JSI Research & Training Institute, Inc.

# The What, Who, Why, and How of All-Payer Claims Databases

*Developed by JSI Research & Training Institute, Inc. on behalf of theVermont Asthma Program*

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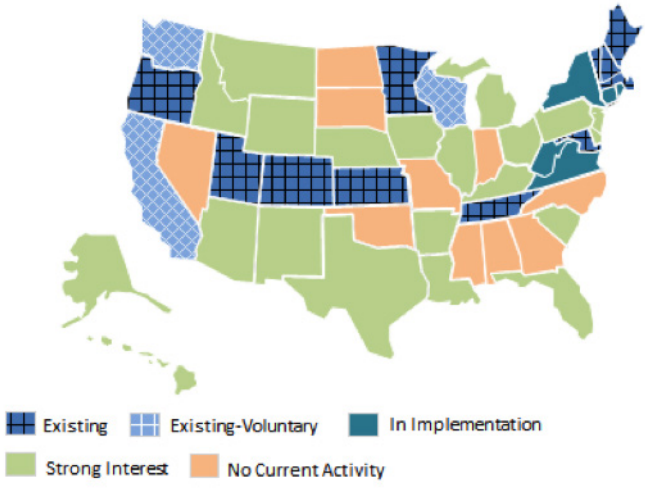
## Overview of APCDs

All-payer claims databases (APCDs) provide information on how and where health care dollars are spent. As states establish and enhance their APCDs, these databases can serve as resource to inform public health programming and policy. This brief provides public health professionals an overview of APCDs—what they are, which states have APCDs, why they are valuable, how they are being used, and an overview of Vermont's APCD.

***The What:*** APCDs are large databases that systematically collect health care claims data from a variety of health care payers. A health care claim is a bill for services. Health care providers send claims to health care payers (e.g., insurers) for reimbursement. Claims contain information that describes the nature and cost of the service provided, including diagnosis, procedure, place of service, and type of service codes. The most common types of claims are for: medical, dental, pharmacy, and laboratory services.

Several types of health care payers exist: (1) commercial (i.e., private) health payers; (2) public payers such as state Medicaid agencies and the Centers for Medicare and Medicaid Services (CMS); (3) third party administrators, pharmacy benefit managers, and dental benefit managers; (4) TRICARE for active duty service members and veterans; and (5) Federal Employees Health Benefit Plan (FEHBP) for federal employees. To render payments the payer maintains a claims database, a member database, and a provider database. Member databases contain demographic information. Provider databases contain information about specialty and zip code of the provider. In combination with claims, these databases enable payers to identify health care utilization trends, develop and evaluate programs, and track quality of care.

Figure 1. State APCD Development, 2013[1]




***The Who:*** Although the Affordable Care Act (ACA) does not mandate APCDs, it is driving interest in APCDs because they can be used by states to monitor implementation of the Act (e.g., increased enrollment in health insurance) or to evaluate ACA-funded demonstration projects. Currently 16 states including Vermont have or are implementing mandatory APCDs in which payers are compelled to report by state law. Three additional states have voluntary APCDs and interest in establishing APCDs is strong (Figure 1).[1]

No two state's APCDs are the same. They vary across states by authority, governance, funding, structure, functionality, data, and access. States' APCDs also vary in capability as some are newly developed and others have evolved over time with enhanced versions. Typically, APCDs reside within a state agency granted responsibility for overseeing and maintaining the database. Funding for APCDs often comes from states' general funds, mandatory fees from providers and insurers, and/or grant opportunities.

***The Why:*** By combining data from all claims databases across all payers in a given state, an APCD is capable of describing nearly all of the health services rendered to most residents in the state – including what, when, where, by whom, and for whom services were provided. Such a system is useful for planners, policymakers, researchers, and consumers. In Massachusetts, for example, the health care reform law requires the state to compute the annual total medical expenditure. For the past three years, total medical expenditure for the state as a whole, by payer and by service line (e.g., inpatient, outpatient, emergency department, and pharmacy), has been estimated using the state's APCD. This information is used to determine the rate of health care inflation, an important outcome of health care reform efforts.

