FEBRUARY 2022

2021 COLORADO ALL PAYER CLAIMS DATABASE ANNUAL REPORT

CENTER FOR IMPROVING VALUE IN HEALTH CARE

REPORTING PERIOD: JULY 2020 - JUNE 2021

STEWARDSHIP: noun
1: the office, duties, and obligations of a steward
2: the conducting, supervising, or managing of something
especially: ***THE CAREFUL AND RESPONSIBLE MANAGEMENT OF SOMETHING ENTRUSTED TO ONE'S CARE***

Merriam-Webster

The Center for Improving Value in Health Care (CIVHC) was entrusted with much more than building a database when appointed administrator of the Colorado All Payer Claims Database (CO APCD) in 2010. The drafters of the enabling legislation, House Bill 10-1330, were clear in their vision of what the CO APCD would accomplish, and thus, by extension, what the administrating organization would achieve. They endowed the administrator with three significant responsibilities:

- designing and building a new state resource,
- using it to generate cutting edge reporting, and
- securing funding for its implementation and ongoing sustainability.

These obligations elevated the appointment beyond mere administration and into the realm of *stewardship*. Throughout our tenure as administrator of the CO APCD, CIVHC has maintained stewardship as our watchword. Stewardship of the data, stewardship of the funding, and stewardship of the vision of accessible and transparent health care information for Colorado.

CIVHC is proud to offer this report, a requirement of Colorado Statute 25.5-1-204, detailing the stewardship of the CO APCD during CIVHC's fiscal year, July 1, 2020 through June 30, 2021.

Who is CIVHC?

CIVHC is an objective, not-for-profit organization. Through services, health data, and analytics, we partner with Change Agents to drive towards the Triple Aim of better health, better care, and lower health care costs for all Coloradans.

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).

Change Agent
Individual, community, or organization working to lower costs, improve care, and striving toward a better health system for us all.

What is the CO APCD?

The CO APCD is a state-legislated, secure health care claims database compliant with all federal privacy and antitrust laws. It is the only claims repository in the state that represents the vast majority of insured lives in Colorado, with more than ten years of data from commercial health insurance payers, Medicaid, and Medicare.

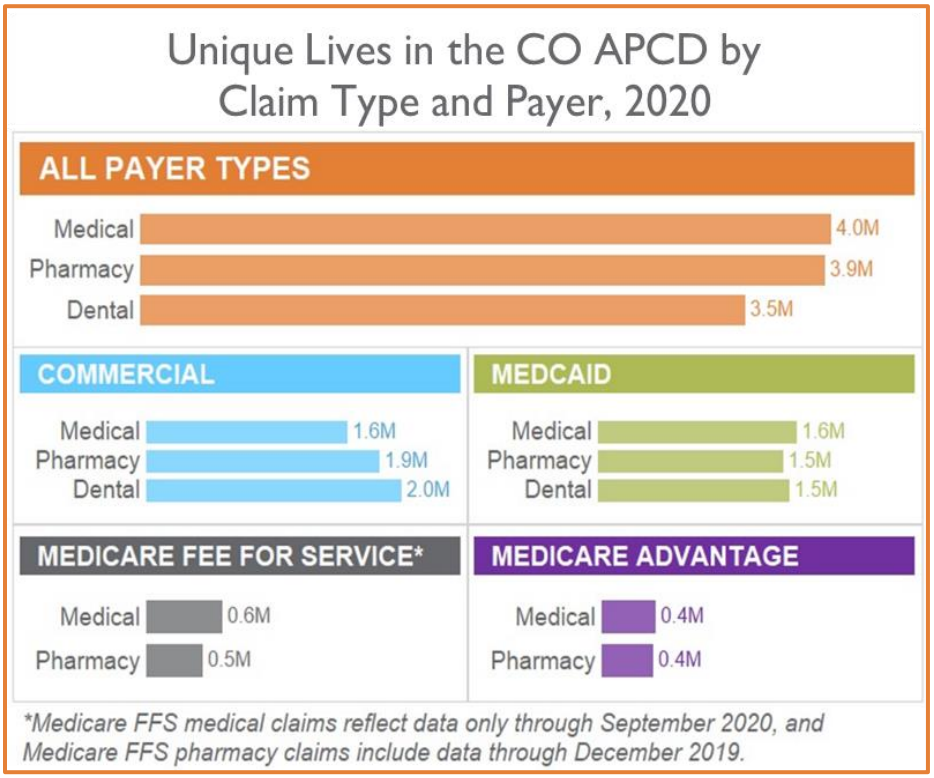
Contents of the CO APCD

The CO APCD currently contains nearly 800 million claims for approximately 65 percent of insured lives in Colorado (4.5 million unique individuals), with information from commercial health insurance plans, voluntarily-submitted Employee Retirement Income Security Act (ERISA) self-funded and mandated non-ERISA self-insured employer plans, Medicare Advantage, Medicare Fee-for-Service (FFS), and Medicaid. The CO APCD does not contain claims for people covered by Federal health insurance programs such as the Veterans Administration, TRICARE, Federal Employees Health Benefits, or Indian Health Services, and does not include information for uninsured Coloradans.

New in FY 2020-2021, the CO APCD Insights Dashboard can help users understand the types of claims that are available and the percentage of the population that is represented in the CO APCD by county and across the state.

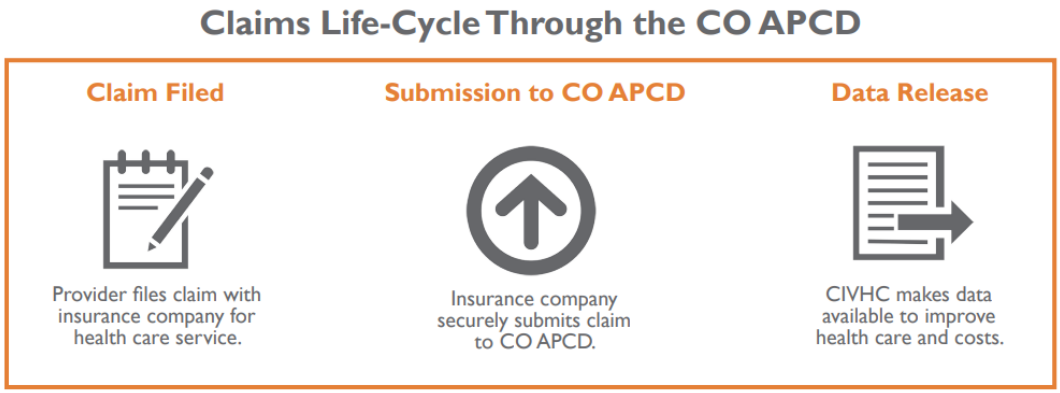
Over 200 million claims from 2009-2011 have been archived and are not available for release from the CO APCD. As of 2022, CIVHC is no longer including the archived data in total CO APCD volumes in this report or in on the online CO APCD Insights Dashboard.

Due to a 2016 ruling by the United States Supreme Court, 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 25% of ERISA self-insured plans, and 50% of all self-insured plans.



GETTING CLAIMS INTO THE CO APCD

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



HOW THE CO APCD IS USED

CIVHC releases CO APCD data in two ways:

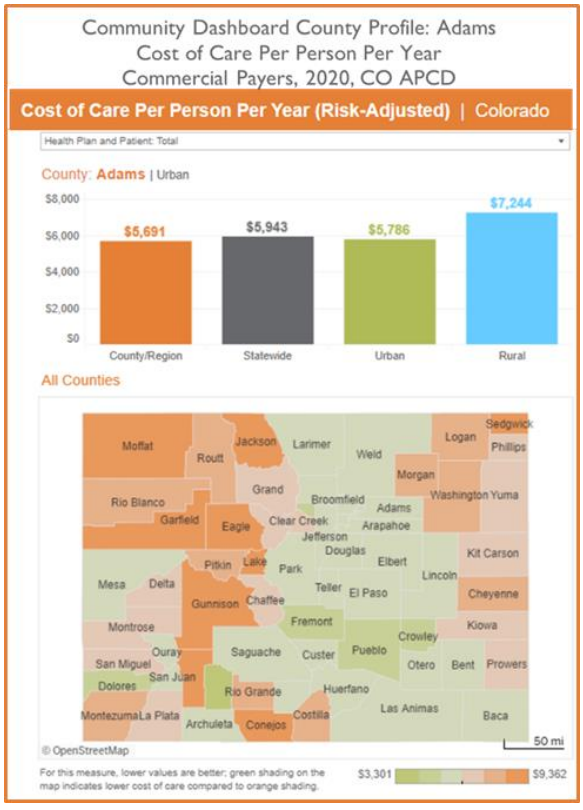
- **Non-public custom releases**, licensed by Change Agents working on specific projects to improve care for Coloradans; and
- **Public information on civhc.org** designed to foster decision-making at all levels of the health care system, from consumers to state agencies.

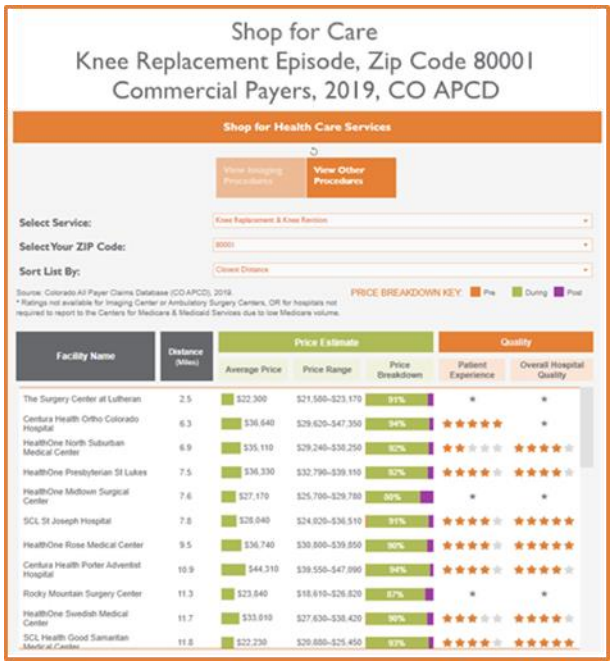
NON-PUBLIC DATA RELEASES

CIVHC provides non-public data sets and reports to organizations and researchers seeking to advance the Triple Aim. Every release of data must benefit Colorado, as mandated by CO APCD regulations, as well as adhere to federal privacy and anti-trust laws. Learn about projects powered by CO APCD data on the Change Agent Index.

PUBLIC DATA RELEASES

Increasing access to transparent health care data for all stakeholders is foundational to the legislative vision of the CO APCD, CIVHC's mission, and Colorado's ability to make informed decisions that will have lasting benefit for Coloradans. Making public analyses and interactive tools available on civhc.org is one of the methods CIVHC employs to bring transparency to the health care marketplace.





ADMINISTERING THE CO APCD IN FY 2020-2021

Throughout FY 2020-2021, CIVHC demonstrated grit and resilience in the face of continued uncertainty driven by COVID-19 and social turmoil. While the challenges were many, so were the successes. Many of the successes were made possible by dollars allocated by the Colorado General Assembly during the 2020 legislative session.

FY 2020-2021 was one of the most productive in CO APCD history, with more public reports published than ever before, and the highest number of non-public releases since the Colorado State Innovation Model in 2018. Additional funding streams were secured, innovative projects launched, and new data quality initiatives established. It was also a time when the CIVHC team learned to take care of each other, our partners, and stakeholders around us. Our sphere of stewardship and grace expanded, and while many experiences were beyond our control, we are stronger as a result and so is the CO APCD.

