



February 28, 2011

Governor John Hickenlooper
State Capitol
200 East Colfax
Denver, Colorado 80203

The Honorable Brandon Shaffer
President
Colorado State Senate
200 East Colfax
Denver, Colorado 80203

The Honorable Frank McNulty
Speaker
Colorado State House
200 East Colfax
Denver, Colorado 80203

Dear Governor Hickenlooper, Senator Shaffer and Speaker McNulty:

This report is being submitted to you and to members of the General Assembly on behalf of the All Payer Claims Dataset (“APCD”) Advisory Committee and CIVHC, the Database Administrator, as required under HB 1330. Per the legislation, this initial report is done by March 1, 2011 and it contains the Advisory Committee’s summary recommendations for obtaining and using data to support transparent reporting about health care safety, cost, quality and efficiency.

Colorado has developed a national reputation for its many initiatives and strategies to improve health while bending the health care cost curve. The Advisory Committee strongly believes that this APCD initiative will be a critical component in achieving those aims. Throughout its work, the members of the Advisory Committee demonstrated an energy and collaborative spirit that invigorated our conversations and led to these recommendations, which will serve all Coloradans.

An APCD is an aggregation of data files – including eligibility records plus medical and pharmacy claims – compiled from multiple health benefit payers. Ten other states have developed or are

implementing APCDs to build a uniform foundation that can be used for analysis and reporting about health care quality and spending.

HB 1330 went into effect on August 11, 2010 and as defined in the legislation, a 23 member Advisory Committee was appointed. At the same time, the Center for Improving Value in Health Care (CIVHC) was appointed as the Administrator of the APCD. Members of the Advisory Committee brought a broad range of knowledge and expertise to the tasks assigned by the Legislature. The Advisory Committee's members met monthly beginning in September 2010 through February 2011. Three subgroups were convened to provide particular insight into what data might be required; how data privacy and security would be maintained; and concerns that health plans might encounter in complying with the requirements. The Advisory Committee consulted with state and national experts throughout the process.

In the course of our work, we created a plan for the types of reports that will be derived from the APCD. We envision that reports created from the APCD will help consumers, businesses, providers, policy makers and payers make careful, well-informed decisions about high quality, high value health care. We also expect that the data will allow Colorado to identify and understand which reforms, innovations and new strategies will best help us achieve our goals. We also considered data collection strategies, rules needed to structure the process and the different purposes for which the data will be used.

We thank you for the opportunity to participate on this Committee.

For the Advisory Committee:



Annette Quintana,
Advisory Committee Co-Chair
President and CEO of *Istonish*



Lalit Bajaj, MD, MPH
Advisory Committee Co-Chair
Associate Professor of Pediatrics at the University
of Colorado/ The Children's Hospital

For the Administrator:



Philip Kalin
Database Administrator and
Executive Director of CIVHC



Cc: Senator Brandon Shaffer, President of the Senate
Senator John Morse, Senate Majority Leader
Senator Mike Kopp, Senate Minority Leader
Representative Frank McNulty, Speaker of the House
Representative Amy Stephens, House Majority Leader
Representative Sal Pace, House Minority Leader
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Henry Sobanet, Director, Office of State Planning and Budgeting
Bettina Schneider, Budget Analyst, Office of State Planning and Budgeting
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Susan E. Birch, Executive Director
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Phil Kalin, Center for Improving Value in Health Care (CIVHC) Director
Joanne Lindsay, Public Information Officer
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CENTER FOR IMPROVING
VALUE IN HEALTH CARE

REPORT TO THE GOVERNOR

and the

GENERAL ASSEMBLY

from the

ALL PAYER CLAIMS DATASET ADVISORY COMMITTEE

and the

ALL PAYER CLAIMS DATASET ADMINISTRATOR

As required under

Section 25.4-1-204 (4)

March 1, 2011

Higher Quality. Lower Cost. A Healthier Colorado.



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Executive Summary

All Payer Claims Dataset Advisory Committee

March 1, 2011

This report is submitted to the Governor and the General Assembly in compliance with the March 1, 2011 reporting deadline established in CRS 25.5-1-204(4) stating that the Administrator of the All Payer Claims Dataset (APCD) shall report to the General Assembly and to the Governor on the status of the funding effort for the APCD and the status of recommendations from the Advisory Committee. The Center for Improving Value in Health Care (CIVHC) as the APCD Administrator is pleased to forward this report on behalf of the Advisory Committee.

The Colorado APCD represents a critical tool for changing the health, quality and costs of healthcare for all Coloradans. Reports from the APCD will help measure our progress on bending the cost curve, target more efficient care delivery, and give consumers, providers and businesses an invaluable lens for identifying the highest value for healthcare services. The APCD will be an invaluable resource for measuring and guiding our progress.

Over time, the Advisory Committee envisions that the APCD will become a central Colorado resource for information about health care quality and value. The Advisory Committee believes that this goal is most effectively achieved through a phased-in approach to data collection and reporting. Initially, commercial carriers will submit claims data into the APCD while the APCD Administrator negotiates permissions for the use of datasets from Medicare and Medicaid.

While understanding the important value of the APCD data, the Advisory Committee recommendations also keep privacy and security at the forefront of the project. All APCD efforts will be fully compliant with all federal HIPAA standards and data submissions will be encrypted and processed within secure environments. Reports from the APCD will be intended to inform a wide audience: consumers; employers and other purchasers; health care policy makers and researchers. The Advisory Committee recommends that reports develop in complexity as the quantity and understanding of the data grow. The first set of reports (“Tier 1”) will help measure the cost curve and find the opportunities for greater value in health care. As the data become more robust, the Advisory Committee envisions that reporting can explore other aspects of health care using transparent, well understood statistical and analytic methodologies.

The Advisory Committee recognizes that the APCD datasets will be of interest to researchers and health policy analysts. Therefore, the Advisory Committee recommends that the APCD Administrator develop a well-documented data release process modeled on the process used in other states.

Of paramount importance to the Advisory Committee is the assurance that the APCD will rigorously adhere to data security and patient privacy laws and regulations to maintain the integrity and credibility of the project. Whenever possible, the APCD should foster transparency about how measures are calculated and how data quality is embedded in the process.

Why Colorado needs an All Payer Claims Dataset

We cannot manage what we cannot measure. Less than half of the variations in cost and quality in our health care delivery system can be explained using currently available data sources. In order to better understand the underlying causes of variations in cost, quality, and resource use policy makers, employers, patients and providers will need access to better cost and quality information that spans all care settings. An All Payer Claims Dataset is a resource that can help begin to address some of this variation and open the door to conversations about price, value and quality when choosing where to obtain care. The reports that can be generated from APCD have the potential to support and reinforce efforts to improve healthcare, bend the cost curve, and inform critical health policy decisions while supporting information for the health insurance exchanges, delivery redesign and provider payment reform.

The power of this APCD movement is being demonstrated across the 11 states that have already implemented such initiatives and have started to benefit from the increased transparency that has resulted. Additionally, in Grand Junction, CO there is consensus among most stakeholders in the community that use of claims data for peer comparisons has been instrumental in making that city one of the lowest cost in the United States measured by annual Medicare expenditures.

What is an APCD?

An APCD is a database that typically includes data derived from medical, eligibility, provider, pharmacy, and/or dental files from private and public payers, including insurance carriers, health plans third-party administrators, pharmacy benefit managers, Medicaid, and Medicare. Additional information may be included that supports the state's goals for transparent reporting to a broad range of audiences, such as consumers, providers, researchers and health policy decision makers.

The first APCD was developed in Maryland in 1998, followed by Maine in 2003 and New Hampshire and Vermont following shortly thereafter. According to the APCD Council, a national nonprofit policy center, eleven states have now implemented APCDs and are currently collecting data (see Figure 1; also, in a larger format in Appendix E, page 44). Colorado and two other states are poised to begin collecting data during 2011.

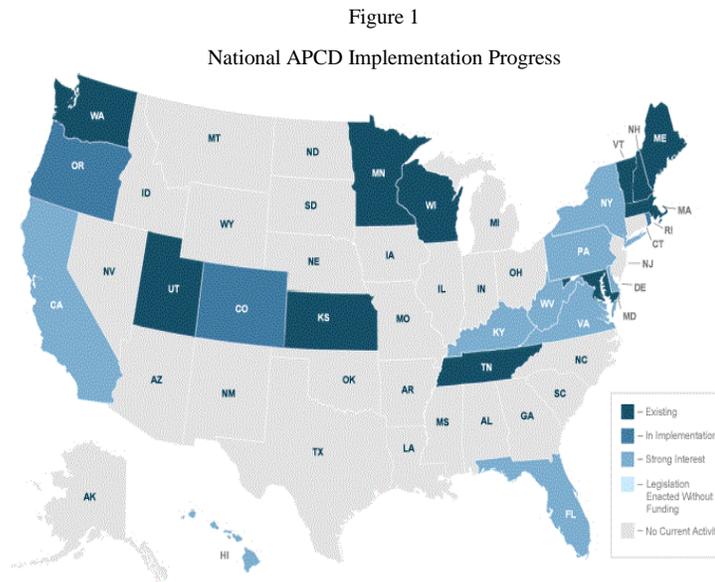
Most states begin the construction of their APCDs with data from commercial insurers covering state residents. Over time, states have negotiated agreements with state and federal officials to obtain access to Medicare and Medicaid data sets. States also vary in the treatment of self-insured data, with options ranging from required submissions to voluntary arrangements. States also report a phased-in approach to reporting. Building a foundation of well-understood, benchmarked reporting permits development of processes that fosters quality data and accurate measurements. Utah, Oregon and Tennessee are examples of states that have taken this approach to reporting from their APCDs.

APCD Activity in Other States

A recent Academy Health publication noted that "APCD systems collect data from the existing transaction systems in place to pay health care claims, thus leveraging data from within the insurance claims and reimbursement system. The information typically collected in an APCD includes patient demographics, provider demographics, clinical, financial, and utilization data.

Because of the difficulties associated with the collection of certain information, most states implementing APCD systems have typically excluded a number of data elements, such as denied claims, workers' compensation claims, and services provided to the uninsured.ⁱ

Of the 11 APCDs currently in operation, five states use similar, but not identical intake designs. Within this group of five, Maine, New Hampshire and Vermont have been able to pool data to develop regional portraits of health care costs and utilization. Tennessee and Minnesota are in the initial stages of data collection using a model similar to the northern New England states. Maryland, Massachusetts, Oregon and Utah have data collection models unique to each state. Finally, Kansas and Wisconsin have voluntary submission requirements and continue to build the scope of data collection.



<http://www.apcdouncil.org/state/map> (Larger, Appendix E, pg 44)

In 2010, the APCD Council convened a series of meetings with national organizations to begin discussions about standardizing a defined set of data elements. The group included representatives from the National Association of Health Data Organizations (NAHDO), America's Health Insurance Plans (AHIP), and national data standards maintenance organizations. These discussions produced a national consensus list of data elements for member eligibility and medical claims that could serve as the basis for a state-specific database. The APCD Council notes that states may need to add data elements to the list to meet specific reporting needs.

The Legislation: House Bill 10-1330

In 2009, the Colorado General Assembly passed House Bill 10-1330 establishing an Advisory Committee to make recommendations about the development and implementation of an All Payer Claims Database (APCD) for the purpose of providing transparent public reporting of health care information. The legislation established a clear roadmap and timetable for the creation of the APCD.

The Executive Director of the Department of Health Care Policy and Financing was directed to appoint an APCD Administrator to oversee the implementation and operation of the APCD. The APCD Administrator was also tasked with developing a funding plan for the project and a wide range of planning, implementation and oversight activities.

In developing the approach to the APCD, the Administrator is to be informed by the recommendations of the APCD Advisory Committee regarding the creation of the framework and implementation plan. The timeline and topic areas for these discussions are summarized in Table 1.

Table 1: APCD Milestones: Legislative Deadlines and Actual/Projected Completion

Date in the Legislation	Actual Date	Action or Milestone
August 11, 2010		Effective Date of Section 25.5-1-204(1)(a)
At the latest: October 15, 2010	August 12, 2010	Appoint Advisory Committee (no more than 45 business days after effective date) First meeting held Sept 23
March 1, 2011	March 1, 2011	<p>Due date for the Report to the General Assembly on recommendations and discussions to date, including:</p> <ul style="list-style-type: none"> • status of the funding effort • the status of the recommendations on: <ul style="list-style-type: none"> ○ what kinds of information the carriers should submit ○ how the APCD will comply with the federal Health Insurance Portability and Accountability Act of 1996, which sets the standards for protecting the privacy of an individual's medical records. ○ recommended data elements • Any other recommendations that may be available
January 1, 2012	During Calendar 2011	Executive Director of HCPF creates APCD if funding is available
January 1, 2013	During Calendar 2011	Operation of the APCD begins

The Role of the Center for Improving Value in Health Care (CIVHC)

In August, 2010 the Executive Director of the Department of Health Care Policy and Financing designated the Center for Improving Value in Health Care (CIVHC) as the APCD Administrator. CIVHC is a public-private entity created to identify and advance initiatives across Colorado that enhance consumers' health care experiences, contain costs and improve the health of Coloradans by creating an efficient, high quality and transparent health care system. Aligning with the goals

of the APCD, CIVHC brings together a diverse constituency of consumers, providers, payers, businesses and policy makers to work together to improve value across the entire health care system.

APCD Advisory Committee: Structure and Responsibility

The Advisory Committee consists of 24 members, 18 of whom are drawn from health care policy, provider, payer and consumer organizations and six ex-officio members representing the General Assembly and several state agencies. (Members of the Advisory Committee and the areas of statutory representation are listed in Table 2.) The APCD Advisory Committee members bring broad and deep knowledge of Colorado health care delivery, administration and policy across the state. The Advisory Committee is chaired by Annette Quintana, President and CEO of *Istonish*, and Lalit Bajaj, M.D., MPH, Associate Professor of Pediatrics at the University of Colorado/ The Children's Hospital.

The legislation charged the Advisory Committee with providing recommendations to the APCD Administrator about specific aspects of the dataset project. In particular, the legislation indicated that the March 1, 2011 report must "include the final data elements recommended by the Advisory Committee, the final provisions contemplated to comply with the "health insurance portability and accountability act of 1996", pub.l. 104-191, as amended, and any other final recommendations that are ready at the time of the report." The legislation listed the following topics for inclusion in the March 2011 report, including:

- (a) specific strategies to measure and collect data related to health care safety and quality, utilization, health outcomes, and cost;
- (b) focus on data elements that foster quality improvement and peer group comparisons;
- (c) facilitate value-based, cost-effective purchasing of health care services by public and private purchasers and consumers;
- (d) result in usable and comparable information that allows public and private health care purchasers, consumers, and data analysts to identify and compare health plans, health insurers, health care facilities, and health care providers regarding the provision of safe, cost-effective, high-quality health care services;
- (e) use and build upon existing data collection standards and methods to establish and maintain the database in a cost-effective and efficient manner;
- (f) are designed to measure the following performance domains: safety, timeliness, effectiveness, efficiency, equity, and patient-centeredness;
- (g) incorporate and utilize claims, eligibility, and other publicly available data to the extent it is the most cost-effective method of collecting data to minimize the cost and administrative burden on data sources;
- (h) include recommendations about whether to include data on the uninsured;
- (i) discuss the harmonization of a Colorado database with other states', regions', and federal efforts concerning all-payer claims databases;
- (j) discuss the harmonization of a Colorado database with federal legislation

concerning an all-payer claims database;

(k) discuss a limit on the number of times the administrator may require submission of the required data elements;

(l) discuss a limit on the number of times the administrator may change the required data elements for submission in a calendar year considering administrative costs, resources, and time required to fulfill the requests; and

(m) discuss compliance with the “health insurance portability and accountability act of 1996”, pub. L. 104-191, as amended, and other proprietary information related to collection and release of data.

In addition, the Advisory Committee was instructed to make recommendations to the Executive Director of the Department of Health Care Policy and Financing regarding the ongoing oversight of the operations of the APCD and where the database should be housed.

