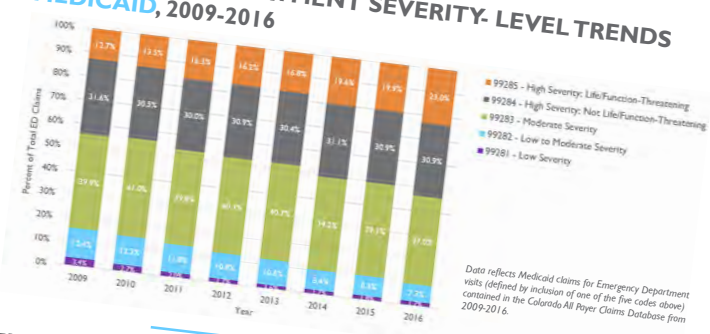
DATA BYTE: EMERGENCY DEPARTMENT SEVERITY-LEVEL TRENDS BY LINE OF BUSINESS

EMERGENCY DEPARTMENT SEVERITY- LEVEL TRENDS COMMERCIAL, 2009-2016



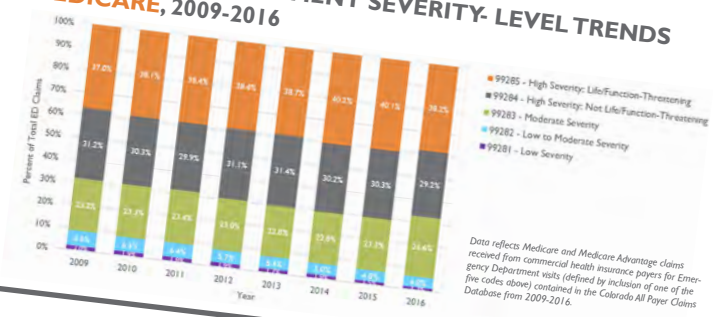
Data reflects claims received from commercial health insurance payers for Emergency Department visits (defined by inclusion of one of the five codes above) contained in the Colorado All Payer Claims Database from 2009-2016. Commercial claims in the CO APCD represent large group, small group, and individual claims for all years and some self-insured data in 2015 and 2016.

EMERGENCY DEPARTMENT SEVERITY- LEVEL TRENDS MEDICAID, 2009-2016



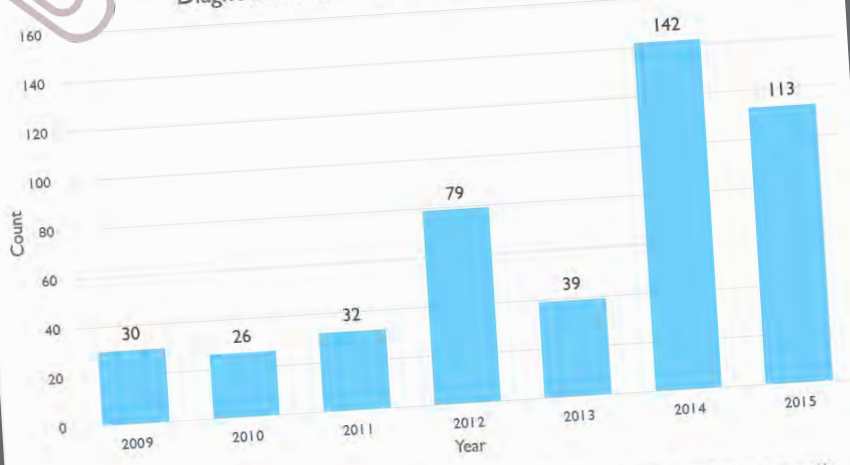
Data reflects Medicaid claims for Emergency Department visits (defined by inclusion of one of the five codes above) contained in the Colorado All Payer Claims Database from 2009-2016.

EMERGENCY DEPARTMENT SEVERITY- LEVEL TRENDS MEDICARE, 2009-2016



Data reflects Medicare and Medicare Advantage claims received from commercial health insurance payers for Emergency Department visits (defined by inclusion of one of the five codes above) contained in the Colorado All Payer Claims Database from 2009-2016.

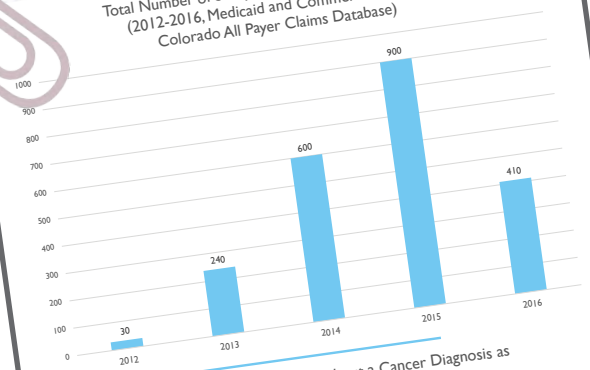
Medicaid Frostbite Claims with Subsequent Amputation Diagnosis within 7 days, 2009-2015, CO APCD



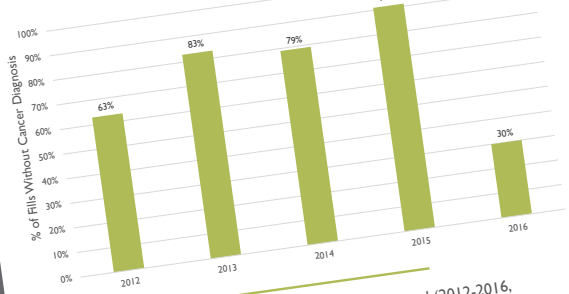
Data reflects analysis of Medicaid claims submitted to the Colorado All Payer Claims Database from 2009-2015. Counts reflect the number of claims with frostbite as a diagnosis and subsequent amputation within 7 days of the initial frostbite diagnosis. This data does not include claims paid for uninsured individuals and is only reflective of the Medicaid member population.

DATA BYTE: SUBSYS PRESCRIPTION TRENDS IN COLORADO 2012-2016

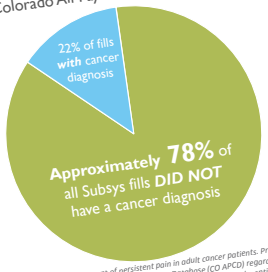
Total Number of Subsys Prescriptions Filled Annually (2012-2016, Medicaid and Commercial Payers, Colorado All Payer Claims Database)



Percent of Subsys Prescriptions Without a Cancer Diagnosis as Indicated (2012-2016, Commercial and Medicaid Payers, Colorado All Payer Claims Database)



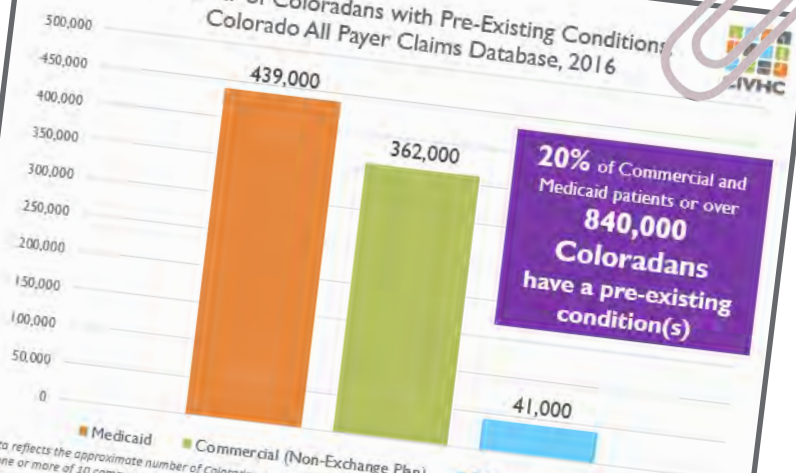
Colorado Subsys Total and Potentially Avoidable Spend (2012-2016, Medicaid and Commercial Payers, Colorado All Payer Claims Database)



Between 2012 and 2016, Colorado spent approximately $17.5M total on Subsys prescriptions, $13.6M of which was potentially avoidable.

Subsys is powerful opioid drug FDA-approved specifically for the management of persistent pain in adult cancer patients. Prescriptions filled includes all Medicaid and commercially insured members in the Colorado All Payer Claims Database (CO APCD) regardless of the length of coverage. Cancer diagnosis information reflects the percent of Coloradans represented in the CO APCD with continuous eligibility who did not have a cancer diagnosis within the three months prior to filling their first Subsys prescription. Cancer diagnoses were defined using ICD9 codes between 140 and 239 and ICD10 codes between C00 and D48. Total cost reflects actual paid amounts by health insurance payers and patients, prior to discounts or rebates, and potentially avoidable cost estimates are based on the average percent of claims without a cancer diagnosis from 2012-2016.

Number of Coloradans with Pre-Existing Conditions, Colorado All Payer Claims Database, 2016



Data reflects the approximate number of Coloradans represented in the Colorado All Payer Claims Database (CO APCD) with a diagnosis of one or more of 10 common pre-existing conditions in 2016 including HIV, psychiatric disorders, asthma, psoriasis, diabetes, osteoarthritis, cancer, fibromyalgia, high blood pressure/heart disease, and obesity. Numbers represent individuals under the age of 65 at the time of service. Commercial numbers do not include members who purchased insurance through the CO Health Exchange, Connect for Health Colorado. Does not include Coloradans on a Medicare Advantage or Medicare Fee-for-Service plan.

Suggestions Regarding the Future of the CO APCD

The CO APCD grows in scope and value each year, and as the Administrator, CIVHC continually looks for ways to evolve the database and realize the full potential of this powerful asset. To this end, CIVHC suggests the following ways to make the CO APCD integral to Colorado.

Collection of Alternative Payment Model Information

Why Collect Alternative Payment Models (APMs) Data in the CO APCD?

- APMs represent an important and growing category of payments/reimbursement to providers as the Centers for Medicare & Medicaid (CMS) and other payers are signaling a shift toward Accountable Care models, MACRA and other episode-based payment initiatives
- Understanding APMs is important to track progress and understand the impact during the transition from the current Fee-for-Service (FFS) model to value-based purchasing (VBP)
- APMs types have been identified as: Global Budget; Limited Budget; Capitation – unspecified; Bundles/Episode Based Payment; Integrated Delivery System; Pay for Performance/Payment Penalty; and Shared Savings/Shared Risk

Benefit to Colorado

Information on APMs will contribute to a more complete understanding of the total amount spent on health care for Coloradans, both in total and for primary care services, and will allow the state to set goals, formulate strategies and track progress toward providing high value care.

How the Data Can Be Used

There are a growing number and variety of APMs being tested and we currently lack the ability to track spending and the number of patients receiving care under these models. Including data on APMs in the CO APCD would enable researchers, policy makers, health plans, providers and other stakeholders to establish baseline information regarding current spending levels and the number of patients receiving treatment under APMs (vs. traditional FFS) and track changes over time. Information on APMs will also contribute to a more comprehensive understanding of the total amount spent each year on health care. This information may also help to identify the types of APMs that are most effective in reducing overall costs and inform development of policy solutions to address our health care crisis.

What APM Data and How Often Would CO Health Plans Submit?

APM information would be submitted yearly in a supplemental file. A complete list of proposed APM data fields and categories is available for review.

Collection of Health Insurance Premium Information

Why Collect Premium Information in the CO APCD?

- The CO APCD currently contains information regarding how much it costs to provide care to people with insurance, but it does not include how much is paid for insurance coverage.
- Collecting health insurance average premium information would allow a more complete understanding of how much is spent on health care in Colorado, also known as Total Medical Expenditure.
- Consumers and Employers both consider premiums as a part of their health care costs.

Benefit to Colorado

Adding premium information to the CO APCD will enable Colorado to track trends in average and total premiums and patient out of pocket expenditures, set statewide goals and identify opportunities to reduce costs.

How the Data Can Be Used

Collecting premium information in the CO APCD would support analyses that enable stakeholders to establish baselines, identify areas of the state with relatively high costs and facilitate multi-state comparisons to help Colorado

understand relative performance and develop policies to better control costs here at home. Availability of premium information would enable research that supports policy discussions regarding:

- Total medical expenditure variation over time and across geographic regions
- Medical loss ratios and premium rate increases
- Trends in member cost sharing
- Impact of benefit design changes on patient decision-making and total cost of care

What Premium Data and How Often Would CO Health Plans Submit?