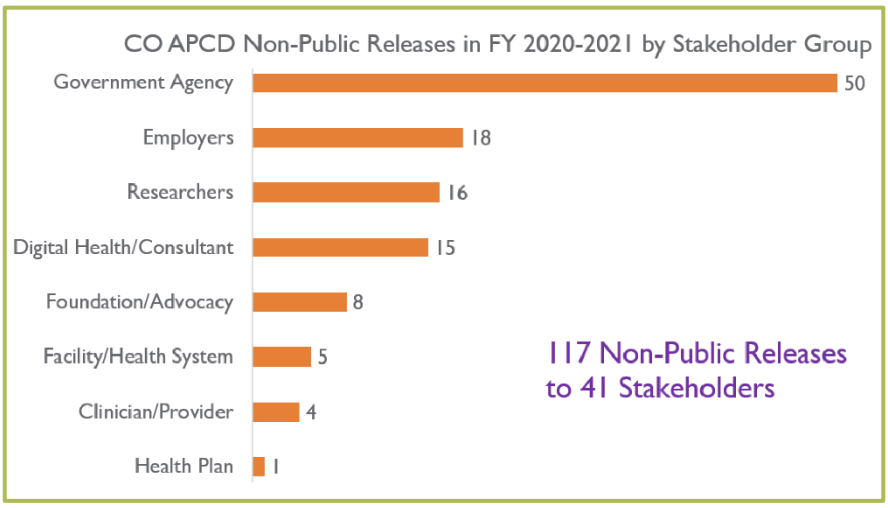
STEWARDSHIP OF THE VISION

One of main distinguishing features that sets the CO APCD apart from many other APCDs across the nation is the availability of transparent health care data to a variety of stakeholders. In fact, this was a primary goal of the enacting legislation. Founding legislators were explicit in their wish for the data to be accessible to both the public and to entities wishing to improve health care for Coloradans. CIVHC works to realize this vision through non-public releases of data to stakeholders who meet the criteria and by releasing public analyses on everything from facility cost and quality information to mental health emergency department utilization.

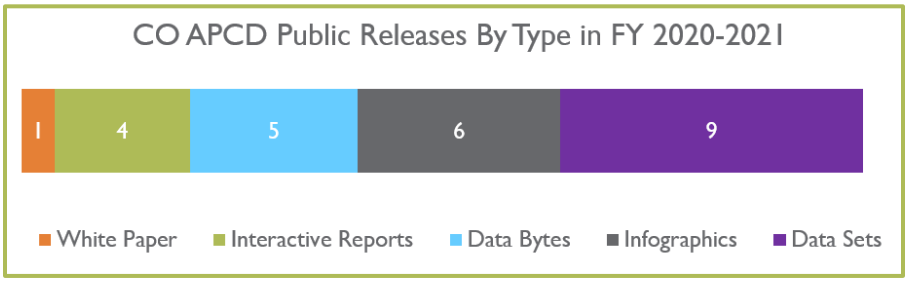
> "…[A] Colorado all-payer claims database for the purpose of facilitating the reporting of health care and health quality data that results in transparent and public reporting of safety, quality, cost, and efficiency information at all levels of health care." - House Bill 10-1330

RELEASES OF CO APCD DATA

In FY 2020-2021, CIVHC provided 117 releases of non-public CO APCD data to 41 different stakeholder organizations. In some cases, these organizations were state agencies or universities where different departments received data for different projects. For example, the Colorado Division of Insurance (DOI) received data for six projects, three of which related to primary care. When viewing the number of releases, it is necessary to keep in mind that some requestors have subscriptions for quarterly data extracts, or their projects require multiple releases throughout the year, thereby increasing the number of non-public data releases while keeping the number of requesting organizations stable. A list of the non-public data releases in FY 2020-2021 can be found in Appendix A.

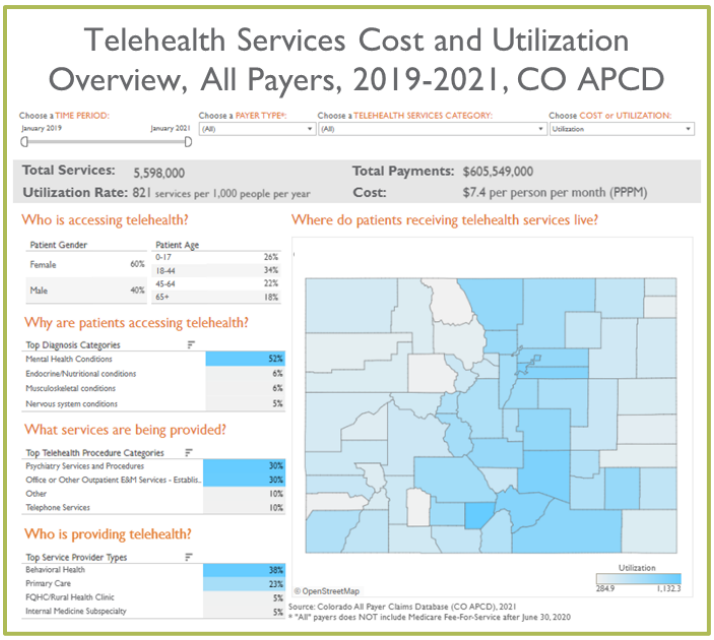


CIVHC published 25 public releases of CO APCD data to support stakeholders throughout the reporting period. Some of these releases were updates to flagship reports such as Low Value Care and Medicare Reference Based Pricing. The Out of Network Services Fee Schedule was released in conjunction with the DOI as part of HB 19-1174 to eliminate surprise medical billing and the Colorado Prescription Drug Spending and the Impact of Drug Rebates report supported policy discussions. In order to help users better



understand what is in the CO APCD, we released the CO APCD Insights Dashboard, an interactive breakdown of the contents of the database, along with an accompanying data set, as well as smaller analyses of specialized data like race/ethnicity, dental, vision, and behavioral health/substance use disorders for download.

Updates to the Telehealth Services Analysis report continued to inform the work of partners striving to address COVID and inspired similar reports in other states seeking to understand drastic changes taking place in care delivery.



- Overall, use of telehealth in 2020 was still significantly elevated compared to 2019.
- Use of telehealth services peaked in April 2020, slowly declined through September and rose again slightly through January.
- Mental health conditions remain the most frequent diagnosis for telehealth services and increased from approximately 35% in 2019 to a little over 50% of all visits in 2020.
- Behavioral Health Providers supplied the most telehealth services (38%) in 2020, followed by Primary Care Providers (22%), Federally Qualified Health Centers/Rural Health Clinics (5%) and Home Health (5%) providers.

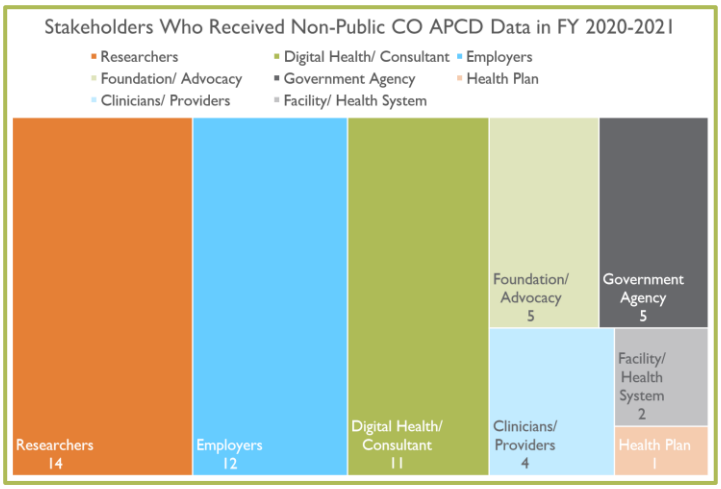
A full list of CIVHC public releases in FY 2020-2021 can be found in Appendix B.

During FY 2020-2021 the public reporting team began incorporating downloadable data sets with as many interactive public releases as possible, enabling partners to perform their own analyses with the de-identified and aggregated CO APCD information.

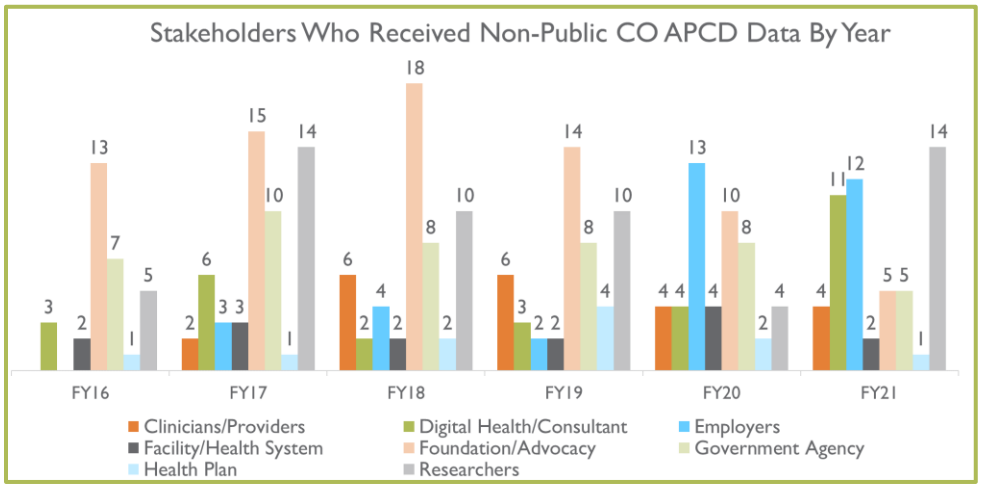
DIVERSITY OF CO APCD DATA USERS AND ANALYTICS

Stakeholders who received non-public CO APCD data during FY 2020-2021 span the spectrum from digital health innovators to traditional researchers, from major health plans to hospitals and providers in rural and urban areas of the state. Though government agencies receive a

larger percentage of the individual non-public releases due to large, multi-project contracts, they make up a relatively small portion of the overall stakeholder blend requesting data. Over the reporting period, more stakeholders from the researcher and employer sectors received CO APCD data while government agencies and foundations/advocacy groups rounded out the middle.



The diversity of users in FY 2020-2021 is consistent with historical trends. While the variety of users speaks to the utility and versatility of the data, based on the fluctuation in usage patterns, it is impossible to declare that one stakeholder group is more engaged than another. Accessibility of the CO APCD grows each year, and it is clear by the expansion in both users and projects that it is becoming an increasingly vital resource for Colorado.

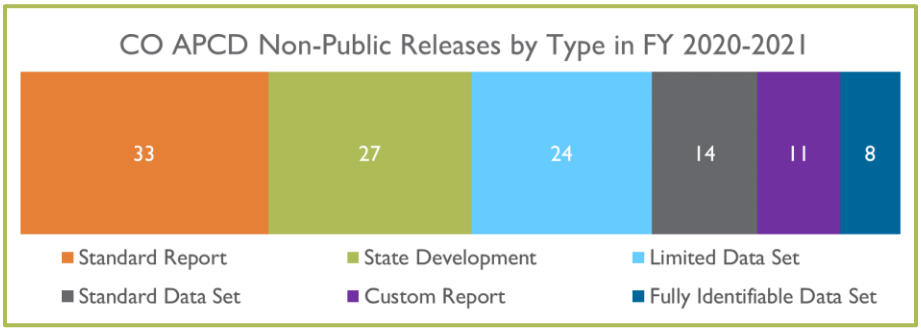


CIVHC releases CO APCD data in different ways, depending on the question(s) the requestor is hoping to answer and their sophistication with analysis.

Custom and Standard Reports
For stakeholders who would like CIVHC to deliver the data in business intelligence or data visualization tools like Tableau or Excel.

Custom and Standard Data Sets
When partners are interested in performing their own analyses using tools of their choosing and have a strong data background.

Depending on the level of personal health information (PHI) required, the requestor will receive a De-Identified, Limited, or Fully Identifiable Data Set. Every request containing PHI is reviewed by the Data Release and Review Committee to ensure they meet all state and federal privacy regulations prior to moving into production. In FY 2020-2021, more Standard Reports were released than any other type of non-public request, followed by items developed for state contracts.