Table 2 APCD Advisory Committee Members

Name	Affiliation	Role (As specified in legislation)
Robert Alger	Vice President Health Plan IT Strategy, Kaiser Permanente	Integrated multi-specialty organizations
Scott Anderson	Vice President, Professional Activities, Colorado Hospital Association	Statewide association of hospitals
Lalit Bajaj (Co-Chair)	Associate Professor of Pediatrics, Physician, University of Colorado/The Children’s Hospital	Academia with experience in health care data and cost efficiency research
Vinita Biddle*	Benefits Strategist, Department of Personnel and Administration	Department of Personnel and Administration
Mark Carley	Healthcare Administration, Rocky Mountain Health Plans	Non-profit health insurers
Micheline Casey*	Chief Data Officer, Governor’s Office of Information Technology	Governor’s Office of Information Technology
Duane Choate	President/Chief Executive Officer, Oncure Medical Corp	Large employers that purchase group health insurance for employees
Jo Donlin*	Director of External Affairs, Colorado Division of Insurance	Colorado Division of Insurance
Richard Doucet	Chief Executive Officer, Community Reach Center	Community mental health centers with experience in behavioral health data collection
Butch Forrest	Chief Financial Officer, Southeast Colorado Hospital District	Self-insured employers
Marjie Harbrecht	Chief Executive Officer/Physician,	Non-profit organizations that demonstrate experience working with employers to enhance

	Health TeamWorks	value and affordability in health insurance
Michael Hodes	Healthcare Data Analyst, Quality Health Network/Colorado Regional Health Information Organization	Non-profit organizations that facilitates health information exchanges to improve health care for all Coloradans
John Kefalas*	State Representative, State of Colorado	Colorado General Assembly
Philip Lyons	Director of Regulatory Affairs, United Healthcare	For profit health insurers
Thomas Massey*	State Representative, State of Colorado	Colorado General Assembly
Jack McClurg	Chief Executive Officer, HealthTrans	Pharmacy benefit managers
Kavita Nair	Associate Professor, Pharmaceutical Sciences Program, University of Colorado	Pharmacists or an affiliate society
Annette Quintana (Co-Chair)	Chief Executive Officer, Istonish	Small employers that purchase group health insurance for employees
Bob Semro	Policy Associate, Colorado Consumer Health Initiative	Consumer health care advocates
Carolyn Shepherd	Physician, Clinica Family Health Services	Physicians and surgeons
Leo Tokar	Insurance Broker/Consultant, Lockton Companies, LLC	Organizations that process insurance claims or certain aspects of employee benefit plans for a separate entity
Daniel Tuteur	Executive Director, Colorado Community Managed Care Network	Non-profit organizations that demonstrate experience working with employers to enhance value and affordability in health insurance
Nathan Wilkes	Owner/Principal Consultant, Headstorms, Inc.	Consumer health care advocate with experience in privacy issues
Jed Ziegenhagen*	Rates Manager, Department of Health Care Policy and Financing	Department of Health Care Policy and Financing
Patricia Zwemke,	Program Integrity Manager, Delta Dental of Colorado,	Dental insurers

APCD Advisory Committee's Approach to the Work

The Advisory Committee established a monthly meeting schedule, held its first meeting on September 23, 2010, and has met monthly since that time. The purpose of these meetings is to develop guidelines and, where possible, specific recommendations in keeping with the direction of HB 10-1330.

Early in its work, the APCD Advisory Committee identified key principles to guide its recommendations about the scope, structure and implementation of the APCD. These principles include:

- Leverage the knowledge and expertise of Colorado’s health care community, including providers, payers, policy makers, analysts and consumers
- Build on lessons learned in other states
- Use an inventory of desired reports to “reverse engineer” the design of the APCD
- Provide transparency in reporting, including robust quality processes and explanation of methodologies used to create comparisons
- Establish a foundation that supports a phased-in approach for more complex work over time

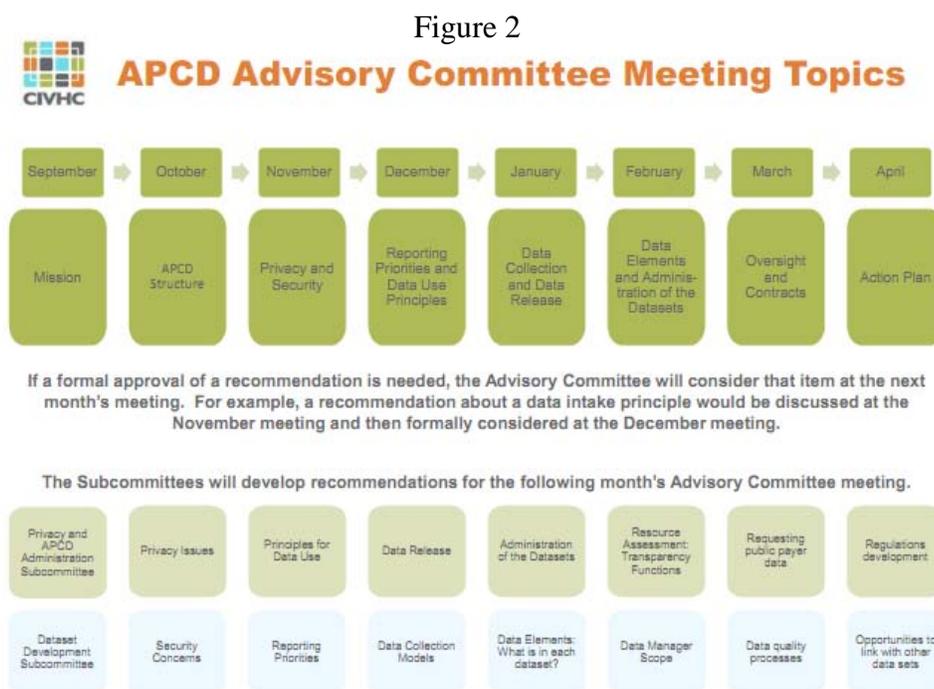
These principles are woven throughout the recommendations contained in this report.

The Advisory Committee developed a plan for consideration of key topics over the six months before the first report to the Legislature on March 1, 2011, as shown in Figure 2 and in Appendix E, page 45. Meetings and materials were posted on the CIVHC website, and all meetings were open to the public.

To expand the participation and the diversity of perspective, the Advisory Committee convened three subgroups. These groups provided broader opportunities for

consideration of complex issues and were asked to develop preliminary recommendations for consideration by the Advisory Committee.

Dataset Structure Subcommittee: This subcommittee was asked to consider topics concerning data collection for the APCD. This 19-member subcommittee was chaired by Kavita Nair, Associate Professor, Pharmaceutical Sciences at the University of Colorado, Denver. A list of subcommittee members appears in Appendix A. The subcommittee discussed how the data elements could be collected, data collection processes, and security of the data while in transit from payers to a central collection point. Input from this subcommittee was incorporated into draft data intake rules.



<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251660206325&ssbinary=true>

Privacy and Administration Subcommittee: This subcommittee was asked to provide guidance to the Advisory Committee about how data would be reported from the APCD. This ten-member subcommittee was chaired by Robyn Leone, Director of the Regional Education Center of the Colorado Regional Health Information Organization (CORHIO). The subcommittee discussed the types of data that would be available to outside users, the process for reviewing requests from outside data users, and compliance with applicable privacy laws. Input from this subcommittee was incorporated into draft data release rules. A list of subcommittee members appears in Appendix A.

Carrier Technical Advisory Group (TAG): This subcommittee was created under the leadership of the Colorado Association of Health Plans. Eleven health plans are represented among the subcommittee's 25 members. This group met monthly to reflect on the emerging guidance from the Advisory Committee and the other subcommittees, and offered valuable feedback on data intake file structure, schedule development, and carriers' experience in other states.

National Expertise: The Advisory Committee also consulted national APCD experts and state APCD officials in the course of its work. Among those consulted were Patrick Miller from the APCD Council with support from the Commonwealth Fund; Denise Love, Executive Director of the National Association of Health Data Organizations; Keely Cofrin Allen, Director of the Utah Office of Health Statistics; and Katharine London, University of Massachusetts.

The Colorado APCD Vision

As articulated in the legislation, the Colorado vision for an APCD identifies the importance of developing data that brings together cost and quality information that will impact Coloradan's ability to measure value for their healthcare dollar. In many ways, Colorado's vision eclipses the narrower approaches taken by other states but is aligned with data and information needs that experts throughout the country feel are required to change the trajectory of quality and cost. In supporting the vision of achieving greater value in health care, reporting from the APCD must also recognize quality of the care provided. Therefore, the recommendations in this report create a foundation for analysis that supports system-wide measurement of high quality care at the best price.

During its review of the national experience with APCDs, the Advisory Committee learned that the use and impact of information derived from APCDs varies by state and a standardized set of data elements is still in a developmental mode. States are expanding the range of payers that submit data, including Medicare and Medicaid, and examining how best to create fair and transparent reporting about cost. States are continuing to learn about the opportunities and challenges inherent in working with large datasets drawn from multiple sources.

This vision includes a phased-in approach for both data collection and reporting beginning with commercial claims data. Medicare and Medicaid data will follow. This phased in approach has been successfully developed and deployed in other states and will allow the Administrator to internal capacity develops to process, edit and evaluate the data,

With a data collection model in place in 2011, the APCD will proceed to refine the scope and elements of a reporting strategy. The intake specifications will incorporate the consensus list of data elements for member eligibility and medical claims. In addition, opportunities may emerge to align and harmonize the APCD with other data sources in future years. The resulting analysis

could yield valuable information about high performing providers, treatment effectiveness, and results of specific initiatives. The work ahead includes refining this vision and developing a detailed plan and schedule for more complex reports and analysis.

Ensuring Patient Privacy and Data Security

HB-10-1330 directs the APCD Administrator to comply with all aspects of the federal Health Information Portability and Accountability Act (HIPAA). HIPAA sets rules and standards for protected health information (“PHI”), which the act described as information about health status, provision of health care, or payment for health care that can be linked to an individual. HIPAA creates administrative, physical, and technical safeguards around the data.

Compliance with HIPAA was a central theme throughout all discussions of the Advisory Committee and subcommittees. Paramount importance was given to assuring that the APCD will rigorously adhere to data security and patient privacy laws and regulations to maintain the integrity and credibility of the project.

In accordance with HIPAA requirements, the Advisory Committee emphasized that the APCD must ensure that all data is at all times transmitted and stored in a secure and encrypted manner. As further protection, any data intake and storage management system must be able to manage intake and processing without manual intervention. Furthermore, when the data is used to create reports, certain information about a patient or member in a dataset will be replaced with a Unique Identifier. HIPAA rules offer further protection when reports based on APCD analysis is ready for publication. These rules guide researchers and report developers about what can and cannot be shown when the number of patients or members in a particular category falls below an established floor or minimum cell size.

The Advisory Committee’s recommendations fully anticipate that HIPAA compliance will be paramount in the design and implementation of the APCD. Specific mentions of HIPAA are intended as additional emphasis within a project framework that adheres to the highest standards of security and confidentiality.

The Plan for the Colorado APCD

The Colorado APCD is envisioned as having four major components, as shown in Figure 3 and in Appendix E, page 46), and described below. This conceptual approach is based on state of the art technology and is similar to the structure of many of the other APCDs around the country. The four components are as follows

1. A data intake engine that securely receives edits and stores files from commercial payers during the first phase of implementation. Later phases of APCD development will address how other data sources such as Medicare and Medicaid will be used in the development of APCD reports.
2. A data repository that securely stores the incoming data as well as the files created from that data. Access to the data repository would be stringently limited by user-based permission protocols. Data editing and validation processes will be automated within the secure repository.
3. The APCD seeks to collaborate with the state’s Health Information Exchanges, QHN and CORHIO, to use a common methodology to identify patients and providers in the APCD and in the HIE. This collaboration builds on the investment in developing patient and provider identifiers and uses the lessons learned and strategies developed in that process. In addition,

sharing these identifiers creates a foundation for analyzing cost and outcome data derived from these sources.

4. A set of analytic tools will be identified and implemented over time to prepare a broad array of reports from the APCD. These analytic tools will support the reported needs that are identified in this report.

The Conceptual Model and Dataflow (see Figures 3 and 4 in Appendix E, pgs 46-47) for commercial claims data describe the stages in flow of data into and through the APCD. In the first phase of APCD development, fully encrypted claims and member information from commercial carriers arrives in the secure warehouse from a number of sources. Within a secure environment, the data are cleaned, edited and analyzed for compliance with submission rules. During the next step in the secure warehouse, member identifiers are replaced with a unique member identification number that further protects patient information. All data in the repository is stored in a fully encrypted format and protected in a manner that is fully compliant with HIPAA. In the fourth step, unidentified analytic files are created that contain information needed to produce specific reports using statistical methods and tools. Finally, the reports are distributed through a number of outlets, including a consumer facing websites; specialized sets of information for particular projects; and standard reports that will be designed over the next year. All of the reports will be designed to fully protect patient identity, including the use of minimum cell sizes so patient information cannot be derived in any way.

The APCD phase in plan includes developing models and process for incorporating Medicaid and Medicare data into the analytics and reporting that will be produced from the APCD. Development of specifications, data use requests and related negotiations for the acquisition and

Figure 3

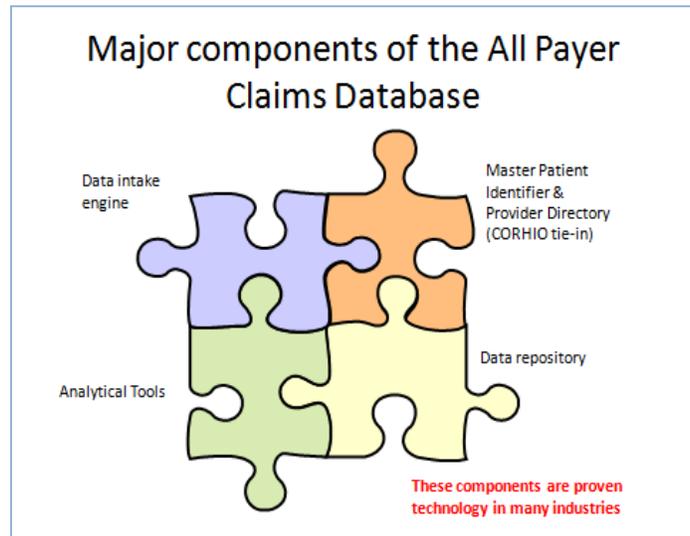
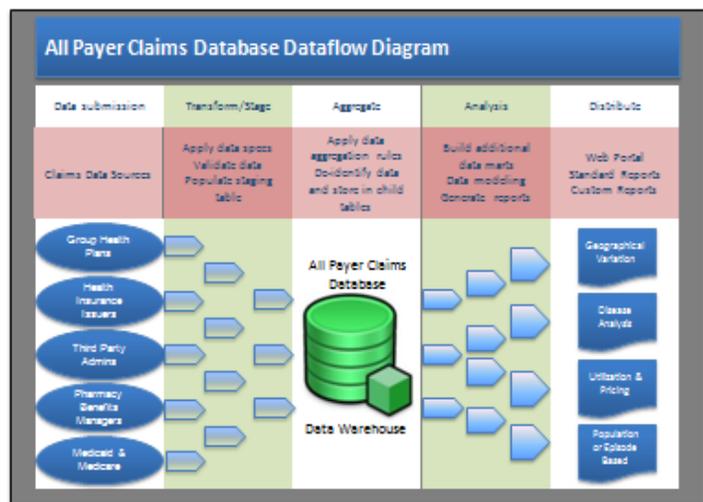


Figure 4

High Level Data Process



use of this data are in initial stages. Systems design and analytics will conform to all state and federal rules regarding intake, storage and analysis.

The Plan for APCD Reporting

The Advisory Committee recommends that the APCD Administrator develop a phased-in reporting strategy that layers complexity as the quantity and understanding of the data improve over time. For the purposes of these recommendations, the types of reports have been grouped into Tier 1, Tier 2 and Tier 3. Tier 1 reports should be available first, followed by Tier 2 reports, while continuing to refresh and update Tier 1 reports. Similarly, Tier 3 reports would provide the results of enhanced analytics while continuing to report Tier 1 and Tier 2 measures on an established schedule. Figures in this section are included at full size in Appendix E, pages 48-54 of this report.

This section describes the characteristics of each reporting tier.

Figure 5: Tier 1 Example

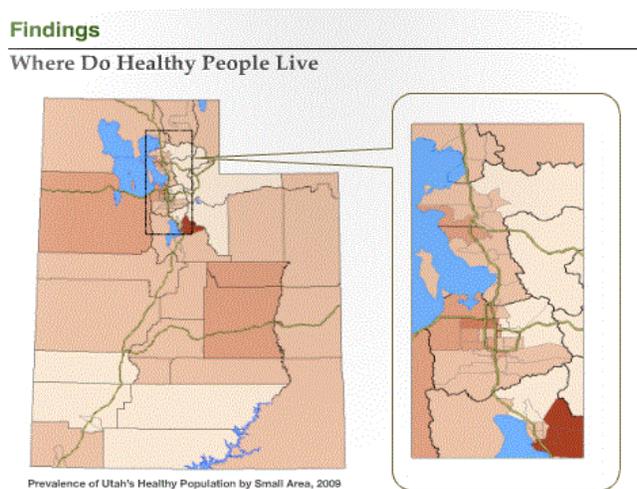
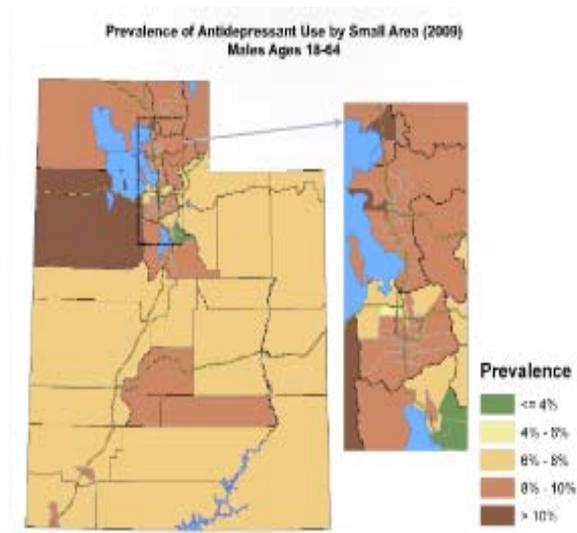


Figure 6: Tier 1 Example



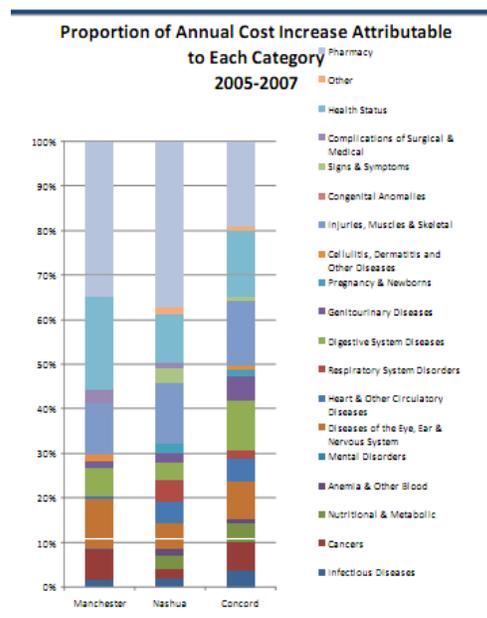
<http://utahatlas.health.utah.gov/publications.html>

Tier 1 reports will be the first group of reports delivered from the APCD. These reports should be accessible and meaningful to the broad policy, public health and provider community. Reports in this category will present information at an aggregated level and describe patterns such as the incidence and variation of targeted medical conditions, state and regional cost patterns, and utilization of services.