Premium information would be submitted yearly in a supplemental file and would include the average or estimated monthly fee paid by a subscriber and/or employer for health insurance coverage for a given number of members.

Increased Utilization of the CO APCD by State Agencies

It is only through data that impact, improvement, or lack thereof, can be objectively measured. CO APCD data levels the playing field, removing politics and speculation by supporting cross-payer, provider, procedure, region, gender, and age analyses to create evidence-based foundations for change.

As the health care landscape becomes more and more uncertain, neutral, non-partisan data will be critical to future policy and interventions. The CO APCD is a tool that few in Colorado's government have made effective use of, mainly due to lack of knowledge and education of its existence and utility. CIVHC suggests that in the coming years, more of an effort is made to educate State policymakers, legislators, and thought leaders about this invaluable asset and encourage its use to improve the lives of all Coloradans.

State Funding for Public Reporting

Increasing access to transparent health care data is foundational to CIVHC's work and to Coloradans' ability to make informed decisions that will have lasting benefit to their overall health. Public data releases including interactive maps and charts, and publications available on our public website are some of the tools CIVHC employs to bring transparency to consumers and the health care marketplace, and to pinpoint areas to reduce health inequity.

However, the enabling statute of the CO APCD did not provide funding for development or maintenance of the database. It instructed the Administrator to seek private funding and to charge fees for access to the data. In FY17 (July 2016 – June 2017) the cost to operate the CO ACPD was $4.4 million. During the same year, earned revenue from the CO APCD totaled $2.5 million. Grant funding filled in the remaining $1.9 million but the majority of these grants end in 2018. Without additional funding, CIVHC will be forced to shut down the CO APCD, removing a critical resource for improving health and reducing costs from the state of Colorado.

Colorado All Payer Claims Database
Privacy, Security and Data Release Fact Guide

Colorado All Payer Claims Database: Background

Created legislatively in 2010 and administered by the Center for Improving Value in Health Care (CIVHC), the Colorado All Payer Claims Database (CO-APCD) is the most comprehensive source for information about health care spending and utilization in Colorado. The CO APCD collects health insurance claims data from public and private payers and maintains the data in the NORC Data Enclave®, a secure FISMA-compliant database platform. As of December 2017, the CO APCD includes health insurance claims data from Medicaid, Medicare, Medicare Advantage, and the 33 largest commercial health plans for the individual, small group and large group fully-insured markets. These data represent more than 4.5 million Colorado residents, and over 75 percent of the insured population across the state. The CO APCD is continually enhanced and is projected to eventually include claims data reflecting the vast majority of insured Coloradans.

CO APCD Security and Data Availability: Summary

In accordance with the Department of Health Care Policy and Finance (HCPF) rules (10 CCR 2505-5-1.200.5), CIVHC is required to ensure that the CO APCD follows all HIPAA privacy and security regulations to protect patient information. Claims data submitted to the CO APCD is encrypted, both in transmission and while at rest, and resides on secure servers which undergo systematic ongoing security testing. Only high-level aggregated information is available on the public CO APCD website (www.civhc.org); i.e., **no** individual or personal data are available on the CO APCD site.

Limited and controlled release of CO APCD data is allowable under the established HCPF rules, provided that Health Insurance Portability and Accountability Act (HIPAA) and other privacy and security requirements are fully satisfied and the purpose of the data request meets the goals of the Triple Aim for Colorado: better health, better care and lower costs. The CO APCD rule also requires that a multi-stakeholder Data Release Review Committee (DRRC) reviews data requests and advises the Administrator whether such requests meet these criteria and will likely contribute to better health for Coloradans.

CO APCD Security and Data Availability: Detailed Q&A

Who decides who can access information from the CO APCD? What rules apply?

The CO APCD governance rules promulgated by HCPF required that the DRRC develop protocols for the release of CO APCD data. The DRRC comprises health care data and analytical experts representing a variety of organizations and stakeholder perspectives. The rules require that the DRRC review each request and advise the Administrator on: whether (1) release of the data is consistent with the statutory purpose of the CO APCD, (2) will contribute to efforts to improve health care for Colorado residents, and

(3) it complies with the requirements of HIPAA and will employ appropriate analytical methods. Requests must meet all of these criteria in order to be recommended for approval.

Once approved, CO APCD rules require that the requestor enter into a HIPAA compliant Data Use Agreement. Additionally, the CO APCD Administrator is required to report annually to HCPF listing all approved data requests, how the data was used and how the request satisfies HIPAA requirements. A summary of approved data requests is also included in the annual report provided to the Governor and General Assembly.

What kind of information can organizations access from the CO APCD?
By rule, the CO APCD Administrator (CIVHC) is permitted to provide or "release" data at varying levels of detail and specificity. All releases of CO APCD data must meet all HIPAA privacy and security requirements and are subject to review and recommendation for approval by the DRRC, which requires that the intended use supports reaching the Colorado Triple Aim of better health, better care, and lower costs. For example, public and private entities may request information on costs associated with treatment of a specific diagnosis or disease by region or county, variation in cost of procedures by facilities, and utilization of high cost services such as MRIs for a defined population.

Are there limitations on the data that organizations can access from the CO APCD?
Yes, CO APCD data releases are subject to both HIPAA and state legal and regulatory requirements to protect patient privacy and ensure data security, e.g.:

1. In keeping with the "minimum necessary" standard established under HIPAA, applicants must demonstrate their need to access the confidential data and provide justification for each data element requested. The DRRC will recommend and the CO APCD Administrator will release only those data elements that are absolutely necessary to accomplish the applicant's intended purpose.
2. Protected Health Information (PHI) may only be released in limited circumstances to support public health, health care operations and research purposes as defined under HIPAA, and can never be shared publicly as a result of a research project or program.
3. For requests that include PHI, researchers are required to show written approval from an
4. Institutional Review Board or a Privacy Board as part of the Application.
5. As part of the Data Use Agreement, all Applicants must provide written assurances that:
    - Data will be used only for the purpose stated in the Application.
    - No attempt will be made to use any data supplied to ascertain the identity of specific insured individuals or patients, or to report data at a level of detail that could permit a reader to ascertain the identify of specific insured individuals or patients, nor will downstream linkages to outside data sources occur without DRRC recommendation for approval and specific authorization from the CO APCD Administrator.
    - Restricted data elements such as PHI will not be released except as specifically approved in the original Application and Data Use Agreement and in full compliance with HIPAA standards.
    - The Applicant will obtain these assurances in writing from any recipient of data or agent that processes data on behalf of the Applicant.
    - The data will not be re-released in any format to anyone except personnel identified and in the original approved Application and signed Data Use Agreement.

What information is required in order to submit a data request?
According to both CO APCD statute and HCPF rules, all data release applications must be submitted in

writing and describe in detail:

- The purpose of the project and intended use of the data
- Methodologies to be employed
- Type of data and specific data elements requested along with justification
- Qualifications and experience of the research entity requesting the data
- The specific Privacy and Security measures that will be employed to protect the data and
- Description of how the results will be used, disseminated or published

The DRRC reviews data release applications and advises the CO APCD Administrator by:

- Making a recommendation for approval, or
- Requesting changes to the application or additional information such that a recommendation for approval can be made.

What kind of organizations can request and access information from the CO APCD?
Under CO APCD statute and rule, both public and private entities may receive data or reports subject to review and recommendation for approval by the DRRC. Organizations that have requested information from the CO APCD thus far include university researchers, divisions of Colorado state government, non-profit organizations, health care providers, and private firms developing new pricing models for health care services.

For what purposes may CO APCD data be used? Are there any restrictions on the purposes for which it may be used?
CO APCD data may only be used to inform projects or support programs that support the achievement of one or more categories of the Triple Aim for Colorado: better population health, better quality of care and patient experience, and/or lower cost of health care. Data cannot be used to support marketing activities. For example, a data request identifying all diabetic patients for purposes of target marketing a new diabetic drug does not meet the intended use criteria. Personal health information can never be shared publicly as a result of a research project or program or used to identify individuals.

Can an organization charge others for information it gleans from the CO APCD?
Under an approved request, use of the released data is limited to the specific purpose described in the original application. Further use of the data for a purpose not reflected in the original application requires a new request that fully complies with the privacy and security requirements of HIPAA.

Is there any circumstance in which a private company or individual could get personal, identifiable health information out of the CO APCD?
HIPAA allows the release of certain, limited data fields for very narrow purposes: public health activity, health care operations, and research activity. The DRRC will review every request for CO APCD data and reports to ensure that no information is released that goes beyond HIPAA rules, and the Administrator will deny any request for data or reports that would violate HIPAA or state APCD statute and rule.

Could a company obtain a report from the CO APCD identifying all people in a given zip code who have a certain diagnosis or have been prescribed a certain drug?
There is no circumstance we can envision in which a company could obtain this data without first obtaining direct patient authorization to do so. The company would then have to meet all other data release requirements including showing how this information would improve health, health care or lower costs. Release of names or other identifiers for specific patients can only occur in the most unusual public

health circumstances or under research protocols that require patient authorization or Institutional Review Board approval under HIPAA.

What happens if an entity misuses CO APCD data or uses it for a purpose other than that for which the entity applied?

An approved applicant must sign and enter into a HIPAA compliant Data Use Agreement with the CO APCD Administrator and agree to the following:

- Restrictions on data disclosure and prohibitions on re-release of the data.
- Prior approval from the CO APCD Administrator is required prior to public release of any reports based on the data. The CO APCD Administrator will carefully review all materials intended for publication or dissemination to determine whether the privacy rights of any individual would be violated by the release of the information.
- Violation of the terms of the Data Use Agreement constitutes a breach of contract and may:
    - Require the immediate surrender and return of all CO APCD data.
    - Result in denial of future access to CO APCD data.
    - Lead to civil action by the Administrator for breach of contract.
    - Result in a complaint filed with the U. S. Department of Health & Human Services, Office for Civil Rights, as well as civil and criminal action and penalties.
    - State Attorneys General are also empowered under the HITECH Act to take civil action regarding certain HIPAA violations.

How is the CO APCD Administrator held accountable for the use of CO APCD data?

Under CO APCD statute, the Administrator is required to provide an annual report to the Governor and General Assembly summarizing various aspect of CO APCD development and operations.
The CO APCD Administrator is required to provide HCPF with an annual report on or before April 1 of each year that includes:

- Any policies established or revised pursuant to state and federal privacy and security laws and regulations, including HIPAA.
- The number of requests for data and reports from the CO APCD, whether the request was by a state agency or private entity, the purpose of the project, a list of the requests for which the DRRC advised the Administrator that the release was consistent with rule and HIPAA, and a list of the requests not approved.
- For each request approved, the Administrator must provide the HIPAA exception pursuant to
- which the use or disclosure was approved, and whether a data use agreement was executed for the use or disclosure. To protect CIVHC and CO APCD interests, all recipients of data must sign a data use agreement prior to receipt of data.
- A description of any data breaches, actions taken to provide notifications, if applicable, and actions taken to prevent a recurrence.

How does CIVHC protect the information in the APCD?

Maintaining the security and privacy of personal information is a foundational principle of how the CO APCD is designed and operated. Not only is data encrypted and protected on secure systems, but personal information will never appear in any public CO APCD data output or report.

Data Storage and Infrastructure

All CO APCD data is stored in the NORC Data Enclave®, a secure platform within which authorized users

may access statistical and programming tools to conduct various analyses. CIVHC data resources are logically segregated from all activities and projects within the Data Enclave. Access to CIVHC data resources will be granted via role-based permissions to authorized users. The logical segregation of CIVHC data and role-based access permissions will apply to both file storage and database systems in the Data Enclave. The file and database storage provisioned for CIVHC within the Data Enclave uses physical media that are encrypted at rest.

The NORC Data Enclave® secure infrastructure is an isolated network, which enhances the confidentiality and integrity of transmitted data. All network and telecommunication equipment is housed in locked facilities.

The CO APCD data management vendor requires the use of internal network data storage services to store all project-related data files. Partitioned network storage is provided for each project to mitigate the potential for data loss due to accidents, computer equipment malfunction, corruption, unauthorized security breaches, or human error, and to administer access rights regarding privacy issues related to both legal and contractual obligations. Wide arrays of network security precautions are undertaken to ensure the proper storage of all project data.