CIVHC FINANCIAL ASSISTANCE INITIATIVE AND DATA BYTE PROGRAM

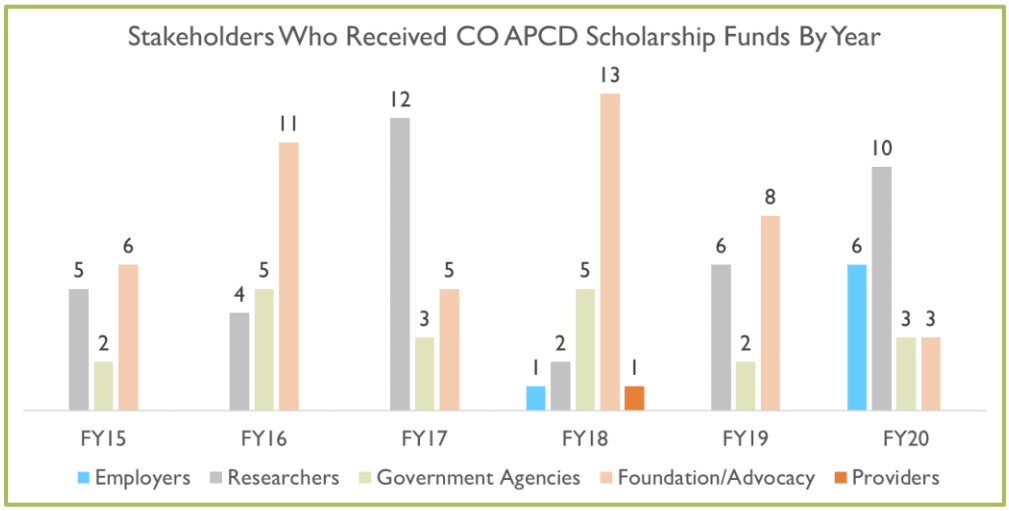
In place from 2014-2020, the CO APCD Scholarship was instrumental in helping stakeholders with limited resources access CO APCD data to support projects aimed at all aspects of the Triple Aim: better care, lower costs, and a healthier population.

Applicants were required to meet criteria beyond those outlined for non-public release of CO APCD data to be considered for the scholarship, and could receive grants offsetting up to 80% of the costs of accessing the data.

Examples of
CO APCD Scholarship Projects

- Cost Savings from Medically-Tailored Meals for the Chronically Ill - Project Angel Heart
- Emergency Department Utilization - Colorado Children's Health Care Access Program
- Population Surveillance of Adolescents and Adults with Congenital Heart Disease - University of Colorado School of Public Health.

Scholarship recipients came from all sectors, government agencies, researchers, employers, foundations/advocacy groups, and clinicians/providers. Throughout the years it was in place, the CO APCD Scholarship supported the delivery of more than 100 projects to benefit the health and wellbeing of Colorado residents.

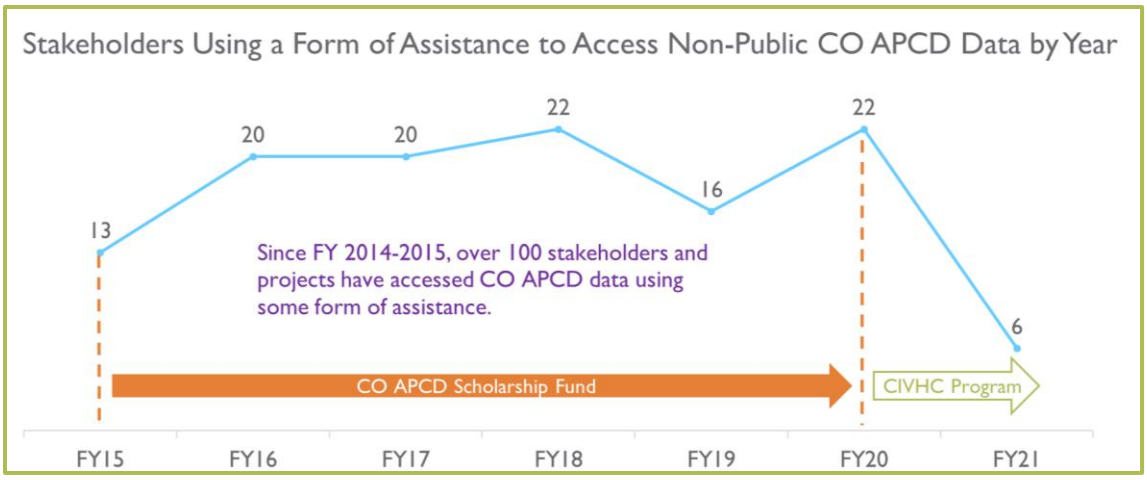


COVID-19 AND THE CIVHC FINANCIAL ASSISTANCE INITIATIVE

When COVID-19 struck Colorado it caused not only a public health crisis but a major economic downturn. Forced into an unenviable position, lawmakers across the state had to make difficult decisions, one of which was eliminating the CO APCD Scholarship fund.

Aware of how many partners rely on help to access non-public CO APCD data, CIVHC created a Financial Assistance Initiative to provide discounted access to data for organizations that may not have the ability to bear the full data licensing costs for projects that focus on understanding and improving health care affordability for communities within Colorado.

Despite this effort, many non-profits, government entities, and researchers found themselves unable to move forward with projects while shouldering the majority of the costs.

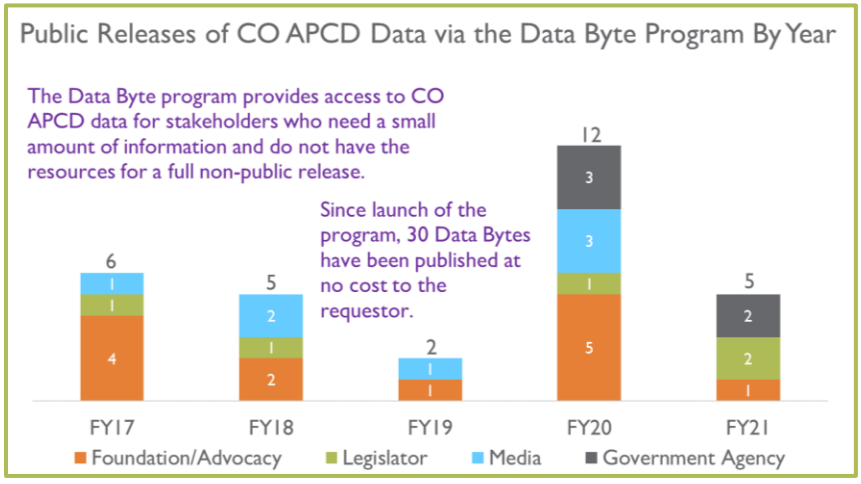


In FY 2020-2021, the CIVHC Financial Assistance Initiative was able to provide $24,000 in discounts to six requestors; this equals approximately 5% of the funding released each year under the previous CO APCD Scholarship and supporting a quarter of the recipients.

CO APCD Data Byte Program

The Data Byte program was established in FY 2016-2017 and provides access to CO APCD data for stakeholders who need a limited amount of information and do not have resources to pay for a non-public release. These smaller analyses are made public to support the needs of legislators, journalists, and other organizations seeking to advance health and health care.

In FY 2020-2021, CIVHC released five Data Bytes including Nurse Midwife Payment Evaluation, Top 100 Brand and Generic Commercial Prescription Drugs, and Anesthesiology, Radiology and Emergency Physician Payments.



CO APCD DATA INFORMING POLICY DECISIONS IN COLORADO

CO APCD data is increasingly being used as a source of information for carrying out legislation in Colorado with lawmakers, stakeholder organizations, and state agencies accessing it via the Data Byte program as well as non-public releases of data.

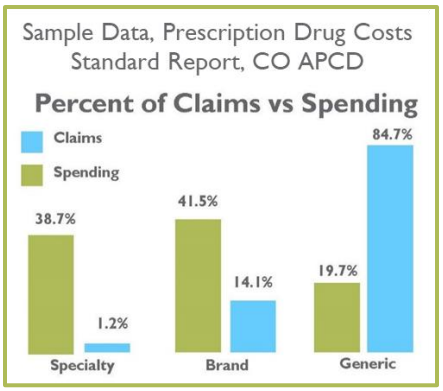
Year	Legislation Passed	CO APCD Role	
		Ongoing Analytics Included	Informed Legislative Process
2021	Standardized Health Benefit Plan Colorado Option - HB 21-1232	✓	
2021	Colorado Prescription Drug Affordability Board - SB 21-175	✓	
2019	Proposal for Affordable Health Coverage Option - HB 19-1004		✓
2019	Import Prescription Drugs from Canada - SB 19-005		✓
2019	Investments in Primary Care to Reduce Health Costs - HB 19-1233	✓	
2019	State Innovation Waiver Reinsurance Program - HB 19-1168		✓
2019	Out-of-Network Health Care Services - HB 19-1174	✓	
2018	Controlling Medicaid Costs - SB 18-266		✓

To support the Out of Network legislation, CIVHC uses the CO APCD to generate fee schedules for the DOI to use as benchmarks for out of network payments for emergency services and professional fees, including anesthesiology. This information helps protect patients from surprise bills, and the fee schedules contain provider reimbursement requirements for listed services. The Primary Care and Payment Reform Collaborative was established by HB 19-1233 to increase investments in primary care in Colorado. The Collaborative uses data from the CO APCD, including information on alternative payment models (APM), to assess primary care spending across the state each year and make recommendations.

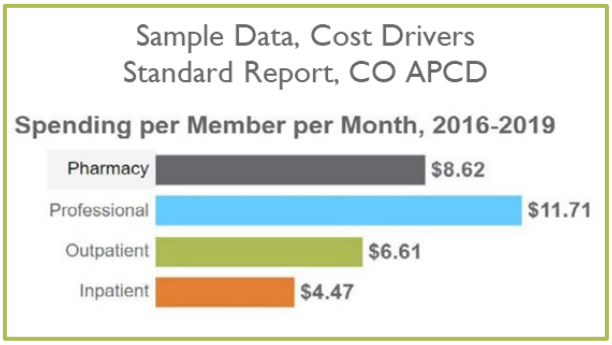
Additional CO APCD Analyses that Informed Policy in Recent Years

- Free-standing Emergency Departments
- Anesthesiology, Radiology and Emergency Physician Payments
- Nurse Midwife Payment Evaluation
- Top 100 Brand and Generic Commercial Prescription Drugs
- Colon Cancer Screening and Colonoscopy Billing
- End Stage Renal Disease and Dialysis Dependence
- Populations at Risk for Serious Illness / Distribution of COVID-19 Vaccines
- Telehealth Services Analysis
- Impact of Temporary Cessation of Elective Procedures During COVID-19
- Low Birthweight and Birth Outcomes
- Medicaid Claims for Frostbite

HELPING EMPLOYERS CONTAIN HEALTH CARE COSTS



The Colorado General Assembly passed SB 19-004 in 2019, broadening the rules that govern bargaining collectives. Seeing an opportunity to reduce health care costs, self-insured employers in the high country formed the Peak Health Alliance and, armed with CO APCD data, became the first collective to begin negotiating prices directly with providers and facilities. Additional employer alliances and groups have since formed, and data from the CO APCD has been critical to their implementation and success.



