OSHPD

Office of Statewide Health Planning and Development

Health Care Payments Data Program

Report to the Legislature

March 9, 2020

Prepared by the Office of Statewide Health Planning and Development in accordance with the Health and Safety Code, Division 107, Part 2, Chapter 8.5, Section 127672, subdivision (d)(1) (added by Stats. 2018, Ch. 34, Sec. 23)

OSHPD

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Executive Summary

The Health Care Payments Data Program: Enabling Health Care Improvement in California

In 2018, the California State Legislature took a crucial step forward in enabling a more efficient and effective, and thus more affordable, health care system in California. The intent of the Legislature in Assembly Bill (AB) 1810[i] was to:

- Establish a system to collect information regarding the cost of health care and a process for aggregating such information from many disparate systems, with the goal of providing greater transparency regarding health care costs.
- Improve data transparency to achieve a sustainable health care system with more equitable access to affordable and high-quality health care for all.
- Encourage use of such data to deliver health care that is cost effective and responsive to the needs of enrollees, including recognizing the diversity of California and the impact of social determinants of health.

The Office of Statewide Health Planning and Development (OSHPD) refers to this effort as the Health Care Payments Data (HPD) Program, including the necessary planning, processes, resources, and system ("HPD System") to meet the intended goals of the legislation. In gathering, integrating, and organizing information about how health plans and insurers pay for care, the HPD System offers an unprecedented opportunity to address health care costs and drive improvement in California's health care system. With the implementation of the Affordable Care Act, California made great strides in reducing the number of uninsured—but costs continue to rise unabated. A recent report found that California state spending on health and human services increased by 96 percent between 2009 and 2018, while spending on all other programs increased by 59 percent.[1] For California families with employer-sponsored coverage, average total health-related spending exceeded $24,000 in 2018, fully 34 percent of median household income.[2] Californians are more worried about paying for health care than housing, perhaps because nearly half experienced a problem accessing medical care due to cost.[3]

The new HPD System will support initiatives recently announced by Governor Newsom aimed at addressing costs and improving system performance, including the Office of Health Care Affordability and the Center for Data Insights and Innovation.[4]

The HPD System will:

Provide visibility on how California spends $300 billion on health care annually. Researchers will be able to explore price variation for specific conditions, services, and

[i] Assembly Bill 1810 (Committee on Budget, Chapter 34, Statutes of 2018) added Chapter 8.5, Health Care Cost Transparency Database, to the Health and Safety Code, Division 107, Part 2.

procedures, statewide and by geographic area. The uniform structure of the HPD System's data will allow easier comparisons among Medicare, Medicaid, and commercial health plans and insurers. The service-level detail of the HPD System data also will help policymakers identify the elements of California's health care system that are driving up costs and support design of targeted interventions.

Identify and act on opportunities to improve California's health care system. California has a complex health care landscape that, to date, has lacked a comprehensive overview of system performance. With the HPD System, cost, utilization, and quality measures can be compared across payers and regions, allowing California policymakers and others to assess the results of new initiatives and learn from the success of alternative approaches.

Support health care research that directly benefits Californians. The HPD System will become one of the largest research databases of its kind, enabling a wide range of projects that align with the Program's purposes. As understanding grows of the key role played by social determinants in health outcomes, the ability to link health care services data to social services and other data becomes increasingly important. The HPD System will facilitate linkages with other datasets (e.g., economic, environmental, social, clinical), creating opportunities to improve state programs informing the development of new health care policies, initiatives, and delivery systems.

Key Findings and Recommendations

As required by AB 1810, OSHPD convened a Review Committee composed of health care stakeholders and experts to advise on the design and ongoing administration of the system. This Report to the Legislature is based on the recommendations of the Review Committee and subject matter experts. The Review Committee met monthly between March 2019 and February 2020. Members contributed insights from a variety of perspectives, including payers, providers, consumers, and researchers. Throughout the process, the Review Committee members provided thoughtful recommendations reflecting their commitment to improving California's health care system and their experience with creating, analyzing, and using health care data. Their feedback to OSHPD on the design of the HPD System factored in the approaches and experiences that other states have taken to develop their all-payer claims databases (APCDs) and the best path forward for California.

HPD Review Committee

The Review Committee met monthly between March 2019 and February 2020 and provided a series of recommendations, all unanimously approved through member votes, on the design of the HPD Program.

Charles Bacchi
President & CEO, California Association of Health Plans
Representing health care service plans, including specialized health care service plans

Anne Eowan
Senior Vice President, Government Affairs/Secretary, Association of California Life and Health Insurance Companies
Representing insurers that have a certificate of authority from the Insurance Commissioner to provide health insurance, as defined in Section 106 of the Insurance Code

Terry Hill, MD
Chair, California Medical Association (CMA) Administrative Medicine Forum
Representing "suppliers" defined as a physician and surgeon or other health care practitioner, or an entity that furnishes health care services other than a provider

Amber Ott
Group Vice President, Data and Analytics, California Hospital Association
Representing "providers" defined as a hospital, a skilled nursing facility, a comprehensive outpatient rehabilitation facility, a home health agency, a hospice, a clinic, or a rehabilitation agency

Emma Hoo
Director, Pay for Value, Pacific Business Group on Health
Representing self-insured employers

Ken Stuart (Review Committee Chair)
Chairman, California Health Care Coalition
Representing multiemployer self-insured plans that are responsible for paying for health care services provided to beneficiaries or the trust administrator for a multiemployer self-insured plan

John Kabateck
California Executive Director, National Federation of Independent Business
Representing businesses purchasing coverage for employees

Joan Allen
Government Relations Advocate, Service Employees International Union – United Healthcare Workers West
Representing organized labor

Anthony Wright
Executive Director, Health Access California
Note: Mary June Diaz, Health Access California, served March through August 2019. Anthony Wright served September 2019 through February 2020
Representing consumers

William (Bill) Barcellona
Senior Vice President, Government Affairs, America's Physician Groups
Representing physician groups

Cheryl Damberg, PhD (Review Committee Vice Chair)
Distinguished Chair in Health Care Payment Policy, RAND Corporation
Representing the research community

A summary of the key findings of this Report and the recommendations of the Review Committee are presented below.

Purpose and Use Cases

APCDs—large-scale databases that systematically collect health care claim and encounter data from multiple payer sources within a state—are viewed as essential resources to support system-wide transparency and the development of informed policies to realize meaningful and lasting health system change. California follows the lead of 19 other states with active APCDs, and can learn from that experience to create a highly efficient and effective program. The HPD System fits well with OSHPD's mission, experience, and existing range of data assets. By aggregating claim and encounter data from multiple payers, the HPD System has tremendous potential to address a wide array of important questions about California's health care system. The HPD System can streamline and improve California's ability to monitor health system performance through more complete and standardized data, enabling a better, lower-cost approach to planning and evaluating programs and improvement initiatives. The variety and volume of data the HPD System will collect and link to will increase over time, as will the complexity of supported analyses.

Use Case Categories and Selected Topics

COST AND UTILIZATION	QUALITY	COVERAGE AND ACCESS	POPULATION AND PUBLIC HEALTH	CALIFORNIA HEALTH SYSTEM PERFORMANCE
• Utilization and spending • Price transparency • Price variation among providers • Total Cost of Care • Benchmarking • Cost-effectiveness • Low-value care • Cost of avoidable complications • Pharmaceutical cost, utilization • Oral health cost, utilization • Behavioral health cost, utilization	• Preventive screenings, immunizations—variation and comparison • Continuity of care (transitions in care setting, coverage) • Readmissions, hospital-acquired infections, and preventable hospitalizations • Preventable emergency department visits	• Coverage trends over time and by geography • Access to care, including specialty care, dental, and behavioral health • Patient cost-sharing • Rate review/rate-setting • Insurance coverage • Network adequacy • Premiums	• Chronic conditions (e.g., diabetes, asthma) prevalence, cost, quality • Opioid prescribing • Firearm injuries—incidence, cost • Connection between environment and chronic conditions (e.g., air quality and asthma) • Epidemiology: trends in cancers, infectious diseases, behavioral health conditions	• Effects of delivery system consolidation on cost, quality, access, equity • Evaluation of new models of care and payment • Integration of physical and behavioral health care • Care coordination for specific populations, e.g., dual eligibles • Prevalence/trends in alternative payment models

Data Sources and Submitters

To maximize its utility and value for California policymakers and others interested in improving California's health care system, the HPD System's database should be as comprehensive as possible—including medical, pharmacy, and dental services. The HPD Program anticipates collecting health care data for over 34 million Californians, sourced from: the Department of Health Care Services (DHCS) for Medi-Cal members; the Centers for Medicare & Medicaid Services (CMS) for Medicare fee-for-service members; and commercial health plans and insurers for those with employer-based, individual, or Medicare Advantage coverage. Private, self-insured companies interested in reducing costs and improving system performance will be encouraged to participate in the HPD Program on a voluntary basis.