The CO APCD data management vendor maintains its datacenter operations, including CIVHC infrastructure, at an offsite facility managed by the Zayo Group. The Zayo facility is SOC 2 Type II compliant and undergoes third-party auditing on an annual basis.

Data Security

When carriers submit files to the CO APCD, the datasets are always encrypted and sent over a secure connection to the CO APCD data management vendor.

The SSL appliance that the CO APCD data management vendor uses for remote access employs TLSv1 (Transport Layer Security) to protect transmission confidentiality and integrity. The appliance's configuration is set to require 256-bit encryption to establish a connection. The CO APCD data management vendor employs FIPS 140-2 compliant cryptographic mechanisms to recognize changes in information during transmission.

All Domain Name Service (DNS) traffic is internal to the CO APCD data management vendor and not exposed to the public facing networks. All DNS traffic is furthermore integrated with active directory and updates are secure and dynamic.

The CO APCD data management vendor uses TLS protocols to initiate and protect VPN tunnels for employee remote access. TLS protocols are also employed by external Web servers where sensitive data may be transmitted. All cipher suites and key exchange mechanisms meet FIPS 140-2 guidelines.

Threat Monitoring

The Data Enclave employs multiple tools and techniques to monitor events on the information system, detect attacks, and provide identification of unauthorized use of the system. This includes specific protection protocols for the network and the NORC Data Enclave® along with login monitoring and alerts.

Elimination of personal identifiers

As data are loaded into the warehouse, all personal information is automatically removed from the record and replaced with a separate, unique identification number that does not incorporate any personal information. Additionally, birth date is replaced with age category and zip codes are reduced to the first 3 digits (or 000 if from a zip code with fewer than 20,000 people).

Any PHI or keys will have a seed value applied in order to no longer match their id or key as present in the data warehouse. No sensitive/identifying data such as group name, employer name, plan id, provider, date of birth, provider social security number, or any identifiable member/person should ever be published without direct consultation of both CIVHC and HIPAA regulations.

As part of the ETL processing for both historical and incoming data, fields containing direct PII are only to be used for the purpose of matching a unique patient identifier before being encrypted and stored separately from the COAPCD data warehouse. A key value is assigned to associate the encrypted identifiers with their corresponding records in the data warehouse for matching purposes that may be requested by CIVHC.

Controls on how the database is used for analysis and research:

Simply stated: personal information will never appear in any public CO APCD data output or report. All requests for CO APCD data must detail the purpose of the project, the methodology, the qualifications of the research entity and, by executing a data use agreement, comply with the requirements of HIPAA. The DRRC reviews the request and advises the Administrator on whether the 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.

What would a hacker see if the CO APCD database were compromised?

As shown below all data in the CO APCD is encrypted during transmission ("in transit" from the health plans and while it is "at rest" in the database). Once the data are decrypted and processed, the source data at rest are encrypted and protected using advanced encryption standard (AES 256 bit).

Un-encrypted Data	Encrypted Data
Name: Jane Doe	3INDzLjr2SnG8ma4wvLoXw==z
DOB: 1/1/1980	5lZB3CeWebVUYm2u9b1+
Gender: F	9D4QK0mn5hE1/2F5
Admit Date: 2/1/2010	bF6R7dA9rdz3k2dez
Discharged: 2/5/2010	s7J51mWcr7WQ4CmN

Could an employer or a law enforcement agency requisition information about an individual from the CO APCD?

Based on the CO APCD statute and HCPF rules, the CO APCD must adhere to federal privacy laws, specifically HIPAA, regarding data disclosures, just as your insurance company must do with respect to

claims information. The CO APCD statute and rules provide no special protection from law enforcement, and there are HIPAA exceptions that, under some circumstances, allow for data disclosures (e.g., certain law enforcement purposes, certain judicial proceedings). Any data that was released under such circumstances would, however, require that HIPAA's privacy standards be met.

Data Disposition

The CO APCD data management vendor tracks, documents, and verifies media sanitization and disposal actions. In addition, an Electronic Media Disposal Sanitation Certificate is used to document sanitization efforts in accordance with internal Media Sanitation policies. All disposal efforts are done in a secure manner.

CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

Total Cost of Care Multi-State Analysis

Colorado's Health Care Costs Higher than Four Other States, with **Millions** in **Annual Savings Potential**

Overview

As health care costs continue to rise in Colorado and across the nation, it's essential to better understand what is driving increases in order to change our current unsustainable trajectory. There are a number of reasons why costs may vary both within one state and among several, including the health of the population, how often people are visiting a health care provider or filling prescriptions (utilization), and the price of those services. The Total Cost of Care project, funded by the Robert Wood Johnson Foundation and led by the Network for Regional Healthcare Improvement, is the first of its kind to measure those factors in a standardized way across multiple states.

This project is unique in that the results of other studies are either too broad to be actionable on the ground or too specific to be meaningful in measuring system-wide change. In addition to highlighting variation among participating states – Oregon, Utah, Colorado, Minnesota and Maryland – each state also shared practice-specific data with primary care providers enabling them to implement change that directly supports their patients.

Center for Improving Value in Health Care (CIVHC) participated in the study on behalf of Colorado using 2015 claims data from the Colorado All Payer Claims Database (CO APCD). The analysis included data from 14 commercial payers for patients attributed to 102 adult primary care practices, and 24 pediatric practices, and tracked cost and utilization across the continuum of care (Inpatient, Outpatient, Professional and Pharmacy).

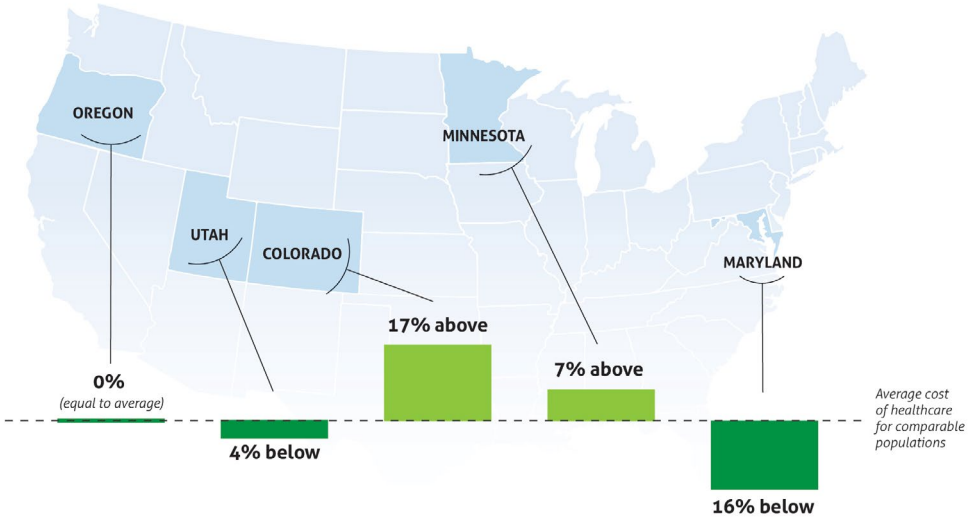
This Colorado-specific report includes findings from the multi-state *Getting to Affordability: Untangling Cost Drivers* publication comparing Colorado to the other participating states, and includes additional analysis and insights into regional cost and utilization variation highlighting opportunities within the state.

How Colorado Compares

Across the participating states, results show that pricing and utilization patterns differ significantly, driving differences in total cost to various degrees. The multi-state study found that Colorado's total costs across all service types were 17% higher when compared to the other four states included in the analysis. Colorado's total costs were driven more by higher utilization of services (11% above average) than the price of those services (6% above average), although both were a factor.

Figure 1. Multi-State Total Health Care Cost Comparison

(Source: Getting to Affordability: Untangling Cost Drivers)



Relative Cost of Healthcare

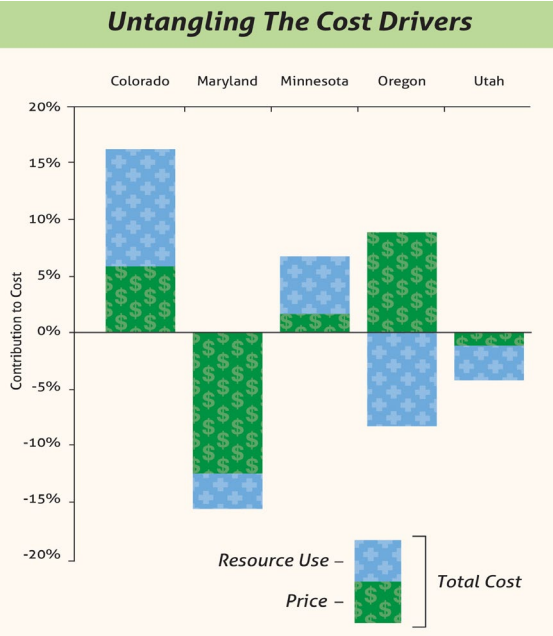
Opportunities for reducing the cost of healthcare are revealed by comparing 2015 risk-adjusted spending across participating states for private payers. Bringing the higher than average cost states highlighted above down to the average of the participating states could potentially save over $1 billion. Imagine if all the participating states could match the lowest cost state, several billion dollars would be available for other parts of the economy.

Further analysis into broad health care service categories shows that Colorado's costs were 30% higher than other states for Outpatient services, the highest percentage above the average in any category in any participating state.

Colorado's total costs were also higher than the five state average in the Inpatient (16% above average), and Pharmacy (24% above average) categories. Higher costs in Outpatient and Pharmacy appear to be driven mostly by higher utilization whereas inpatient costs were driven solely by above average prices.

Professional services was the only category where Colorado fared better than other states, although costs were still higher than two of the other four participating states.

Figure 2: State Comparison of Drivers of Total Cost (Source: Getting to Affordability: Untangling Cost Drivers)



The size of the bars represents the impact of price and resource use on the total cost. As seen in the graphic, price and resource use played different roles in the variation of total cost by state.

Table 1: State Comparison by Service Category (Source: Getting to Affordability: Untangling Cost Drivers)

Total Cost of Care by Service Category
Commercial Population 2015
Combined Attributed and Unattributed

Measure	Colorado	Maryland	Minnesota	Oregon	Utah
Total Cost					
Overall	17%	-16%	7%	0%	-4%
Inpatient	16%	-18%	7%	0%	-1%
Outpatient	30%	-30%	0%	-7%	17%
Professional	5%	-18%	21%	12%	-17%
Pharmacy	24%	7%	-11%	-12%	-8%
Resource Use					
Overall	11%	-3%	5%	-8%	-3%
Inpatient	0%	-7%	8%	-14%	16%
Outpatient	25%	-19%	5%	-16%	13%
Professional	3%	2%	10%	-3%	-13%
Pharmacy	23%	6%	-9%	-10%	-9%
Price					
Overall	6%	-13%	1%	9%	-1%
Inpatient	16%	-12%	-1%	16%	-14%
Outpatient	4%	-13%	-5%	11%	4%
Professional	2%	-20%	10%	15%	-5%
Pharmacy	0%	1%	-2%	-2%	2%

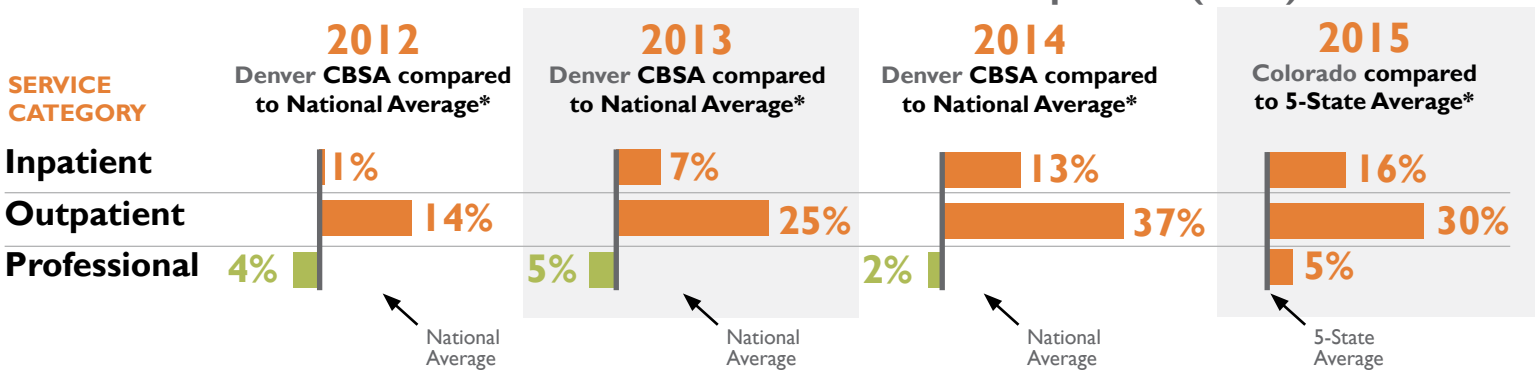
Note: This is the midpoint of the ranges created from the sensitivity analysis and represents the percent above or below the risk adjusted average across all regions. For more details, view Getting to Affordability: Untangling Cost Drivers, pg. 19.