Working with Peak Health Alliance and other stakeholders, CIVHC developed a new type of specialized, CO APCD non-public release designed to target cost-reduction strategies for employers. This employer suite of Standard Reports are analyses with a fixed methodology and menu of data elements which have the benefits of a low price point and a quick turn around time. Each report can be customized to show the employer's data (as volume allows) compared to their county or region. Current available topics include:

- Cost Drivers
- Chronic Conditions and Avoidable Complications
- Low Value Care
- Medicare Reference-Based Pricing
- Prescription Drug Costs and Generic Alternatives
- Potentially Avoidable ED Visits
- Top 5 Procedure Cost Savings Analysis

HOW THE COLORADO PURCHASING ALLIANCE COULD SAVE $6 MILLION

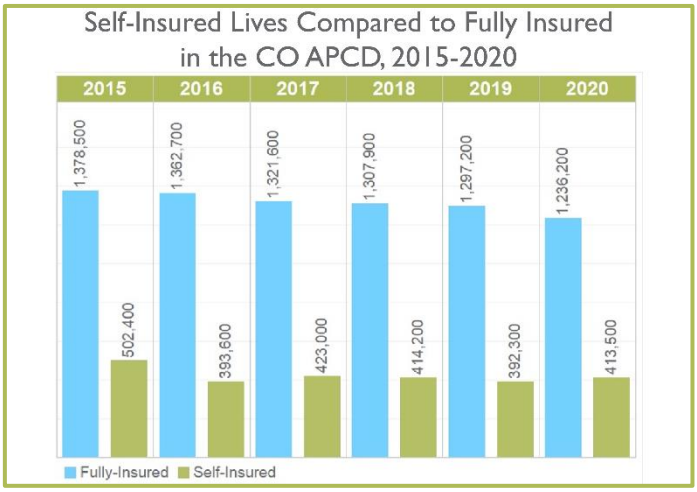
The Colorado Purchasing Alliance (TCPA), a not for profit employer purchasing group, requested an analysis of their members' data in the CO APCD to help minimize the cost of frequently used outpatient procedures. The analysis investigated the potential cost savings that could be achieved by accessing outpatient services through an independent, free-standing center versus a health system or hospital-based facility.

The report found that of the 10 procedures analyzed, only one was less expensive in a hospital setting with the others ranging from $400-$3500 more expensive than the free standing facility rate. This means that if employees and their dependents changed 50% of these procedures to the least expensive facility type they could potentially save up to $5.7 million.

REPRESENTATION OF SELF-INSURED EMPLOYERS IN THE CO APCD

Self-insured employers represent half of the total commercially insured lives in Colorado. However, many employers are not currently represented in the database.

While fully-insured plans are regulated by the DOI and are required to submit claims to the CO APCD according to the legislation, self-insured plans are not subject to the same regulation or requirement. In 2016 the Supreme Court of the United States determined that states could not mandate the submission of health care claims from ERISA-based self-insured employers to APCDs. However, non-ERISA employers are required to submit to the CO APCD and ERISA-based can choose to voluntarily send their data.



With the CO APCD currently containing only approximately half of the self-insured lives across the state, it remains vital that this information be collected, yet it has been difficult to significantly increase the number of voluntary ERISA self-insured submissions. Over the last five years, CIVHC has conducted communication campaigns and established partnerships with employer stakeholders to spread the word about the value of submitting to the CO APCD and to let ERISA-based self-insured employers know that they can opt in voluntarily. Many ERISA self-insured employers are in favor of voluntarily submitting their claims to the CO APCD, however many face obstacles with the policies and practices of their administrative service organizations (ASO) or third-party administrator (TPA). Submission of claims to an APCD may be prohibited through the service contract between the employer and the ASO/TPA, and may be prohibited in their provider network contracts. Additionally, there are no legal requirements for ASOs and TPAs to submit claims on behalf of the employers, even if it is requested. Even if the submission is permissible through the existing contracts, ASO's/TPA's may add an additional fee to the ERISA-covered self-funded submissions, making voluntary submission financially prohibitive for employers. CIVHC is working with the state on some potential solutions to overcoming these challenges moving forward.

> The state does not collect information about employers who choose to self-insure their health care coverage in the same way they do for those who are fully insured. This makes it challenging to identify self-insured employers, much less those who are ERISA or non-ERISA, for targeted outreach regarding submission to the CO APCD.

More information about the Supreme Court ruling and self-insured submissions is available in Appendix C.

Stewardship of the Data

Knowing they couldn't manage what they couldn't measure, the drafters of the enabling legislation wanted the CO APCD to reflect the health care landscape in Colorado. They then directed the administrator to collect the most comprehensive data possible. CIVHC's collection process has two parts 1) the data of the CO APCD – that which has been submitted, processed, and is ready for release – must be of the highest accuracy and credibility; and 2) gaps in the information must continually be assessed and filled. CIVHC holds both of these components as utmost priorities and each year strives to upgrade data quality and incorporate new elements to shed additional light on ways to improve lives across the state.

Data to Complete the Picture of Health Care in Colorado

Medical, dental, and pharmacy claims only show portions of how patients interact with the health care system. There are numerous behind-the-scenes factors that figure into an individual's health or the cost of their care. In order to capture this information and create public analyses to increase transparency, CIVHC regularly works with HCPF and other APCDs to identify new data elements to support standardization efforts designed to reduce the burden on submitters and to inform innovation taking place locally.

Alternative Payment Models

CIVHC began collecting Alternative Payment Model (APM) data into the CO APCD in 2019. At the time, there were only two other APCDs in the nation that were collecting APM information, and CIVHC met with both states – Massachusetts and Oregon – to understand their procedures and requirements to obtain the most accurate and complete data possible.

APMs are ways of paying providers that encourage higher quality and more coordinated, cost-efficient care. By focusing on value of services over volume, APM models bring more holistic, efficient, person-centered care into focus.

The inaugural files were included in a report on primary care spending in Colorado for the newly established Primary Care Payment Reform Collaborative, led by the DOI. By working through the analysis with the Collaborative, the DOI, and other stakeholders, it became clear that the APM file submission guidelines could be improved to more accurately and specifically report APM use in Colorado.

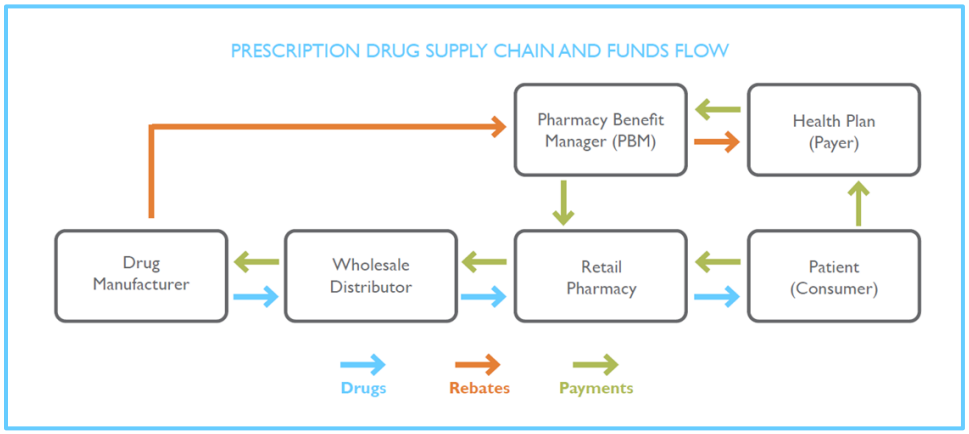
In preparation for the next set of submissions, CIVHC, the DOI, and Catalyst for Payment Reform partnered with payers throughout 2020 to align the APM categories based on standards created by the CMS-sponsored Health Care Payment Learning & Action Network. Data collected in the fall of 2021 indicates a marked improvement in submissions, and it is anticipated that improvement will continue with each annual file submission.

Drug Rebates

Prescription drugs are one of the biggest drivers of rising health care costs in the nation and the system through which they move is historically opaque. In 2019, Colorado began collecting drug rebate information into the CO APCD to start understanding how dollars are exchanged

APM and Drug Rebate data is available publicly and is not for non-public release.

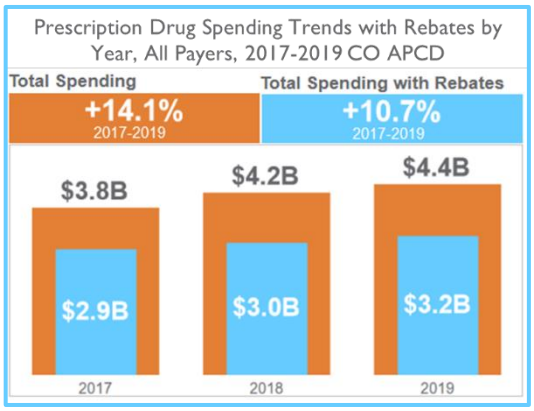
in the system and whether (or not) any savings from rebates are being passed along to consumers or employers.



Like the APM files, drug rebate information is submitted annually. By the end of September, each submitter sends drug rebate data for the most recent three years according to the rules laid out in the DSG.

In January 2021, HCPF released the second edition of the Reducing Prescription Drug Costs in Colorado Report. The report was a follow up to the initial report published in 2019 and outlined strategies for Colorado to reduce the cost of prescription drugs. This marked the first public release of drug rebate information collected in the CO APCD.

CIVHC released the first CO APCD interactive report and accompanying issue brief analyzing prescription drug spending and rebates in July 2021. Notable findings include:



- Drug rebates as a percent of total pharmacy spending for all payers increased from 25% to 27%.
- For commercial payers, rebates as a percent of total spending increased from 21% to 24% for brand drugs, and increased from 10% to 13% for specialty drugs. In 2019, rebates represented 18% of total spending for brand and specialty drugs combined.
- Across all payers, in 2019, specialty drugs represent 39% of pharmacy spending, but only 1% of the total number of prescription drugs filled.

Volume versus Spending by Drug Type, CO APCD 2019						
All Payers (Commercial, Medicare FFS and Advantage, Medicaid)	Generic % Claims	Generic % Spending	Brand % Claims	Brand % Spending	Specialty % Claims	Specialty % Spending
	84.7%	19.7%	14.1%	41.5%	1.2%	38.7%

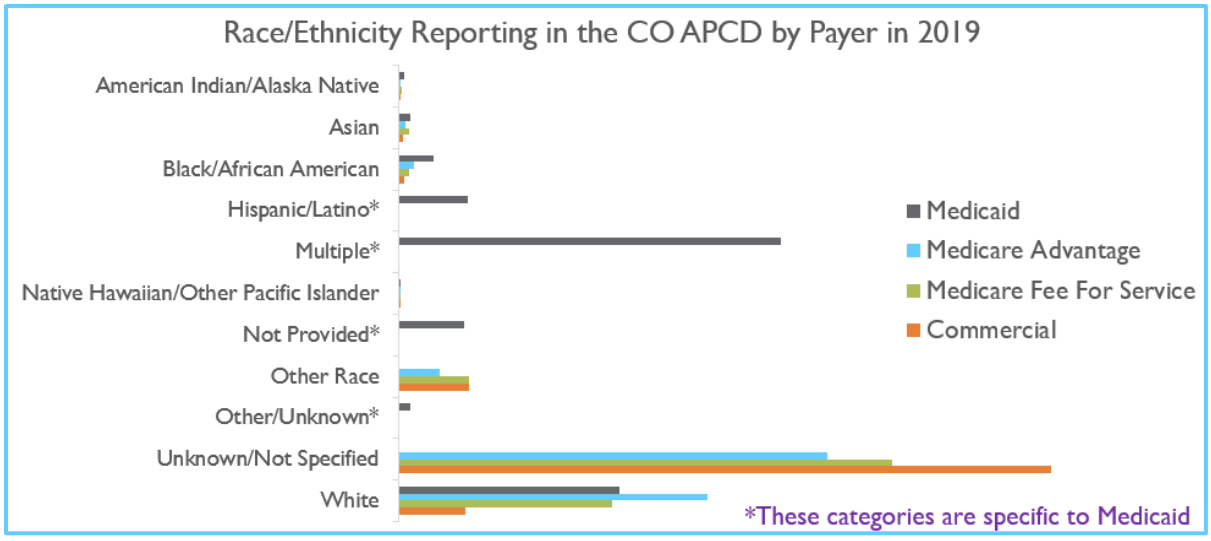
More information about prescription drug spending and rebates can be found on civhc.org.