HPD Target Populations and Data Submitters

COVERAGE CATEGORY		COVERED LIVES (Millions)	DATA SUBMITTER
Medi-Cal	Managed care	10.5	California Department of Health Care Services (DHCS)
	Fee for service (FFS)	2.3	DHCS
Medicare	Medicare Advantage (Part C) and Medicare Advantage with Prescription Drug Coverage	2.6	Health plans and insurers
	Fee for Service (Parts A, B, and D)	3.5	Centers for Medicare & Medicaid Services (CMS)
Commercial	Fully insured	14.4	Health plans/insurers
	Private self-insured (voluntary)	4.6	Health plans/insurers or other third-party administrators (TPAs)
	Public self-insured	0.9	Health plans/insurers or other TPAs

Sources and Notes:

- Individuals can have more than one coverage source during the year; the largest source of duplication is dual eligibles (Medicare plus Medi-Cal) with 1.4 million.
- Medi-Cal figures from DHCS (*Medi-Cal Monthly Enrollment Fast Facts: November 2018*, July 2019).
- Medicare figures from CMS (*Medicare Enrollment Dashboard Data File*, April 26, 2019).
- Commercial numbers from California Health Care Foundation (CHCF) *(2019 Edition—California Health Insurers*, May 2019).
- Estimates for private vs. public self-insured plan enrollment based on a 2017 bulletin from the U.S. Department of Labor, *Health Insurance Coverage Bulletin: Abstract of Auxiliary Data for the March 2016 Annual Social and Economic Supplement to the Current Population Survey*. According to Table 3A, 84 percent of self-insured employer-sponsored coverage in California in 2015 was private and 16 percent was public. Those percentages were applied to the 5.5 million Administrative Services Only (ASO)/self-insured enrollment estimate for 2018 (see Exhibit 21).

Like other APCDs, the HPD System will rely primarily on claim and encounter data, which are generated by transactions among payers and providers on behalf of insured individuals. The HPD System anticipates adopting a proposed national standard, the APCD Common Data Layout™ (APCD-CDL™) for commercial submitters and for Medi-Cal claim and encounter data. A standardized format will reduce burden for data submitters, particularly health plans and insurers that submit data to multiple state APCDs. Given the importance of managed care in California's market, the HPD System will also collect information about non-claims payments

including capitation and alternative payment models (e.g., shared savings for accountable care organizations).

Governance, Privacy, and Security

OSHPD's role as an independent, neutral convener in California, with a mission of supporting informed decisions, aligns with the goals of the HPD Program. The HPD System will leverage OSHPD's track record working with stakeholders on data initiatives, producing analytics and information for policymakers and the public, and handling data requests from outside organizations. Stakeholder engagement at multiple levels will be a bedrock feature of HPD Program governance. A Health Care Data Policy Advisory Committee of stakeholders will provide guidance on the HPD System, and a Data Release Committee will advise on requests for access to non-public data. Other committees and workgroups, such as those representing data submitters and data users, will provide input and insights essential to the System's effective functioning—particularly in the implementation phase.

California has long led the nation in developing robust privacy and security standards to protect personal information, particularly when it comes to information regarding individual health status. Consistent with this history and philosophy, a core principle is that the HPD System is established primarily to learn and provide information about health care systems and populations, not individual patients. OSHPD has considerable experience managing the collection, analysis, protection, and appropriate sharing of data from hundreds of hospitals and other health care facilities throughout California, and will bring that expertise to bear on the central objective: ensuring personal information is protected while meeting public policy and system improvement goals.

System Administration and Capabilities

Other states have taken a variety of approaches to system implementation and operations, ranging from in-house control and operations to outsourcing virtually all functions to one or more vendors. For the HPD System, a hybrid approach to implementation, combining OSHPD capabilities and assets with experienced vendors and subject matter experts, presents the most promising pathway in terms of efficiency, time to launch, and flexibility to adapt. California's immense size points toward a tiered implementation, focusing initially on core data (claims, encounters, and eligibility and provider files) and subsequently expanding to include dental and non-claims data (e.g., alternative payment models). Robust data quality processes are essential for the credibility and sustainability of the HPD System, and these will be developed and implemented based on best practices.

Another feature of the HPD System is the potential for appropriate research entities, under data use agreements that secure individual privacy, to evaluate patients and providers across data sources and analyze them over time. Doing so would enable pattern and trend analysis even as people change health plans and obtain care from multiple providers. This record-matching feature would also facilitate linkages between the HPD System and other datasets with complementary information, such as OSHPD's hospital discharge data, that can enhance researchers' ability to answer important questions about health care in California. In addition, in

an era of growing understanding of the social determinants of health and their connection to health outcomes and community health, linking the HPD System's data on costs and utilization to information about social services such as food or housing support will become increasingly important.

Funding and Sustainability

The HPD System will be a statewide resource and will require investment to build and operate. The Legislature appropriated $60 million on a one-time basis to support the initiative, including planning, development, and build through Fiscal Year 2025. For ongoing operations, the Legislature required development of a sustainability plan without reliance on General Fund revenue. Annual costs to support the HPD System are estimated at approximately $15 million based on the experience of other states, results from a request for information process with the vendor community, and an assessment of OSHPD current staffing levels and resources.
To be successful over the long term, the HPD System needs a funding model that provides predictable revenue that covers annual operating costs. Most other APCDs rely on a combination of state funds, Federal Financial Participation (FFP) Medicaid match, grants, and data user fees for requests. FFP Medicaid match and user fees are both promising sources of revenue for the HPD System, but are unlikely to yield $15M annually; additional funding sources are needed to close the gap.

Launching the Health Care Payments Data System: The Path Forward

The legislature specified in AB 1810 that the HPD System is to be substantially completed by July 1, 2023. That timeline is ambitious, but the thoughtful deliberations of the Review Committee and resulting recommendations represent a major step forward in realizing a goal California has been working toward for years: to create the most comprehensive and robust data ever available to inform improvements in California's health care system. Realizing California's goal of equitable, affordable access to high-quality care for all will require not just investment and effort, but also data—information that can support tracking system performance; understanding variation in cost, quality and utilization; and driving improvement.

Recommendations Approved by the Review Committee

The Review Committee voted on and unanimously approved 36 recommendations for the HPD Program.

Data Sources and Submitters

Review Committee recommendations related to data sources (Chapter 2) and submitters (Chapter 4):

1. ***Sources of Data***: The HPD Program should establish collection methods and processes specific to sources of data: 1) Department of Health Care Services (DHCS, for Medi-Cal), 2) Centers for Medicare & Medicaid Services (CMS, for Medicare Fee for Service (FFS)), and 3) All other, including commercial health plans and insurers for those with employer-based, individual, Medicare Advantage, or dental coverage.
2. ***Collect Medi-Cal Data***: The HPD Program should pursue the collection of Medi-Cal FFS and managed care data directly from DHCS.
3. ***Incorporate Medicare Data***: The HPD Program should pursue the collection of Medicare FFS data, in the formats specified by CMS.
4. ***APCD-CDL™***: The HPD System should use the APCD-CDL™ for all submitters except CMS.
5. ***Three Years of Historical Data***: The HPD Program should initially pursue three years of historical data (enrollment, claims and encounters, and provider) from submitters.
6. ***Non-Claims Based Payments***: The HPD System should collect non-claims-based payments, in order to capture the total cost of care. Since these payments are not included in the APCD-CDL™, the Office of Statewide Health Planning and Development (OSHPD) will work with stakeholders to specify the format(s) and source(s) of the supplemental file(s).
7. ***Authority to Submit and Collect Personal Information***: Legislation should clearly authorize data submitters to send, and OSHPD to receive, personal information to meet the legislative intent of the HPD Program. To support the submission of data by voluntary submitters, legislation should clearly specify public health as one of the intended uses of the HPD System.
8. ***Mandatory Data Submitters***: The types of organizations required to submit data to the HPD System ("mandatory submitters") should be based on federal and existing California laws and definitions, and initially include:
   a. Health care service plans and health insurers
   b. DHCS, for Medi-Cal managed care plan and fee for service data
   c. Self-insured entities as permitted under federal law (currently, public payer plans such as state, county, and local governments that are not subject to ERISA)
   d. Third-party administrators of plans (not otherwise preempted by ERISA)
   e. Dental plans and insurers