How This Study Compares

How These Results Compare to Similar Analyses

In 2017, the Health Care Cost Institute (HCCI) published Healthy Marketplace Index (HMI) information reflecting analysis of employer-sponsored claims data from Aetna, Humana, Kaiser and United in all 50 states. The HMI includes measures of prices, utilization and market concentration in Core Based Statistical Areas (CBSAs) – generally representing large metropolitan areas across the United States. Results for the Denver-Aurora-Lakewood CBSA from 2012-2014 show price index values trending upward across all three service categories, with 2014 numbers very comparable to CO APCD data derived using the National Quality Forum-endorsed Health Partners methodology in the Total Cost of Care project.

Table 2. HCCI Price Index for Denver-Aurora-Lakewood CBSA (2012-2014) vs. CO APCD Total Cost of Care Five-State Price Comparison (2015)



Source: Health Care Cost Institute Healthy Marketplace Index, Denver-Aurora-Lakewood Core Based Statistical Area (CBSA)

***Source: Colorado All Payer Claims Database statewide data, Getting to Affordability: Untangling Cost Drivers*

The CO APCD data is more recent, includes more of the Colorado population, and covers the entire state when compared to the HMI analysis. Regardless, the results of both studies indicate consistent opportunities for improvement in Colorado.

Opportunities for Savings in CO

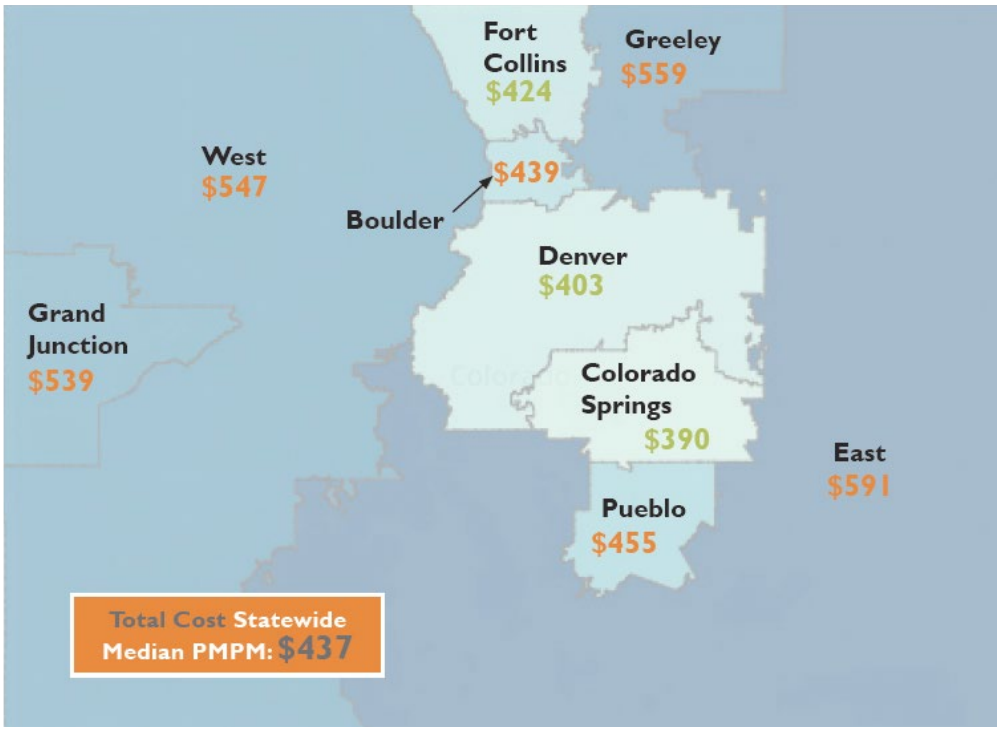
When evaluating total costs across the commercially insured patients at the 102 Colorado adult primary care practices included in the Colorado analysis, data indicates that if practices with above average costs reduced per member per month (PMPM) spending to the average across all practices ($437 PMPM), **Colorado could save up to $48 million in health care spending per year.** This potential savings could be even greater if it was spread across all patients and practices in Colorado, and would be even more significant if practices in Colorado matched more closely with the average total cost across all five states.

Regional Variation in CO

To achieve cost savings in Colorado, it is important to understand where the biggest opportunities are for change. Looking at variation in spending across Colorado Division of Insurance (DOI) geographic rate setting regions helps isolate areas of potential focus. Within Colorado, total costs across all services varied substantially by region and ranged from $390-$591 PMPM across practices analyzed.

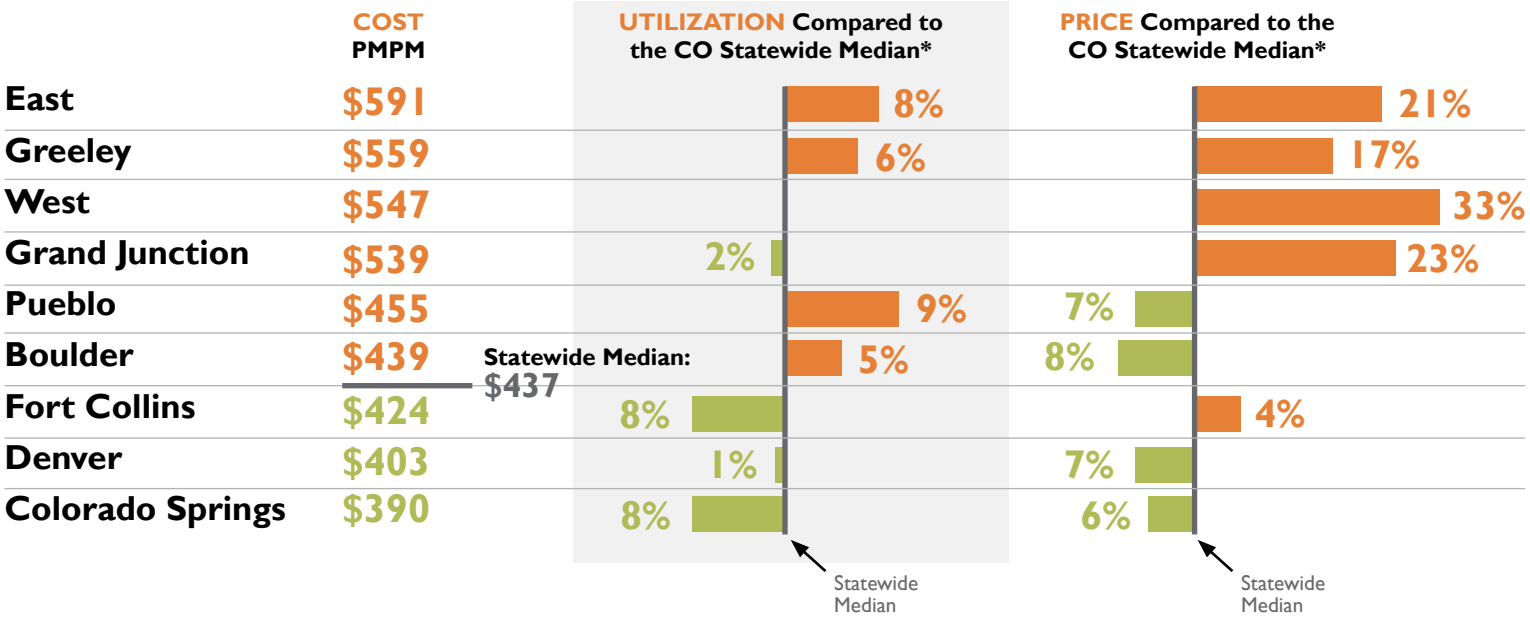
Six regions in Colorado had higher PMPM costs than the statewide average. The East and Greeley regions had the two highest risk-adjusted PMPM costs in the state, driven by both higher utilization and higher prices. Grand Junction and the West regions had the third and fourth highest total costs respectively, primarily driven by higher prices, as utilization in those areas was either lower than or nearly equal to the statewide average.

Figure 3: Colorado Total (Inpatient, Outpatient, Professional, Pharmacy) Median Risk-Adjusted Per Member Per Month (PMPM) Cost by CO Division of Insurance Region



Statewide medians only reflect results for the 102 adult primary care practices included in the 2015 Colorado All Payer Claims Database study

Table 3. Total (Inpatient, Outpatient, Professional, Pharmacy) Median Risk-Adjusted Per Member Per Month (PMPM) Cost by CO Division of Insurance Region

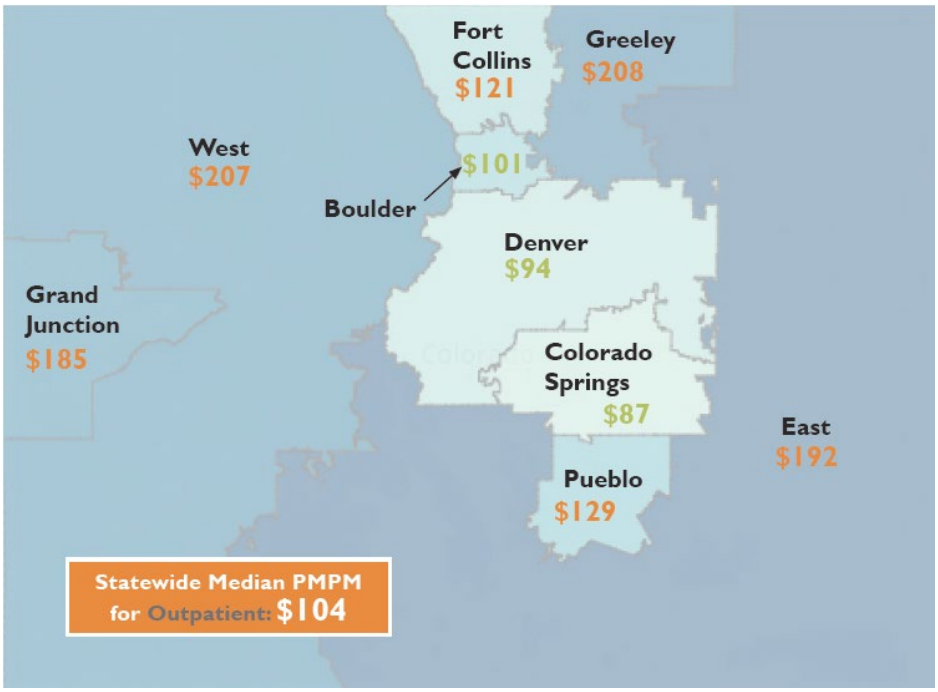


Statewide medians only reflect results for the 102 adult primary care practices included in the 2015 Colorado All Payer Claims Database study

As noted in the multi-state comparison section above, Colorado had significantly higher total costs for outpatient services (defined as procedures provided in a facility setting, generally a hospital, outpatient facility or ambulatory surgery center), 30% above the benchmark of other participating states.