**Public Health Implications:** APCDs offer a new and important data source for public health. Public health surveillance typically relies on population-based surveys, disease registries, and hospital discharge data to monitor and assess health outcomes and trends. APCDs provide some fill to the public health data gap by capturing health care service use across care settings (e.g., primary care, specialty care, outpatient services, laboratory testing, pharmacy data) and across payers. As the analytical capabilities of APCDs evolve, they offer opportunity and application to enhance the understanding of our population's health and link health outcomes to health care utilization. For example, using an APCD, one can assess health disparities by determining whether the Medicaid population is accessing and receiving health care comparable to the commercial payer population.

***The How:*** APCDs offer opportunity to assess the health care system from a public health vantage because of the population-based, system-wide clinical, financial, utilization, and demographic data they house. APCDs are useful for counting health care utilization by place of service, payer, and health plan type (e.g., health maintenance organization (HMO), fee-for-service (FFS)). Data elements such as diagnosis and procedure codes, dates of service, facility type, and age and gender are collected and coded relatively consistently across payers. **Table 1** lists the data typically included in APCDs.

**Table 1: APCDs Data Elements[1]**

| *Typically Included* | *Typically Not Included* |
|---|---|
| · Encrypted member ID | · Premium information |
| · Type of insurance product (HMO, PPO, indemnity, etc.) | · Contractual financial data between providers and payers such as capitation amounts, incentive payments, or settlements |
| · Type of contract (single, family) | · Referrals |
| · Member demographics (age, sex, zip code) | · Test results from lab work, imaging, etc. |
| · Diagnosis, procedure, and national drug codes | · Provider affiliation with an organization, group, or practice |
| · Service provider (rendering) | · Provider networks |
| · Prescribing provider | · Denied claims & adjustments to claims |
| · Member payments (deductible, copay) | · Services provided to the uninsured, through Worker's compensation, or very small insurers* |
| · Health plan payments | |
| · Service dates | |
| · Type and date of bill paid | |
| · Facility type | |

* The minimum size for reporting payers varies from state to state. In Vermont the minimum is 200 covered lives.

**Limitations of APCDs.** While APCDs and the information they contain provide opportunity for assessing health care costs, use, and quality at a system-wide population-based level, notable limitations of APCDs exist and are described below.

- **APCDs do not contain clinical data.** Data from electronic medical records, laboratory systems, radiology systems, etc. are not included, so, for example, although an APCD will contain claims data indicating a laboratory test was provided, it does not contain the results of the laboratory test.
- **APCDs do not include all state residents.** It takes time to incorporate payers into the APCD data submission process – most states start by receiving data from private insurers and then add Medicaid. Only after an APCD has been certified to meet standards, data from CMS for Medicare beneficiaries are added. Uninsured persons, and persons covered under TRICARE and FEHBP have not been incorporated into any existing APCD to date. Furthermore, to manage administrative burden, very small insurers do not have to submit data. So, APCDs contain the health care claims of most residents, but not all.
- **APCD provider information is limited.** Most claims have an identifier for the provider who rendered the service. However, each payer uses a different provider identifier, making it difficult to aggregate data at the provider level. There are also limitations to estimating the amount and nature of services provided through organizational entities, such as patient-centered medical homes,

because the provider data captured does not include which practice or network the provider is part of.