Standards for mandatory submission should be broadly specified in statute and clearly defined in regulations, with initial guidance as follows (applies to Recommendations nine through fourteen):

9. ***Required Lines of Business***:
    a. Commercial: individual, small group, large group, Medicare Advantage
    b. Self-insured plans as permitted under federal law (currently, public payer plans such as state, county, and local governments that are not subject to ERISA)
    c. Dental
    d. Medi-Cal FFS and managed care
10. ***Coordination of Submission***: The mandatory submitters are responsible for submitting complete and accurate data directly and facilitating data submissions from appropriate data owners, including data feeds from pharmacy benefit management companies, behavioral health organizations, subsidiaries, and other services carved out to a subcontracting organization.
11. ***Excluded Lines of Business***: All those listed in Insurance Code section 106b as excluded from the definition of health insurance, plus the following:
    a. Supplemental insurance (including Medicare supplemental)
    b. Stop-loss plans
    c. Student health insurance
    d. Chiropractic-only, discount, and vision-only insurance
12. ***Plan Size***:
    a. OSHPD shall establish an exemption for plans below a threshold not to exceed 50,000 covered lives to be defined and overseen by OSHPD with consideration given to feasibility, cost, and value of data procurement, for:
        i. Combined Medicare Advantage, commercial, and self-insured plans not subject to ERISA
        ii. Dental
    b. Given that DHCS will be submitting Medi-Cal data, there is no plan size threshold for Medi-Cal FFS or managed care.
    c. With consultation between OSHPD and Covered California, all Qualified Health Plans (plans participating in Covered California) are required to submit either directly or through Covered California.
13. ***Frequency***:
    a. Monthly submission for all core data (claims, encounters, eligibility, and provider files)
    b. Submission at least annually for non-claims-payments data files
14. ***Population***: The population for data submission is defined as residents of California

15. ***Voluntary Submitters***:
    a. The HPD Program should be statutorily authorized to receive data from voluntary submitters.
    b. The HPD Program shall develop an appropriate process to encourage voluntary data submission.

Governance, Privacy, and Security

Review Committee recommendations related to governance (Chapter 9), privacy, and security (Chapter 6):

16. ***Entity to Operate the Health Care Payments Data (HPD) Program***: OSHPD should operate the HPD Program.
17. ***Health Care Data Policy Advisory Committee***: OSHPD should be authorized to convene a Health Care Data Policy Advisory Committee of stakeholders with expertise to provide guidance on the HPD Program. Over time, OSHPD may expand the scope of the Advisory Committee to obtain guidance on other data assets in the OSHPD portfolio.
18. ***Committees to Support Effective Governance***: OSHPD should create other committees or workgroups to support effective governance as needed, at the discretion of the Director, either as standing bodies or as time-limited ad hoc workgroups.
19. ***Leverage Regulatory Structures for Enforcement***: OSHPD should establish processes for the enforcement of data submission, leveraging existing regulatory structures. Statutory authority should be provided to establish specific processes.
20. ***Comprehensive Program for Data Use, Access, and Release***: OSHPD should have statutory authority to implement a comprehensive program for data use, access, and release for the HPD Program. This program will emphasize both the creation of publicly available information and ensuring only appropriate, secure access to confidential information. The health care payments database should be exempt from the disclosure requirements of the Public Records Act.
21. ***Data Release Committee***: OSHPD should be required to establish a Data Release Committee to advise OSHPD on requests for access to non-public data. The Data Release Committee members should be appointed by the OSHPD Director and include a diverse range of stakeholder representatives with expertise in issues that need to be considered in the release of non-public data. OSHPD will maintain information about requests and disposition of requests. OSHPD and the Data Release Committee should develop processes for the timely consideration and release of data.
22. ***Privacy Principles***: The HPD Program should adopt the following patient privacy principles:
    a. The HPD Program shall protect individual patient privacy in compliance with applicable federal and state laws.
    b. The HPD Program is established to learn about the health care system and populations, not about individual patients.
23. ***Limiting Access to Non-Public Data***: Only aggregate de-identified information will be publicly accessible. OSHPD should develop a program governing access to non-public HPD System data, including a data request process overseen by a data release committee.
24. ***Information Security Program***: The HPD Program should develop an information security program that uses existing state standards and complies with applicable federal and state laws.

System Administration and Capabilities

Review Committee recommendations related to system administration, including technical approach (Chapter 7), data quality (Chapter 8), and linkages (Chapter 3):

25. ***Leverage Resources and Expertise***: OSHPD should leverage existing resources and expertise to facilitate a faster time to implement, maximize the early capabilities of the system, and learn from subject matter experts in the all-payer and multi-payer database industry.
26. ***Modular Approach***: The HPD System should be implemented with a modular approach, with each module performing a discrete system function.
27. ***Data Collection Vendor***: Commercial health care data should be initially collected by a vendor with established submitter management and data quality processes, and that is experienced in aggregating/synthesizing/standardizing commercial claims data files from multiple payer sources. It is preferred that the vendor have experience with state APCD programs.
28. ***Data Quality Processes***: The HPD Program should develop transparent data quality and improvement processes. In developing the program, OSHPD shall review and leverage known and effective data improvement processes and experiences.
29. ***Data Quality at Each Part of the Life Cycle***: Data quality processes should be applied to each major phase of the HPD System data lifecycle, including:
    a. Source data intake
    b. Data conversion and processing
    c. Data analysis, reporting, and release
30. ***Stakeholder Access to Data Quality***: The HPD Program should provide stakeholders with accessible information on data quality, including:
    a. Descriptions of processes and methodologies
    b. Periodic updates on known issues and their implications
31. ***Ensure broad authority for OSHPD to securely collect available personally identifiable information***: Legislation should ensure authority for OSHPD to securely collect detailed patient identifiers such as first and last name, date of birth, sex, street address, and Social Security number. These identifiers are necessary in order to use methodologies, such as a master patient index, to support analyses of the same individuals over time and the impacts from social determinants of health. OSHPD will ensure that its data collection is in compliance with California and federal law.
32. ***The HPD Program should use robust methodologies to match patients, providers, and payers across datasets***: OSHPD should build and maintain a master person index, master provider index, and master payer index as part of the HPD System implementation. These indexes should be supplemented with data from other sources (e.g., vital statistics, statewide provider directory information when available, and OSHPD facility data) to improve matching success and the analytic value of the HPD System.

Funding and Sustainability

Review Committee recommendations related to funding and sustainability (Chapter 5):

33. ***Special Fund for the HPD Program***: A special fund should be created for the HPD Program, and revenue to support the HPD Program should be directed to that fund. Any funds not used during a given year will be available in future years, upon appropriation by the Legislature.
34. ***Pursue CMS Medicaid Matching Funds***: Maximum possible CMS Medicaid matching funds, or other federal funds, should be pursued to support the HPD Program.
35. ***Establish User Fee Schedule to Support the HPD Program***: Develop a fee schedule and charge data user fees for data products to support the HPD Program and stakeholder access to data.
36. ***Explore Other Revenue Sources***: For the remainder of HPD Program operational expenditures, other revenue sources should be considered in collaboration with stakeholders.

Introduction

In June 2018, the governor signed Assembly Bill (AB) 1810,[5] which added Chapter 8.5, Health Care Cost Transparency Database, to the Health and Safety Code (HSC) Division 107, Part 2. The new HSC Sections 127671-127674 require the Office of Statewide Health Planning and Development (OSHPD) to plan for, develop, and administer a "Health Care Cost Transparency Database," often referred to as an all-payer claims database (APCD) in the 19 states that have implemented such a program. The legislation built on the results of a 2017 technical feasibility analysis released by the California Health and Human Services (CHHS) Agency related to the creation of an APCD.[6] That analysis laid the groundwork for consideration of the many complex technical, policy, and governance issues associated with creating an APCD in California and established the feasibility of the project.

As specified in HSC Section 127671, the intent of the Legislature is to:

- Establish a system to collect information regarding the cost of health care and a process for aggregating such information from many disparate systems, with the goal of providing greater transparency regarding health care costs.
- Improve data transparency to achieve a sustainable health care system with more equitable access to affordable and high-quality health care for all.
- Encourage use of such data to deliver health care that is cost effective and responsive to the needs of enrollees, including recognizing the diversity of California and the impact of social determinants of health.

OSHPD refers to this effort as the Health Care Payments Data (HPD) Program, including the necessary planning, processes, resources, and system to meet the intended goals of the legislation. The HSC Section 127672 requires that OSHPD:

- Convene a Review Committee composed of health care stakeholders and experts to advise OSHPD on the establishment, implementation, sustainability, and ongoing administration of the system.
- Submit a report to the Legislature (this document, hereinafter referred to as the "Report") by July 1, 2020, based on recommendations of the Review Committee and APCD subject matter experts.
- Substantially complete the HPD System, by July 1, 2023, subject to budget appropriation and the availability of necessary data.