Tier 1 reports should support health care reform policy activities in progress throughout Colorado. Examples of specific measures that the APCD will be designed to report in the first round of Tier 1 reports include the following:

- Annual percentage change in per capita expenditures for health services
- Utilization of health care services per 1,000 population (i.e. could focus on imaging, ED, and inpatient hospital)
- Annual change in health insurance premiums is commensurate with CPI
- Percentage of health care expenditures associated with outcomes-based models of payment
- Annual percentage change in per capita expenditures for primary health care services
- Annual percentage change in per capita expenditures for non-primary care services (hospital, specialty)
- Variation between highest and lowest paid providers. (As measured by expenditures based on market basket of services)
- Proportion of inpatient hospital admissions identified above that result in re-admissions within 30 days
- Expenditures associated with hospital re-admissions within 30 days (see metric above)
- Annual per capita expenditures associated with ED use
- Percentage of Coloradans enrolled in ACOs/medical homes

Figure 7: Tier 1 Example



The APCD reporting strategy will include detailed recommendations about how the first versions of Tier 1 measures should be reported. The Advisory Committee recommends that the APCD Administrator provide capacity for web-based summaries and interactive tools as the APCD matures. The Advisory Committee offers the following examples of Tier 1 reports.

The **Utah Atlas of Health Care** (Figure 5 and full size in Appendix E, page 48) shows the geographic distribution of healthy people, those individuals in Utah's APCD without chronic conditions and low annual reported costs (a lighter color indicates a higher proportion of healthy individuals).

Utah also issued a report based on pharmacy claims data showing the geographic location of the prevalence of antidepressant use in the state (Figure 6 and full size in Appendix E, page 49). Pharmacy data is typically quite current and provides a timely view of one aspect of current health status.

In **New Hampshire**, APCD data was used to develop an analysis of the diagnosis distribution by city (Figure 7 and full size in Appendix E, page 50)

Tier 1 Quality and Safety Reporting: The Advisory Committee further recommends that the reporting strategy include a description of how health care quality, safety and effectiveness will be incorporated into APCD reporting. This reporting component should be developed from sources such as Centers for Medicare & Medicaid Services (CMS), Agency for Healthcare Research and Quality (AHRQ) and Leapfrog, reporting entities that offer state and national

benchmarks. Reporting similar metrics from nationally recognized sources such as these allows health care purchasers to examine this information in one place.

Tier 2 Reports: The Advisory Committee recommends that the APCD Administrator develop a strategy, methodology and timeline for creating reports that allow comparisons of providers to enable health care purchasers ---consumers and those providing insurance and medical coverage --- to make informed decisions about health care cost and quality. The Advisory Committee recommends that Tier 2 reports address the following needs:

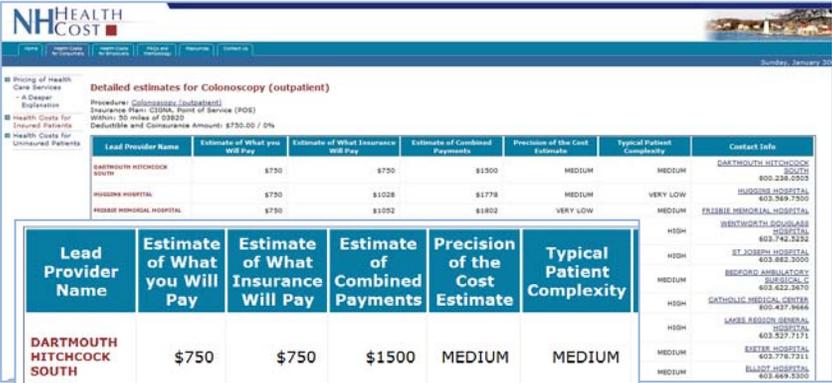
- Consumers need to be able to compare providers’ reported cost of a procedure and obtain an estimate of the individual’s out of pocket cost
- Consumers need to be able to compare the quality of care provided by different providers
- Employers need to be able to understand the factors driving the cost of providing coverage to their employees

Examples of reports that would address Tier 2 reporting needs include New Hampshire and Massachusetts consumer reports; a New Hampshire estimated spending by carrier report as well as an example of an employer specific report that could be provided are shown below.

The New Hampshire Health Cost Website

This website uses APCD information to generate an estimated cost of a procedure by facility. Using additional information provided by insurers, the tool uses the consumer’s deductibles and co-pays to show the consumer’s estimated total cost, as well the precision of the estimate. An example of this website is shown in Figure 8 and in Appendix E, page 51.

Figure 8: Tier 2 Example



Lead Provider Name	Estimate of What you Will Pay	Estimate of What Insurance Will Pay	Estimate of Combined Payments	Precision of the Cost Estimate	Typical Patient Complexity	Contact Info
DARTMOUTH HITCHCOCK SOUTH	\$750	\$750	\$1500	MEDIUM	MEDIUM	DARTMOUTH HITCHCOCK SOUTH 800.238.2303
HUGGINS HOSPITAL	\$750	\$1028	\$1778	MEDIUM	VERY LOW	HUGGINS HOSPITAL 603.289.7500
FRISBIE MEMORIAL HOSPITAL	\$750	\$1052	\$1802	VERY LOW	MEDIUM	FRISBIE MEMORIAL HOSPITAL WENTWORTH SQUARE 603.742.5292
						ST JOSEPH HOSPITAL 603.882.3000
						REDFORD AMBULATORY SURGICAL C 603.432.3470
						CATHOLIC MEDICAL CENTER 603.437.8444
						LAYNE REGION GENERAL HOSPITAL 603.527.7171
						ELLEN HOSPITAL 603.778.7311
						BLAUF HOSPITAL 603.669.7000

The Massachusetts “My Health Care Options” Website

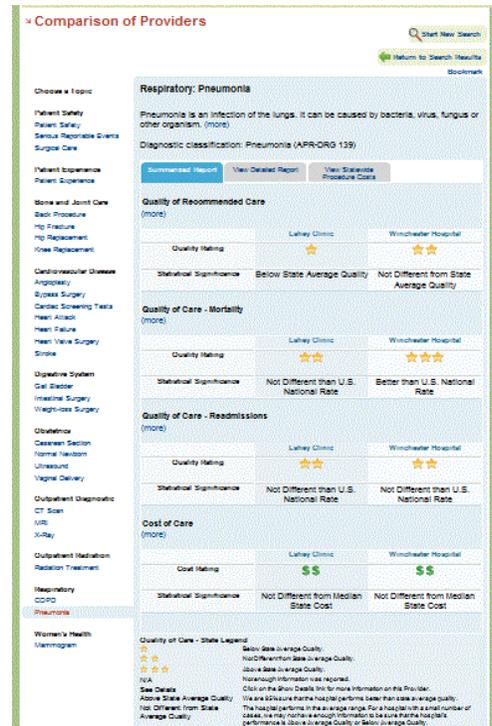
This website displays cost and related quality measures for a limited set of hospital-based procedures. Consumers are able to search by provider name, condition or procedure, or a radius around a particular zip code. This website provides explanation and detail at three levels: summary ratings with one to three dollar signs and stars; a second screen with detail about the quality rating, and a third level showing the cost measures and comparisons to statewide benchmarks. The screenshot of this website is shown in Figure 9 and in Appendix E, page 52.

Other New Hampshire reports are examples of the additional uses of APCD information such as premiums (see Figures 10 and 11 in Appendix E, pages 53-54).

Figure 9: Tier 2 Example

Tier 3 Reports typically require a significant investment in analytic tools and resources. The Advisory Committee recommends that the reporting strategy include opportunities to test out the following methodologies:

- Tools that identify an initial provider in a chain of treatment for a specific condition, generally known as “episode groupers.” Use of data arranged in this manner opens the door to several important types of analysis, including:
 - modeling the effects of alternative payment strategies, such as “Prometheus” payment methodology, a proprietary model that can support development of evidence informed case rates and provider scorecards.
 - global payments, and payments tied to outcomes.
 - examining how evidence-based care standards are reflected in cost of care over time
 - determining whether public health, health education and care management strategies have changed cost and utilization over a time period and for a particular population.
- Analysis that aligns information from other sources, such as treatment outcomes, vital statistics, and demographic information, and reported publicly pursuant to data release requirements.



<http://hcqcc.hcf.state.ma.us/>

Figure 10: Tier 3 Example

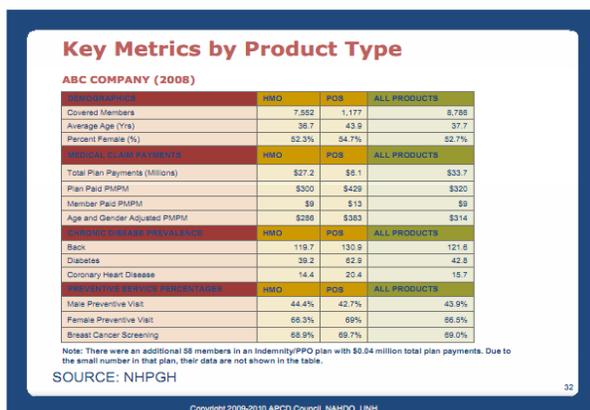
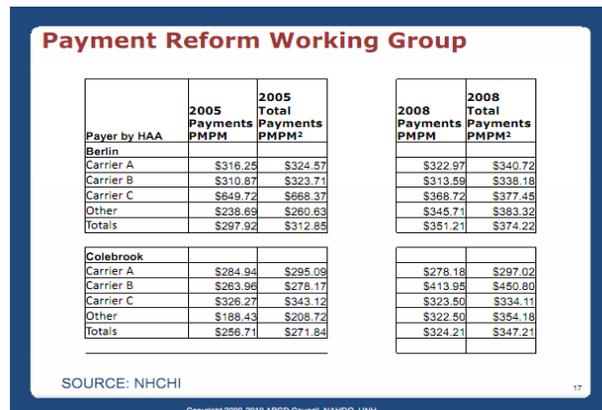


Figure 11: Tier 3 Example



<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&lobtable=MungoBlobs&blobwhere=1251664412769&ssbinary=true>

Data Elements That Should Be Included In the APCD

The list of data elements that should be included in the Colorado APCD was extensively discussed by the Advisory Committee. Identifying the types of reports needed was instrumental in determining the types of data that would be collected. In addition, the Advisory Committee’s discussions were informed by the reporting that other states achieved using a defined set of data elements. The Advisory Committee also considered the level of effort that would be required by carriers to deliver certain data.

Recognizing and building upon the national conversations about harmonizing datasets across states, the Advisory Committee elected to use the national consensus list as the starting point for the Colorado APCD. As mentioned previously, this list, developed collaboratively by the APCD Council, AHIP and NAHDO, contains the majority of the types of information needed to develop the reports that are envisioned for the Colorado APCD. Recognizing that the national consensus list is a starting point for APCD development, the Advisory Committee recommends that the Colorado APCD include additional information. The APCD Administrator, in consultation with carriers, will specify how and when this additional information is incorporated into the Colorado APCD. Additional information for the Colorado APCD includes:

- Information supporting geocoding for policy reports showing county or regional health care utilization, cost or medical condition similar to that used in Utah reports (see Figures 5 and 6).
- Member information to support creation of a strong, unique Master Patient Identifier. The creation of a unique member identifier allows analytic use of the data while protecting patient privacy. CORHIO has been developing a strong Master Patient Identifier algorithm. The APCD’s use of the same methodology leverages this investment and creates a long term potential to “bridge” across to aggregated treatment and outcome information. The Colorado APCD data list will include information that supports use of the CORHIO methodology and works with the Quality Health Network (QHN) to develop a similar approach.
- Premium information and employer name are needed to provide employers with improved purchasing support. The Advisory Committee and its subcommittees noted that other states do not collect information about the member’s premium, covered services and cost sharing rules within the monthly detailed claims line and member eligibility record files.
- Information about a member’s enrollment in a patient-centered medical home or receiving care through a clinician who is reimbursed in an alternative payment model. The Advisory Committee believes this information is critical to understanding the effects of innovation and intervention on individual health status and on system change.

The Advisory Committee further recommends that the Colorado APCD examines other filings and reports provided to Colorado state agencies by health plan payers to minimize duplicate submissions.

Data Release Review Process

The APCD Administrator anticipates creating a wide variety of reports and reporting tools that will be based upon information derived from the APCD. These reports and tools will be developed and released by the APCD, in full compliance with HIPAA regulations regarding display of information derived from health records.

Researchers and analysts are expected to identify other ways to use the APCD information to provide insight about performance measurement, payment modeling, and policy and outcomes analysis. The Advisory Committee, assisted by the Privacy and Administration Subcommittee, recommends that the APCD Administrator develop and implement a thorough and structured data use review process.

Those wishing to obtain access to the APCD output files for specialized reports will be required to submit a detailed application describing the purpose of the project, the methodology, the qualifications of the research entity and particularly how data integrity, security and data reporting will comply with HIPAA requirements. Applications will be reviewed by a data use review committee with broad, specific expertise. If the application is approved, the researchers will be granted access to the requested data for the specific purpose that was approved. The Advisory Committee recommends that all products and research be submitted for prior review by the APCD Administrator before publication or other distribution. This approach is consistent with the review process used in other states.

Status of the Funding Effort

No general funds were allocated for the APCD as part of HB 10-1330. Funding for developing the APCD recommendations, writing draft rules, selecting the technology solutions and creating the budget for implementation and operation of the APCD was generously provided by The Colorado Trust. The Trust has also expressed interest in playing a role in the funding of the implementation and operation of the APCD. Additionally, certain funds provided to CIVHC by The Colorado Health Foundation are available for supporting the APCD. Lastly, CIVHC as the APCD Administrator is in the process of exploring other funding to support this important initiative. Per the legislation, once funding commitments are in place the Administrator will advise the Executive Director of HCPF who will then authorize the creation of the APCD.

The Work Ahead

The Advisory Committee sought to provide an overall framework for the APCD Administrator as the implementation effort briskly rolls forward. In the short term, the APCD will focus on start up, data management, and obtaining public payer datasets. The Advisory Committee recognizes the implicit challenges in this work and sought eliminate barriers to this effort. .

At the same time, the Advisory Committee anticipates that APCD will continue to evolve and adapt to the needs of a changing health care system. The Advisory Committee recommends the development of a medium and long term planning cycle. This plan should address how the APCD Administrator expects to develop and release a slate of Tier 2 reports and how the more intricate Tier 3 reports will be prioritized. In addition, the evolution of the health care system means that the APCD must be prepared to capture information as these changes occur.

Examples of the issues that the APCD will need to examine in the coming years include, but are no means limited to the following issues:

-
- How to recognize and compare different provider payment methods used now and in the future, including patient centered medical homes, accountable care organizations, and fully integrated systems.
 - How to capture use and cost care management, clinical outreach services and clinician-patient email and phone consultations provided by health plans and patient-centered medical homes alike.
 - How to help consumers and health care purchasers use reports and measures derived from APCD data.
 - How to identify advanced practice nurses and other clinicians who provide care under the license of a supervising clinician.
 - Feasibility of using data from other sources in conjunction with APCD-generated files: Can accuracy, validity and patient privacy be sustained while enhancing the reports with information that is typically not available on a medical claim?
 - Effects of changes in coding and file structures scheduled for national implementation over the next five years.

Recommendations of the Advisory Committee

Introduction

The work of the Advisory Committee, its subcommittees, and the Carrier Technical Advisory Group examined a broad range of strategic, regulatory, technical and analytic questions during the seven months of its work between September 2010 and February 2011. Throughout out the process, Committee members thoughtfully and carefully considered the advantages and opportunities that the APCD would offer to the health care community. The level of expertise and the time contributed have been greatly appreciated throughout the discussions.

This section reports the specific recommendations and discussions that occurred on the specific topics. Each section begins with the legislative direction and is followed by the recommendation or a summary of discussion held during the Advisory Committee's work. These specific topics are further informed by the reporting strategy, the data intake plan and the data use review process that are outline in the earlier sections of this report.

Section 204.2(a) Recommendations that include specific strategies to measure and collect data related to health care safety and quality, utilization, health outcomes, and cost.

This recommendation informs the:

✓ Reporting Strategy Data Intake Plan Data Use Review Process

The Advisory Committee recommends that the APCD Administrator prepares and implement a reporting strategy that lays out the specific audiences and measurements for standard reports generated from the APCD files. The reporting strategy should address diverse stakeholder needs: consumers, employers, policy makers, public health analysts. The reporting strategy should also recognize the differences among these groups in terms of perspective, access, and explanations. The reporting strategy should identify how reports based on the APCD will utilize information from related sources if the information is not directly available through analysis of claims and member data.