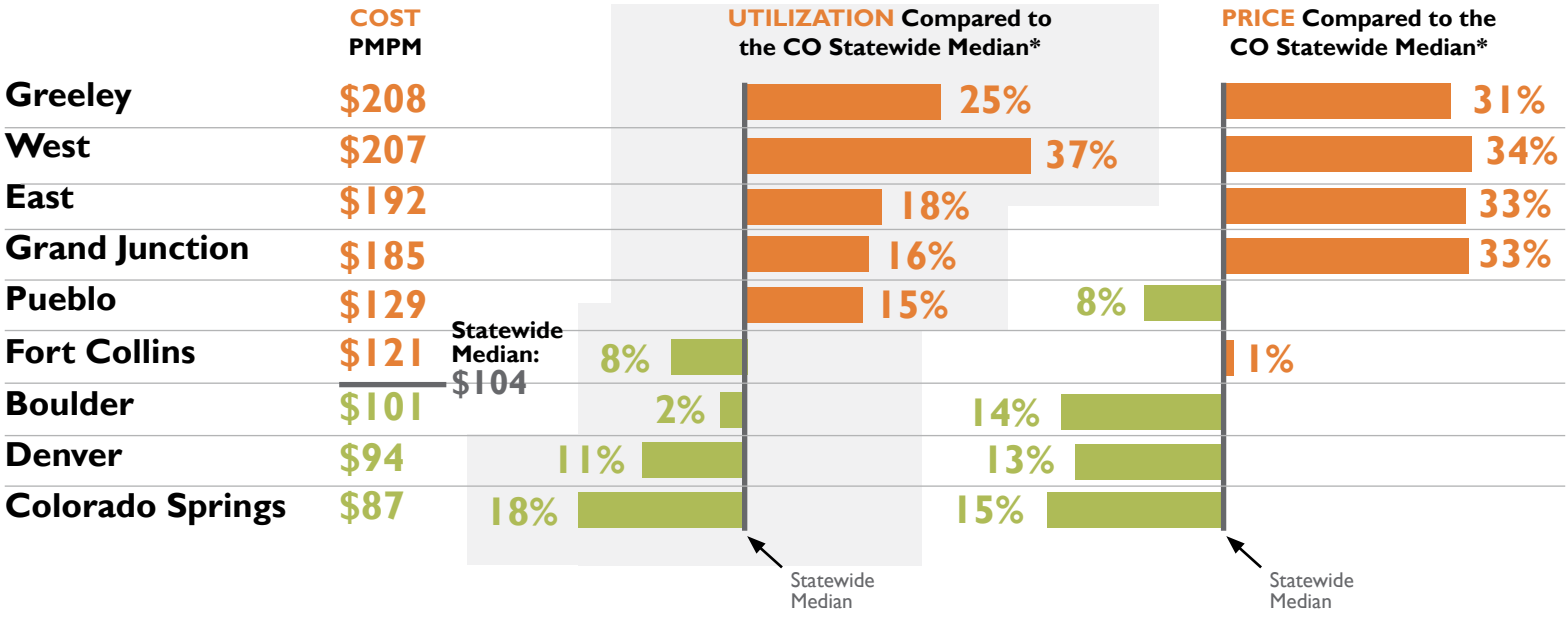
Outpatient costs across DOI regions in Colorado range between $87-$208 PMPM. All regions except for Boulder, Denver, and Colorado Springs were above the statewide median ($104 PMPM). Greeley, West, East and Grand Junction regions were top four for highest outpatient costs, driven by both higher than average utilization and higher than average prices in those areas.

Figure 4: Colorado Outpatient Median Risk-Adjusted Per Member Per Month (PMPM) Cost by Colorado Division of Insurance Region



Statewide medians only reflect results for the 102 adult primary care practices included in the 2015 Colorado All Payer Claims Database study

Table 4. Outpatient Median Risk-Adjusted Per Member Per Month (PMPM) Cost by Colorado Division of Insurance Region

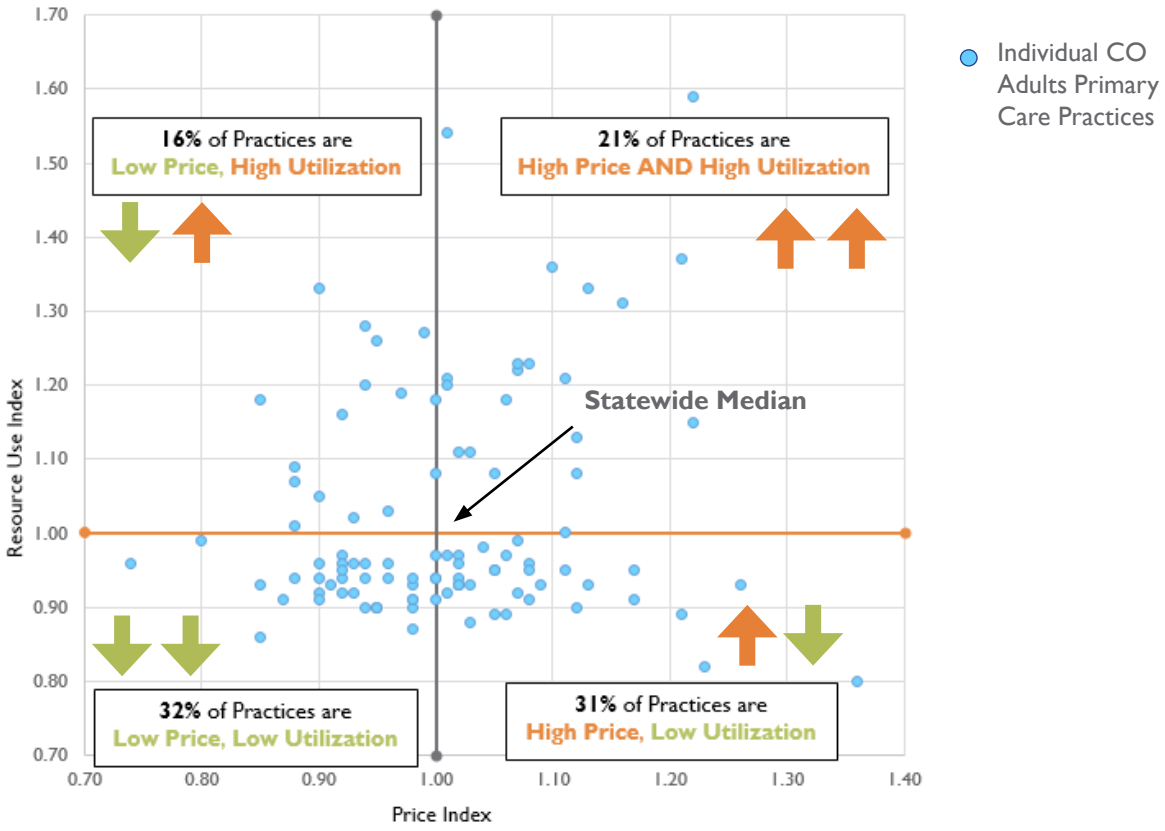


Statewide medians only reflect results for the 102 adult primary care practices included in the 2015 Colorado All Payer Claims Database study

Provider Group Variation

In addition to participating in the multi-state benchmark analysis, as part of this project, CIVHC also provided detailed pratice-level reports to the 102 adult primary care physician practices and 24 pediatric practices (not represented in the figures and tables shown in this report) included in the Colorado analysis. Figure 5 shows how risk-adjusted prices and utilization for patients attributed to each of the 102 adult primary care practices in the study compared to the statewide average. In Colorado, 32% of practices are in the ideal low price, low utilization category in providing care for their patients, leaving opportunities for improvement at 68% of the practices evaluated.

Figure 5: Colorado Provider Practice Utilization and Price Comparison



**CO All Payer Claims data represents 102 adult primary care practices included in the Total Cost of Care Project*

Practice Level Detail

In order for this information to be actionable to providers, it has to indicate both high-level and specific areas of opportunity to reduce total costs. For example, in Figure 6, data provided to one practice shows that their total Professional costs were 23% higher than average, driven by 26% higher utilization. Total costs for Outpatient services at this practice were 7% lower than average, despite 55% higher utilization because prices for those services were 40% below average. The practice can also see that their patients are less healthy with a 35% higher "risk score" compared to the state average.

Figure 6. Example Summary Data Provided to CO Primary Care Practices

SERVICE CATEGORY	AVERAGE PMPM	PRACTICE PMPM
Professional	$160	$197
Outpatient	$131	$121
ED	$18	$15
Inpatient	$72	$63
Pharmacy	$113	$144
Total	$475	$524

Average Risk Score	1.00
Practice Risk Score	1.35 (↑ 35%)

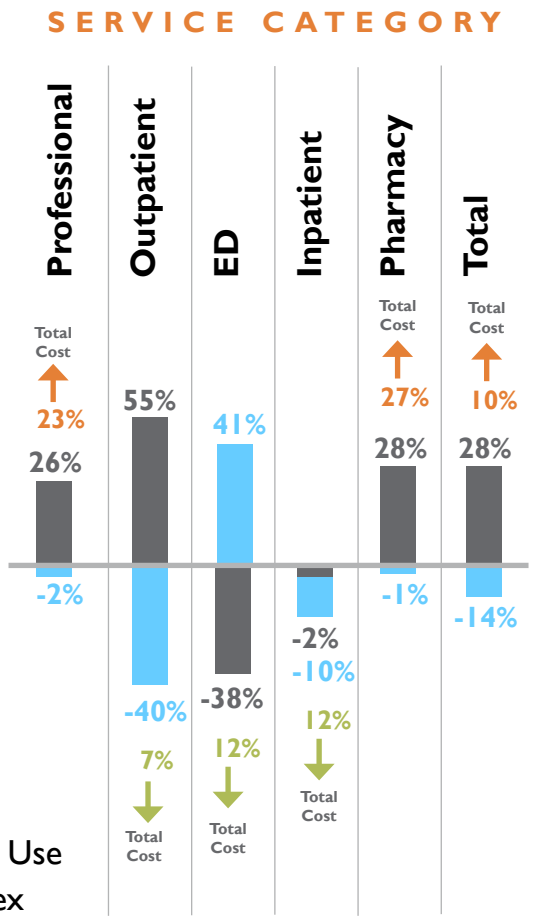
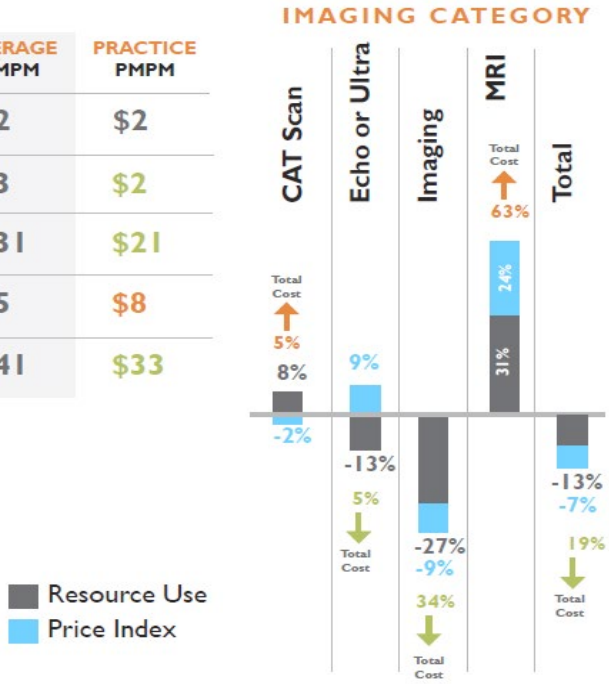


Figure 7. Example Radiology Service-level Detail, Colorado Practice Report

IMAGING CATEGORY	AVERAGE PMPM	PRACTICE PMPM
CAT Scan	$2	$2
Echo or Ultra	$3	$2
Imaging	$31	$21
MRI	$5	$8
Total	$41	$33



Further detail in Figure 7 shows patients receiving MRIs at this practice experience 63% higher total costs than average, driven by higher utilization and price. Equipped with this data, this practice could consider evaluating where patients are going for MRI services to ensure that they are referring patients to the highest value (low price and high quality) providers possible.

While the reasons for higher than average results in the inpatient, outpatient, professional and pharmacy service categories cannot always be directly addressed by primary care providers, this data can help them understand specific opportunities to reduce total costs to be successful under value-based payment models. Additionally, this information can help them make better informed decisions regarding patient referrals and in designing targeted patient education programs.

Looking Forward

Most Coloradans and policy makers are well aware that the cost of health care is a problem for the state with wide variation in health care premiums in different regions and year after year premium increases. However, until now, it hasn't been clear whether high utilization, high prices or both are driving up costs, and there hasn't been a standard way to evaluate how Colorado costs for services compare to other parts of the country. The results of the multi-state analysis can help Colorado identify where costs are out of sync with other states and isolate the drivers. These comparisons also offer insights into how our marketplace differs from other lower-cost lower-utilization areas, offering potential alternatives to our model.