The HPD Review Committee met monthly from March 2019 through February 2020 to consider the design and operations of the HPD Program. Meetings included presentations and discussions with OSHPD staff, health care industry experts, APCD subject matter experts, sponsors of past and current multi-payer database efforts in California, and other stakeholders. Those meetings resulted in recommendations—approved by Review Committee member vote and included in this Report—that serve as the foundation for a successful HPD Program.

The HSC Section 127672 (d) specifies several content areas to be covered in this Report. Those areas, plus additional detail important for the design of an effective HPD Program, have been organized into nine chapters. Exhibit 1 shows the topics covered in each of the Report chapters.

Exhibit 1. Legislative Report Chapters and Topics

CHAPTER	TOPICS COVERED
1 APCDs and Use Cases	How have other states used their APCD? For what purposes will the data be used? What use cases will this data fulfill?
2 Data Categories and Formats	What types of data will be collected? What are the options for the source data formats?
3 Linkages	How will the data map to other datasets, including public health, morbidity and mortality, clinical data, and social determinants of health? How will master indexes be used to support longitudinal analyses of the same patient, provider, and payer?
4 Submitters	Who will be required to submit data? What lines of business must be submitted? How often must data be submitted? How will data from self-insured health plans and other non-mandatory submitters be handled?
5 Funding and Sustainability	What are the ongoing funding options for the HPD?
6 Privacy and Security	How will privacy principles and security safeguards protect personal information? What are the privacy considerations for data collection, use, and dissemination? How do existing California security laws and standards protect personal information?
7 Technology Alternatives	What are the technical functions that must be performed to operationalize the database? What are the technical options available to meet those needs? How can existing technologies, experiences, and processes reduce risk and cost of the HPD System implementation?
8 Data Quality	What processes are needed to ensure that the data are of sufficient quality to support the intended uses? How will the quality of the data be evaluated and improved over time?
9 Governance	Who should operate the HPD Program? What is the role of stakeholder input? How should enforcement of data submission requirements be handled? How should access to HPD Program data be managed?

The HPD initiative coincides with a resurgence of concern about continued escalation of health care costs and renewed attention to cost containment as a key policy objective, after almost a decade of focus on expanding coverage and access through the Affordable Care Act (ACA). A recent report found that California state spending on health and human services increased by 96 percent between 2009 and 2018, while spending on all other programs increased by 59%.[7] For California families with employer-sponsored coverage, average total health-related spending exceeded $24,000 in 2018, fully 34 percent of median household income.[8] Californians are more worried about paying for health care than housing, perhaps because nearly half experienced a problem accessing medical care due to cost.[9] The HPD Program is essential to generating comprehensive and accurate information on health care costs to inform California's cost containment efforts.

The new HPD System will support initiatives recently announced by Governor Newsom aimed at addressing costs and improving system performance, including the Office of Health Care Affordability and the Center for Data Insights and Innovation.[10]

The HPD System will:

Provide visibility on how California spends $300 billion on health care annually. Researchers will be able to explore price variation for specific conditions, services, and procedures, statewide and by geographic area. The uniform structure of the HPD System's data will allow easier comparisons among Medicare, Medicaid, and commercial health plans and insurers. And the service-level detail of the HPD data will help policymakers identify the elements of California's health care system that are driving up costs and support design of targeted interventions.

Identify and act on opportunities to improve California's health care system. California has a complex health care landscape that, to date, has lacked a comprehensive overview of system performance. With the HPD System, cost, utilization, and quality measures can be compared across payers and regions, allowing California policymakers and others to assess the results of new initiatives and learn from the success of alternative approaches.

Support health care research that directly benefits Californians. The HPD System will become one of the largest research databases of its kind, enabling a wide range of projects that align with the program's purposes. As understanding grows of the key role played by social determinants in health outcomes, the ability to link health care services data to social services and other data becomes increasingly important. The HPD System will facilitate linkages with other datasets (e.g., economic, environmental, social, clinical), creating opportunities to improve state programs informing the development of new health care policies, initiatives, and delivery systems.

Chapter 1: All-Payer Claims Databases and Use Cases

Introduction

This chapter includes background on APCDs, describes progress in other states, and outlines potential uses of the HPD System. The material presented aligns to the following requirement for this Legislative Report as outlined by HSC Section 127672, subdivision (d)(1)(A): *"... types of data …, purpose of use, and use case definitions to assist in prioritizing areas of development.*"

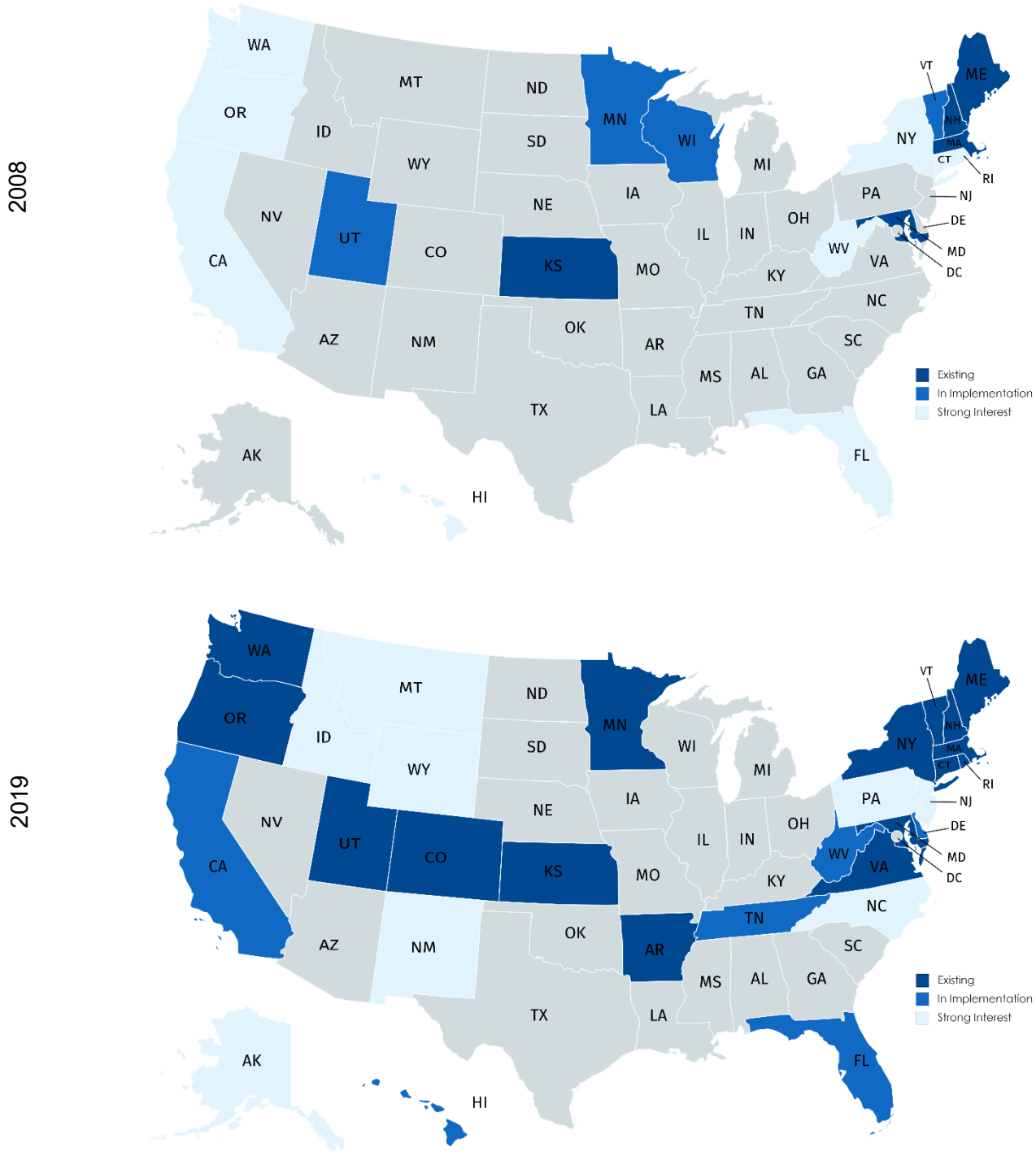
Background on APCDs

APCDs are large-scale databases that systematically collect health care claim and encounter data from multiple payer sources within a state. Payers that submit data to an APCD typically include commercial health plans and insurers, Medicaid, and Medicare. Claims are transactions that are used to request payment for health care services rendered. A claim is generated when an insured person (also referred to as a "member") visits a doctor, is admitted to a hospital, receives care in an emergency department (ED), fills a prescription, undergoes a lab test, or receives other health care services. Encounters include similar information to claims but are distinguishable because they are records of service, not requests for payment.