Section (b) Recommendations that focus on data elements that foster quality improvement and peer group comparisons;

This recommendation informs:

✓ Reporting Strategy ✓ Data Intake Plan Data Use Review Process

The Advisory Committee recommends that the APCD Administrator pursue a collaborative strategy with QHN and CORHIO to develop a methodology that allows identification of providers and members in both the APCD and in the HIE.

National experts from the APCD Council report that accurate provider identification is fundamental to creating accurate data to use in developing peer comparisons. Maine and Massachusetts report that clinicians may have multiple affiliations and practice sites with different numerical identifiers. As a result, the integrity of clinician-specific reporting is difficult to maintain.

Colorado has a unique opportunity to leverage its work as a federal Beacon Community. QHN and CORHIO have indicated that the APCD may use the Provider Directory developed for the HIE efforts. This collaboration will significantly enhance the accuracy of the APCD, expedite

the development of comparison reports, and create long term opportunities to develop reports that draw upon multiple information sources.

The Advisory Committee further recommends that the APCD Administrator incorporate the following principles into the reporting strategy described under section 204.2.(a):

- Published cost and quality provider comparison data should be equitable and recognize differences in the severity of illness in a particular patient mix or panel.
- Comparisons among providers showing variation in performance should be meaningful and afford opportunity to show improvement.
- The APCD Administrator should offer providers an opportunity to review data before public release of comparisons.
- Public reporting about comparisons should be accompanied by a description of how to interpret the measures.

Section 204.2(c) Recommendations that facilitate value-based, cost-effective purchasing of health care services by public and private purchasers and consumers

This recommendation informs:

✓ Reporting Strategy ✓ Data Intake Plan ❑ Data Use Review Process

The APCD Advisory Committee recommends that the APCD Administrator’s reporting strategy include specific reports to assist health care purchasers. In particular, the Advisory Committee recommends the development of reports that:

Figure 12

Plan Type	County	Group Size	Average Premium (\$)	Benefit Richness
PPO	Belknap	Large Group	350	0.69
PPO	Belknap	Non-Group	234	0.11
PPO	Belknap	Small Group	366	0.58
PPO	Carroll	Large Group	348	0.62
PPO	Carroll	Non-Group	229	0.10
PPO	Carroll	Small Group	411	0.58
PPO	Cheshire	Large Group	330	0.59
PPO	Cheshire	Non-Group	196	0.10
PPO	Cheshire	Small Group	368	0.58
PPO	Coos	Large Group	386	0.49
PPO	Coos	Non-Group	215	0.10
PPO	Coos	Small Group	358	0.50

<http://www.nhhealthcost.org/employerBenefitIndexComparison-geo.aspx>

- Address employers’ needs for informed health insurance purchasing, including information about premiums, actual spending and how to mitigate cost increases.
- Base reports on data provided by a broad range of private and public payers

The Advisory Committee notes that the New Hampshire Health Cost website includes a section that displays average premiums by county by type of plan (HMO, PPO, etc.) and an actuarially calculated benefit richness indicator (Figure 12 and in Appendix E, page 55). The reporting strategy should identify when this type of report can be provided.

Section 204.2(d) Recommendations that result in usable and comparable information that allows public and private health care purchasers, consumers, and data analysts to identify and compare health plans, health insurers, health care facilities, and health care providers regarding the provision of safe, cost-effective, high-quality health care services.

This recommendation informs:

✓ **Reporting Strategy** **Data Intake Plan** ✓ **Data Use Review Process**

The Advisory Committee envisions that APCD reporting will occur through two major avenues.

First, the APCD will sponsor the development of certain types of reports that address key public policy issues. The APCD may partner or contract with other entities to create the reports. The types of reports will be consistent with the Tier 1, Tier 2 and Tier 3 groupings. In general, the reporting strategy should:

- Begin with high level, state wide reporting to develop a thorough data quality process, including benchmarking to other health care data sources.
- Maximize access to reports through website interfaces that allow comparison of costs in multiple dimensions
- Build a dataset with three years of historical information, as required under Colorado law, as well as developing a method to accept current information on an ongoing basis.

Second, when the APCD dataset is robust and matures, specialized analytic files may be created for use by qualified researchers for specific projects. The Advisory Committee and its subcommittees have reviewed draft rules about the release and use of APCD data. The draft rules describe the circumstances under which certain APCD information may be provided to researchers and analysts through a structured data release process. Data users will sign a contract stipulating how the data will be stored, protected, and used. A data release review committee will examine applications and make recommendations to the APCD Administrator about whether the request should be approved. The data release review committee should include representatives from data suppliers, data users, consumers and providers.

In all cases, reports must comply with HIPAA requirements and rules for protecting patient identity throughout the intake, analytic and reporting process.

Section 204.2(e) Recommendations that use and build upon existing data collection standards and methods to establish and maintain the database in a cost-effective and efficient manner;

This recommendation informs:

Reporting Strategy ✓ **Data Intake Plan** **Data Use Review Process**

The Advisory Committee recommends that the design of the APCD data intake model, at a minimum, begin with the APCD Council’s national consensus list. The list should be viewed as the foundation for the development of the major components of the cost and appropriate quality information measures. Over time, the expansion of reporting capacity and development of new tools will likely drive an expansion of this initial data set.

The advantages of the APCD Council’s national consensus list include:

- Clarity during conversations with carriers
- Standardized definitions, resulting in more accurate data submission
- Potential to develop benchmarks with other states using this file structure.

The model for the technical infrastructure of the APCD is based on similar models currently in use for health care data in both the commercial and private sectors. The Advisory Committee recommends that the selected technical approach be scalable and able to provide appropriate storage for historical information, incoming files awaiting processing, and development of specific, specialized files for reporting purposes.

When information is not available to reliably populate a requested data element, the Advisory Committee recommends that the APCD Administrator implement increasing minimum standards over time. This strategy recognizes both the challenges of collecting certain types of information by payers as well as the need for such information to develop accurate reports.

The Advisory Committee also recommends that the technical solution for the APCD include a variety of opportunities for approved data users to obtain and manipulate data within a secure environment. In the past, approved users were given a data set that was analyzed and securely stored on the researcher's system. Now, the speed and capacity of web portals allows researchers to develop data outputs without needing to download sensitive information. The APCD technical solution should explore all opportunities to provide this capacity for creating analysis within the APCD secure environment. This access would reduce the production of customized analytic files, freeing up resources to develop reports for public policy and research purposes.

Section 204.2 (f) Recommendations that are designed to measure the following performance domains: safety, timeliness, effectiveness, efficiency, equity, and patient-centeredness

This recommendation informs:

- Reporting Strategy
 Data Intake Plan
 Data Use Review Process

The Advisory Committee recommends that the APCD Administrator identify or develop specific measures to compare the performance of health care providers. Analytic tools such as those developed by AHRQ allow states to develop hospital based patient safety scores based on the claims data in the APCD. In some cases, developing a valid measure may require aligning the APCD with other sources of information, such as hospital inpatient discharge data or the HIE. The development of measures should also consider whether the APCD is the most accurate source of data to measure the performance or activity.

Section 204.2 (g) incorporate and utilize claims, eligibility, and other publicly available data to the extent it is the most cost-effective method of collecting data to minimize the cost and administrative burden on data sources;

This recommendation informs:

- Reporting Strategy
 Data Intake Plan
 Data Use Review Process

The Advisory Committee is sensitive to the workload for carriers that results from a new APCD. Carriers will be asked to prepare and submit historical files as well as developing a process for a

monthly submission process. Pursuant to the legislative direction in this section 204.2.(g), the Advisory Committee considered whether accurate, external data sources could be identified for data elements that have not been typically collected by payers. For example, payers generally do not collect race and ethnicity data but for policy and research purposes it would be very important. In such circumstance, race and ethnicity data could be pulled from another source and aligned with the APCD information.

The Advisory Committee recommends that the APCD Administrator continue to seek opportunities to use other data sources for data elements that may not be regularly collected by carriers. The Advisory Committee notes that accuracy of the information is a high priority. If a carrier does not currently have a mechanism to collect a particularly important data element, the APCD Administrator should be authorized to engage in a collaborative effort with payers to develop a source for such information.

Section 204.2 (h) includes recommendations about whether to include data on the uninsured;

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The Advisory Committee recognizes that a service provided to an uninsured individual represents care and utilization and therefore should be included in reporting about a particular provider or incidence of disease. At the same time, the service is not reflected as a “paid” claim; retention of that information in an analysis of median costs for a particular service will result in skewing the median down and possibly misrepresenting the actual or expected cost of care.

Colorado currently does not have a reliable strategy for collecting specific claim detail information about the uninsured. Maine’s CarePartners program partnered with Blue Cross Blue Shield to issue cards to the uninsured so that the value of services provided can be captured and analyzed. The Advisory Committee recommends additional consideration of whether this strategy is appropriate for Colorado, and whether the timing is right in light of the expanded coverage expected under federal health care reform as well as the costs associated with such a program.

Section 204.2 (i) discuss the harmonization of a Colorado database with other states', regions', and federal efforts concerning all-payer claims databases;

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The Advisory Committee consulted with state and national experts about many aspects of the APCD. The APCD Council, a non-profit policy group supported by the Commonwealth Fund and the Robert Wood Johnson (RWJ) Foundation, offered ongoing support, clarifications and leadership through the development of the national consensus data list. Professor Patrick Miller, founder and co-chair of the APCD Council, presented a summary of reports based on APCD information at the first Advisory Council meeting and also conducted a second, in-depth presentation to interested parties. Denise Love, Executive Director of the National Association of Health Data Organizations, provided a national overview of APCD development. Professor Miller and Ms. Love continued to offer insight at many points in the subsequent months. Additional support was provided by the RWJ Foundation State Coverage Initiatives through a

travel grant for the Colorado APCD team to attend the National All Payer Database Workshop in Salt Lake City in October 2010. Keely Allen, Director of the Utah Office of Health Statistics, provided an overview of Utah’s development and reporting efforts. John Freedman, MD, MBA, Principal of Freedman HealthCare provided strategic planning assistance and expertise about how to incorporate health care performance measurement into APCD reporting, drawn from his role developing the Massachusetts APCD consumer-facing website. Linda Green, Vice President of Freedman HealthCare provided planning support, materials development and technical insight derived from her data management roles for the original and revised versions of the Massachusetts APCD.

The Advisory Committee recommends the use of the APCD Council’s national consensus data list that was developed by the collaboration among national agencies and published on the APCD Council website (see Appendix C for sample data elements). This list sets the foundation for future collaborative efforts with other states that decide whether to also use the national consensus dataset. The consensus data standard is most similar to the data files in use by the three northern New England states. The national consensus data set is not intended to limit the data that states can request and states are free to add data elements that meet unique local reporting needs. To meet Colorado’s reporting needs, the Colorado APCD Technical Submission Guide will include requirements for:

- Information supporting geocoding.
- Member information to support creation of a strong, unique Master Patient Identifier.
- Premium information and employer name to provide employers with improved purchasing support.
- Information about a member’s enrollment in a patient-centered medical home or receiving care through a clinician who is reimbursed in an alternative payment model.

The APCD Administrator, in collaboration with carriers, will provide a plan for submission of this information in the data submission guide, including content, format and frequency.

Section 204.2 (j) discuss the harmonization of a Colorado database with federal legislation concerning an all-payer claims database;

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The CMS Comparative Effectiveness Research (CER) program seeks to compare treatments and strategies to improve health. Federal support is provided to conduct, support, or synthesize research that compares the clinical outcomes, effectiveness, and appropriateness of items, services, and procedures that are used to prevent, diagnose, or treat diseases, disorders, and other health conditions. In addition, the project encourages the development and use of clinical registries, clinical data networks, and other forms of electronic health data that can be used to generate or obtain outcomes data.

Late last year, the CER awarded a contract to Ingenix Public Strategies to develop a national multi-payer claims database to be focused on comparative effectiveness. This database would only contain a sample of claims from payers to support development of measurement methodologies. It would only provide a portion of the functions and reports expected of Colorado's APCD. The project will be issuing data submission standards at some future date. At that point, the federal data elements can be compared to the Colorado APCD to identify opportunities to create meaningful benchmarks and comparisons.

Section 204.2 (k) discuss a limit on the number of times the administrator may require submission of the required data elements;

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The APCD data intake process will be managed by a contractor with appropriate expertise in secure data transmission; data storage; file management; data quality tools; and which has experience working with payers. The data intake contractor will provide a set of protocols describing how carriers must submit data and the criteria that will be used to evaluate the validity of the information. The data intake protocols will be incorporated into a Technical Submission Guide that will inform payers about when updated information about a record must be submitted.

Section 204.2 (l) discuss a limit on the number of times the administrator may change the required data elements for submission in a calendar year considering administrative costs, resources, and time required to fulfill the requests; and

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The Advisory Committee recommends that the APCD Administrator limit the changes to required data elements to one time per year.

Recognizing the multiple demands on carriers, the Advisory Committee recommends that the APCD Administrator continues to support a collaborative relationship with the carriers. The Advisory Committee also notes that all data set changes would need to be reflected in the APCD data intake and storage warehouse. With cost pressures on both the data providers and the data recipients, the Advisory Committee recommends limiting amendments to the data intake elements to once per year, and to consult with carriers about the most effective time of year to communicate these changes.

Section 204.2 (m) discuss compliance with the "health insurance portability and accountability act of 1996", pub. L. 104-191, as amended, and other proprietary information related to collection and release of data.

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The Advisory Committee recommends that the APCD comply with all components of HIPAA in both data intake and data use. The Advisory Committee believes that patient privacy should not be compromised at any point in the APCD's process of intake, storage and use of the data.

For the dataset itself, the APCD data manager vendor will be required to provide role-based database security framework, appropriately limiting access to APCD data and logging all activity based on users credentials. The Data Vendor will ensure that there is encryption of data both in motion and at rest, incorporating HIPAA-compliant HTTPS, SSL, and NIST-approved hash algorithm. Access to the processing environment will be strictly limited.

When datasets are created for the purpose of developing reports both within the APCD organization or through a formal data application process, file formats, access, and transmission standards will be consistent with all HIPAA standards. The APCD will draw upon the expertise of researchers and other privacy experts for further guidance about applying HIPAA standards to minimum cell sizes.

Further details describing specific HIPAA protections will emerge as the Data Manager Vendor contract is developed and implemented.

In addition, the Advisory Committee was instructed to make recommendations to the executive director regarding the ongoing oversight of the operations of the all-payer health claims database, including where the database should be housed.

This recommendation informs:

Reporting Strategy Data Intake Plan Data Use Review Process

The APCD Advisory Committee recommends that the Executive Director of the Department of Health Care Policy and Financing designate the APCD Administrator as the entity responsible for ongoing oversight of the operations of the APCD.

The APCD will be either a hosted solution residing in the vendor's state-of-the-art datacenter or hosted locally in Colorado in a state-of-the-art co-location facility. In either case the data center hosting the APCD will have the following characteristics:

- Role-based database security framework, appropriately limiting access to APCD data and logging all activity based on users credentials
- Encryption of data both in motion and at rest, incorporating HIPAA-compliant HTTPS, SSL, and NIST-approved hash algorithm
- Firewall protection and intrusion prevention/detection, including logging of unauthorized access attempts
- Daily backup of all data and datasets and storage of that data in encrypted form
- Third-party data security audits
- Secure data center facility characterized by 100% redundancy, secure/controlled access, and fault tolerance
- Mandatory sign-in/-out and escorting of all visitors at all times

The hosting solution for the APCD will implement state-of-the-art encryption technology, network firewall protection, role-based access control, physical security procedures and detailed staff training to ensure all data, including PHI, is managed securely.

Appendix A: Subcommittee Members

Dataset Structures Subcommittee

Subcommittee Chair: Kavita Nair, Associate Professor, University of Colorado

Mike Brewer	HealthGrades
Steve Burnite	Anthem BCBS
Rick Doucet	Community Reach Center
David Ehrenberger	Avista Hospital
Rosalie Einspahr	Pinnacle
Jose Gonzales	Rocky Mountain Health Plans
Michael Hodes	QHN/CORHIO
Gabriel Kaplan	CDPHE
Teresa McCasky	Assoc. of Perioperative Registered Nurses
Arlen Meyers	CU – Denver
Marjorie Martens	integrated Physician network (iPN)
Lynn Parry	CO Medical Society Physicians’ Congress for Health Care Reform
Steve Ross	CU – Denver
Tim Saltonstall	Self Employed
Lisa Schilling	CU – Denver
Dan Tuteur	Colorado Community Managed Care Network
Jed Ziegenhagen	HCPF

Privacy and Administration Subcommittee

Subcommittee Chair: Robyn Leone, Director, Colorado Regional Extension Center

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Mark Carley	Rocky Mountain Health Plans
Wendy Cloe	HealthTrans
Jason Greer	CO Associated Community Health Info Exchange (CACHIE)
Ako Quammie	iPN (integrated Physician Network)
Bob Semro	The Bell Policy Center
Brenda VonStar	Legal Nurse Consultant
Nathan Wilkes	Headstorms
Jed Ziegenhagen	Health Care Policy & Financing

Appendix B: Acronyms Used in this Report

AHRQ: The federal Agency for Healthcare Research and Quality within the Centers for Medicare and Medicaid Services

APCD: a collection of files based on information provided by health care payers that are securely stored and used for specific purposes by researchers, policy makers, and purchasers to inform health care decision making.

APCD Council: the national nonprofit organization supporting state development and implementation of APCDs

CAHP: Colorado Association of Health Plans

CIVHC: Center for Improving Value in Health Care

CMS: Centers for Medicare and Medicaid Services

CORHIO: Colorado Regional Health Information Organization operating in the eastern part of Colorado.