- **APCDs member identification (ID) is limited.** Residents may change insurance plans over time resulting in their IDs changing. Residents may also have more than one ID at a time, such as for medical and dental insurance. Member IDs for the same individual are not matched and linked within an APCD, limiting the comprehensiveness of information associated with each member. Member IDs are crucial for analyses such as estimating hospital re-admission rates and creating episodes of care.
- **APCDs estimation of disease prevalence is complex.** APCDs are an alternative data source for estimating disease prevalence as defined by claims for health services for a specified diagnosis (e.g., asthma) within the insured population. When using an APCD to estimate disease prevalence, it is necessary to consider whether the members included in the APCD are representative of the target population for the disease of interest. For example, if an APCD does not yet include Medicare, it may not be a good source for estimating stroke prevalence. It is also necessary to consider whether the type of claims being analyzed offer an accurate picture of disease prevalence. For example, analyzing only hospital claims (inpatient, emergency) may be useful for stroke prevalence, but not for asthma; pharmacy claims may be more useful for the later. Finally, because APCDs are relatively new and therefore contain a limited number of years of data, they are better at estimating current prevalence for a specified disease rather than lifetime prevalence (e.g., prevalence of chlamydia).

## APCDs in Use: State Examples

As more states establish and enhance their APCDs, they are being used in varying capacity to inform health system, policy, and reform questions. Only a few states have reached the point where all key payers are included and therefore truly represent the entire population. States are also recognizing that improvements in data quality, consistent definition of variables, and improved linkages across member, provider, and claims files are critical to realize the potential of their APCDs. It will take time to make these improvements; currently, some states are more (or less) able to use their APCDs for health care reform and public health-related analyses. It is important to keep in mind that because states' APCDs vary, what one state is able to analyze using their APCD may not be replicable in another state due to differences in database structure, data collected, or administration. Several examples highlight the potential uses of APCDs for understanding disease burden, and health care utilization, quality, and cost.

**Utah.** The Utah All-Payer Claims Database was legislatively mandated and established in 2009. The database includes medical claims, eligibility, and pharmacy data from commercial payers and third party administrators in the state. In 2011, the Department of Health used the APCD to assess the cost of asthma care in the state. Analysis of medical claims to commercial insurers provided data on the average annual cost of asthma-related hospitalizations and asthma-related prescription costs by age.[2]

**New Hampshire.** The New Hampshire Comprehensive Health Care Information System (NHCHCIS), New Hampshire's APCDs, was established in state statute in 2005. The database includes medical claims, eligibility, dental and pharmacy data from commercial payers, third party administrators, Medicaid and Medicare. In 2011, the New Hampshire Insurance Department used the NHCHCIS to investigate factors potentially related to the increase in the rate of cesarean sections at New Hampshire hospitals and assess their role as a cost driver to the commercial insurance market.[3]

**Massachusetts.** The Massachusetts All-Payer Claims Database (MAPCD) was established in state statute in 2008. The database includes medical claims, eligibility, dental and pharmacy data from commercial payers, third party administrators, Medicaid and Medicare. Commonwealth's Center for Health Information and Analysis, or CHIA is the home for Massachusetts' APCD. In addition to reports and analyses generated by CHIA staff, researchers can apply to access and use the database. The MAPCD has been used by academic institutions, state government, private companies, hospitals and health plans. In 2013, the Massachusetts Department of Public Health requested use of the MAPCD data to analyze utilization of tobacco cessation medications and counseling comparing Medicaid with commercial insurance plans and to identify populations underutilizing evidence-based methods to quit smoking.




## Vermont's APCD

Vermont's APCD, the Vermont Health Care Uniform Reporting and Evaluation System or VHCURES, was established by Vermont law in 2008. VHCURES was created as a resource for insurers, employers, providers, purchasers of health care, and state agencies to continuously review health care utilization, expenditures, and performance in Vermont. Vermont's Green Mountain Care Board (GMCB), an independent body legislatively charged with overseeing healthcare reform in the state, assumed the VHCURES program in 2013 and is using the data resource to support analysis pertaining to the board's mandated activities in health care regulation, innovation, and evaluation.