APCDs collect claims, encounters, member enrollment, and provider information for medical, pharmacy, and dental care. While APCDs share some common features, no two APCDs are the same. Each APCD captures information unique to the health care delivery systems in its own state, and as such, reflects the particular characteristics of the local health care landscape.

Nationwide, APCD adoption has increased significantly since 2005, when only three states (Maine, Maryland, and New Hampshire) had data collection efforts underway. As of 2020, 22 states have enacted APCD legislation, with 19 having databases currently in operation or implementation. Exhibit 2 shows the growth in APCDs over the past 14 years. The APCD Council, a learning collaborative of APCDs across the country, provides a wealth of information about state APCDs.[11]

Exhibit 2. APCD Adoption 2008-2019



Source: APCD Council.

Many states throughout the country recognize that APCDs are increasingly essential resources because health care cost transparency enables development of informed policies to realize meaningful and lasting improvements to health care delivery and outcomes. APCDs contribute to a comprehensive understanding of cost, quality, utilization, and many aspects of population health across payer types and settings of care (e.g., hospitals, outpatient clinics, EDs, medical offices). Other data sources provide important information but have limitations. For example, hospital discharge data are limited to facility-provided inpatient and outpatient procedures and do not include information on actual payments, disease registries are limited to specific health conditions, and health plan-specific databases are limited to a single payer. An APCD builds upon and complements these datasets, enabling a deeper understanding of the health care system and support for the policy solutions that will reduce costs, improve quality, and improve access to care.

States use APCDs to meet a variety of needs. A 2018 publication from the California Health Care Foundation (CHCF), *The ABCs of APCDs*, highlights several examples of how states use APCDs to understand and improve care, including:[12]

- Colorado: "*variation in regional health care utilization on a population basis by county and other geographic groupings*"
- Massachusetts: "*spending report that provides policy makers local expenditure growth trends, with exploration of growth by service category, and assessments of out-of-pocket spending*"
- New Hampshire: "*reports that demonstrate trends in health care cost and utilization in different ways, including by payer*"
- Vermont: "*evaluate the Blueprint for Health, the multi-payer advanced primary care medical home program*"

In many states, APCDs support public reporting that highlights geographic variation in health care cost, quality, and utilization; prevalence of and costs to treat chronic disease; and other public health related measures. States generate analytic datasets, reports, and other information products to support research, public health, and health care operations, among many other uses. Custom analyses are generated on an ad hoc basis to address emerging health care policy issues as well. Several states have created health care pricing tools that provide average (or median) paid amounts for specific procedures, some of them on a named provider basis.

Fit with OSHPD's Mission and Experience

Created in 1978, OSHPD provides the state with an enhanced understanding of the structure and function of its health care delivery systems by collecting and disseminating data about California's health care infrastructure and publishing information about health care outcomes. Its mission is to advance access to safe, quality health care environments through innovative and responsive services and information.

OSHPD has a long history of collecting data for use by health care facilities, policymakers, public health agencies, and researchers. Primary objectives of these existing efforts include collecting accurate, reliable, and timely information for use in making informed decisions in the health care marketplace, assessing the effectiveness of California's health care systems, and supporting statewide health policy development and evaluation. OSHPD collects and disseminates performance, financial, utilization, patient characteristics, and service data from nearly 7,700 California licensed health facilities. Hospital discharge data, which are collected by almost every state, are routinely used to support an array of public health and health policy questions that range from prevalence of disease to access to care.[13] The information that OSHPD makes publicly available includes risk-adjusted outcome ratings for heart bypass surgery, stroke, readmissions, hip fractures, and other procedures. OSHPD conducts and publicly releases studies on health topics such as preventable hospitalizations, c-sections, alcohol-related ED encounters, and sepsis. OSHPD's recent achievements in health care data and reporting (2015-18) include:

- Expanded its inventory of data products to more than 125 reports, datasets, outcome and performance trends, and special studies.
- Evaluated and fulfilled more than 1,300 requests for data and provided more than 200 custom data analyses to external organizations.
- Contributed more than 100 datasets and charts to the CHHS Agency Open Data Portal, including information on hospital profitability, patient trends, and a wide variety of hospital performance and quality ratings.

OSHPD's Information Services Division (ISD) integrates enterprise data operations with health care analytics, employing common technology infrastructure to improve data accessibility and usage to better serve all OSHPD clients and stakeholders. ISD houses several data programs, including Cost Transparency, Health Care Utilization, and Health Care Quality.

The HPD Program fits well with OSHPD's existing Cost Transparency program, which includes hospital and long-term care facility financials, hospital chargemasters, prescription drug costs, and other data assets that support and advance health care cost transparency. OSHPD introduced a new prescription drug cost transparency effort in 2017 to comply with Senate Bill (SB) 17, Chapter 603, Statutes of 2017. That program requires drug manufacturers to make certain data available to OSHPD about the wholesale acquisition cost of prescription drugs, including costs or increases that exceed specified thresholds.

The HPD Program will leverage OSHPD's experience in managing large health care datasets, protecting the confidentiality of patient-level data, producing analytics and information for policymakers and the public, and handling data requests from outside organizations. The HPD System would contribute to OSHPD's existing portfolio through the contribution of outpatient, professional, prescription drug, and payment data, resulting in a robust database capable of answering a broad array of questions about the performance of California's health care system.

Use Cases

The term "use case" is a software engineering term that describes how a user interacts with a system to achieve a goal. Increasingly, the term is used more broadly to describe scenarios in which a product or service could potentially be used, with the objective of identifying important requirements that should be proactively considered at the design stage. In the context of the HPD Program, use cases illustrate the opportunities to explore different aspects of California's health care system. Review and evaluation of use cases helps shape operational features of the HPD Program such as data submission requirements, data management processes, data access strategies, and identification of analytic and reporting priorities.

Though there are myriad APCD use cases, the ones discussed in this chapter have been selected based on the extent to which they are compelling, feasible, and consistent with the legislative intent related to transparency, cost-containment, quality of care, and health equity.

Overview of Use Case Categories and Examples

By aggregating claim and encounter data from multiple payers, the HPD has tremendous potential to address a wide array of important questions about California's health care system. For the purpose of discussion, **use case categories** are defined below as areas of inquiry: cost and utilization, quality, coverage and access, population and public health, and California health system performance. Topics that fit within each category are based, in part, on the experience of other states and are shown in Exhibit 3; the lists are illustrative, not comprehensive.[ii]

Exhibit 3. Use Case Categories and Selected Topics

COST AND UTILIZATION	QUALITY	COVERAGE AND ACCESS	POPULATION AND PUBLIC HEALTH	CALIFORNIA HEALTH SYSTEM PERFORMANCE
• Utilization and spending • Price transparency • Price variation among providers • Total Cost of Care (TCoC) • Benchmarking • Cost-effectiveness • Low-value care • Cost of avoidable complications • Pharmaceutical cost, utilization • Oral health cost, utilization • Behavioral health cost, utilization	• Preventive screenings, immunizations—variation and comparison • Continuity of care (transitions in care setting, coverage) • Readmissions, hospital-acquired infections, and preventable hospitalizations • Preventable emergency department (ED) visits	• Coverage trends over time and by geography • Access to care, including specialty care, dental, and behavioral health • Patient cost-sharing • Rate review/rate-setting • Insurance coverage • Network adequacy • Premiums	• Chronic conditions (e.g., diabetes, asthma) prevalence, cost, quality • Opioid prescribing • Firearm injuries—incidence, cost • Connection between environment and chronic conditions (e.g., air quality and asthma) • Epidemiology: trends in cancers, infectious diseases, behavioral health conditions	• Effects of delivery system consolidation on cost, quality, access, equity • Evaluation of new models of care and payment • Integration of physical and behavioral health care • Care coordination for specific populations (e.g., dual eligibles) • Prevalence/trends in alternative payment models (APMs)

[ii] The APCD Council's website, https://www.apcdshowcase.org/ maintains a large catalog of example reports from other states' APCD programs.