HCPF: Colorado Department of Health Care Policy and Financing

HIE: Health Information Exchange

HIPAA: the federal Health Insurance Portability and Accountability Act.

HTTPS: Hyper Text Transfer Protocol Secure connections provide encrypted communication and secure identification of a network web server; often used for payment transactions on the internet and for sensitive transactions in corporate information systems.

NIST: National Institute of Standards and Technology of the US Department of Commerce, responsible for the development of technical, physical, administrative, and management standards and guidelines for the cost-effective security and privacy of sensitive unclassified information in Federal computer systems.

PHI: Protected Health Information as defined in HIPAA, concerning information about health status, provision of health care, or payment for health care that can be linked to an individual.

QHN: Quality Health Network, Colorado's Western Slope Regional Healthcare Information Organization

SSL Secure Sockets Layer, are cryptographic protocols that provide communications security over the Internet.

TAG: Carrier Technical Advisory Group convened by CAHP that provided feedback to the Advisory Committee on data intake.

Appendix C. Data Intake Elements

Please note that field definitions and file layout requirements will be contained in the Submission Guide.

Member Eligibility Data Elements (Alphabetical Order)

Coverage Level Code

Coverage Type

Dental Coverage

Employer Name

Ethnicity 1

Ethnicity 2

Hispanic Indicator

Individual Relationship Code

Insurance Type Code/Product

Insured Group Name

Insured Group or Policy Number

Market Category Code

Medical Coverage

Member City Name

Member Date of Birth

Member First Name

Member Gender

Member Identification Code

Member Last Name

Member Middle Initial

Member State or Province

Member Street Address

Member Eligibility Data Elements (Alphabetical Order)

Member Suffix or Sequence Number

Member ZIP Code

Month

National Plan ID

Other Ethnicity

Other Race

Payer

Plan Specific Contract Number

Prescription Drug Coverage

Primary Insurance Indicator

Race 1

Race 2

Record Type

Special Coverage

Subscriber First Name

Subscriber Last Name

Subscriber Middle Initial

Subscriber Social Security Number

Year

Admission Date

Admission Hour

Admission Type

Admitting Diagnosis

APC

APC Version

Charge Amount

Claim Status

Member Eligibility Data Elements (Alphabetical Order)

Coinsurance Amount

Co-pay Amount

Date of Service – From

Date of Service – Thru

Date Service Approved/Accounts Payable Date/Actual

Deductible Amount

Discharge Date

Discharge Hour

Discharge Status

DRG

DRG Version

E-Code

Facility Type – Professional

ICD-9-CM Procedure Code

Individual Relationship Code

Insurance Type/Product Code

Insured Group or Policy Number

Line Counter

Member City Name (Patient)

Member Date of Birth (Patient)

Member Gender (Patient)

Member Identification Code (Patient)

Member State or Province (Patient)

Member Suffix or Sequence Number

Member ZIP Code (Patient)

National Plan ID

Member Eligibility Data Elements (Alphabetical Order)

National Service Provider ID

Other Diagnosis – 1

Other Diagnosis – 10

Other Diagnosis – 11

Other Diagnosis – 12

Other Diagnosis – 2

Other Diagnosis – 3

Other Diagnosis – 4

Other Diagnosis – 5

Other Diagnosis – 6

Other Diagnosis – 7

Other Diagnosis – 8

Other Diagnosis – 9

Paid Amount

Patient Account/Control Number

Payer

Payer Claim Control Number

Plan Specific Contract Number

Point of Origin

Prepaid Amount

Principal Diagnosis

Procedure Code

Procedure Modifier – 1

Procedure Modifier – 2

Quantity

Revenue Code

Member Eligibility Data Elements (Alphabetical Order)

Service Provider City Name

Service Provider Country Name

Service Provider Entity Type Qualifier

Service Provider First Name

Service Provider Last Name or Organization Name

Service Provider Middle Name

Service Provider Number

Service Provider Specialty

Service Provider State or Province

Service Provider Suffix

Service Provider Tax ID Number

Service Provider ZIP Code

Subscriber Social Security Number*

Type of Bill – Institutional

Version Number

Pharmacy Data Elements (Alphabetical Order)

Charge Amount

Claim Status

Coinsurance Amount

Compound Drug Indicator

Co-pay Amount

Date Prescription Filled

Date Service Approved (AP Date)

Days Supply

Deductible Amount

Pharmacy Data Elements (Alphabetical Order)

Dispense as Written Code

Dispensing Fee

Drug Code

Drug Name

Encrypted Subscriber Social Security Number

Formulary

Generic Drug Indicator

Individual Relationship Code

Ingredient Cost/List Price

Insurance Type/Product Code

Insured Group Number

Line Counter

Mail Order Y/N

Member City Name of Residence

Member Date of Birth

Member First Name

Member Gender

Member Identification Code

Member Last Name

Member Middle Initial

Member State or Province

Member Suffix or Sequence Number

Member ZIP Code

National Pharmacy ID Number

New Prescription or Refill

Paid Amount

Pharmacy Data Elements (Alphabetical Order)

Payer

Payer Claim Control Number

Pharmacy Country Name

Pharmacy Location City

Pharmacy Location State

Pharmacy Name

Pharmacy Number

Pharmacy Tax ID Number

Pharmacy ZIP Code

Plan ID

Plan Specific Contract Number

Postage Amount Claimed

Prescribing Physician First Name

Prescribing Physician information

Prescribing Physician Last Name

Prescribing Physician Middle Name

Prescribing Physician Number

Quantity Dispensed

Record Type

Single/Multiple Source Indicator

Subscriber First Name

Subscriber Last Name

Subscriber Middle Initial

Appendix D: Types of Files for Researchers

The proposed Data Release Regulations describe how prospective data users may submit an application to request a data file based on the records stored in the All Payer Claims Database. The lists in this Appendix represent the discussions to date by the Advisory Committee and its Subcommittees. Final lists will be developed through the rules development process for data use.

- Public Use Data will be presented in aggregated tables and reports
- Limited Use Data may be requested through the Data Release Review Process.
- Restricted Use Data will be available only to the APCD for projects and reports that are consistent with the purpose of the APCD, subject to all HIPAA protections and restrictions.

Eligibility File Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Payer	Yes	Yes	Yes
Plan ID	No	Yes	Yes
Insurance Type Code/Product	Yes	Yes	Yes
Month and Year of Eligibility	Yes	Yes	Yes
Plan Specific Contract Number	No	No	Yes
Coverage Level Code	No	Yes	Yes
Member Unique ID (encrypted and de-identified)	No	Yes	Yes
Individual Relationship Code	Yes	Yes	Yes
Member Gender	Yes	Yes	Yes
Member Date of Birth	No	No	Yes
Member Age	Yes	Yes	Yes
Member City	Yes	Yes	Yes
Member State or Province	Yes	Yes	Yes
Member ZIP Code (5 digit)	Yes	Yes	Yes
Member ZIP Code (9 digit)	No	No	Yes
Medical Coverage	Yes	Yes	Yes
Prescription Drug Coverage	Yes	Yes	Yes

Eligibility File Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Dental Coverage	Yes	Yes	Yes
Race 1, 2, Other	Yes	Yes	Yes
Hispanic Indicator	Yes	Yes	Yes
Ethnicity 1,2, Other	Yes	Yes	Yes
Primary Insurance Indicator	Yes	Yes	Yes
Coverage Type	Yes	Yes	Yes
Market Category Code	Yes	Yes	Yes
Special Coverage	Yes	Yes	Yes
Group Name	No	Yes	Yes
Employer Name	No	Yes	Yes

Medical Claims Data Elements			
Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Payer	No	Yes	Yes
Plan ID	No	Yes	Yes
Insurance Type/Product Code	Yes	Yes	Yes
Insured Group or Policy Number	No	No	Yes
Plan Specific Contract Number	No	No	Yes
Member Unique ID (encrypted and de-identified)	No	Yes	Yes
Individual Relationship Code	Yes	Yes	Yes
Member Gender	Yes	Yes	Yes
Member Date of Birth	No	No	Yes
Member Age	Yes	Yes	Yes
Member City	Yes	Yes	Yes
Member State or Province	Yes	Yes	Yes
Member ZIP Code	No ¹	Yes	Yes
Admission Date	MMYY	MMYY	DDMMYY
Admission Hour	Yes	Yes	Yes
Admission Type	Yes	Yes	Yes

Medical Claims Data Elements			
Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Admission Source	Yes	Yes	Yes
Discharge Status	Yes	Yes	Yes
Length of Stay (days)	Yes	Yes	Yes
Service Provider Number	Yes	Yes	Yes
Service Provider Tax ID Number	No	Yes	Yes
National Service Provider ID	No	Yes	Yes
Service Provider Entity Type Qualifier	No	Yes	Yes
Service Provider First Name	No	Yes	Yes
Service Provider Middle Name	No	Yes	Yes
Service Provider Last Name or Organization Name	No	Yes	Yes
Service Provider Suffix	No	Yes	Yes
Service Provider Specialty	Yes	Yes	Yes
Service Provider City Name	Yes	Yes	Yes
Service Provider State or Province	Yes	Yes	Yes
Service Provider ZIP Code	Yes	Yes	Yes
Service Provider Country Name	Yes	Yes	Yes
Type of Bill – Institutional	Yes	Yes	Yes
Facility Type - Professional	Yes	Yes	Yes
Admitting Diagnosis	Yes	Yes	Yes
E-Code	Yes	Yes	Yes
Principal Diagnosis	Yes	Yes	Yes
Other Diagnosis – 1	Yes	Yes	Yes
Other Diagnosis – 2	Yes	Yes	Yes
Other Diagnosis – 3	Yes	Yes	Yes
Other Diagnosis – 4	Yes	Yes	Yes
Other Diagnosis – 5	Yes	Yes	Yes
Other Diagnosis – 6	Yes	Yes	Yes
Other Diagnosis – 7	Yes	Yes	Yes
Other Diagnosis – 8	Yes	Yes	Yes
Other Diagnosis – 9	Yes	Yes	Yes
Other Diagnosis – 10	Yes	Yes	Yes

Medical Claims Data Elements			
Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Other Diagnosis – 11	Yes	Yes	Yes
Other Diagnosis – 12	Yes	Yes	Yes
Revenue Code	Yes	Yes	Yes
Procedure Code	Yes	Yes	Yes
Procedure Modifier – 1	Yes	Yes	Yes
Procedure Modifier – 2	Yes	Yes	Yes
ICD-9-CM Procedure Code	Yes	Yes	Yes
Date of Service – From	MMYY	DDMMYY	DDMMYY
Date of Service – Thru	MMYY	DDMMYY	DDMMYY
Quantity	Yes	Yes	Yes
Charge Amount	Yes	Yes	Yes
Paid Amount	Yes	Yes	Yes
Prepaid Amount	Yes	Yes	Yes
Co-pay Amount	Yes	Yes	Yes
Coinsurance Amount	Yes	Yes	Yes
Deductible Amount	Yes	Yes	Yes
DRG	Yes	Yes	Yes
DRG Version	Yes	Yes	Yes
APC	Yes	Yes	Yes
APC Version	Yes	Yes	Yes
Drug Code	Yes	Yes	Yes
Billing Provider Number	Yes	Yes	Yes
National Billing Provider ID	Yes	Yes	Yes
Billing Provider Last Name or Organization Name	Yes	Yes	Yes

Pharmacy Data Elements			
Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Payer	No	Yes	Yes
Plan ID	No	Yes	Yes
Insurance Type/Product Code	Yes	Yes	Yes
Payer Claim Control Number	No	Yes	Yes
Insured Group Number	No	No	Yes
Plan Specific Contract Number	No	No	Yes
Member Unique ID (encrypted and de-identified)	No	Yes	Yes
Individual Relationship Code	Yes	Yes	Yes
Member Gender	Yes	Yes	Yes
Member Date of Birth	No	No	Yes
Member Age	Yes	Yes	Yes
Member City	Yes	Yes	Yes
Member State or Province	Yes	Yes	Yes
Member ZIP Code	No ¹	Yes	Yes
Date Service Approved (AP Date)	Yes	Yes	Yes
Pharmacy Number	No	Yes	Yes
Pharmacy Tax ID Number	No	Yes	Yes
Pharmacy Name	No	Yes	Yes
National Pharmacy ID Number	No	Yes	Yes
Pharmacy Location City	No	Yes	Yes
Pharmacy Location State	No	Yes	Yes
Pharmacy ZIP Code	No	Yes	Yes
Pharmacy Country Name	Yes	Yes	Yes
Claim Status	Yes	Yes	Yes
Drug Code	Yes	Yes	Yes
Drug Name	Yes	Yes	Yes
New Prescription or Refill	Yes	Yes	Yes
Generic Drug Indicator	Yes	Yes	Yes

Pharmacy Data Elements			
Data Element Name	Public Use Aggregated Tables	Limited Use	Restricted Use
Dispense as Written Code	Yes	Yes	Yes
Compound Drug Indicator	Yes	Yes	Yes
Date Prescription Filled	Yes	Yes	Yes
Quantity Dispensed	Yes	Yes	Yes
Days Supply	Yes	Yes	Yes
Charge Amount	Yes	Yes	Yes
Paid Amount	Yes	Yes	Yes
Ingredient Cost/List Price	Yes	Yes	Yes
Postage Amount Claimed	Yes	Yes	Yes
Dispensing Fee	Yes	Yes	Yes
Co-pay Amount	Yes	Yes	Yes
Coinsurance Amount	Yes	Yes	Yes
Deductible Amount	Yes	Yes	Yes
Prescribing Physician First Name	No	Yes	Yes
Prescribing Physician Middle Name	No	Yes	Yes
Prescribing Physician Last Name	No	Yes	Yes
Prescribing Physician Number	No	Yes	Yes
Mail Order Y/N	Yes	Yes	Yes
Single/Multiple Source Indicator	Yes	Yes	Yes
Formulary	Yes	Yes	Yes

Figure 2



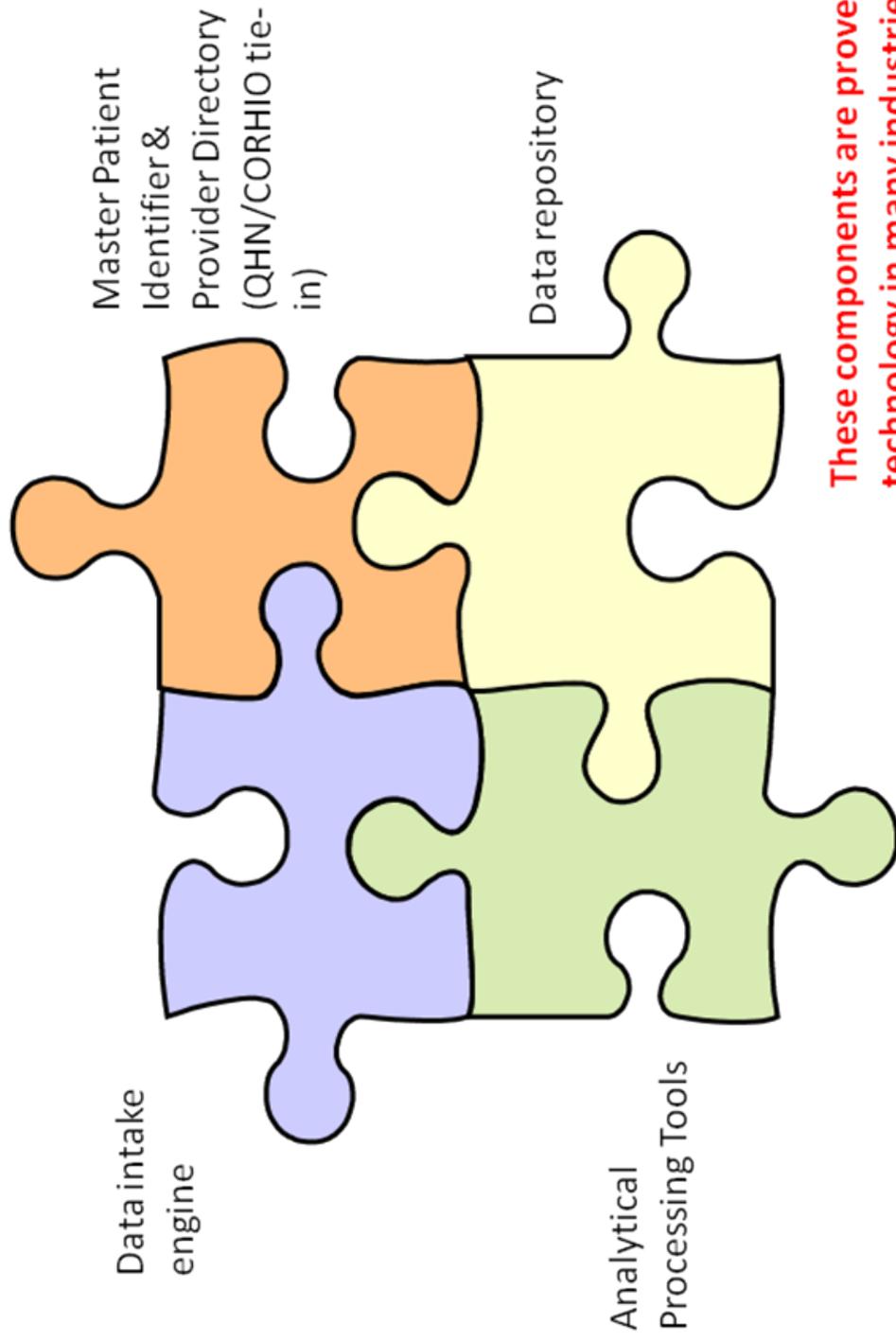
If a formal approval of a recommendation is needed, the Advisory Committee will consider that item at the next month's meeting. For example, a recommendation about a data intake principle would be discussed at the November meeting and then formally considered at the December meeting.