CO APCD Data and Demographics That Impact Health Equity

Collecting demographic and socioeconomic information, specifically race and ethnicity data, has historically been fraught, yet it is now more crucial than ever. Without credible and reliable information, it is impossible to begin correcting the innumerable systemic disparities and inequities laid bare by the pandemic.

It is vital that providers, payers, and patients understand collecting accurate race and ethnicity information is essential if Colorado is to address inequities throughout the system and get resources to those who need them most. Concurrently, it is imperative that policy makers safeguard this information to avoid perpetuating the challenges in the systems we are attempting to fix.

Two fields, Race and Hispanic Indicator, became required for payers to submit to the CO APCD in September 2019 as a first step in assessing the completeness of the race and ethnicity data coming into the CO APCD. While Medicaid collects race and ethnicity data, the information is not regularly collected by other payers and thus is frequently left blank or filled in as Unknown or Other when submitted to the CO APCD.



Race/Ethnicity Reporting Percentages in the CO APCD by Payer in 2019

	Medicaid	Medicare Advantage	Medicare Fee for Service	Commercial
American Indian/Alaska Native	0.61%	0.16%	0.30%	0.22%
Asian	1.43%	0.84%	1.28%	0.39%
Black/African American	4.29%	1.79%	1.30%	0.69%
Hispanic/Latino*	8.54%	n/a	n/a	n/a
Multiple*	47.86%	n/a	n/a	n/a
Native Hawaiian/Other Pacific Islander	0.17%	0.01%	0.03%	0.03%
Not Provided*	8.16%	n/a	n/a	n/a
Other Race	n/a	5.09%	8.72%	8.74%
Other/Unknown*	1.41%	n/a	n/a	n/a
Unknown/Not Specified	n/a	53.56%	61.77%	81.70%
White	27.54%	38.54%	26.60%	8.22%

**These categories are specific to Medicaid*

Medicaid is the only payer that captures the category "Not provided," so for other payers with high percentages of "Unknown/Not Specified," it is unclear if they are not collecting the data at enrollment or if members prefer not to provide the information.

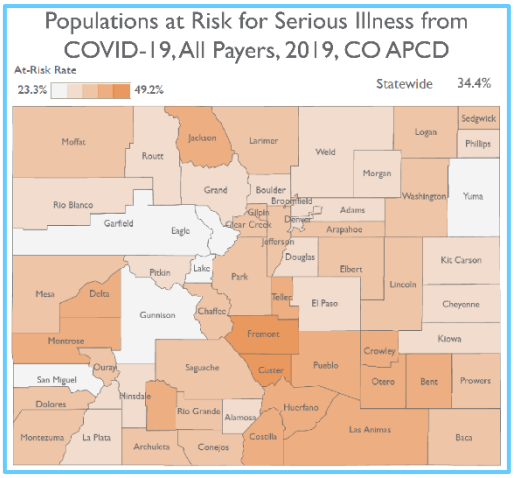
Working with the payers and making future changes to the Data Submission Guide (DSG) to capture additional race and ethnicity fields are among several ways CIVHC is improving the ability to analyze health equity using the CO APCD. In FY 2020-2021, CIVHC collaborated with data manager, Human Services Research Institute (HSRI), to geocode member and provider addresses in the database at the census tract and census block levels. This allows CIVHC to overlay CO APCD data with demographic and socioeconomic information using external sources such as the U.S. Census Bureau's American Community Survey (ACS). The CIVHC team is planning to incorporate this information in future reporting, including public reports at the community level.

Geocoding the CO APCD allows for integrating the claims data with other state data sets like those from the Departments of Correction, Education, Human Services, and Transportation.

Examples of Population and Housing Data Elements Included in the ACS	
Demographic	• Age and Sex • Hispanic or Latino Origin • Race • Relationship to Householder
Social	• Ancestry • Citizen Voting-Age Population • Educational Attainment • Disability Status • Language Spoken at Home • Marital Status/History • Period of Military Service/Veteran Status
Economic	• Employment Status • Commute Information • Food Stamps/Supplemental Nutrition Assistance Program (SNAP) • Health Insurance Coverage • Income and Earnings • Industry and Occupation • Poverty Status
Housing	• Rent and Tenure • Number of Rooms/Bedrooms • House Heating Fuel • Kitchen and Plumbing Facilities • Telephone Services Available • Occupants per Room • Vehicles Available

INNOVATING WITH CLAIMS DATA

As public health and affordability concerns mount, stakeholders need data to help them change course or make decisions. With 18 state APCDs already in operation and upcoming federal funding for all 50 states to create or improve existing databases, demand for claims-based analytics is increasing. Rising to the challenge, CIVHC made CO APCD data available to Coloradans in several new ways during FY 2020-2021.



DISTRIBUTION OF COVID-19 VACCINES

The Populations at Risk for Serious Illness from COVID-19 was initially published early in the pandemic and helped identify which areas of Colorado might need additional support for future waves of the virus. This analysis was later used by the Governor's Expert Emergency Epidemic Response Committee (GEEERC) to help plan for vaccine distribution.

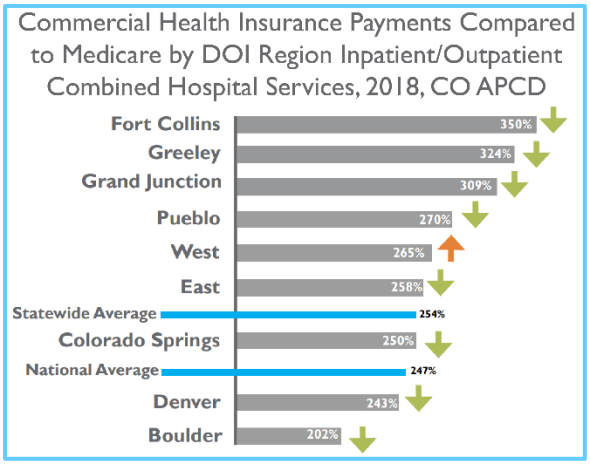
Data Elements Included	Level 1	Level 2A	Level 2B	Level 3
Mental & Physical Health Info.	✓	✓	✓	✓
Paid Amounts (Plan & Member)	✓	✓	✓	✓
Diagnosis & Procedure Codes	✓	✓	✓	✓
Basic Member Demographics	✓	✓	✓	✓
Out-of-Network Flag	✓	✓	✓	✓
Prescription & Pharmacy Info	✓	✓	✓	✓
Dental Data	✓	✓	✓	✓
Payer-Specific Information		✓		✓
Provider-Specific Information			✓	✓

STANDARD DATA SETS

CIVHC began developing Standard Data Sets to offer a lower cost and quicker turnaround alternative to custom data sets. Four data sets are available with different data fields depending on the stakeholder need. They are best suited for requestors with advanced analytic capabilities and the capacity to receive and store large files while ensuring proper security and data safety protocols.

MEDICARE REFERENCE BASED PRICING

Based on a RAND Corporation analysis of CO APCD data, the Medicare Reference-Based Price Report compares what Colorado commercial and self-insured payers pay for inpatient and outpatient hospital services to Medicare rates. The comparison allows for insight into the variation in reimbursements and provides information for a number of use cases including employer payment negotiations, alternative payment models, and state projects such as the Colorado Option. Findings include:



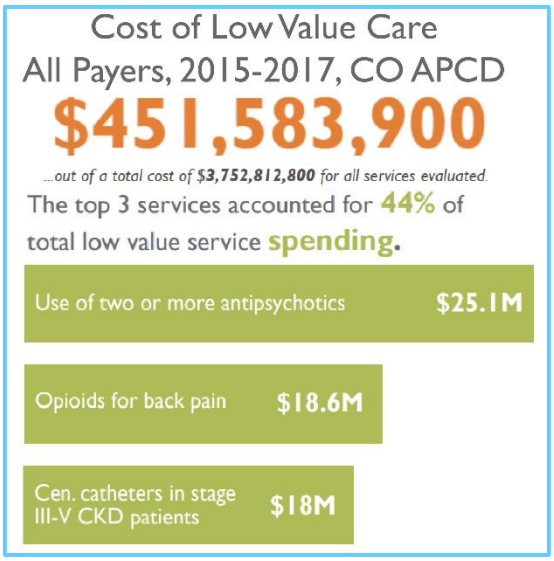
- Colorado's outpatient service payments are significantly higher than the national average (267%) at over three times Medicare rates (312%). This places outpatient services in Colorado as among the most expensive on average in the country and one of the highest cost drivers for health care services in the state.

- Hospital prices vary widely through both rural and urban counties. In fact, the two lowest-paid hospitals (Aspen Valley, Wray Community Hospital) and two highest-paid (Colorado Plains Medical Center, St. Anthony Summit Medical Center) are located in rural counties.

LOW VALUE CARE

Low value health care refers to certain treatments, diagnostic tests, and screenings where the risk of harm or cost exceeds the likely benefit for patients. Providers, through medical boards and specialty societies, have collectively identified a list of low value services that is available in the Choosing Wisely guidelines. The Low Value Care analysis identifies the top 13 low value care services provided in Colorado which offer areas of potential cost savings and improvement in patient outcomes.

- Of the 48 low value services analyzed, 13 services accounted for nearly 70% of the volume and over 80% of the spend for low value care.



It is important to note that each patient is different and while a service may be on the low value care list, it may actually be crucial to their care. Conversations with providers are vital when determining treatment plans.

DATA MART

In 2020, CIVHC was awarded matching funds from the Centers for Medicare & Medicaid Services (CMS) to directly support Medicaid operations in the CO APCD. One of the main projects created by this funding is a Data Mart which allows specified users at HCPF and the DOI to build basic data aggregations and visualizations using an approved CO APCD data set that includes Medicaid and commercial data. The information enables users to track members over time and across payers as well as generate geographic analyses.

The Data Mart marks a substantial change in how non-public CO APCD data is delivered, with users securely logging directly into the CO APCD data enclave. During development, CIVHC partnered with legal, compliance, and privacy/security advisors to determine necessary parameters that would ensure patient privacy protection and comply with other federal laws. Both the DOI and HCPF defined very specific use cases for the data as well as how it would be accessed. Rigorous rules exist regarding what can be removed from the Data Mart and CIVHC monitors every request to import or export information. In the months that it has been operational, the state agencies have expressed that the Data Mart has been helpful and has increased their ability to use CO APCD data. CIVHC is looking into the viability of the Data Mart model for other stakeholder groups.

DATA QUALITY

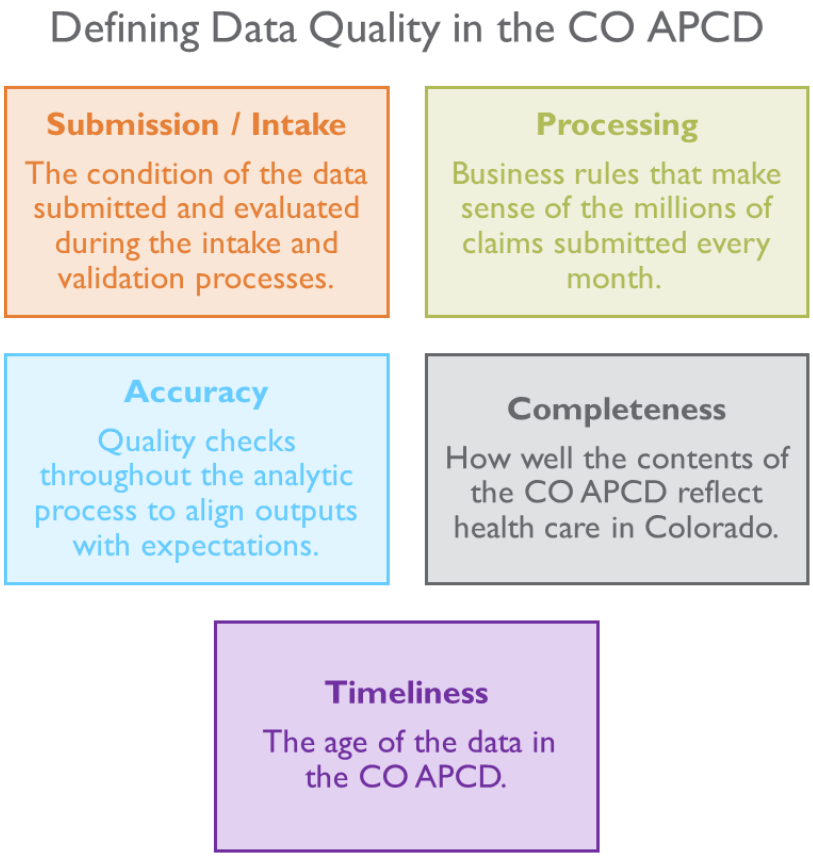
The credibility of any analysis using CO APCD data is directly related to the validity of the data submitted and care with which it is processed. CIVHC has always made data quality a top priority and, in 2020, the new federal funding allowed for the creation of a dedicated data quality team. Now furnished with needed resources, new quality initiatives are underway which aim to improve not only the data in the warehouse but also the claim files coming in each month, quality assurance of every release, and CIVHC's ability to communicate about aspects of CO APCD data with stakeholders.