The more granular Colorado regional variation information and provider reports can also be used to identify cost savings opportunities by various stakeholders including:

- **Primary Care Providers** participating in pay-for-value programs where they are responsible for care beyond their walls. This data, for the first time, enables them to see utilization and spending patterns outside their offices compared to their peers, giving them insights regarding the most high-value referral options.
- **Policymakers** looking to better understand drivers of Colorado's relatively high total cost of care, the causes of variation across different regions of the state, and what might be done to better control costs.
- **Employers and Health Plans** looking for ways to align benefit designs to help patients make high value health care decisions and select high value health providers.
- **Consumers** looking for information on where to receive high value care.

In the coming years, CIVHC will add nationally endorsed quality measures to the practice-level reports, enabling a variety of stakeholders to evaluate performance on both total cost and quality of care. CIVHC also plans to work with providers to make some of the information contained in the practice-level analysis available on the CO APCD public website. An important first step towards practice-level quality reporting are the publicly available quality measures interactive reports on CIVHC's website. Also currently available are interactive cost of care reports and utilization reports that show trends in costs and utilization across Colorado across the Medicaid, Medicare Advantage and Commercially insured population.

Methodology

The Colorado-specific analysis was performed by Center for Improving Value in Health Care based on the HealthPartners Total Cost of Care measures. Detailed and in-depth information regarding the measures is available in the TCOC Toolkit. Details regarding development of the results summarized in this report can be found in the Technical Appendix to the Getting to Affordability: Untangling Cost Drivers report.

Colorado data was generated using 2015 claims data from 14 commercial payers included in the Colorado All Payer Claims Database. In order to compare Colorado with other participating states, the analysis was limited to evaluating patients attributed to 102 adult primary care practices, and 24 pediatric practices. For more information about the Total Cost of Care project, visit www.civhc.org, or contact us at info@civhc.org.

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Quality Measures in CO

Insights from the Colorado All Payer Claims Database interactive public reports @ www.civhc.org

Overall

Prescriptions for Asthma

89% of Coloradans receive appropriate prescriptions for asthma

Highest Quality of Care (all payers, statewide)

Colorectal Cancer Screening

Only **28%** of Coloradans get colorectal cancer screening

Lowest Quality of Care (all payers, statewide)

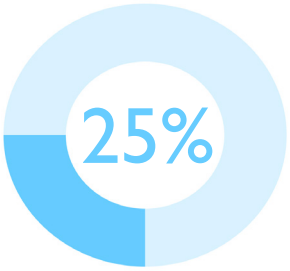
Breast Cancer Screening

Women in rural counties have a **lower percentage** of breast cancer screening **than women in urban counties.** **(all payers, statewide)**

58% of Urban

49% of Rural

Diabetes A1c Testing



1 in 4 diabetes patients DO NOT receive their A1c test at least once a year. **(all payers, statewide)**

Trends

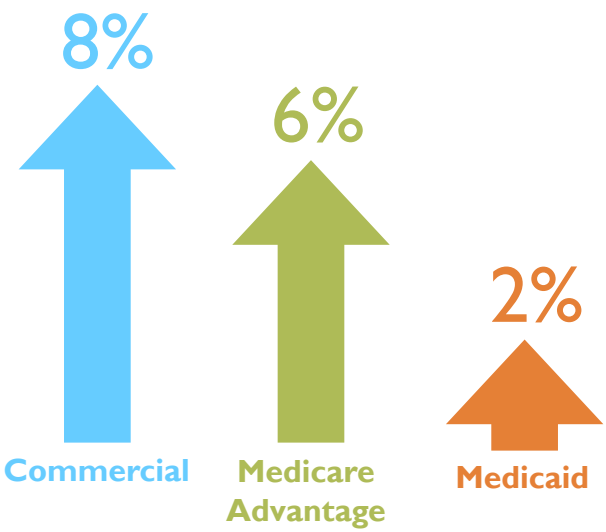
Colorectal Cancer Screening

Cervical Cancer Screening

Colorectal cancer screening and **cervical cancer screening** have both **increased in the Commercial population** since 2012, but have **declined in the Medicaid and Medicare Advantage Populations.**

Breast Cancer Screening

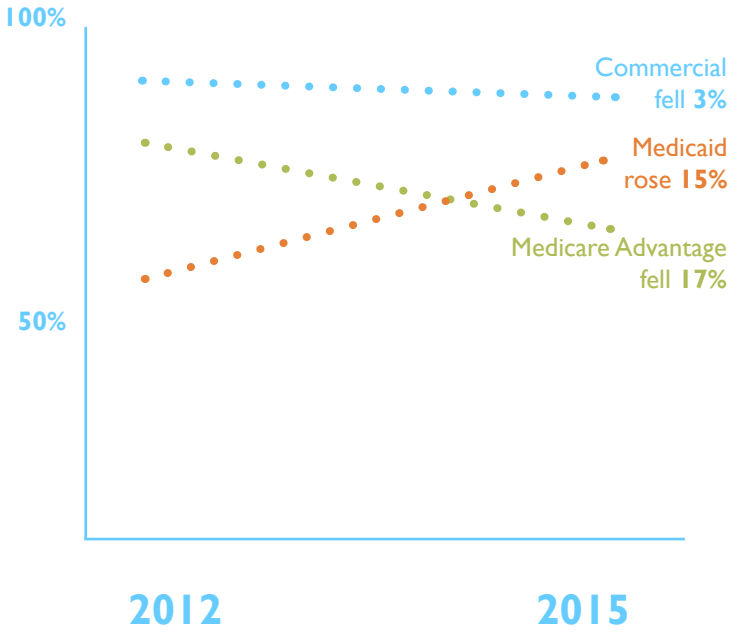
Across all payers, more patients are receiving **breast cancer screening than** they did in **2012.**



Trends

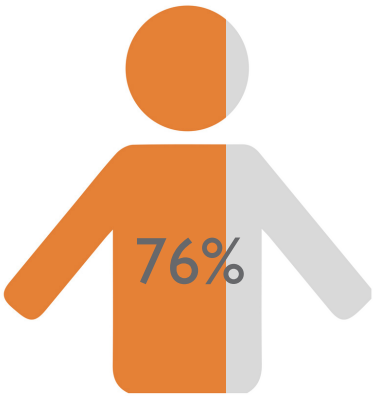
Diabetes A1c Testing

Diabetes A1c testing from **2012-2015** **varies greatly** by payer.



Prescription for Asthma

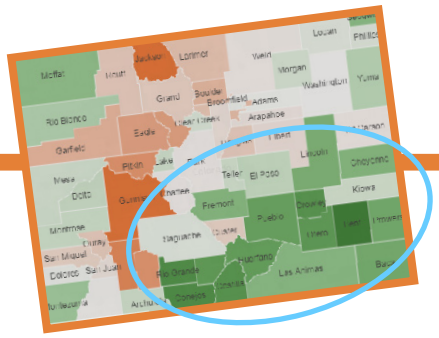
The lowest rate in prescriptions for **asthma** is for **kids (5-11) with Commercial insurance.**



Only 76% are receiving **appropriate treatment...**

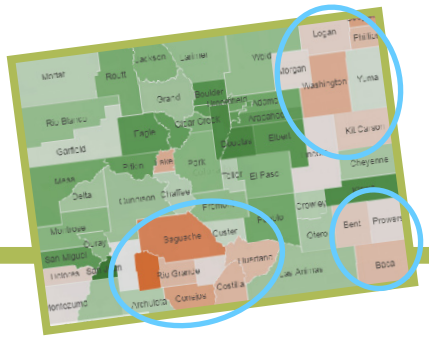
...A 5% DECREASE FROM 2012.

Geographic Variation



Southeast CO has the highest percent of people receiving **appropriate prescriptions for asthma.**

Denver Metro Counties, as well as Boulder and Mesa Counties, have the highest percent of **colorectal screenings**, yet **over 60%** of people in these areas still **do not** receive a screening.



In 14 rural counties, 60-78% of women do not receive **breast cancer screenings.**

LOWER RATES — HIGHER RATES

To learn more, visit us at:
www.civhc.org/get-data/interactive-data/statewide-metrics/quality-measures/

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Chronic Conditions in CO

Insights from the Colorado All Payer Claims Database interactive public reports @ www.civhc.org

Conditions Snapshot

Hypertension

12% of Coloradans were diagnosed with **hypertension** in 2015

Hypertension is the disease **diagnosed most frequently** among insured Coloradans

- **Hypertension** is more prevalent in older age groups with marked differences between payer types

Hypertension Prevalence in Adults, 35-64

Medicaid	16.5%
Commercial	8.6%

Depression

5.1% of Coloradans had a **depression** diagnosis in 2015

Since 2012, **depression** has increased...

26%

All Payers

Depression is highest among mature adults, 35-64

7.2% of females

3.7% of males

Diabetes Type II

4.8% of Coloradans had a **diabetes type II** diagnosis in 2015

Diabetes type II is highest in the **Medicare Advantage** population

Diabetes Type II Rates, 2012-2015

Overall, **diabetes type II is up 10%** since 2012

Medicare Advantage	27%
Medicaid	-9.7%
Commercial	-2.1%

Asthma

3.6% of Coloradans have **asthma**

Asthma rates have gone down across all payers since 2012

14.4%

- **Asthma** is more prevalent in children with marked differences between payer types

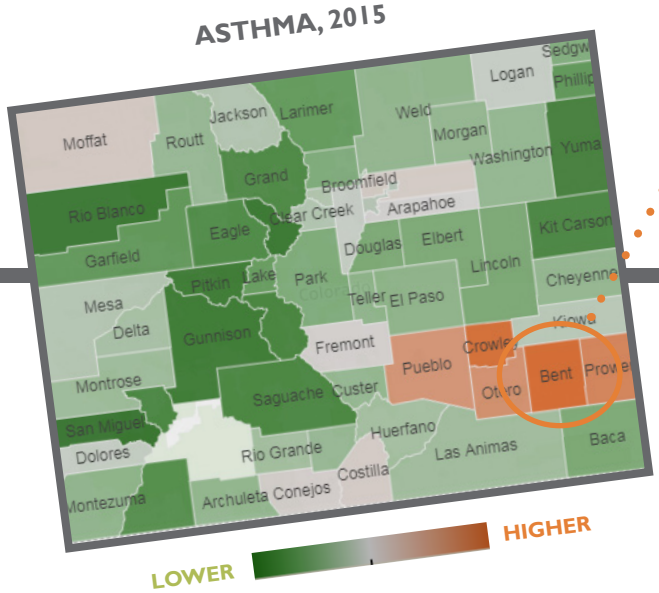
Asthma Prevalence in Children, 0-17

Medicaid	6.03%
Commercial	3.96%

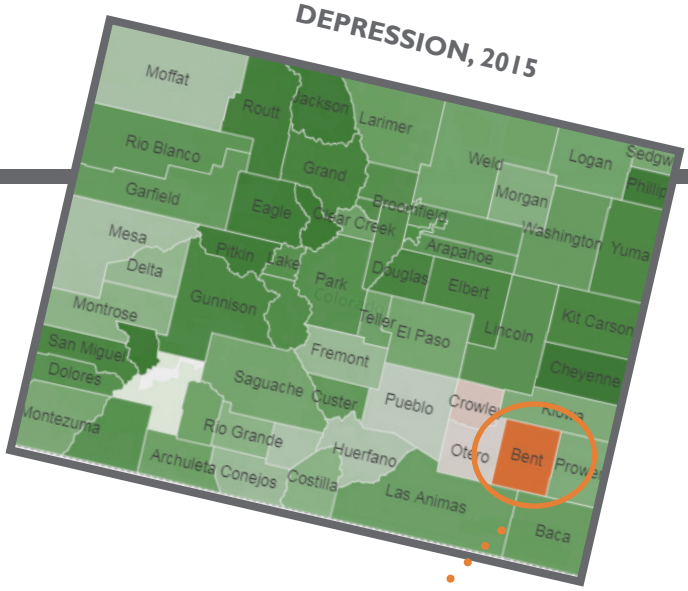
In general, **asthma, depression, and diabetes type II** *rates are* **highest in the Southeast** *portion of the state.*