The Subcommittees will develop recommendations for the following month's Advisory Committee meeting.



<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251660206325&ssbinary=true>

Figure 3: Data Model Conceptual Overview



These components are proven technology in many industries

Figure 4: Conceptual Dataflow

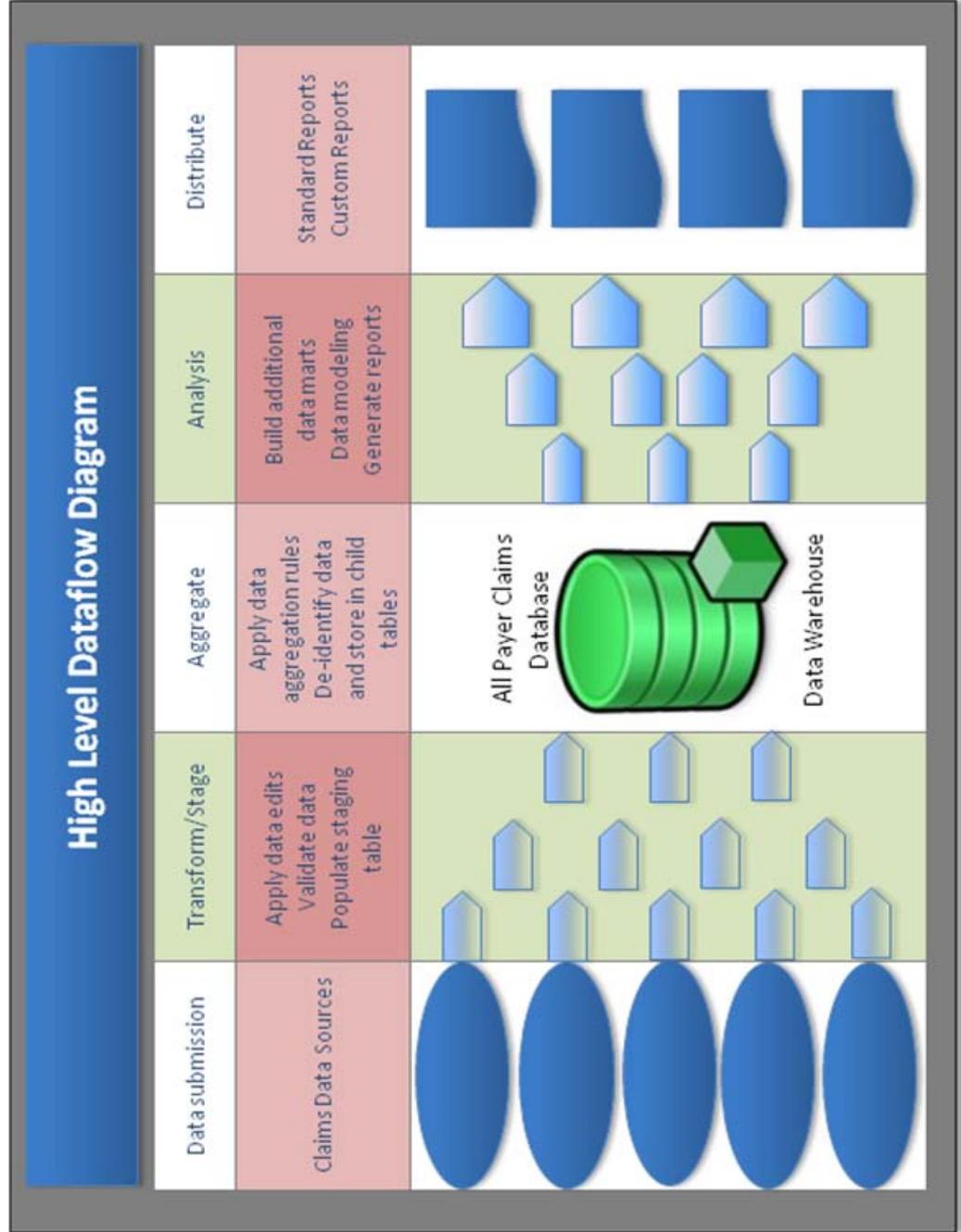
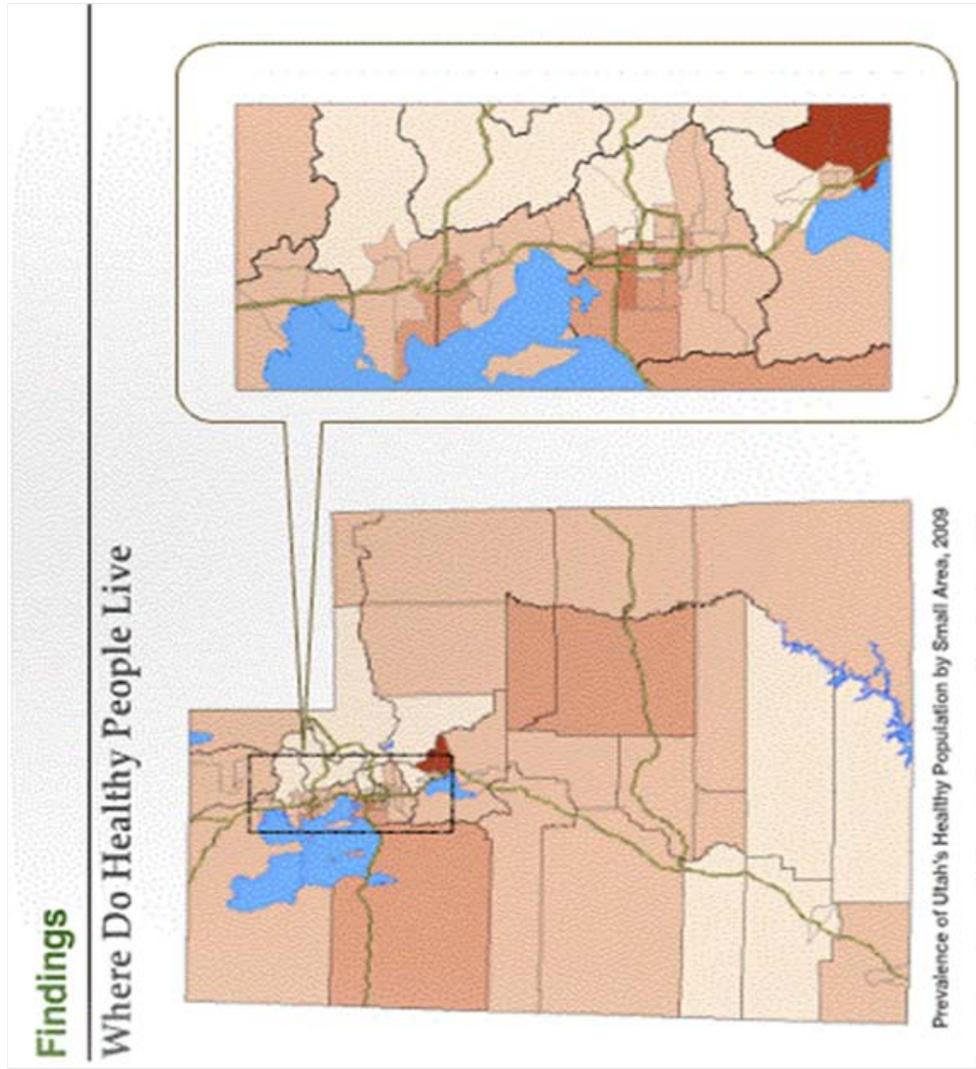
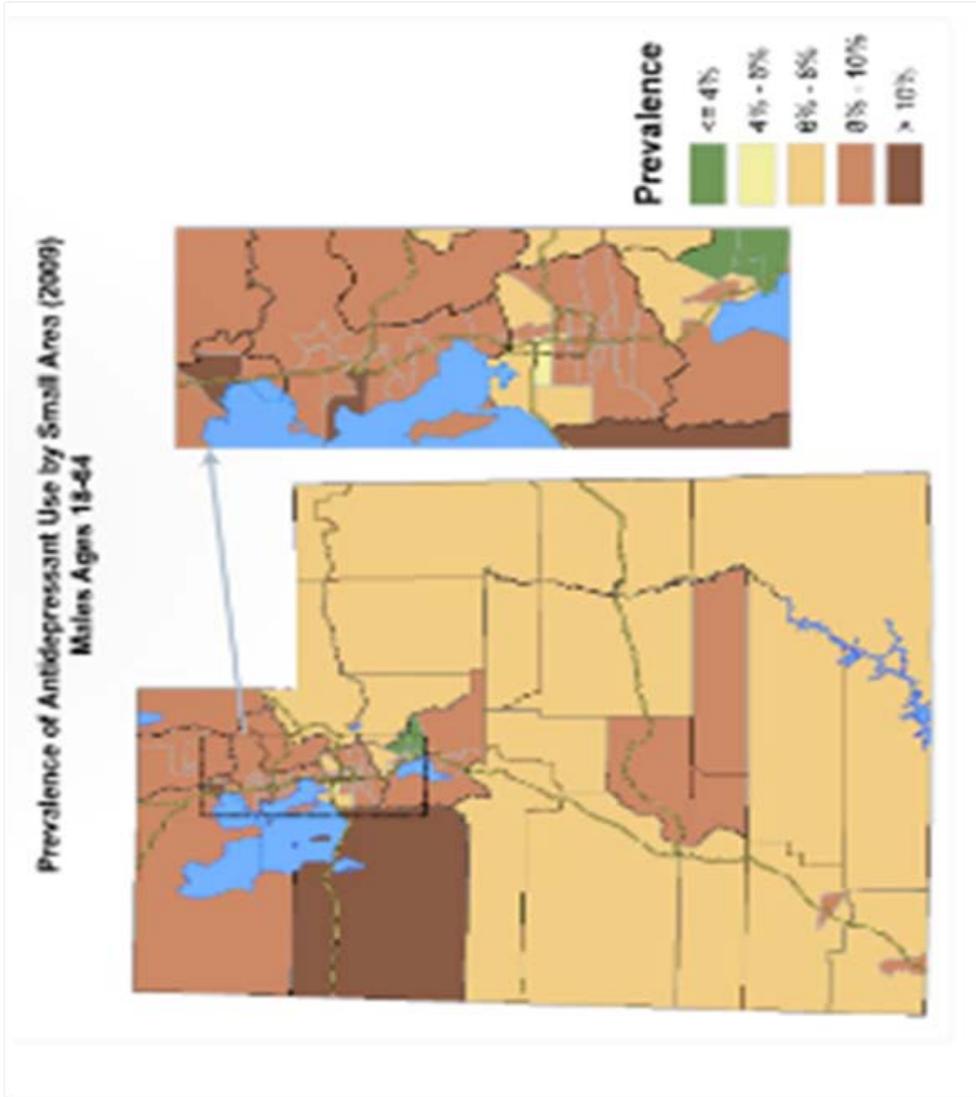


Figure 5: Utah's Healthy People Report



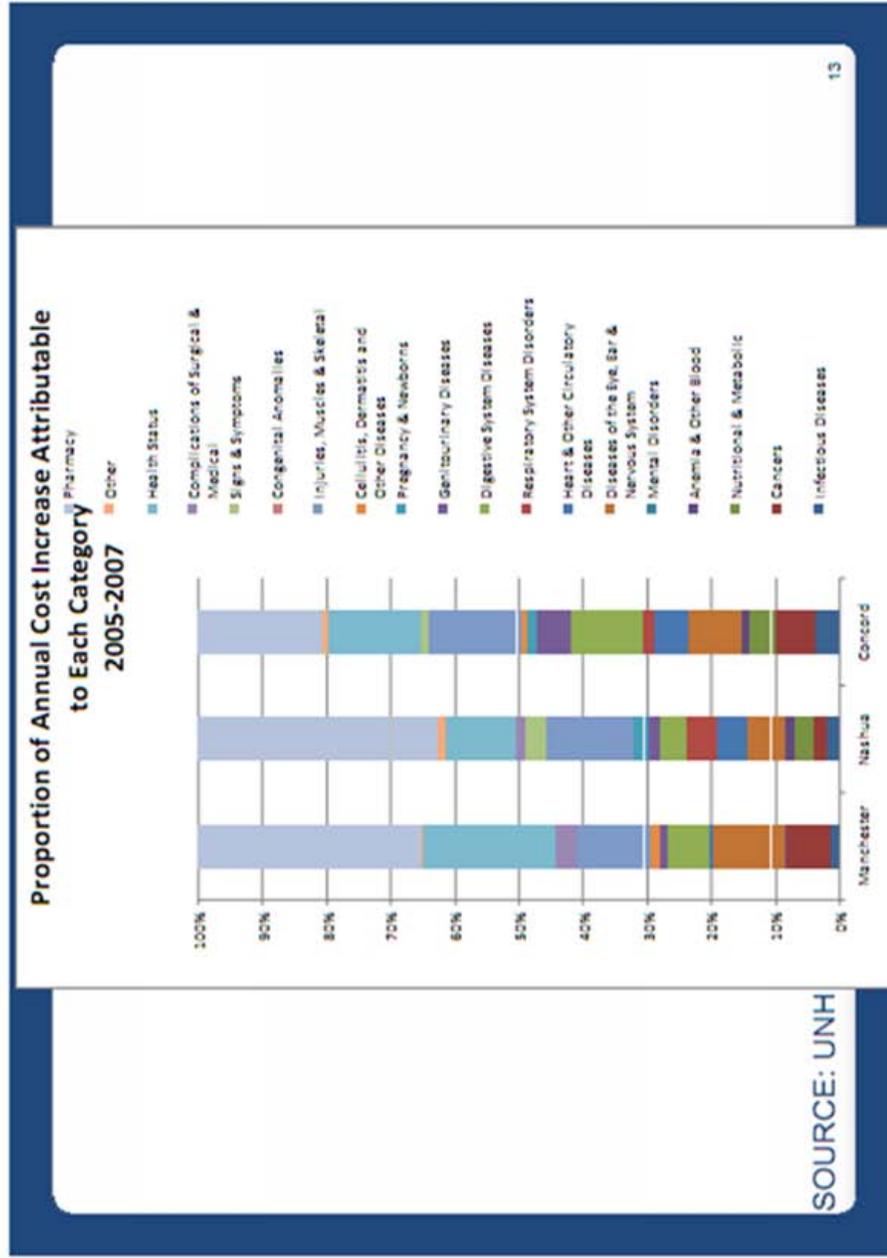
<http://utahatlas.health.utah.gov/publications.html>

Figure 6: Utah Anti-Depressant Study



<http://utahatlas.health.utah.gov/publications.html>

Figure 7: New Hampshire Reporting Example



Courtesy of Patrick Miller, APCD Council

<http://www.nhhealthcost.org/employerBenefitIndexComparison-geo.aspx>

Figure 8: New Hampshire Health Cost

Detailed estimates for Arthroscopic Knee Surgery (outpatient)
 Procedure: Arthroscopic Knee Surgery (outpatient)
 Insurance Plan: Anthem-HMO, Within 50 miles of 03301, Deductible and Coinsurance Amount: \$50.00 / 10%