FY 2020-2021 Data Quality Initiatives		
Data Intake	Data Quality Assurance	Data Quality Improvement
New payer onboarding	Perform data intake quality checks	Define and conduct continuous quality projects
Monthly data submissions/ resubmissions	Examine CO APCD fields for accuracy and alignment	Oversee post processing enhancements
Payer relations/compliance	Monitor implemented changes to the CO APCD	Communicate data quality findings and impacts to stakeholders

WHAT DOES "DATA QUALITY" MEAN?

Claims data submitted by various payers using different systems is often more complex than other types of data typically encountered by analysts and researchers. If not prepared for the unique challenges it presents, it is easy to conclude that something is wrong with the data.

The phrase "data quality" is frequently used as a catch-all to indicate a variety of concerns that may not have anything to do with the actual quality of the data itself but other characteristics that are not readily defined. Often, the term is used when something unexpected, undesired, or seemingly incorrect is discovered – it becomes a "data quality problem." CIVHC has defined quality in five critical categories each with unique challenges that can occur: submission/intake, processing, accuracy, completeness, and timeliness.



ENGAGING THE PAYERS

CO APCD data quality begins with the files submitted. In an effort to improve these submissions, in FY 2020-2021 CIVHC expanded the existing payer outreach to include regular Payer Forum meetings with key decision makers at each organization.

CIVHC intake analysts frequently communicate with payer designees in charge of the technical aspects and actual submissions to the CO APCD. This arrangement works very well, but there are times when senior-level decisions and discussions need to occur regarding a number of important quality improvement topics. The Payer Forum brings these decision makers together to collaborate with CIVHC, share challenges, and learn from their peers.

Payer Forum Discussion Topics

- Current Content of Submissions: *Overview of metrics (member counts, claim counts, etc.)*
- Completeness of Submissions: *Identifying issues with complete data (non-ERISA, Part D, etc.)*
- Data Quality Concerns and Impact: *Important issues with data accuracy and quality*
- Communications and Timely Responses: *Ability for CIVHC to effectively communicate with payer*
- Other important topics: *Medicaid-related efforts, resubmissions, etc.*

Stewardship of the Funding

When the General Assembly mandated creating the CO APCD in 2010, there wasn't adequate state-level funding to include a fiscal note to support development and implementation of the database. Generously, the Colorado Health Foundation and The Colorado Trust provided essential initial funding to help implement and develop the CO APCD. In the years following, CIVHC has received additional project-specific funding from the Colorado Health Foundation, Rose Community Foundation, Caring for Colorado, Robert Wood Johnson Foundation, the Agency for Healthcare Research and Quality, CMS, and HCPF. CIVHC was awarded ongoing state funding to support sustainability of the CO APCD for the first time beginning in FY 2019-2020. CIVHC currently receives revenue from a variety of sources including grants, state and federal dollars, and earned revenue from non-public data releases. More information about historical funding for the CO APCD is available in Appendix D.

Budgeting for the CO APCD

Over time, the CO APCD annual budget has increased due to a number of factors including an increase in data storage costs due to the expansion of data, data intake and management costs related to more submitters and more claims to process (the entire data warehouse is refreshed every other month), and an increase in the volume of public and non-public analytics being produced to support the Triple Aim.

Components of the CO APCD Budget	
Data Complexity	CIVHC works to broaden the breadth and depth of the CO APCD by collecting data beyond medical and pharmacy claims from commercial, Medicaid, Medicare Advantage, and Medicare Fee-for-Service payers. The addition of new elements such as dental, vision, and supplemental plans, and APMs and Drug Rebates require corresponding intake resources and data quality staff.
Processing and Housing the CO APCD	Claims for over 4.5 million lives are submitted to the CO APCD every month and then processed according to extensive business rules before being incorporated into the data warehouse. As of 2021, the CO APCD is approximately 12 terabytes and contains nearly a billion claims.
CO APCD Data Management Partner	When assuming the role of Data Manager, HSRI, through its partnership with CIVHC, significantly improved the quality of CO APCD data and analytics by putting into place rigorous processes and validations. They also regularly develop public and non-public analyses to supplement the internal CIVHC analyst team.
Third-Party Vendor Analytics	Certain CO APCD analyses would not be possible without specialized analytics developed by third-party vendors, including Low Value Care, Reference Based Pricing, PROMETHEUS episode analytics, and identification of prescription drugs by therapeutic class.
Data Quality and Analytic Team	Usability of the CO APCD and the ability to provide greater levels of analytics is directly tied to the credibility and confidence in the underlying data. Specialized quality analysts are vital to investigating issues and ensuring the data and output are as accurate as possible.
Requests for Non-Public Data	As more stakeholders have learned about the CO APCD, the number of non-public requests for data from has increased 1200% since year one. Private organizations and universities as well as state agencies from across the nation now reach out to CIVHC to access CO APCD data. These

Components of the CO APCD Budget	
	requests require resources to fulfill, from analysts to project managers to client-facing positions.
Communications and Public Reporting Team	Public reporting is explicitly stated as one of the purposes of the CO APCD in the enabling legislation. The public reporting team is comprised of analysts, project managers, visualization experts, and communication specialists to ensure the data is provided and promoted in a way that is easy to understand and digest. The number of public reports released annually has grown exponentially over time requiring more resources.
CO APCD Data Compliance	With the rise in releases of public and non-public CO APCD data, CIVHC strengthened processes and policies surrounding compliance. A Compliance Officer now reinforces the work that the Data Release and Review Committee does to ensure that all releases of CO APCD data meet federal regulations including HIPAA and anti-trust.

FY 2020-2021 – CONSERVATIVE FINANCIAL MANAGEMENT

The economic downturn caused by the COVID-19 pandemic resulted in a state budget shortfall for Colorado of over $3 billion for fiscal year 2020-2021. Funding for the CO APCD/HCPF Scholarship was eliminated ($500,000), and the Joint Budget Committee (JBC) voted to reduce funding for the CO APCD to a level to keep it operational. Grateful to the state and JBC for recognizing the worth of the database, CIVHC adjusted internal resource allocations accordingly, implemented a hiring freeze, and managed to a very conservative budget designed to retain all existing staff members.

CIVHC received a federal Paycheck Protection Program loan for just over $450,000. The loan was forgiven in spring of 2020. The Colorado Health Foundation also worked with CIVHC to alter the terms of the Program Related Investment loan granted in 2018 and develop an evaluation program to begin offsetting some of the funds. CIVHC learned late in 2020 that it had been awarded additional matching funds from the CMS to support Medicaid operations of the CO APCD. In this case, the match is 90/10, with 90 percent coming from CMS and 10 percent from the budgeted state general fund. The contract began January 1, 2021 allowing CIVHC to hire much needed resources to execute CO APCD administrative and contractual responsibilities.

Additionally, CIVHC partnered with Robert Wood Johnson Foundation and AcademyHealth to support their Health Data for Action program. CIVHC received funding to help initiate and develop the plan for the program which aims to provide data sets to researchers who may have challenges accessing data. The program functions similar to a grant, wherein researchers apply to receive a data set from a list of national organizations (including CIVHC) and RWJF and AcademyHealth act as conduits to help facilitate access. Due to COVID-19, the program launch was delayed, but CIVHC received funding to support development of the program in conjunction with other national data organizations.

FY 2020-2021		
Income		
Grants Total		$5,264,537
State General Fund	$1,985,647	
CO APCD Scholarship	-	
State CMS 50-50 FY 2020-2021	$976,585	
Federal CMS 50-50 FY 2020-2021	$976,585	
State 90-10	$799,935	
Robert Wood Johnson Foundation: - Health Data for Action Grant - Staff Fellowships (2)	$57,485	
Paycheck Protection Program Forgiveness	$468,300	
Earned Revenue Total		$1,063,939
Patient-Centered Outcomes Research Project	$52,915	
CO APCD Data Licensing	$1,011,024	
Total		$6,328,476
Expenses		
CO APCD Program/Operations		$6,162,157
Net Income		
FY 2020-2021 Net Income		$165,819

CO APCD DATA LICENSING FEES

CIVHC works to increase access to data sets and standard/custom reports from the CO APCD to advance the Triple Aim. In order to do that, we use a data licensing fee formula that enables us to cover costs while providing high value, competitively priced data analytics.

Estimated Pricing by Product Type FY 2020-2021:	
	Range of Fees*
Standard Reports	$500 - $7,000 (free for eligible employers)
Custom Reports	$1,500 - $20,000
Standard De-Identified Data Sets	$13,000 - $25,000
Custom De-Identified Data Sets	$15,000 - $30,000
Custom Limited Data Sets	$20,000 - $40,000
Custom Fully Identified Data Sets	$30,000 - $50,000
**This information represents estimated pricing and final fees are calculated based on a number of factors including those listed below.*	

Factors That Go into CO APCD Data Access Fees	
Inclusion of Protected Health Information	Number of unique and specific data elements
Indirect costs (including legal fees)	Output type (Tableau, Excel, etc.)
Labor costs/time required (analysts, health care data consultants, project managers, etc.)	Any additional professional services/consultation requested

A NEW DECADE FOR THE CO APCD

FY 2020-2021 closes out 10 years that the CO APCD has been operational – nine since the first release of non-public data. During the past decade, CIVHC has sought to make each year better than the last, continually learning and improving our stewardship of this essential state resource. As we evolved the database, more and more Change Agents began requesting access to CO APCD data, and it started being incorporated into groundbreaking legislation.

Looking ahead to the next 10 years, we envision and strive for more innovation, more actionable data, and enhanced partnerships to improve lives across the state. CIVHC's commitment to the vision of the CO APCD is stronger than ever and so is our dedication to striving for a healthier Colorado for us all.