Use case examples are defined as scenarios for using the HPD. Each of the following use case examples includes the following parameters:

- **Key Question**: What research question is the user trying to answer?
- **Overview**: What information will be available to the user? For example, statewide summary statistics on utilization across payers.
- **Audiences, Primary and Secondary**: What stakeholder audience will likely be interested in this use case? Which ones are the target, or primary, users, and which ones indirect, or secondary?
- **Output Examples**: What is the likely reporting format for this use case? In other words, what will the end product look like? Examples include an analytical report, interactive website, raw data available to qualified and approved parties, summary statistics, visualizations, and dashboards (multiple analytic views aggregated by topic).
- **Policy and Business Value**: What is the desired outcome or value proposition to the user? Examples include identifying opportunities to contain costs, informing network design, providing information on market share, or supporting regulatory oversight.
- **State APCD Experience Examples**: What other states, if any, have pursued a similar use case example?

For each use case category, two examples are provided. Of note, these are only examples; it is anticipated that the HPD Program would have the potential to realize many additional use cases in each category, particularly over time as data assets and capabilities evolve. Indeed, the "APCD Showcase" provides a wealth of examples of how states have used the data from their APCDs to generate information and answer research, policy, and business questions.[14] The examples presented in Exhibit 4 were selected based on their interest to a wide audience, likelihood of producing actionable results (i.e., results with policy and/or business value), feasibility using the core HPD data (claim, encounter, member enrollment, and provider information), likelihood of producing reliable results, and the experiences of other states' APCDs.

Exhibit 4. Use Case Categories and Examples

USE CASE CATEGORY	EXAMPLE 1	EXAMPLE 2
1 Cost and Utilization	Utilization, Spending, and Total Cost of Care	Identify and Reduce Low-Value Care
2 Quality	Quality Comparisons	Quality and Continuity of Care Through Coverage Transitions
3 Coverage and Access	Coverage Trends by Region and Payer	Regulatory Oversight of Insurance
4 Population and Public Health	Prevalence, Management, and Cost of Chronic Conditions	Understanding the Opioid Epidemic
5 California Health System Performance	Report on Statewide System Performance	Effect of Consolidation on Quality and Cost

Audiences, or types of users of the data, include policymakers, purchasers, payers and providers, the public, researchers, and others. For reference, examples of each type of user are included in Exhibit 5.

Exhibit 5. Examples of Data Users (Audiences) for the HPD Program

POLICYMAKERS	PURCHASERS	PAYERS AND PROVIDERS
• Legislators • CA Health and Human Services (CHHS) Agency • Regulators (Department of Managed Health Care, CA Department of Insurance) • CA Department of Public Health and local public health departments • Covered California	• Department of Health Care Services (DHCS) (Medi-Cal) • CA Public Employees' Retirement System (CalPERS) • Trusts • Employers • Self-insured counties	• Health plans and insurers • Hospitals and systems • Medical groups and independent practice associations • Community health centers

PUBLIC	RESEARCHERS	OTHER GROUPS
• Consumers • Consumer advocates • Patients and families • Media • CA Office of the Patient Advocate	• Universities and think tanks • CA Health Benefits Review Program	• Labor unions • Pharmaceutical companies and device manufacturers • Pharmacy benefit managers (PBMs) • Benefits consultants • Data firms developing tools

In 2017, approximately 36.2 million of California's population of 39 million were insured, with the remaining 2.8 million uninsured.[15] APCDs lack data on the uninsured population, and several groups of insured persons are also generally excluded. The use case categories and examples assume that the data:

- **Include** Californians covered by Medicare, Medi-Cal, or commercial health insurance (fully-insured products), as well as public employees and retirees.
- **Do not include** Californians covered by self-insured employers in the commercial market (though such data may be included at the discretion of the plan sponsor), federal employees, the prison system, active military, Veterans Affairs, TRICARE (for military dependents), and the Indian Health Service.

Example use cases for the five categories described above are presented in Exhibits 6-10.

Exhibit 6. Use Case Category 1: Cost and Utilization Examples

USE CASE CHARACTERISTIC	1.1 UTILIZATION, SPENDING, AND TOTAL COST OF CARE	1.2 IDENTIFY AND REDUCE LOW-VALUE CARE
Key Question	How much does cost and utilization vary, and what are the trends over time?	What are the areas and drivers of low-value care, and how much do they contribute to cost?
Overview	Key metrics on utilization and spending. Includes total and component parts (facility inpatient, outpatient, emergency department; professional clinician and ancillary services; pharmacy); overall and for specific procedures; across payers, geography, age group, and gender; and consumer share of cost. Total Cost of Care (TCoC) would be added later (requires capitation and other supplemental data such as pharmacy rebates in addition to claim and encounter data).	Claims-based measures of care designated as "low value" based on evidence reviews (e.g., Choosing Wisely,[d] U.S. Preventive Services Task Force[e]), across payers, geography. Low-value care can cause harm (e.g., imaging radiation, unnecessary procedures, financial harm to patients) and presents an opportunity to improve quality and reduce costs simultaneously.
Primary Audience	Policymakers, Purchasers	Policymakers, Purchasers, Payers and Providers
Secondary Audience	Payers and Providers, Researchers, Public	Researchers, Public
Output Examples	• Aggregate data on website and for download • Fact sheets, infographics, data stories • Maps showing geographic variation • Reports on trends over time and variation (by geography, payer category, etc.)	• Fact sheets, infographics • White papers, issue briefs
Policy Value	• Document variation in spending (e.g., facility-paid amounts for uncomplicated knee and hip replacements) • Document variation in utilization and spending by region, age, gender • Populate Let's Get Healthy[a] dashboard • Generate statewide report card • Identify variation in spending, utilization • Support policy changes in regulation or payment to address identified issues	• Reduce costs, both payer and patient out-of-pocket costs • Improve quality/reduce harm by eliminating unnecessary care (sometimes called "waste") • Identify areas experiencing extreme variation from care norms
Business Value	• Compare own utilization and spending to benchmarks • Reward top performers (combine with quality data from Use Case Example 2.1)	• Reduce costs (including patient out-of-pocket costs) and improve quality
State APCD Experience Examples	• All APCDs have statewide utilization metrics. • Colorado has done extensive TCoC analysis[b] and participated in a multi-state benchmarking analysis of TCoC with Maryland, Minnesota, Oregon, and Utah.[c]	• Minnesota analyzed 18 low-value services (e.g., imaging, screening).[f] • Massachusetts reported on low-value care and associated costs in the 2018 Annual Health Care Cost Trends Report (see Chapter 4).[g]

Sources:

[a] Let's Get Healthy California. 2016. "How is California Doing?" https://letsgethealthy.ca.gov/progress/

[b] Center for Improving Value in Health Care. 2018. *Total Cost of Care Multi-State Analysis*. http://www.civhc.org/wp-content/uploads/2018/02/Total-Cost-of-Care-Spot-Analysis.pdf.
[c] Center for Improving Value in Health Care. 2018. "Colorado's Health Care Costs Continue to Rise Above Other States". November 18. https://www.civhc.org/2018/11/08/colorados-health-care-costs-continue-to-rise-above-other-states/.
[d] ABIM Foundation. 2020. "Choosing Wisely®: Promoting conversations between patients and clinicians." https://www.choosingwisely.org/.
[e] U.S. Preventive Services Task Force. 2019. "Home." December. https://www.uspreventiveservicestaskforce.org/.
[f] Minnesota Department of Health. 2017. *Analysis of Low-Value Health Services in the Minnesota All Payer Claims Database*. May. https://www.health.state.mn.us/data/apcd/docs/lvsissuebrief.pdf.
[g] Massachusetts Health Policy Commission. 2019. 2018 Annual Health Care Cost Trends Report. February. https://www.mass.gov/files/documents/2019/02/20/2018 Cost Trends Report.pdf.