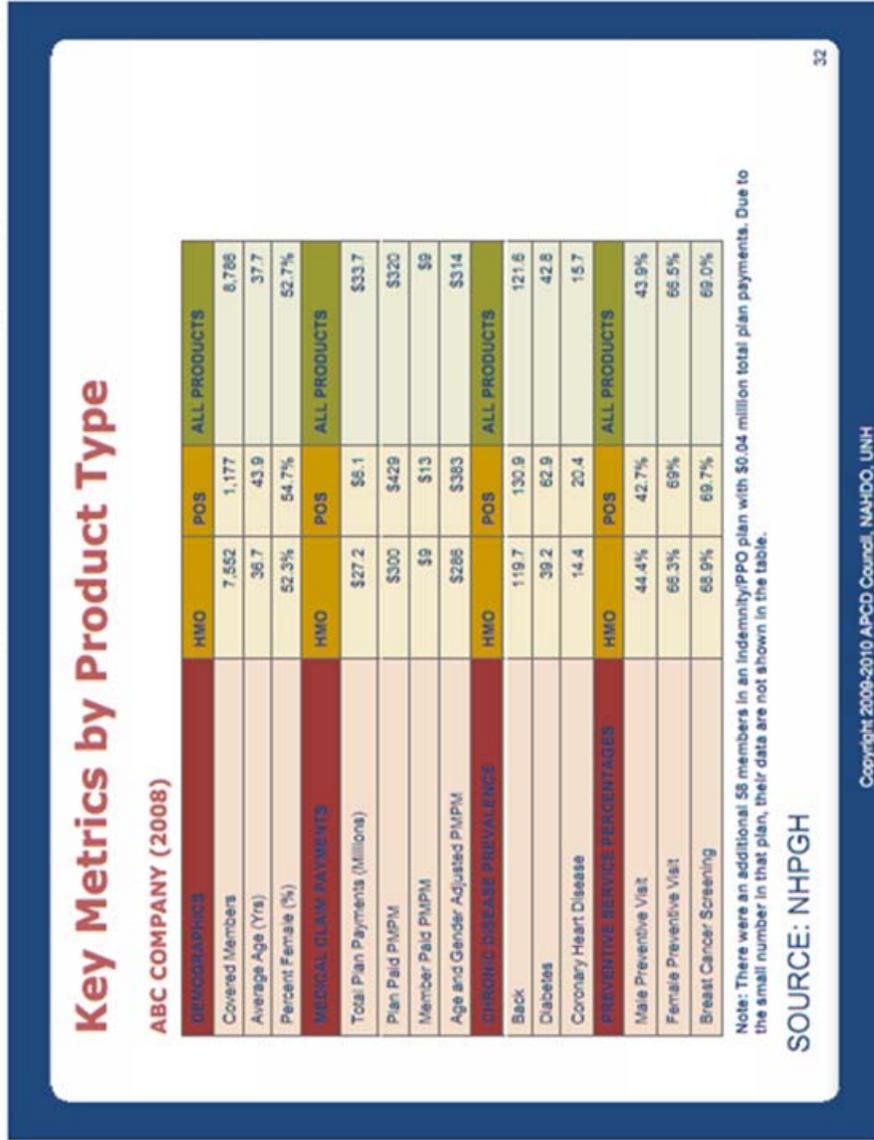
Lead Provider Name	Estimate of What you Will Pay	Estimate of What Insurance Will Pay	Estimate of Combined Payments	Precision of the Cost Estimate	Typical Patient Complexity	Contact Info
SALEM SURGERY CENTER	\$363	\$2822	\$3185	HIGH	VERY LOW	603.898.3610
CONCORD HOSPITAL	\$383	\$3006	\$3389	MEDIUM	MEDIUM	603.228.7145
DARTMOUTH HITCHCOCK SOUTH	\$398	\$3135	\$3533	LOW	MEDIUM	603.650.5000
LAKES REGION GENERAL HOSPITAL	\$469	\$3776	\$4245	LOW	MEDIUM	603.527.7171
MARY HITCHCOCK MEMORIAL HOSPITAL	\$509	\$4135	\$4644	HIGH	MEDIUM	603.650.5000
SOUTHERN NH MEDICAL CENTER	\$522	\$4254	\$4776	MEDIUM	MEDIUM	603.577.2000
WENTWORTH DOUGLASS HOSPITAL	\$524	\$4266	\$4790	MEDIUM	HIGH	603.742.5252
PORTSMOUTH REGIONAL HOSPITAL - HCA AFFIL	\$548	\$4483	\$5031	MEDIUM	MEDIUM	603.436.5110
PORTSMOUTH AMBULATORY SURGERY CENTER	\$596	\$4918	\$5514	HIGH	MEDIUM	603.433.0941
ST JOSEPH HOSPITAL	\$619	\$5129	\$5748	HIGH	MEDIUM	603.882.3000
FRISBIE MEMORIAL HOSPITAL	\$670	\$5587	\$6257	MEDIUM	MEDIUM	
MONADNOCK COMMUNITY HOSPITAL	\$701	\$5867	\$6568	LOW	HIGH	603.924.7191
EXETER HOSPITAL	\$731	\$6131	\$6862	HIGH	MEDIUM	603.778.7311
FRANKLIN REGIONAL HOSPITAL	\$816	\$6898	\$7714	MEDIUM	MEDIUM	603.527.7171
NEW LONDON HOSPITAL	\$826	\$6988	\$7814	MEDIUM	VERY LOW	603.526.2911

[Source: www.nhhealthcost.org](https://www.nhhealthcost.org)

Courtesy of Patrick Miller, APCD Council

<http://www.nhhealthcost.org/employerBenefitIndexComparison-geo.aspx>

Figure 10: New Hampshire Employer Reports

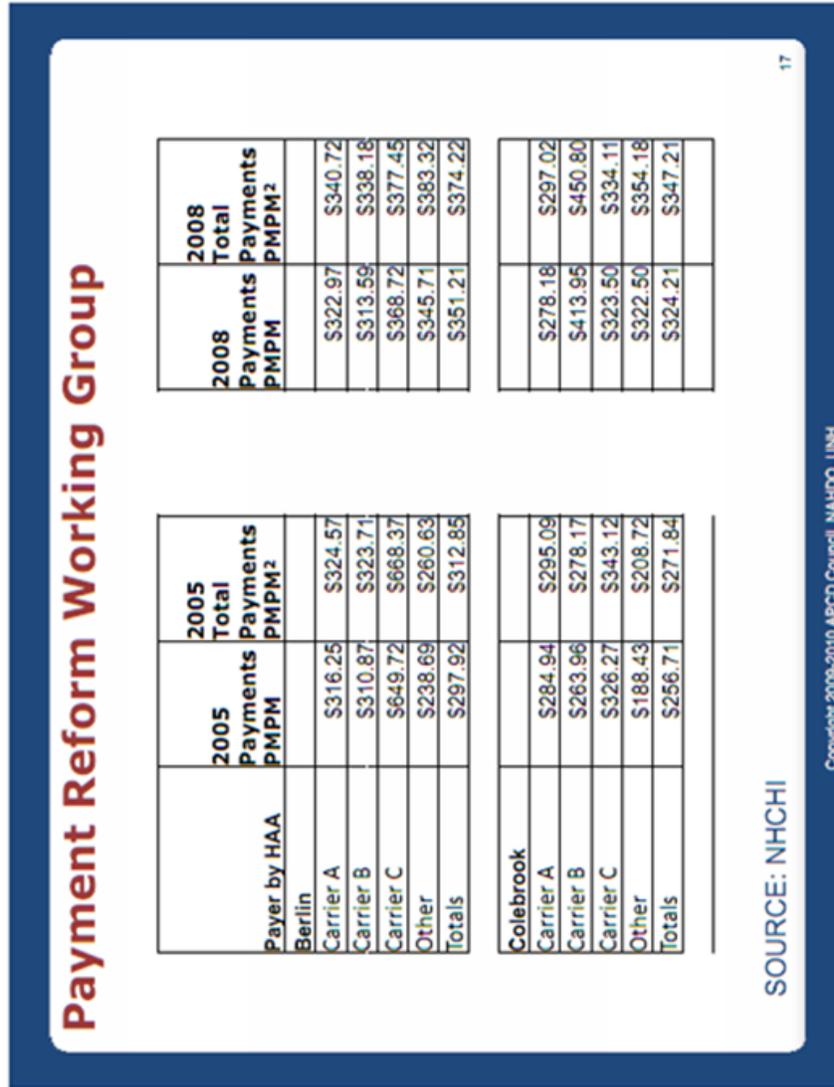


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Courtesy of Patrick Miller, APCD Council

<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251664412769&ssbinary=true>

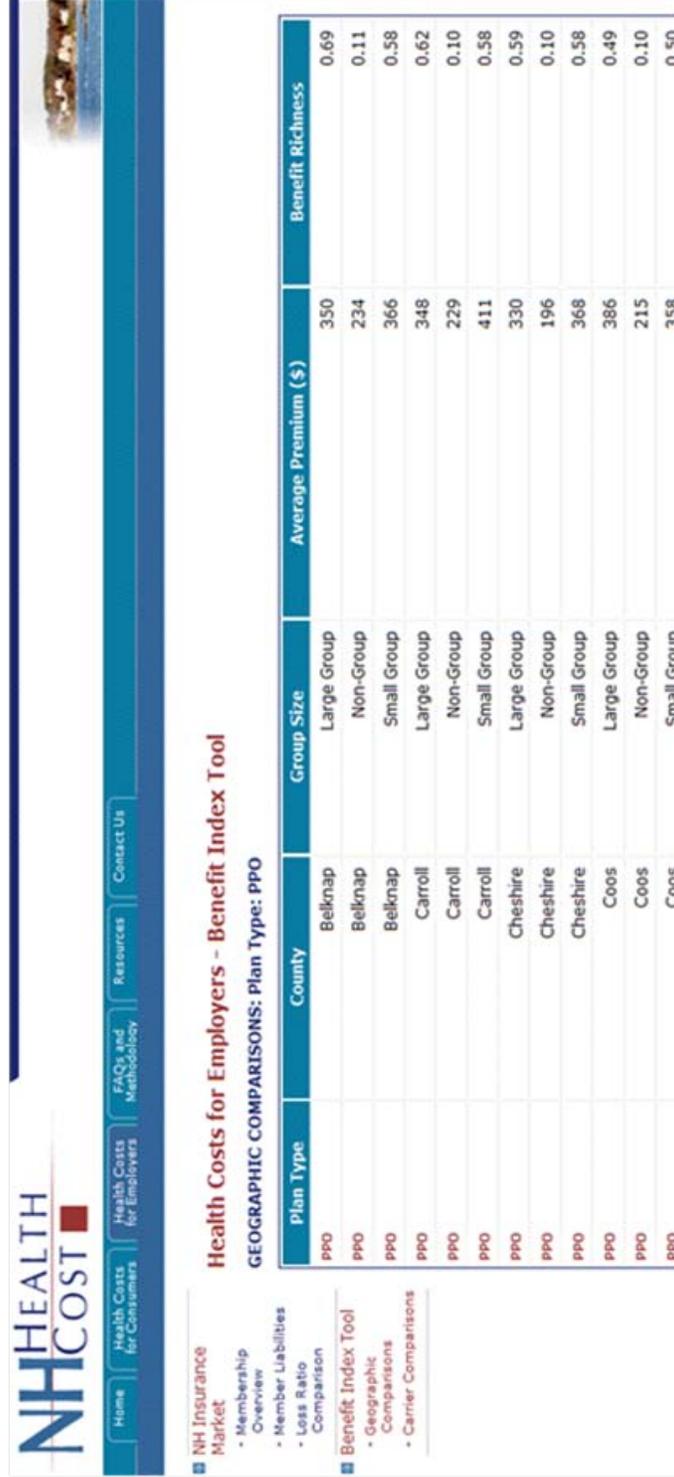
Figure 11: New Hampshire Policy Maker Report



Courtesy of Patrick Miller, APCD Council

<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251664412769&ssbinary=true>

Figure 12: New Hampshire Employer Focused Report



<http://www.nhhealthcost.org/employerBenefitIndexComparison-geo.aspx>

F: APCD Council’s Fact Sheets

Standardization of Data Collection in All-Payer Claims Databases

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What are All-Payer Claims Databases?

In the context of the current national dialog about health care and reform, states are trying to better understand and control healthcare costs and utilization. Over the past five years, at least twelve (12) states have enacted legislation and/or started to collect healthcare claims data from commercial and public payers in an effort to establish all-payer claims databases (APCDs). These data are being analyzed to understand patterns and trends of healthcare use and costs.

These databases hold the potential for a much deeper understanding of quality and cost of care across populations. The source of the data is from healthcare billing systems that process claims for private and public payers. In addition, some states are developing methods to capture data for uninsured individuals.

While the contents of individual states’ APCDs vary, they typically include data from member eligibility files, provider files, medical and pharmacy claims files, and in a few states, dental claims files. The medical claims files include healthcare related data elements such as diagnosis codes, types of care received (procedure and pharmacy codes), insurance product type (HMO, PPO, POS), facility type (hospital, office, clinic), “cost” amounts (charge, paid, member liabilities), and provider information.

The medical claims files include healthcare related data elements such as:

- *diagnosis codes*
- *types of care received (procedure and pharmacy codes)*
- *insurance product type (HMO, PPO, POS)*
- *facility type (hospital, office, clinic)*
- *“cost” amounts (charge, paid, member liabilities)*
- *provider information*

APCDs are being constructed and used for various research and policy purposes, from public health to health services and public policy research, consumer tools, employer coalition reporting, and payer and provider negotiation. For example, in New Hampshire, claims data have been used to better understand the distribution of health insurance coverage. Massachusetts has used the data to develop a public portal for pricing and quality information. Vermont has conducted a tri-state study of use of care in the Northern New England area. Minnesota will be using APCD data for development of provider peer grouping analysis (a method to compare providers based on a combination of cost and quality measures)ⁱ. Beyond public policy efforts, APCDs are being used by employer coalitions, insurers, providers, think tanks, and consumer groups. More examples can be found in the APCD Fact Sheet (available at www.apcdouncil.org)ⁱⁱ

Why data collection standardization?

While APCDs represent a great opportunity to advance the understanding of cost, utilization, and quality of healthcare, currently each state is collecting different data by different methods and with different definitions. This non-uniform approach to developing APCDs is limiting the ability to share analysis and applications across states, and is raising costs for payers submitting data to the states (especially those payers that are operating in multiple states).



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Standardization of data collection would ensure that states collecting the same data would do so in the same manner. A standardized data file submission would use an identical file structure (i.e., data element positioning and field lengths) in each state's database, but would not require that every state collect data for each element. Also, because individual states will likely want to have some data elements that are unique, processes for modifying the standard file structure to include additional data elements will need to be developed.

There has been some effort in the New England area to harmonize data collection efforts among Maine, New Hampshire, and Vermont. The initial rationale for this work towards standardization was to support regional-level analysis for these states that share borders and have cross-state use of the healthcare system. The harmonization of the data supported a tri-state comparative study of healthcare cost and utilization across these three states, for exampleⁱⁱⁱ. As another example of the utility of standardization, the similarity of the data elements in Maine and New Hampshire allowed Maine to adopt the New Hampshire HealthCost^{iv} methodology to efficiently create a similar web application^v for Maine's APCD data.

What does it take for payers to provide this data?

As APCDs are required in more states, the cost to payers will become significant. APCD stakeholders have a common interest in reducing administrative costs associated with health care, and working together to establish an efficient, cost-effective APCD process should be a common goal. Because payers each use unique systems to administer their business, the challenges for payers to provide the required data vary. In general, a state will be more successful in collecting data elements if payers need those data elements to conduct their core business (versus situations in which states request data elements in the APCD that are not normally collected by insurance carriers). For example, payers have data needed to pay a provider, because claim payment is a core business function. Payers are less likely to know whether a provider has electronic medical records, for example, because that is unrelated to a core business function. Stakeholders should consider the relative costs and benefits of including a particular data element in the APCD if payers do not ordinarily collect it. This can be done through engagement of industry partners to determine the business case for collection of additional data elements. Where feasible, the data elements and value sets proposed should be derived from existing and accepted data standards. For example, for the collection of patient language, International Organization for Standardization has several existing value code sets (e.g. ISO 639-2, 639-3).

Payers need a minimum of nine months to make systems changes and program the initial APCD data sets, and they recommend limiting changes to once a year, with six months advance notice. This allows payers to allocate programming resources and funding and creates a predictable schedule for all parties. Having standardized data elements, a predictable schedule with sufficient lead time for changes, and an ongoing collaborative process with all stakeholders on which data elements are required will support an efficient, cost effective APCD.



How can standardization of APCD data collection be achieved?

Existing Data Standards Maintenance Organizations (DSMOs), such as ANSI X12N (www.x12.org) and the National Council for Prescription Drug Programs (NCPDP, www.ncdp.org), are responsible for developing and maintaining industry standards for insurance claims and eligibility files. These organizations have formal processes for maintaining standards, including input, discussion, and publication. Many of the states that have developed APCDs reference the X12 standards in eligibility files and medical claims, and NCPDP standards in pharmacy claim files.

The Agency for Healthcare Research and Quality (AHRQ) has supported the APCD Council (www.apcdouncil.org) to draft a core set of data elements for both the eligibility and medical files of APCD data submissions^{vi}. The temporary core set of data elements is intended to foster harmonized data collection across states, and to start the process of developing a formal national standard for state-based APCD data submission. The process for creating the temporary core set of data elements for APCD includes three stages:

- (1) Develop and vet a draft of a common core set of APCD data elements based on an inventory of the data elements for six APCDs from the states of Maine, New Hampshire, Vermont, Minnesota, Tennessee, and Massachusetts. (A draft of the state-by-state comparison and the details of the APCD elements can be found at: <http://apcdouncil.org/econometricaagency-healthcare-research-and-quality-ahrq>)
- (2) Vet draft recommendations with a larger group of other relevant national and local organizations in order to build consensus to harmonize data collection
- (3) Engage the relevant DSMOs in the standards development

Similar pharmacy data standards work is being coordinated by the National Council for Prescription Drug Programs (NCPDP). Future work will need to occur with dental claims and provider index files.

The United States Health Information Knowledgebase (USHIK; <http://ushik.ahrq.gov>) project has inventoried the data collected by several states, and has established a metadata registry that enables comparisons of data element collection standards across data organizations. This is especially useful for states who are considering developing an APCD, or states who wish to change their data collection rules.

Summary

Over a dozen states across the country have enacted legislation and/or started to collect healthcare claims data from commercial and public payers in an effort to establish all-payer claims databases (APCDs). The state APCD efforts have begun as a way to better understand healthcare costs, quality, and utilization. While APCDs represent a significant opportunity to advance the understanding of these issues, currently most states are collecting different data



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by different methods and with different definitions. This non-uniform approach will limit the ability to share analysis across states and has negative cost implications for the payers who are submitting the data. Standardization of state APCD data collection would address these issues. With assistance from existing DSMOs (i.e., ANSI X12N, NCPDP, in collaboration with the Agency for Healthcare Research and Quality (AHRQ), the APCD Council (www.apcdouncil.org) has begun efforts to draft a temporary core set of data elements for both eligibility and medical files of APCD data submissions. Though this draft is the first step in a process of standards development, it begins the process of developing a formal national standard for state-based APCD data submission. Working with NCPDP and ANSI X12, final data collections standards will be developed for state adoption.

There is a clear goal to ensure that standards are available in 2011 for adoption by states as they develop new legislation or modify existing legislation.

Fact sheet prepared by the All-Payer Claims Database (APCD) Council in collaboration with the National Association of Health Data Organizations (NAHDO). Lead authors, Ms. Amy Costello, Project Director with the New Hampshire Institute for Health Policy and Practice at the University of New Hampshire and Ms. Mary Taylor, Head of Regulatory Compliance with Aetna.