Coming in FY 2021-2022 and Beyond	
Education and Outreach	• Data to Drive Decisions series • Data User Resources • Updated Website

Data Quality and Enhancements	• Data Submission Guide 13
	  • Premium and Deductible Information
	  • ERISA Self-Insured Opt-In Information
	  • RX data to support the Prescription Drug Affordability Board
	• Redesigned User Documentation

Public Analytics	• Affordability Dashboard
	• Reimagined Community Dashboard
	• Report Updates:
	  • Medicare Reference Based Pricing
	  • Low Value Care
	  • APM/Primary Care
	  • Prescription Drug Rebate
	  • Shop for Care

Appendix A: FY 2020-2021 Non-Public CO APCD Data Releases

Stakeholder Category	Project Purpose	Release Type
Clinician/ Provider	This stakeholder is a Community Mental Health Center that used CO APCD data to understand the number of regional residents seeking mental health and substance use disorder treatment, their primary diagnoses, what trends and gaps in care exist, and how COVID-19 has impacted the population.	Limited Data Set
Clinician/ Provider	This project used CO APCD data to understand orthopedic procedure utilization in Northern Colorado and as a basis to begin developing bundled payments.	Standard Dataset
Clinician/ Provider	These providers used CO APCD data to analyze treatment plans for a variety of conditions and determine potential variables within the plans that may predict the best outcomes and the lowest cost for patients.	Limited Data Set
Clinician/ Provider	This project used CO APCD data to help establish commercially reasonable payment standards for specific out-of-network procedures in Colorado that are subject to surprise billing legislative patient protections.	Standard Dataset
Digital Health/ Consultant	These two digital health companies formed a strategic partnership with the goal of leveraging a single CO APCD data set and common analytic approach to share health care price information and common use of the web-based platform already developed.	Standard Dataset
Digital Health/ Consultant	This provider is an emergency room physician launching a web-based platform aimed at linking individual patients to the most appropriate surgeon for their needs. He used CO APCD data to help show proof of concept for an initial set of high-volume surgeries.	Standard Dataset
Digital Health/ Consultant	A developer used CO APCD data to build a secure mobile application to help guide individual consumers in the health care decision-making process while improving transparency around price and quality of services.	Limited Data Set
Digital Health/ Consultant	The goal of this project is to develop a clinical decision support tool to assist patients and caregivers in finding the right care for the patients' diagnosis and needs.	Standard Dataset
Digital Health/ Consultant	This stakeholder used CO APCD to build a proof of concept methodology for creating risk-adjusted benchmarks on diagnostic tests to detect and analyze outliers to enhance provider network assessment and credentialing tools for Medicaid Maintenance Management Information Systems (MMIS).	Standard Dataset
Digital Health/ Consultant	A digital health company that hopes to connect patients with musculoskeletal pain and orthopedic providers to improve clinical outcomes. They used the CO APCD to analyze, research, and identify orthopedic providers in Colorado that produce optimal patient outcomes for specific orthopedic services.	Limited Data Set
Digital Health/ Consultant	They used CO APCD data to conduct a study commissioned by The Agency for Healthcare Research and Quality (AHRQ). The study includes linking CO APCD data to other administrative data sources to create a Physician and Physician Practice Research Database.	Limited Data Set
Digital Health/ Consultant	This stakeholder used CO APCD data to help determine the cost savings of a wearable technology intervention as well as integrate with the intervention interface.	Limited Data Set

Stakeholder Category	Project Purpose	Release Type
Digital Health/ Consultant	A digital health company that helps providers to develop and operate episode of care payment programs to improve clinical outcomes, lower costs and increase patient satisfaction. They planned to integrated CO APCD data into their Colorado-based initiatives to refine provider-level cost and quality metrics for episodes of care and establish benchmarks for comparison.	Limited Data Set
Digital Health/ Consultant	A data contractor with a multi-payer initiative fostering collaboration between public and private health care payers to strengthen primary care.	Fully-Identifiable Data Set
Digital Health/ Consultant	This stakeholder initially focused their research using CO APCD on understanding whether or not people affected by a mental health condition are at higher risk of contracting the COVID-19 virus. Subsequent analyses will concentrate on the resource use of common diseases, as well as who may or may not be more susceptible based on specific pre-existing conditions.	Limited Data Set
Employer	This recipient received the Top Chronic Conditions Cost Analysis report which assists employers in determining the prevalence and cost of the most common chronic conditions among their employees, with a specific focus on costs related to potentially avoidable complications (PACs), services that are associated with the greatest expenditures, and the variance in expenditures among employees with a single condition and those with co-morbidities.	Standard Report
Employer	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Employer	This recipient received the Pharmacy Spending report which allows employers to see pharmacy spending across drug categories, the most expensive and frequently prescribed medications, and to identify cost-savings opportunities that may exist by switching from brand name to generic drugs.	Standard Report
Employer	This recipient received the Medicare Reference Based Price Employer Snapshot Report which allows employers to compare the prices they are paying for certain aggregated health care services to the prices that would have been paid by Medicare for those same services.	Standard Report
Employer	This recipient received the Top 5 Procedure Cost Analysis report which allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Employer	This recipient received the Potentially Avoidable ED Visits report which helps employers understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Employer	This recipient received the Top 5 Procedure Cost Analysis report allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report

Stakeholder Category	Project Purpose	Release Type
Employer	This recipient received the Potentially Avoidable ED Visits report which helps employers understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Employer	This recipient received the Low Value Care report which can help employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Employer	This recipient received the Pharmacy Spending report which allows employers to see pharmacy spending across drug categories, the most expensive and frequently prescribed medications, and to identify cost-savings opportunities that may exist by switching from brand name to generic drugs.	Standard Report
Employer	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Employer	This recipient received the Top 5 Procedure Cost Analysis report allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Employer	This recipient received the Potentially Avoidable ED Visits report which helps employers can understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Employer	This employer used employer-specific claims in the CO APCD to investigate the potential cost savings available with outpatient procedures by comparing costs for services performed at hospitals to those performed at independent, free-standing centers not owned by a health system or hospital.	Custom Report
Employer	This recipient received the Top 5 Procedure Cost Analysis report which allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Employer	This recipient received the Potentially Avoidable ED Visits report which helps employers can understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Employer	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Employer	This recipient received the Pharmacy Spending report which allows employers to see pharmacy spending across drug categories, the most expensive and frequently prescribed medications, and to identify cost-savings opportunities that may exist by switching from brand name to generic drugs.	Standard Report

Stakeholder Category	Project Purpose	Release Type
Facility/ Health System	This facility hoped to improve care delivery for medically complex children by linking CO APCD data to a database to improve monitoring of these patients and establish a baseline of medical utilization, identify those utilizing the largest number of resources, and work to map patterns.	Standard Dataset
Facility/ Health System	This facility used CO APCD data to comply with the federal Price and Quality Transparency law that requires hospitals to post their prices publicly.	Custom Report
Foundation/ Advocacy	A data set to help better identify payers in analyses.	Custom Report
Foundation/ Advocacy	A data set to perform episode-based analytics using the PROMETHEUS methodology.	Limited Data Set
Foundation/ Advocacy	In order to understand where resources may be prioritized in the future, this stakeholder used CO APCD data to investigate utilization of health care services provided in school-based health centers.	Standard Dataset
Foundation/ Advocacy	This project studied the utilization of low-density CT scanning for lung cancer screening of individuals with a significant tobacco smoking history.	Custom Report
Foundation/ Advocacy	This stakeholder planned to integrate data from the CO APCD with Community Health Centers Electronic Health Records data. The integrated dataset would allow them to produce utilization, cost and quality indicator reports to support safety net population health improvements.	Fully-Identifiable Data Set
Foundation/ Advocacy	CO APCD data helped these stakeholders explore mental illness in their region and utilization of treatment.	Standard Dataset
Government Agency	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Government Agency	This recipient received the Top 5 Procedure Cost Analysis report which allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Government Agency	A joint project working towards aligning the different data sets that each organization receives in order to prepare for future joint projects.	State Development
Government Agency	An analysis of opioid provider prescribing practices for Medicaid and commercially-insured members.	State Development
Government Agency	This tool allows analysts to have access to multi-payer data to support multiple state use cases, including data quality and parity checks between state and CO APCD data, benchmarking, churn analyses, and rate reviews.	Fully-Identifiable Data Set
Government Agency	Understanding payment methodology for specific outpatient hospital specialty drugs.	Custom Report

Stakeholder Category	Project Purpose	Release Type
Government Agency	An analysis and reports of inpatient hospital case-mix and payments across lines of business to support study of acute care hospital payment variation.	State Development
Government Agency	This agency used CO APCD data to understand the commercial charge and reimbursement patterns for a specific set of Healthcare Common Procedure Coding System codes and how the associated commercial charges compare to charges for the Colorado Medicaid population.	State Development
Government Agency	A Tableau dashboard with many measurements and views of information describing access to care.	State Development
Government Agency	An annual update to existing report, which is used to analyze spending and utilization rates for select procedures on a named provider and payer basis based on DOI geographic rating regions.	State Development
Government Agency	An analysis and reports of procedure-based episodes of care by hospital for Medicaid and commercially-insured members.	State Development
Government Agency	Analysis of differences in costs of care and of utilization for Medicaid and commercially-insured members.	State Development
Government Agency	Analysis investigating dispensing sites of specialty drugs.	State Development
Government Agency	This analysis looked at utilization metrics in Colorado including: admits per thousand, discharges per thousand, average length of stay, ED visits per thousand, and outpatient (non-ED) visits per thousand.	State Development
Government Agency	Payment information from the CO APCD to support implementation of HB 19-1174, governing reimbursement for out-of-network services.	State Development
Government Agency	This study aimed to identify evidence-based opportunities to reduce costs, improve the quality of end-of-life care, and increase access to services such as hospice and palliative care that are known to improve quality of life for both patients and caregivers.	State Development
Government Agency	This stakeholder received the Medicare Reference Based Price Employer Snapshot Report which allows employers to compare the prices they are paying for certain aggregated health care services to the prices that would have been paid by Medicare for those same services.	State Development
Government Agency	Break down and trends showing what the CO APCD contains by payer type, number of lives, and number of claims.	State Development
Government Agency	An analysis and report of drug rebates on pharmacy spending and spending growth.	State Development
Government Agency	CO APCD data helped this stakeholder to establish reasonable fees associated with trauma activation to support appropriate care for injured workers, sustainability for trauma activation centers in our state, without unnecessary increases to costs that may increase employer premiums for workers' compensation.	Custom Report

Stakeholder Category	Project Purpose	Release Type
Government Agency	This stakeholder used CO APCD data to enhance programs as well as identify and respond to emerging issues that could affect Colorado's public and environmental health.	Limited Data Set
Government Agency	On March 23, 2020, Governor Polis issued an order for temporary cessation of all elective and non-essential procedures in response to the COVID-19 pandemic. CIVHC released an analysis of CO APCD claims investigating the financial impact that cessation periods may have on cost and utilization. This agency requested a non-public release of this analysis with named payer information to assist with the rate setting process.	State Development
Government Agency	Analyses of primary care spending as a percentage of total medical expenditures by line of business and payer. Includes claims payments and non-claims payments made through alternative payment models. Pursuant to SB 19-1233	State Development
Government Agency	This stakeholder used CO APCD data to explore the administrative fees paid by payers to providers to give vaccines.	State Development
Government Agency	Following the end of the cessation of elective procedures order, this agency used CO APCD data to determine if there was a surge of individuals using health care services, or "pent up demand."	State Development
Government Agency	An agency used CO APCD data to study how variation in different health care markets' competitive structures drives variation in health care provider prices.	Limited Data Set
Government Agency	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Government Agency	This recipient received the Potentially Avoidable ED Visits report which employers can use to understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Government Agency	This recipient received the Top 5 Procedure Cost Analysis which report allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Government Agency	This recipient received the Pharmacy Spending report which allows employers to see pharmacy spending across drug categories, the most expensive and frequently prescribed medications, and to identify cost-savings opportunities that may exist by switching from brand name to generic drugs.	Standard Report
Government Agency	This recipient received the Pharmacy Spending report which allows employers to see pharmacy spending across drug categories, the most expensive and frequently prescribed medications, and to identify cost-savings opportunities that may exist by switching from brand name to generic drugs.	Standard Report
Government Agency	This recipient received the Medicare Reference Based Price Employer Snapshot Report allows employers to compare the prices they are paying for certain aggregated health care services to the prices that would have been paid by Medicare for those same services.	Standard Report