Exhibit 7. Use Case Category 2: Quality Examples

USE CASE CHARACTERISTIC	2.1 QUALITY COMPARISONS	2.2 QUALITY AND CONTINUITY OF CARE THROUGH COVERAGE TRANSITIONS
Key Question	To what extent does quality vary? What characteristics distinguish high- from low-performance?	How frequently do people switch coverage sources ("churn"), and how does their care differ when they do?
Overview	Comparative quality measures that can be calculated from claim data across payers, products, and geography. Supplemental clinical data, such as laboratory values, could be added over time to extend the list of reportable measures.	Patterns of care over time as source of coverage changes (e.g., movement between Medi-Cal and Covered California).
Primary Audience	Policymakers, Purchasers	Policymakers, Purchasers, Researchers
Secondary Audience	Payers and Providers, Researchers, Public	Payers and Providers, Public
Output Example	• Data on website and for download • Fact sheets, infographics, data stories • Maps showing geographic variation • Reports on trends over time and variation (by geography, payer, etc.)	• Data extracts for subpopulations transitioning coverage (e.g., Medi-Cal to Covered California) • Published reports
Policy Value	• Generate statewide report card • Illuminate geographic variation in quality • Support policy changes in regulation or payment to address identified issues • Support consumer decision making about where to go for care • Support value-based insurance design • Identify and address health disparities	• Understand prevalence of movement between payer types/coverage sources • Assess connection between coverage transition, continuity of care, and quality • Identify drivers of "churn" (movement between types of coverage and/or becoming uninsured), and develop solutions • Support the Centers for Medicare & Medicaid Services (CMS) Access Monitoring Review requirements regarding comparing Medi-Cal to commercial payers and Medicare on access, utilization, and rates • Identify and address health disparities
Business Value	• Support network design decisions • Direct resources toward quality improvement needs	• Understand where members go when they leave the plan and where new members come from

USE CASE CHARACTERISTIC	2.1 QUALITY COMPARISONS	2.2 QUALITY AND CONTINUITY OF CARE THROUGH COVERAGE TRANSITIONS
	• Accountability—identify low performers for corrective action • Incentives/rewards for high performers • Monitor impact of changes in payment, coverage on quality	• Develop approaches to increase retention rate • Identify opportunities to expand provider coverage or types in high need areas • Identify disparities that result from coverage transitions
State APCD Experience Examples	Many APCDs report on claims-based quality measures by payer and geography. Examples include: Colorado features interactive data on quality metrics, as well as maps and infographics;[a] Arkansas reported on variation in prevalence of breast cancer;[b] and Washington's interactive website displays metrics by geography and payer.[c]	States (e.g., Colorado) have used APCDs to meet CMS Access Monitoring Review requirements; RAND is using Oregon APCD data to analyze the impact of transitions in coverage on utilization and cost.[d]

Sources:
[a] Center for Improving Value in Health Care. 2019. "Quality Measures." https://www.civhc.org/get-data/public-data/interactive-data/quality-measures/.
[b] Arkansas Center for Health Improvement. 2018. "Prevalence of Breast Cancer in Arkansas." April. https://www.apcdshowcase.org/content/prevalence-breast-cancer-arkansas.
[c] Washington HealthCareCompare. 2019. "The Road to a Healthier Washington." https://www.wahealthcarecompare.com/market.
[d] Oregon Health Authority. 2018. *Oregon All Payer All Claims Database (APAC): Use Case Document*. August. https://www.oregon.gov/oha/HPA/ANALYTICS/APAC%20Page%20Docs/APAC-Use-Cases.pdf.

Exhibit 8. Use Case Category 3: Coverage and Access Examples

USE CASE CHARACTERISTIC	3.1 COVERAGE TRENDS BY REGION AND PAYER	3.2 REGULATORY OVERSIGHT OF INSURANCE
Key Question	How are coverage sources changing over time?	How can payment data help ensure fairness and protect consumers?
Overview	Insurance enrollment by county/region, payer type (commercial, Medicare, Medi-Cal), health plan, product (HMO, PPO, ACO, ASO), and market (small group, large group, etc.). Limited to those with coverage; must be supplemented with additional data sources to estimate uninsured.	Analyze medical service and pharmacy trends to support oversight by state regulators and purchasers [Department of Health Care Services (DHCS) for Medi-Cal, CA Public Employees' Retirement System (CalPERS), Covered California].
Primary Audience	Policymakers, Purchasers, Researchers	Policymakers, Purchasers
Secondary Audience	Payers and Providers, Public	Payers and Providers, Researchers, Public
Output Example	• Aggregate data on website and for download • Fact sheets, infographics, data stories • Maps showing geographic variation • Reports on trends over time and variation (by geography, payer, etc.)	• Data extract for regulator/state purchaser use
Policy Value	• Monitor changes in coverage over time • Assess geographic variation in coverage	• Inform evaluation of premium increases • Develop legislative or regulatory solutions to balance billing or surprise billing issues

	• Support policy changes in regulation or payment to address identified issues	• Assess impact of policy changes on spending (e.g., new mandates) • Support network adequacy review • Identify disparities in access
Business Value	• Insight into market dynamics and opportunities	• Better data available to support insurer premium increases and financial stability of insurers
State APCD Experience Examples	Massachusetts produces an annual report on coverage.[a]	New Hampshire's insurance department issues an annual report on medical cost drivers in support of an annual hearing on premium rates,[b] and in 2018 adopted a new network adequacy review leveraging APCD data.[c] Colorado and Oregon also use APCD data for regulatory oversight (reports not public).

Sources:
[a] Center for Health Information and Analysis. 2018. *Enrollment Trends: August 2018 Edition*. August. http://www.chiamass.gov/assets/Uploads/enrollment/2018-august/EnrollmentTrends-Aug2018-Report.pdf.
[b] New Hampshire Insurance Department. 2018. *2017 Final Report of Health Care Premium and Claim Cost Drivers*. November 21. https://www.nh.gov/insurance/reports/documents/2018-nhid-annual-hearing-final-report.pdf.
[c] New Hampshire Insurance Department. 2018. *NH Insurance Department's Innovative Network Adequacy Rule Approved*. June 15. https://www.nh.gov/insurance/media/pr/2018/documents/06-15-18-network-adequacy-rule-adopted.pdf.

Exhibit 9. Use Case Category 4: Population and Public Health Examples

USE CASE CHARACTERISTIC	4.1 PREVALENCE, MANAGEMENT, AND COST OF CHRONIC CONDITIONS	4.2 UNDERSTANDING THE OPIOID EPIDEMIC
Key Question	What is the prevalence and cost of specific chronic conditions? What is the geographic distribution of disease burden?	What can we learn about prescribing patterns and utilization that can contribute to addiction treatment and prevention?
Overview	Patterns of care (quality, utilization, cost) for patients diagnosed with chronic conditions (e.g., diabetes, asthma), by payer, product, geography.	Track opioid prescribing across geography and payer for chronic users.
Primary Audience	Policymakers, Purchasers, Payers and Providers	Policymakers, Purchasers, Payers and Providers
Secondary Audience	Researchers, Public	Researchers, Public
Outputs Examples	• Aggregate data on website and for download • Fact sheets, infographics, data stories • Maps showing geographic variation • Reports on trends over time and variation (by geography, payer, etc.)	• Aggregate data on website and for download • Fact sheets, infographics, data stories • Maps showing geographic variation • Reports on trends over time and variation (by geography, payer, etc.) • Confidential, nonpublic reports to a specific provider
Policy Value	• Identify "hot spots" in the state with high prevalence, low access/quality, and target attention/resources	• Identify top diagnoses at initial prescription for chronic users to support education and outreach

	• Quantify the cost of poor care • Address barriers to care (e.g., low medication adherence tied to cost of prescription drugs such as insulin) • Assess quality and cost for Medi-Cal vs. commercial • Support changes in policy or payment that shift toward prevention • Illuminate health disparities and develop targeted interventions to address	to prescribers; utilization of pain management specialty care • Identify geographic "hot spots" of opioid prescribing for public health intervention • Identify regions with insufficient addiction treatment options • Offer reporting at payer/provider group level on prescribing volumes and addiction treatment (e.g., percent of members with opioid use disorder on medications, number of naloxone prescriptions) to assess need for intervention and to evaluate outreach efforts to prescribers • Longitudinal portraits of patient populations that are associated with long-term opioid prescribing patterns
Business Value	• Benchmark network performance • Hold providers accountable, inform network decisions • Target quality improvement resources • Identify opportunities to reduce cost	• Benchmark network prescribing against comparable population statewide and regionally • Inform approach to managing opioid prescribing and addiction treatment capacity
State APCD Experience Examples	Several states (e.g., Colorado) publish prevalence data on multiple chronic conditions. Virginia analyzed costs of the top five chronic conditions (hypertension, asthma, diabetes, musculoskeletal disorder, gastrointestinal disorder).[a]	Virginia, Utah, and Minnesota have all developed opioid prescribing reporting initiatives.[b] Colorado released a report on opioid prescribing patterns between 2009 and 2017.[c]

Sources:
[a] Virginia Health Information. 2019. *Chronic Conditions in Virginia*. http://www.vhi.org/Media/flyers/chronicinfo_vhi.pdf.
[b] Porter, Josephine, and Denise Love. 2018. "The ABCs of APCDs." CHCF. November 8. https://www.chcf.org/publication/the-abcs-of-apcds/.
[c] Center for Improving Value in Health Care. 2019. *Prescribing Opioids in Colorado: Oxycodone, Percocet, and Vicodin*. February. https://www.civhc.org/wp-content/uploads/2019/02/Opioid-Spot-Analysis-March-2019.pdf.