For More Information on APCD's visit the following sites:

All-Payer Claims Database Council: <http://www.apcdouncil.org/>

National Association of Health Data Organizations: <http://www.nahdo.org/>

ⁱ Minnesota Department of Health, *Provider Peer Grouping*, <http://www.health.state.mn.us/healthreform/peer/index.html>

ⁱⁱ APCD Council, *APCD Fact Sheet 2010*, http://www.apcdouncil.org/sites/apcdouncil.org/files/APCD%20Fact%20Sheet_FINAL_1.pdf

ⁱⁱⁱ Onpoint Health Data, *Tri-State Variation in Health Services Utilization & Expenditures in Northern New England*, <http://www.bishca.state.vt.us/sites/default/files/Act49-Tri-State-Commercial-Variation.pdf>

^{iv} NH Healthcost, <http://www.nhhealthcost.org>

^v Maine HealthCost, *Procedure Payments for the Insured*, http://www.healthweb.maine.gov/claims/healthcost/procedure_pricing_insured.aspx

^{vi} Dental files and provider index files are currently not being addressed in the first phase.



All-Payer Claims Database (APCD) Fact Sheet

2010

What are All-Payer Claims Databases?

APCD's are large-scale databases that systematically collect health care claims data from a variety of payer sources which include claims from most health care providers. Statewide APCD's are:

Databases, typically created by a state mandate, that generally include data derived from medical claims, pharmacy claims, eligibility files, provider (physician and facility) files, and dental claims from private and public payers. In states without a legislative mandate, there may be voluntary reporting of APCD data.

Payers include insurance carriers, third party administrators (TPA's), pharmacy benefit managers (PBM's), dental benefit administrators, state Medicaid agencies, CMS (Medicare), Federal Employees Health Benefit (FEHB) and TRICARE administrators.

APCD systems collect data from existing claims transaction systems used by health care providers (facility and practitioners) and payers. The information typically collected in an APCD includes patient demographics, provider demographics, clinical, financial, and utilization data. Because of the difficulties involved with the collection of certain information, most states implementing APCD systems have typically excluded a number of data sources, such as denied claims, workers compensation claims, and, because claims do not exist, services provided to the uninsured.

Information Typically Collected in an APCD	Data Elements Typically Excluded in an APCD
<ul style="list-style-type: none"> • Encrypted SSN or member identification number • Type of product (HMO, POS, Indemnity, etc.) • Type of contract (single person, family, etc.) • Patient demographics (DOB, gender, zip) • Diagnosis, procedure, and NDC codes • Information on service provider • Prescribing physician • Plan payments • Member payment responsibility • Type and date of bill paid • Facility type • Revenue codes • Service dates 	<ul style="list-style-type: none"> • Services provided to uninsured (few exceptions) • Denied claims • Workers' compensation claims • Premium information • Capitation fees • Administrative fees • Back end settlement amounts • Referrals • Test results from lab work, imaging, etc. • Provider affiliation with group practice • Provider networks

“A major advantage to having an APCD is the ability to understand—in ways not otherwise possible – how and where health care dollars are being spent. This understanding of health care expenditure patterns and the performance of the health care system, via quality and access metrics, is vital to develop data-driven health reform efforts resulting in impacts (including increased access to care, reduced costs, and improved quality) that can be effectively measured.”



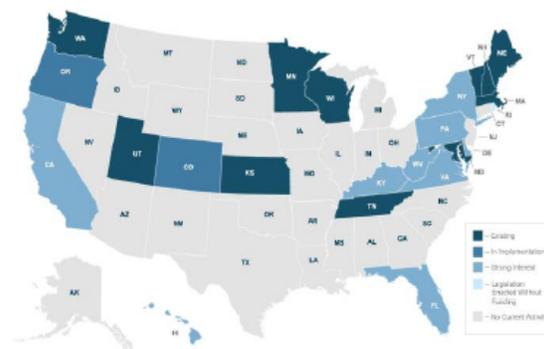
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Status of State-based APCD Development

Figure 1 (right) contains a map of the states that have an existing APCD, have one under development, or have strong interest in creating one. Strong interest could range from exploration of funding models or development of legislation. Oregon and Tennessee will have live systems in 2010. Hawaii and Colorado have currently submitted legislation for their 2010 session to authorize development. In the current economic climate, states wishing to develop APCDs are finding budget challenges as it relates to initial and sustaining funding for their future APCD.

Figure 1: Current APCD Activity



Why Should States Develop APCD's?

State Level APCD Uses

Procedure payment web sites

Comparison of individual total payments for selected procedures by provider and payer

Computation of hospital aggregate total costs Determined using claims data and hospital data

Cost-shift analysis

Hospital specific evaluation of Medicare and Medicaid payments on commercial payments

Establish cost drivers by provider categories

Determination of baseline utilization rates and comparison to specific providers

Qualitative comparative analysis of providers

Establish acceptable practice patterns by facility and practitioner specialty to compare with individual providers.

Evaluation of access issues of public payer population to commercial population

Determine if Medicaid population is receiving substandard care or limited access to care.

Evaluation of dual eligible population Evaluation the best use of public dollars

Creation/evaluation of new treatment/payment mechanisms

Data used to evaluate patient centered medical home projects and resulting payment reform

A major advantage to having an APCD is the ability to understand—in ways not otherwise possible—how and where health care dollars are being spent. This understanding of health care expenditure patterns and the performance of the health care system, via quality and access metrics, is vital to develop data-driven health reform efforts resulting in impacts (including increased access to care, reduced costs, and improved quality) that can be effectively measured.

Current data sources, such as hospital, vital statistics, and public health data, are insufficient to inform and affect change in our health care delivery system due to: incomplete provider populations or sites; limited patient/member populations; and limited information on payments for services.

The crux of APCD's is having true transparency across the entire spectrum of health care providers and payers. With such transparency comes access, to information that has never before been available, which can be used for a wide variety of uses, thus creating the ability for actionable and accountable measures. Agencies of state



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government are particularly well positioned to utilize in guiding health care policies, including: Medicaid shortfalls; payment reform; and provider accountability.

APCD's and Health Information Exchange (HIE)

APCD's and HIE's will be distinctly separate initiatives as they are developed. Health information technology and health information exchanges (HIE's) have the potential to enhance, but not replace, existing administrative databases (such as APCD's) with clinical information for quality and outcomes reporting. However, both can and must be integrated to build a more robust database to be used for comparative effective research and population health applications, and to improve risk adjustment, clinical studies, and outcomes research. When building both systems, attention must be given to collecting some comparable data in each that will enable linkages to occur between the two sources of data (e.g. – the National Provider Identifier for health care providers and a numeric identifier such as an encrypted SSN for members/patients).

Fact sheet prepared by the All-Payer Claims Database (APCD) Council in collaboration with the National Association of Health Data Organizations (NAHDO). The lead author is Mr. Alan Prysunka, Executive Director of the Maine Health Data Organization (MHDO).

For More Information on APCD's visit the following sites:

All-Payer Claims Database Council: <http://www.apcdouncil.org/>

National Association of Health Data Organizations: <http://www.nahdo.org/>



All-Payer Claims Databases in Public Health and Medicaid: A Fact Sheet

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Utility of State-based All-Payer Claims Databases for Public Health and Medicaid

All-Payer Claims Databases (APCDs) are large-scale databases that systematically collect health care claims data from a variety of payer sources. States are seeking assistance and tools to promote and strengthen the health and health care delivery for their populations. In establishing APCDs, states have identified several important uses of APCD data. For example, in its legislation, Tennessee states:

The commissioner shall establish and maintain an all payer claims database to enable the commissioner of finance and administration to carry out the following duties: (A) Improving the accessibility, adequacy, and affordability of patient health care and health care coverage; (B) Identifying health and health care needs and informing health and health care policy; (C) Determining the capacity and distribution of existing health care resources; (D) Evaluating the effectiveness of intervention programs on improving patient outcomes; (E) Reviewing costs among various treatment settings, providers, and approaches; and (F) Providing publicly available information on health care providers' quality of care.¹

What information is included in an APCD?

State APCDs provide the ability to understand *how* and *where* health care is being delivered and how dollars are being spent. APCDs aim to include data on the fully-insured, self-insured, Medicare, and Medicaid populations. APCDs typically include data from medical claims, pharmacy claims, and provider files from private and public payers (including Medicaid). Importantly, these data include claims from a full range of services, including primary care, specialist care, outpatient surgery, inpatient stays, laboratory testing, and pharmacy data. The information collected typically include patient demographics; diagnosis, procedural, and National Drug Code (NDC) codes; costs (include plan and consumer paid amounts); information about the type of service providers; and payer information (e.g., type of health plan). APCDs, therefore, include important information that has utility for Medicaid programs and the public health community.

“Accurate and timely data are key to assessment, evaluation, and policy development. APCDs are being used to support all of these areas, providing important information about the patterns of disease prevalence, treatment, access to care, and cost of health care that is not available through other sources. As more states implement APCDs for publicly and privately insured populations, more robust information and applications for public health purposes can be expected.”

¹ Tennessee Pub. Ch. 611, Public Act 2009, HB 2289, 106th legislature, first session (TN HB 2289 2009)

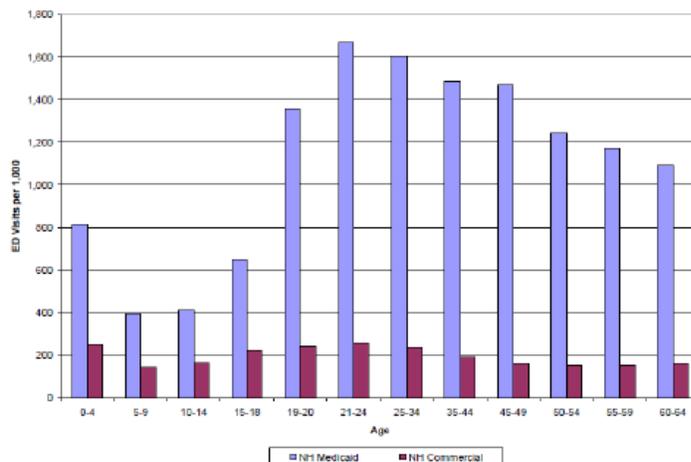


Use of APCD data in Medicaid

The inclusion of Medicaid data in an APCD provides Medicaid programs with information that can be used to support policy development while also aiding in the design and promotion of Medicaid program infrastructure. State APCDs provide benchmarking for Medicaid payments compared to commercial payer plans.ⁱⁱ This allows comparison between the Medicaid population and commercial payers across settings -- primary care, inpatient, and outpatient services.

New Hampshire's APCD, known as the New Hampshire Comprehensive Healthcare Information System (NH CHIS), has included Medicaid data from its inception in 2005. New Hampshire has used the NH CHIS data extensively to better understand patterns, cost, and quality of care in its Medicaid program. In a study of 2005 Medicaid and commercial data, New Hampshire found that the rate of ED visits for the Medicaid population was over 4 times higher than the commercially-insured population (as shown in the figure below).ⁱⁱⁱ

Figure 2. Emergency Department Visit Rates by Age: Medicaid Compared to NH Commercial Members, 2005 Note: age 65 and older not shown, no comparative commercial population



ⁱⁱMiller, P., Love, D., Sullivan, E., Porter, J., and Amy Costello. *All-Payer Claims Databases: An Overview for Policymakers*, May 2010. Available at http://apcdouncil.org/sites/apcdouncil.org/files/2010_sci-all-payer-claims-report_1.pdf Accessed August 27, 2010.

ⁱⁱⁱMaine Health Information Center. *2005 Emergency Department Use in New Hampshire: A Comparison of the Medicaid and Commercially Insured Populations*, March 2007. Available at <http://www.dhhs.state.nh.us/DHHS/OMB/LIBRARY/Data-Statistical+Report/emergency-use.htm>. Accessed August 30, 2010.



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Further, NH has used comparisons of commercial to Medicaid payments from NH CHIS data to develop reimbursement rate benchmarks for key services.^{iv} NH also utilizes the NH CHIS data to generate annual Children's Health Insurance Program (CHIP) reports that detail the measures of health care access, prevention, care management, utilizations, and payments for the NH Medicaid NH State Child Health Insurance Plan, and NH commercial populations. These reports are used by the NH Medicaid program to support policy efforts, to compare health care coverage rates across providers, and to evaluate and shape state health initiatives. These studies have consistently shown that children in Medicaid have the highest average clinical risk score, followed by SCHIP and commercial populations.^v In addition, these studies have consistently been used to assess the quality of care to Medicaid population with SCHIP and commercial population comparators, including the rate of well-child visits (shown at right).

Percent of Children With a Well-Child Visit to a Primary Care Practitioner by Plan Type, SFY2008

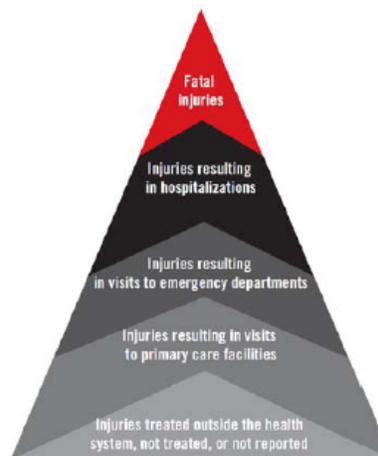
New Hampshire			
Age Group	Medicaid	SCHIP	NH CHIS Commercial
16-35 months	88.9%	95.4%	89.0%
3-6 years	69.9%	82.7%	77.7%
7-11 years	55.0%	63.0%	61.3%
12-18 years	50.4%	57.3%	55.4%
National Managed Care Plan Data*			
Age Group	Medicaid	Commercial	
3-6 years	65.3%	67.8%	
12-21 years	42.0%	41.8%	

Note: SCHIP does not cover children under the age of one. The SCHIP column is a combination of Medicaid and SCHIP for the 185-300% of federal poverty level group.

*2008 NCQA HEDIS reporting year on 2007 data.

Use of APCD Data in Public Health

Though public health maintains a host of surveillance systems and registries, gaps in data remain and are difficult to fill. As illustrated in The Injury Pyramid (right), surveillance that relies on tracking fatalities, hospitalizations, and emergency treatment does not capture injuries that are treated in the primary care setting.^{vi} This setting, however, likely accounts for the largest single treatment setting. This same scenario is likely true for many other diseases and conditions; much of what we know about those diseases comes from the tip of iceberg. APCDs can be used to improve our understanding about diseases across settings and across payers.



The use of APCD data for public health is an emerging area for APCDs. New Hampshire is currently developing a web-based module for claims data analysis. This module, funded by a Centers for Disease Control and Prevention (CDC) Assessment Initiative grant, seeks to complement New Hampshire's existing web-based reporting and query system (NH HealthWRQS). HealthWRQS is a tool that provides health data analysis for community health assessment. Public health practitioners can currently access standard indicators of the health of



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the population from modules based on vital records (birth and death) data, hospital discharge data (inpatient and emergency department), and Cancer Registry data. The claims module is being built to allow users to select indicators that include rates of claims for diseases, as well as indicators of care for those diseases. It is designed, therefore, to add an important part of “the pyramid” for public health practitioners. The first version of claims module (slated for release in late 2010) will include:

- Access to primary care for children and adolescents
- Access to preventive/ambulatory health services for adults
- Rate of claims for cardiovascular disease
- Rate of claims for mental health

The CDC’s National Program of Cancer Registries has recognized the potential utility of claims data. Currently, it has funded Cancer Registries in the States of Maine and New Hampshire to explore the feasibility of linking Cancer Registry data to APCD data in those states. This could provide a much deeper understanding of the patterns of care for cancer.

Fact sheet prepared by the All-Payer Claims Database (APCD) Council in collaboration with the National Association of Health Data Organizations (NAHDO). Lead authors, Ms. Josephine Porter, Deputy Director and Ms. Ashley Peters, Research Associate, are with the New Hampshire Institute for Health Policy and Practice at the University of New Hampshire.

For More Information on APCD’s visit the following sites:

All-Payer Claims Database Council: <http://www.apcdouncil.org/>

National Association of Health Data Organizations: <http://www.nahdo.org/>

^{iv}NH Department of Health and Human Services, Office of Medicaid Business and Policy. *Payment Rate Benchmarking - NH Medicaid Provider Reimbursement Rate Benchmarks for Key Services*. Available at

http://www.dhhs.state.nh.us/DHHS/OMB/LIBRARY/Financial+Report/rate_benchmarks.htm. Accessed August 27, 2010.

^vNH Department of Health and Human Services, Office of Medicaid Business and Policy. *Issue Brief: Children’s Health Insurance Programs In New Hampshire, October 2009*. Available at <http://www.dhhs.state.nh.us/DHHS/OMB/LIBRARY/Data-Statistical+Report/chip.htm>. Accessed August 27, 2010.

^{vi}World Health Organization. *Injuries and Violence, the Facts: The Injury Pyramid*. Available at: https://www.who.int/violence_injury_prevention/key_facts/VIP_key_fact_5.pdf. Accessed August 30, 2010



Links to APCD Advisory Committee Meeting Materials and other Resources

http://www.civhc.org/apcd_materials.aspx

<http://www.civhc.org/apcd.aspx>

¹ Miller et al, “All Payer Claims Databases: An Overview for Policy Makers,” Academy Health, May 2010,
http://www.apcdouncil.org/sites/apcdouncil.org/files/2010_sci-all-payer-claims-report_2.pdf