Bent County is **78% higher** than statewide prevalence for **asthma**

ASTHMA, 2015

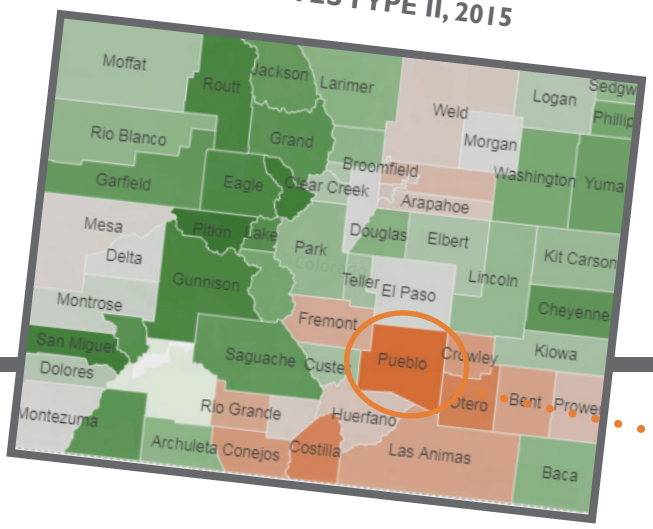


DEPRESSION, 2015



Bent County is **197% higher for depression** than statewide average

DIABETES TYPE II, 2015



Pueblo is **89% higher** than the statewide prevalence for **diabetes type II**

Central Mountain counties, *including* **Gunnison, Pitkin and Eagle** *have some of the* **lowest prevalence** *of most conditions including* **Hypertension, Diabetes, COPD and CHF.**

To learn more, visit us at:
www.civhc.org/get-data/interactive-data/statewide-metrics/condition-prevalence

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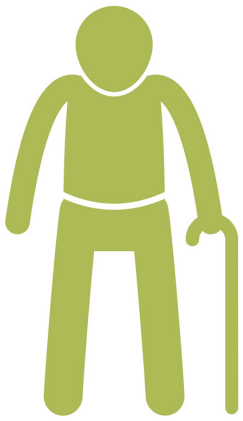
Cancer Prevalence in CO

Insights from the Colorado All Payer Claims Database interactive public reports @ www.civhc.org

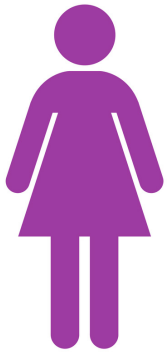
Overview

Breast cancer *is by far the cancer with the* **highest prevalence (0.8%)**, *followed by prevalence of* **cervical cancer (0.2%)**.



The **cancers** reported tend to be **more prevalent** in the **older population (65+ yrs.)**...

...with the exception of **cervical cancer**, which is **more prevalent among women (35-64 yrs.).**



Medicare Advantage

The **35-64 yrs.** population covered by **Medicare Advantage** has the **highest prevalence** of all cancers reported.*

Cancers tend to be **more prevalent in rural** counties among the **Medicare Advantage** and **Medicaid** populations.

*Populations covered by Medicare Advantage represent individuals with complex conditions and can include those under age 65.

Breast Cancer

0.8% **Overall rate** across all payers

Trends since 2012

- Commercial **-29%**
- Medicaid **-24%**
- Medicare Advantage **14%**

Urban counties have **higher** rates of breast cancer (0.8%) compared to rural (0.6%).

Colorectal Cancer

0.14% **Overall rate** across all payers

Trends since 2012

- Commercial **-8%**
- Medicaid **-13%**
- Medicare Advantage **5%**

No apparent variation between rural and urban prevalence for all payers.

Cervical Cancer

0.2% **Overall rate** across all payers

Trends since 2012

- Commercial **-16%**
- Medicaid **-17%**
- Medicare Advantage **25%**

Rural counties have **higher** rates of cervical cancer in the **Medicaid and Medicare Advantage** population.

Lung Cancer

0.09% **Overall rate** across all payers

Trends since 2012

- Commercial **-36%**
- Medicaid **-25%**
- Medicare Advantage **0%**

Overall prevalence of lung cancer tends to be **higher** in the **older population (65+).**

To learn more, visit us at:
www.civhc.org/get-data/interactive-data/statewide-metrics/condition-prevalence

June 8, 2018

Kim Bimestefer
Executive Director, Department of Health Care Policy and Financing
1570 Grant Street
Denver, Colorado 80203

Dear Executive Director Bimestefer,

Members of the Colorado All Payer Claims Database (CO APCD) Advisory Committee are providing this letter of support to the Center for Improving Value in Health Care (CIVHC) regarding the upcoming CO APCD rule change regarding modifying the Data Submission Guide (DSG). On an annual basis, CIVHC, in collaboration with the health insurance plan submitters and the Department of Health Care Policy and Finance (HCPF), propose new data elements for submission to the CO APCD to enhance the usability and comprehensiveness of the data set in order to provide more benefit to Colorado.

The CO APCD is the state's most comprehensive source of health care insurance claims information, and one of the most robust in the nation, representing the majority of covered lives in the state across commercial health insurance plans, Medicare, and Medicaid. As the non-profit administrator of the CO APCD, CIVHC is statutorily required to maintain and enhance the database while providing public and custom data analysis aimed at identifying ways to improve health and quality of care while lowering costs.

Annual DSG updates through the HCPF rule-making process enable CIVHC to continue to increase the value of the CO APCD by ensuring the data is as robust and useful as possible. This year's rule changes will help CIVHC continue to achieve the legislative intent of the CO APCD by adding these key elements to the database:

- **Alternative Payment Models (APM)**
    - Information on APMs being employed outside of the traditional fee-for-service model will contribute to a more complete understanding of the total amount spent on health care for Coloradans and will allow the state to set goals, understand best practices, formulate strategies and track progress toward providing high value care.
- **Prescription Drug Rebate Information**
    - Aggregate information regarding prescription drug rebates (collected in accordance with Federal laws) will help Colorado better understand how much is being paid for prescriptions drugs, track trends, and identify opportunities to reduce spending.
- **Medicare Beneficiary Identifier**
    - Beginning in 2018, Centers for Medicare & Medicaid (CMS) transitioned to a new patient identifier called a Medicare Beneficiary Identifier (MBI). Submission of the new MBI number will enable CIVHC to update the CO APCD data warehouse and continue to report meaningful information for the Medicare population.

We are committed to helping ensure that CIVHC and the CO APCD can continue to deliver independent, transparent data to support positive policy, thus insuring Colorado's position as a thought-leader and making us the healthiest state in the nation.

Sincerely,

Colorado State Representative Ginal
CO APCD Advisory Committee Chair on behalf of the following Committee Members and their organizations

Colorado All Payer Claims Database Advisory Committee Members 2018

Michelle Anderson - Director of Pharmacy Services Managed Care, Denver Health Medical Plan, Inc

Justin Aubert - Chief Financial Officer, Quality Health Network

Donna Baros - Chief Benefits Officer, CO PERA

Mitchell Bronson - Actuarial Statistician, Colorado Department of Regulatory Agencies

Matt Cassady - Compliance Director, Delta Dental of Colorado

Markie Davis - Manager, Employee Benefits and Risk Management, State of Colorado

Richard Doucet - CEO, Community Reach Center

Susan Euser - Vice President / Administration, Young Americans Center for Financial Education

Jack Feingold - VP, Account Development at WellDyne Rx

Joann Ginal - Colorado State Representative

Kristi Gjellum - Account Executive & Practice Lead, Employee Benefits, IMA, Inc.

Jon Gottsegen - Chief Data Officer, Governor's Office of Information Technology

Morgan Honea - CEO, CORHIO

Debra Judy - Policy Director, Colorado Consumer Health Initiative

David Keller - Professor and first Vice Chair, University of Colorado School of Medicine and Children's Hospital Colorado

Todd Lessley - VP for Population Health, Salud Family Health Centers

Philip Lyons - Director of Regulatory Affairs, United Healthcare

Janet McIntyre - Vice President, Professional Services, Colorado Hospital Association

Bert Miucco - CEO, HealthTeamWorks

David Ornelas - Chief Operating Officer at Colorado Clinic

Bethany Pray - Healthcare Attorney, Colorado Center on Law and Policy

Wes Skiles - Director of Government Relations, Kaiser Permanente

Jim Smallwood – Colorado State Senator

Robert Smith – Executive Director, Colorado Business Group on Health

Jeanne Thrower Aguilar - Benefits Director, Boulder Valley School District

Chris Underwood - Director, Health Information Office, HCPF Special Projects Coordinator, HCPF

Nathan Wilkes - Owner/Principal Consultant, Headstorms, Inc.

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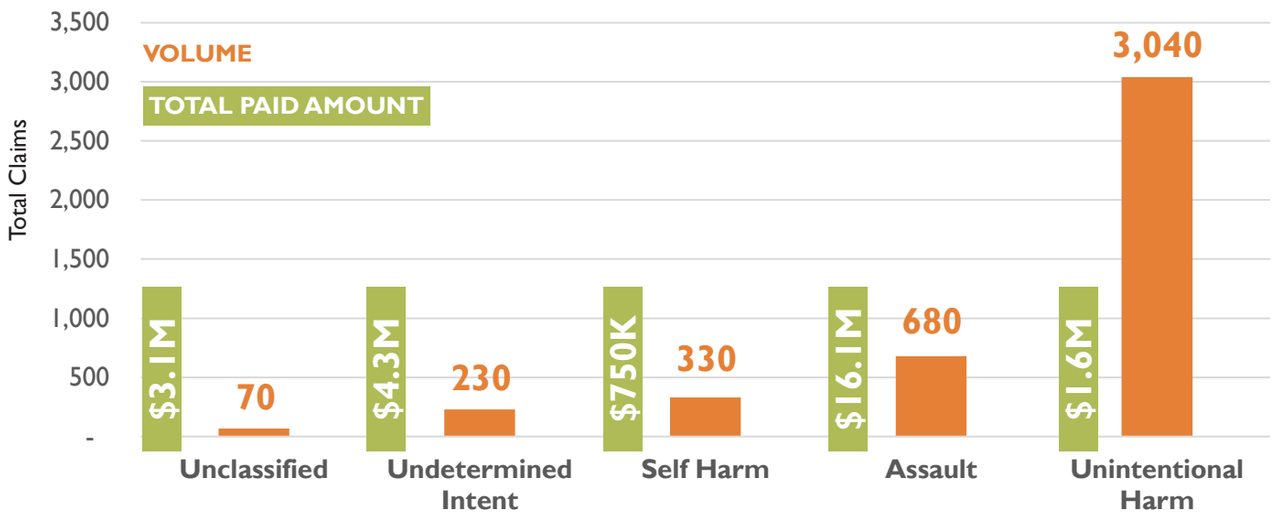
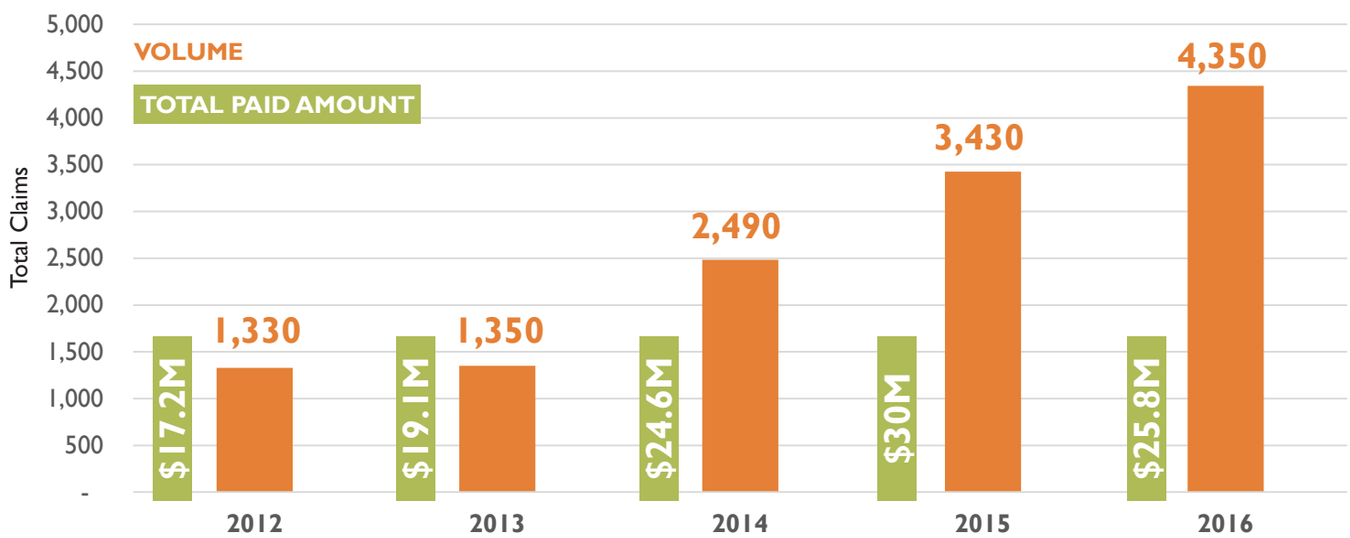
CO APCD DATA BYTE: FIREARM INJURY TRENDS AND COSTS IN COLORADO