VHCURES houses medical and pharmacy claims data and eligibility data stripped of direct identifiers. Payer data sources include commercial insurers including third party administrators and pharmacy benefit managers, Medicaid and Medicare. Commercial insurer and Medicaid data are available as of 2007. In 2014, Medicare data from 2007-2011 was added with additional annual data forthcoming.

VHCURES includes data for roughly 90% of Vermonters covered by commercial insurers and 100% of Vermonters covered by Medicaid and Medicare.[4] VHCURES does not include dental insurers, nor does it include uninsured Vermonters (about 6.8% or 43,000 Vermonters), FEHBP (about 2.4% or 15,000 Vermonters), and the claims of Vermonters commercially insured with payers that have less than 200 Vermont members (less than 2% of all commercially insured Vermonters).[5] VHCURES only includes information on paid claims; the database does not include denied claims or partially processed claims.

Through data use agreements, VHCURES data is available to state agencies and non-state agency users such as health services researchers for academic institutions and health policy organizations. Data access privileges vary, with some user groups being granted broad use and others granted limited use by the GMCB. The information in VHCURES is used to support public policy initiatives, including assessment of the quality of care provided to Vermont residents, cost of care, disease prevalence, access to care, disparities, and healthcare utilization. For example, in 2010, VHCURES was included in the first multi-state APCD analysis (including Vermont, New Hampshire and Maine APCDs) to assess the variation in health care utilization and expenditure based on selected measures and by geographic area.[6]

Another example of how VHCURES has been used is the 2013 spatial analysis study in which primary care service areas (PCSAs) were defined for the state.[7] Geographic data for health care providers were matched with commercial and Medicaid insured Vermonters' claims data to analyze primary care visits. The analysis involved using VHCURES data to determine from whom each member in each ZIP code obtained the majority of their primary care. ZIP codes with similar care patterns were grouped together to form 44 PCSAs. Mapping supply and demand for primary care was also determined.

The GMCB is restructuring the VHCURES program including the policies and procedures for data governance and release. The GMCB is in the process of developing VHCURES 2.0[8] to enhance the state's APCD and address some of the previously-mentioned limitations common to APCDs. The enhanced VHCURES 2.0 will include:

- Better identification (i.e., identity resolution) of unique members and providers,
- Elimination of multiple versions of the database through a hosted warehouse to improve data consistency and security,
- Improved data modeling and analytic capability, such as the ability to group claims into meaningful units (e.g., episodes of care),
- Improved processes for data input and output and quality control, and
- Setting the stage for integrating additional health data with VHCURES.

Through a combination of rule amendment and system upgrades, VHCURES 2.0 will build on strengths, improve weaknesses, and work towards data integration across agencies to support analytics needed to measure, monitor, and evaluate population health, health care reform activities, and impacts on health care resources, spending, and outcomes.

For more information on VHCURES, visit their website at http://gmcboard.vermont.gov/vhcures.

1 Robert Wood Johnson Foundation. The Basics of All-Payer Claims Databases: A Primer for States. January, 2014.
2 Utah Department of Health. Utah Health Status Update: Cost of Asthma Care in Utah. February 2011.
3 New Hampshire Insurance Department. A Commercial Insurance Study of Vaginal Delivery and Cesarean Section Rates at New Hampshire Hospitals, April 2011.
4 Stein, A. Report to the Green Mountain Care Board. VHCURES Past, Present, and Future: Opportunities for Health Care Price Transparency and Greater Consumer Information. June 25, 2014.
5 VHCURES: Where has it been? What can it do? Where is it going? Presentation by Dian Khan to Vermont House Health Care Committee. January 28, 2014.
6 Onpoint Health Data. Tri-State Variation in Health Services Utilization & Expenditures in Northern New England. June 2010.
7 State of Vermont Department of Financial Regulation. Spatial Analysis Study: The Development of Primary Care Service Areas for the State of Vermont. February 2013.
8 Request for Proposals: Green Mountain Care Board All Payer Claims Database. May 28, 2014.