Stakeholder Category	Project Purpose	Release Type
Government Agency	This recipient received the Potentially Avoidable ED Visits report which helps employers understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Government Agency	This recipient received the Top Chronic Conditions Cost Analysis which report assists employers in determining the prevalence and cost of the most common chronic conditions among their employees, with a specific focus on costs related to potentially avoidable complications (PACs), services that are associated with the greatest expenditures, and the variance in expenditures among employees with a single condition and those with co-morbidities.	Standard Report
Government Agency	This recipient received the Low Value Care report which can help employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Government Agency	This recipient received the Top 5 Procedure Cost Analysis report which allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Government Agency	This recipient received the Medicare Reference Based Price Employer Snapshot Report which allows employers to compare the prices they are paying for certain aggregated health care services to the prices that would have been paid by Medicare for those same services.	Standard Report
Government Agency	This recipient received the Low Value Care report which helps employers understand how much they are spending on low value care services that may actually be harmful to employees, how that care compares to other areas across the state, and identify the top services that are driving low value care.	Standard Report
Government Agency	This recipient received the Potentially Avoidable ED Visits report which helps employers can understand how their employees are utilizing high cost emergency room visits and what services may be avoidable to reduce costs for the state of Colorado and their employees.	Standard Report
Government Agency	This recipient received the Top 5 Procedure Cost Analysis report which allows employers to evaluate which facilities have the best prices and lowest potentially avoidable complications for high cost/high volume services and identify where there may be opportunities to reduce costs for those services (pre-procedure, procedure, or post-procedure).	Standard Report
Health Plan	CO APCD data helped this stakeholder improve transparency around affordability and quality of health care services through analysis of medical cost and utilization in the commercial market. Blinded payer information helped them assess health care discounts and costs for their network in comparison to other major carriers in the Colorado commercial market.	Standard Dataset
Researchers	This university used CO APCD data to evaluate trends, predict patterns of care, and assess disparities in health care quality and utilization for children with congenital heart disease.	Limited Data Set
Researchers	The project used CO APCD data to identify changes in public health outcomes that may result from these revitalization efforts in a Denver neighborhood.	Custom Report
Researchers	These researchers received data as part of a multi-year project evaluating health systems and performance. Looking at the impact of organization structure and care integration.	Custom Report

Stakeholder Category	Project Purpose	Release Type
Researchers	Using the CO APCD, they hoped to assess patterns of health insurance transitions and understand their relationship with health care utilization.	Limited Data Set
Researchers	In a nationwide study incorporating CO APCD data, these researchers analyzed payments made by commercial insurers for inpatient and outpatient procedures at acute care hospitals compared to what Medicare pays for the same services.	Limited Data Set
Researchers	Researchers used CO APCD data to investigate the widespread implementation of telehealth among patients seeking nurse-led care within behavioral health, primary and prenatal care, and home visitation models in urban and rural communities across Colorado during the COVID-19 pandemic.	Limited Data Set
Researchers	This project links CO APCD data for specific patients to an existing health data warehouse.	Limited Data Set
Researchers	Researchers used CO APCD data to investigate emergency department utilization, variations in patterns of care, service use, and patient outcomes across different emergency departments. The findings will be further analyzed to evaluate value-based payments and social determinant of health measures. Additional studies of data from Virginia and Massachusetts are planned.	Limited Data Set
Researchers	Following up on a previous study, researchers used CO APCD data to investigate reasons for readmissions in vascular surgery patients.	Limited Data Set
Researchers	By linking and evaluating CO APCD data with the Cancer Registry data, researchers are examining prescription and treatment patterns for cancer across health insurance, delivery systems and geographic location.	Limited Data Set
Researchers	The researchers used a standard CO APCD dataset to help educate and train the next generation of data scientists and health care leaders in Colorado and across the US.	Standard Dataset
Researchers	Researchers studied trends in health care spending and utilization by income and, for those with chronic disease, by type of insurance plan, using CO APCD data.	Limited Data Set
Researchers	CO APCD data is being used to investigate the impacts of Colorado opioid prescribing laws when combined with the legalization of marijuana as a proxy for a study of similar legislation in another state.	Limited Data Set

APPENDIX B: CIVHC PUBLIC RELEASES IN FY 2020-2021

Public Reports Released in FY 2020-2021					
Data Bytes	Colon Cancer Screening and Colonoscopy Billing	End Stage Renal Disease and Dialysis Dependence	Nurse Midwife Payment Evaluation	Top 100 Brand and Generic Commercial Prescription Drugs	Anesthesiology, Radiology and Emergency Physician Payments
Interactive Reports, Infographics, and Data Sets	CO APCD Insights Dashboard	Behavioral Health and Substance Use Disorder Claims	Race and Ethnicity Data in the CO APCD	Top 300 Dental Procedures by Volume in the CO APCD	Vision Claims by Volume
	Out-Of-Network Fee Schedules	Telehealth Services Analysis	Low Value Care	Medicare Reference Pricing	Impact of Cessation of Elective Procedures
Spot Analyses and White Papers	Quality Measures: Diabetes A1c Testing and Breast Cancer Screening	CO Prescription Drug Spending and the Impact of Drug Rebates			
Non-CO APCD Data	Palliative Care in Colorado Map and Report	APMs and Payment Reform in Colorado Issue Brief			

APPENDIX C: SELF-INSURED EMPLOYERS AND THE CO APCD

In 2015, CIVHC and HCPF collaborated to change the CO APCD submission rules to include self-insured employers but just as the first claims began to make their way to the database, the local effort was overridden at the federal level. The Supreme Court of the United States determined that states could not mandate the submission of health care claims from ERISA-based self-insured employers to APCDs. The ruling caused great confusion in Colorado and most self-funded employers stopped submitting to the CO APCD completely – despite the decision only pertaining to ERISA-covered self-funded employers. Non-ERISA employers were (and still are) required to submit to the CO APCD.

The Gobeille vs. Liberty Mutual case held that the differing APCD submission requirements across states could create an excessive administrative burden to employee welfare benefit plans under ERISA and because of that, the state's submission requirements were pre-empted. While the Supreme Court pre-empted states' ability to mandate claims submission for ERISA-based self-insured plans, it also left the door open for a uniform national solution that could overcome the administrative burden argument. The decision indicates that a uniform reporting format developed by the Department of Labor could eliminate the issues that prompted the state law pre-emption.

Fully-Insured v Self-Insured

Fully-insured employers decide on health care coverage from an array of plans compiled by an insurance broker or company representative. Then, when an employee files a claim, it is sent to the insurance company for processing and payment.

Self-insured employers, generally large entities, pay their employees' health care claims out of pocket, as they occur. These employers usually have an administrative service organization (ASO) or third-party administrator (TPA) who handles processing the claims. ASOs and TPAs are frequently affiliated with health insurance companies.

The December 2020 Consolidated Appropriations Act that included the second round of federal COVID-19 relief funding also included the No Surprises Act legislation designed, in part, to provide patients with protection from surprise medical bills. Section 115 of the No Surprises Act directs that a standardized data format be established for the collection of medical, pharmacy, and dental claims as well as eligibility and provider files. While there was no explicit mention of the Gobeille ruling in the No Surprises Act, the creation of a common data layout by the Department of Labor would be the first step in overcoming the administrative burden concern central to that case. There is also a provision for grants to be awarded to each state to either create or improve an APCD, with application prioritization for states working toward increased collection of ERISA-covered self-funded data using the standard data

Common Data Layout

Following the Gobeille ruling in 2016, the National Association of Health Data Organizations (NAHDO) and the APCD Council began collaborating with CIVHC and other partners nationwide to develop the Common Data Layout (CDL). In FY 2019-2020, changes were made to DSG 11 in order to ensure that CO APCD data submission to the aligns with the CDL. The addition of Premium and deductible information in DSG 13 is the last major category of fields to align with the CDL.

layout, and for states working together on multi-state solutions.
As it is unlikely that the original Supreme Court decision will be overturned, the incremental steps taken in the No Surprises Act begin the journey of moving toward more comprehensive collection of ERISA-covered self-insured employer claims in APCDs across the nation. The process is likely to be slow and will necessitate collaboration with payers as well as the Department of Labor to complete and finalize a standardized data format.

APPENDIX D: HISTORY OF FUNDING FOR THE CO APCD

In 2010, when the General Assembly mandated creating the CO APCD, Colorado wasn't in a position to include a fiscal note to fund the database. In support of creating the database, the Colorado Health Foundation and The Colorado Trust provided essential funding to CIVHC to help implement and develop the CO APCD. The Colorado Trust and the Colorado Health Foundation were very clear from the beginning that their financial support would be short term and CIVHC would need to reach a position of CO APCD sustainability without relying on these grant dollars. From 2012 on, CIVHC has worked to bolster funding with income from licensing CO APCD data to requestors as well as through grant-seeking and exploring impact investing.

DATA VENDOR TRANSITION TO IMPROVE QUALITY OF CO APCD

In response to data intake and processing concerns, and the limitations and contract costs associated with the original data warehouse vendor, as well as the goal to continually improve and enhance the overall value of the underlying data, CIVHC converted to a new data vendor starting in July 2016 with completion in July 2017. The CIVHC board finance committee decided to allocate reserves to fund the one-year transition which required payment to not just one, but both vendors. CIVHC worked to secure additional funding streams throughout the vendor transition and in May 2017, and became aware of the opportunity to receive federal funds for the Medicaid-only portion of data warehouse management through the Centers for Medicare & Medicaid Services (CMS) Medicaid 50/50 matching program.

50/50 CMS MATCHING FUNDS

CIVHC began receiving matching funds from CMS in 2018. In order to be eligible for the 50/50 opportunity, CIVHC was required to obtain half of the requested dollars in state funding. To this end, CIVHC worked with HCPF, the Joint Budget Committee, and legislators to pass House Bill 18-1327, which allows the CO APCD to receive funding from the General Assembly that was not included in the enabling legislation, and allocated the first state funding to support the CO APCD. The annual state funding covers the state portion of the 50/50 matching funds to support the Medicaid portion of the CO APCD (approximately 31% of operational costs). This bill also formalized the grant/scholarship fund to offset data licensing fees for qualifying entities.

PROGRAM RELATED INVESTMENT FROM THE COLORADO HEALTH FOUNDATION

The ongoing support provided by the CMS 50/50 matching funds is a significant step toward full sustainability for the CO APCD, though it only offsets the Medicaid portion of the database administration, and does not cover the cost to intake, process, and house commercial and Medicare data, or any of CIVHC's mandatory reporting obligations for the CO APCD. Additionally, delays in disbursement of the initial CMS 50/50 payments from late 2017 until mid-2018, coupled with challenges regarding data availability and the data vendor transition, created an immediate and short-term need for cash flow in early FY 2018-2019. Through a gracious $2M program-related impact loan from the Colorado Health Foundation, CIVHC was able to sustain operations and restore reserve funds until the state and federal payments were disbursed. The use of these funds not only allowed for a stable operating environment, they

also ensured the continuation of many valuable and innovative programs and associated resources.

SUPPORT FROM THE COLORADO GENERAL ASSEMBLY

To make up the gap in funding for the commercial and Medicare portions of the CO APCD, CIVHC undertook a multipronged approach, 1) continue to license CO APCD data to requestors; 2) continue applying for local and national grants; and 3) work with HCPF to secure additional operational funds from the state. As a result of the work with HCPF, the CO APCD was included in the State FY2019-20 Long Bill Budget, providing funding for core operating expenses and additional analytic services for state agencies in FY2019-2020, in addition to the 50/50 funding. The combination of CMS 50/50 funding and generous support from the Colorado General Assembly succeeded in replacing historical operating grants and covered a good portion of CO APCD operating costs.

90/10 CMS MATCHING FUNDING

In 2020, CIVHC and HCPF began working on a proposal for an additional opportunity for the CO APCD to receive additional matching funds from CMS to support expanded Medicaid deliverables and tools. In this case, the match is 90/10, with 90 percent coming from CMS and 10 percent from the state. The funds from the 90/10 contract can only be used to support direct Medicaid operations. CIVHC and HCPF learned in fall 2020 that CMS had approved the 90/10 proposal and the contract began January 1, 2021.