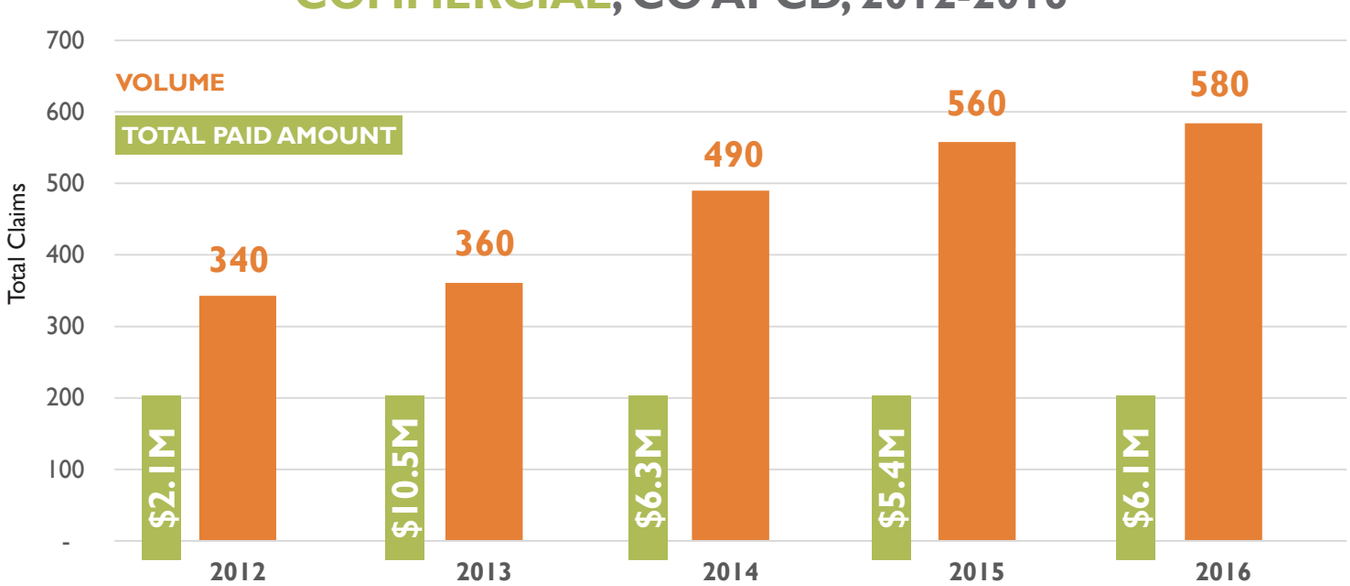
FIREARM CLAIMS BY INJURY TYPE, COMMERCIAL, MEDICAID, MEDICARE FFS, MEDICARE ADVANTAGE, CO APCD, 2016



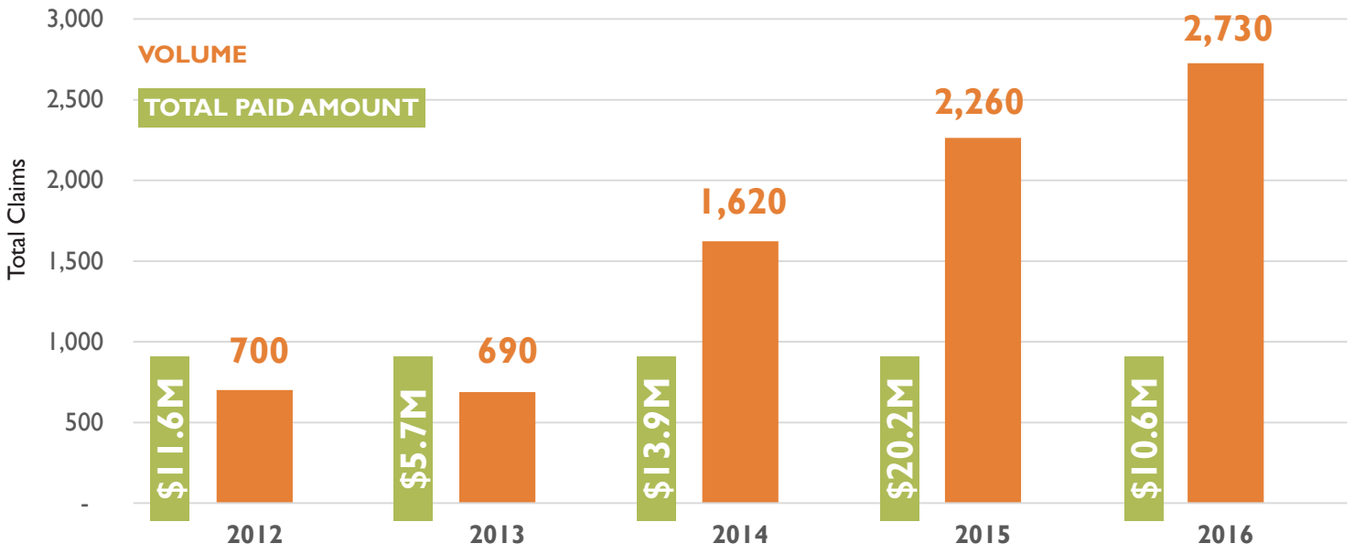
FIREARM INJURY TRENDS AND TOTAL COSTS, COMMERCIAL, MEDICAID, MEDICARE FFS, MEDICARE ADVANTAGE, CO APCD, 2012- 2016



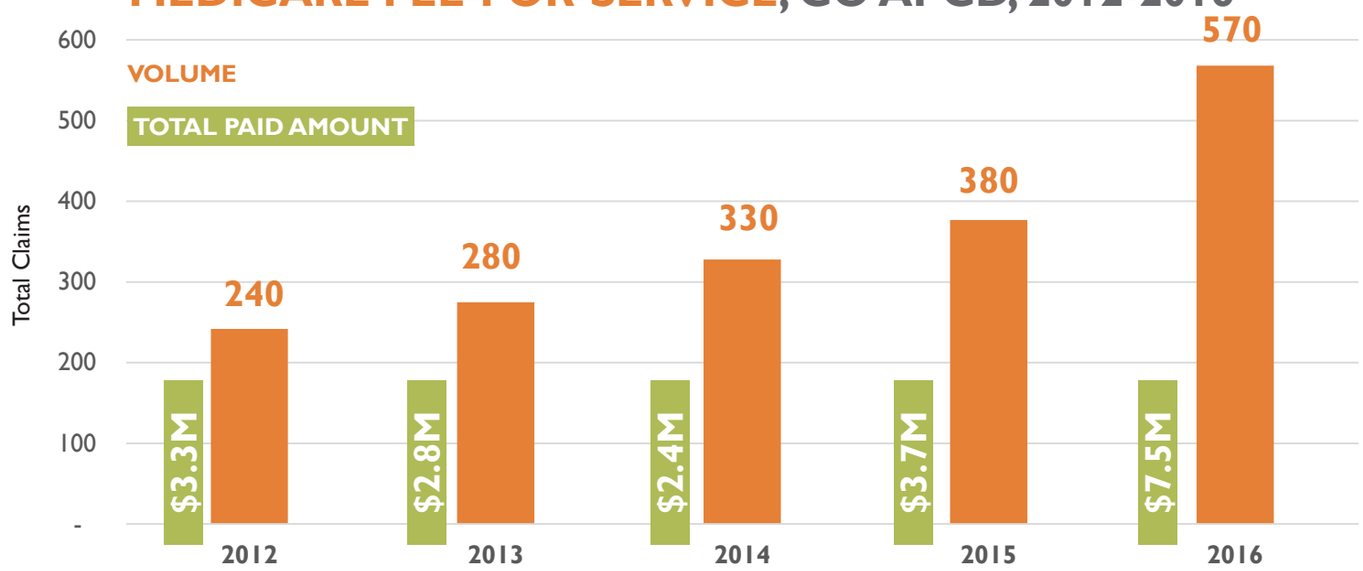
FIREARM INJURY TRENDS AND TOTAL COSTS COMMERCIAL, CO APCD, 2012-2016



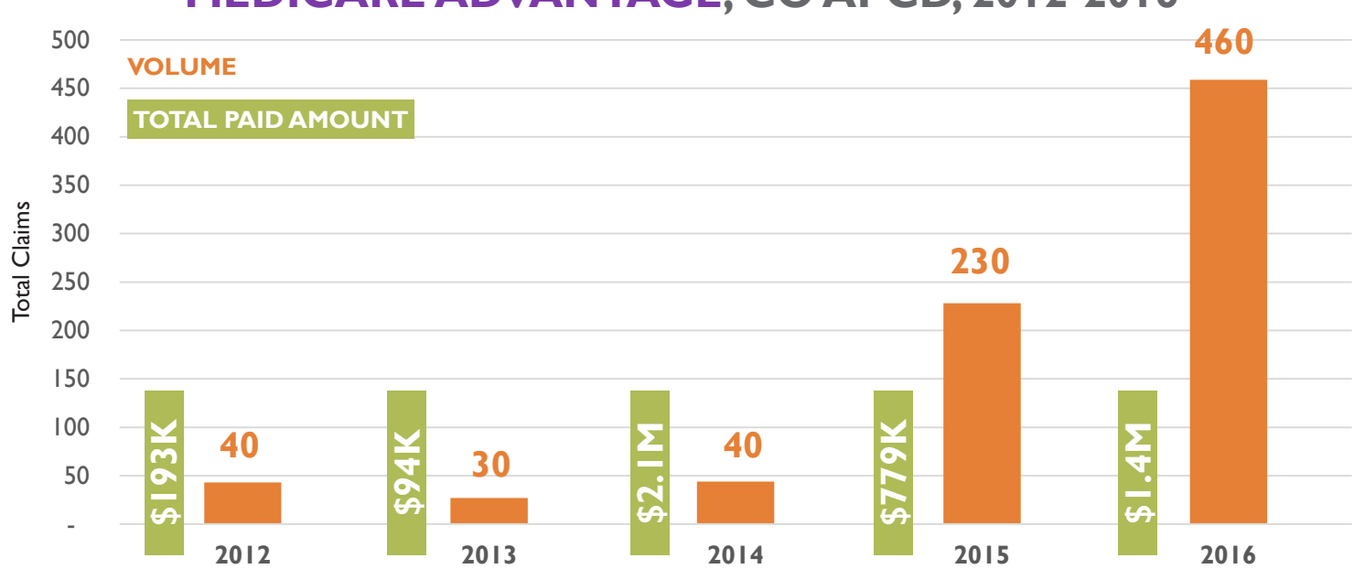
FIREARM INJURY TRENDS AND TOTAL COSTS
MEDICAID, CO APCD, 2012-2016



FIREARM INJURY TRENDS AND TOTAL COSTS
MEDICARE FEE-FOR-SERVICE, CO APCD, 2012-2016



FIREARM INJURY TRENDS AND TOTAL COSTS
MEDICARE ADVANTAGE, CO APCD, 2012-2016



2012-2016 results for this analysis based on ICD9/10 codes X93xx, X94xx, X95xx, E96xx, X72xx, X73xx, X74xx, E95xx, W32xx, W33xx, W34xx, Y22xx, Y23xx, Y24xx, E97xx, E98xx, and E92xx contained in the Colorado All Payer Claims Database (CO APCD). Exclusions include diagnosis codes with the words "air," "paint," "nail," and "virus."