Exhibit 10. Use Case Category 5: California Health System Performance Examples

USE CASE CHARACTERISTIC	5.1 REPORT ON STATEWIDE SYSTEM PERFORMANCE	5.2 EFFECT OF CONSOLIDATION ON QUALITY AND COST
Key Question	How is California's health system performing?	What are the likely effects of health plan and/or facility consolidation on competition and cost?
Overview	Compile, aggregate, and report on health care spending, quality, enrollment, access to care, and other key indicators across geography, payers, and populations. Reporting would become more meaningful over time, as data sources and analytic capabilities increase.	Data on utilization, cost, and quality at the provider level (e.g., hospital, delivery system) across payers. Requires that timeframe for data collection on merger and acquisition activity coincides with available historical claim data.
Primary Audience	Policymakers, Purchasers, Payers and Providers	Policymakers, Researchers
Secondary Audience	Researchers, Public	Purchasers, Payers and Providers, Public

Output Examples	• Report—text, tables, visualizations • Web portal to access public data, downloadable files • Tailored extracts to support research	• Tailored extract for use in documenting baseline data on cost, quality, and access and generating projections under the consolidation scenario
Policy Value	• Monitor key indicators of cost, utilization, quality, and value • Track trends over time—identify areas of progress and need for improvement • Identify health disparities	• Support analysis of proposed mergers and acquisitions • Support analysis of market concentration and effect on price, such as health care system consolidation trends[d] • Inform development of policy interventions
Business Value	• Insight into market dynamics and opportunities	• Understanding effects of market structure on costs, quality, and access to care; inform state policy and private sector understanding of issue
State APCD Experience Examples	Several states release annual reports on performance. Massachusetts publishes an annual report on system performance[a] and hosts an annual legislative hearing on the findings.[b] Colorado publishes an annual report that covers a broad array of performance indicators and uses of the APCD data.[c]	Data from the Massachusetts APCD was used to support the state's review of a proposed delivery system acquisition.[e]

Sources:
[a] Center for Health Information Analysis. 2018. *Performance of the Massachusetts Health Care System*. Annual Report. http://www.chiamass.gov/assets/2018-annual-report/2018-Annual-Report.pdf.
[b] Commonwealth of Massachusetts. 2020. 2018 Cost Trends Hearing. https://www.mass.gov/service-details/2018-cost-trends-hearing.
[c] Center for Improving Value in Health Care. 2019. *Colorado All Payer Claims Database: Annual Report - 2018*. https://www.civhc.org/wp-content/uploads/2019/01/2018-CO-APCD-Annual-Report-incl.-Appendices.pdf.
[d] Scheffler, Richard M, Daniel R Arnold, and Christopher M Whaley. 2018. "Consolidation Trends In California's Health Care System: Impacts On ACA Premiums And Outpatient Visit Prices." *Health Affairs* 37 (9). https://www.healthaffairs.org/doi/10.1377/hlthaff.2018.0472.
[e] Massachusetts Health Policy Commission. 2018. *Review of The Proposed Merger of Lahey Health System; CareGroup and its Component Parts, Beth Israel Deaconess Medical Center, New England Baptist Hospital, and Mount Auburn Hospital; Seacoast Regional Health Systems*. https://www.mass.gov/doc/final-cmir-report-beth-israel-lahey-health/download.

Filling Gaps in Existing Data Sources

The HPD Program will streamline and improve California's ability to monitor health system performance through a more complete and standardized dataset, enabling a more efficient and lower-cost approach to planning and evaluating programs and improvement initiatives. Currently analysts—and policymakers—must rely on national data sources that may not fully represent California, are missing key market segments/payers (e.g., Medi-Cal), and/or have a long delay between releases.

At the November 2019 meeting of the Review Committee, a panel of "end users" from the Public Policy Institute of California, the California Academy of Family Physicians, and Covered California discussed the role the HPD Program could play in filling gaps in existing data sources to address key policy questions, as described below:[16]

- The Public Policy Institute of California presented key findings from their report *Improving Health Care Data in California*, focused on researcher use cases for the HPD System and opportunities for such research to inform statewide policy.[17]

- The California Academy of Family Physicians emphasized the importance of measuring primary care spending and the value of APCDs for this purpose, drawing on the experience of other states.
- Covered California highlighted use cases related to evaluation of network value ("What are the major cost drivers in different networks? Which providers are 'outlier poor performers' on either cost or quality?") and coverage transitions, noting that one-third of the Covered California individual market turns over annually. The presentation also referenced the use cases submitted by Covered California to OSHPD in April 2019, which range from operational analytics to designing and monitoring interventions such as value-based benefits.[18]

Supporting California's Policy Goals

Planning for California's future health care system, testing policy or programmatic interventions for their effectiveness in addressing system challenges, and monitoring full-scale implementation of California policy priorities all require comprehensive, timely data across payers and geographies in the state. While the HPD System will not be operational until 2023, current policy goals indicate how the HPD Program can support future Administration priorities. Examples from Governor Newsom's proposed budget related to health and human services for 2020-21[19] include:

- Establishment of a new Office of Health Care Affordability that would increase price and quality transparency and set cost targets for sectors of the health care industry. The Office will also focus on delivery system consolidation and resulting cost increases, and it will work to advance value-based payment to providers.
- Reducing prescription drug costs by transitioning pharmacy services from Medi-Cal managed care to a fee-for-service (FFS) system and standardizing Medi-Cal pharmacy benefits statewide, strengthening California's ability to negotiate with drug manufacturers.
- Creation of a new Center for Data Insights and Innovation that would consolidate the existing Office of Innovation, Office of the Patient Advocate, and Office of Health Information Integrity to improve use of data for planning, program development, and evaluation; enhance use of linked data to inform decision-making; and improve rigor and transparency of research, resulting in better services and more equitable outcomes for Californians.

The HPD System is an essential building block in support of California's health and human services policy goals through both 1) comprehensive and detailed data on cost, utilization, and quality; and 2) ability to facilitate linkages to complementary clinical, social services, economic, and environmental data.

Capitation and the HPD System

Managed care has a large footprint in California across market segments—about 10.5 million Californians with commercial coverage are enrolled in a health maintenance organization (HMO), as are 10.5 million Medi-Cal enrollees and 2.6 million of the state's Medicare enrollees. Kaiser Permanente, with over 8 million enrollees in California, represents a significant share of the market. (See Chapter 4 for details and sources on the health insurance market and plan enrollment).

Given the importance of capitation in California's market, a feasible approach to handling capitation is essential to maximizing the usefulness of the HPD System. First, it is important to note that a substantial amount of California's payment data remains FFS, even within managed care plans. While capitation has been a distinctive feature of California's market for many years, commercial HMO enrollment outside of Kaiser Permanente declined substantially between 2004 and 2015.[20]

Second, the HPD System will collect encounter data for capitated services. As described in Chapter 2, encounter data flows through data systems in the same way as claims, but without the payment element. A major effort is underway to improve encounter data in California, which will benefit the HPD, as described in Chapter 8. Encounter data can support analysis of utilization and quality, even without payment data. In addition, FFS equivalents may be provided by the data submitter in the encounter or can be assigned to encounter data after submission as part of processing. An FFS equivalent is the amount that would have been paid if the service had not been capitated or paid under an alternative payment arrangement.

Third, the HPD System will collect capitation and other non-claims payment data through a supplemental data collection process that will be informed by input from data submitters and other stakeholders and experts. A Technical Workgroup of payers and other stakeholders (see Appendix for participant list) met regularly in 2019 and early 2020 with the OSHPD team and the National Association of Health Data Organizations (NAHDO) to provide input on the design of the HPD System. A subgroup met several times to inform data collection for capitation and alternative payment models or APMs (e.g., shared savings associated with accountable care organizations or ACOs). This effort can draw on the experience of other states that are collecting and using data on non-FFS payment arrangements, including Massachusetts[21] and Oregon,[22] and could lay the groundwork for a future national approach to collecting state-based non-claims data.

Public Reporting and Consumer Decision Making

Notably missing from the use case examples in this chapter is a consumer-facing website intended to guide decision making about selection of providers based on price and/or quality. Several state APCDs have launched such websites, including Maine, Massachusetts, and New Hampshire. California could certainly do the same, but there is an important distinction between public reporting and consumer decision tools.[23] Public reporting initiatives are generally focused on improving quality and efficiency though transparency and are most often supported by philanthropic or government institutions. By contrast, consumer decision tools are most useful when populated with benefit design (e.g., out-of-pocket cost) and provider network information specific to the individual—information that is held by payers and purchasers.

Specific challenges associated with providing timely, relevant information to consumers to support decision making at the point of clinical care include:

- Relatively few health care services are "shoppable"—meaning they are standardized services, the service is needed on a non-urgent basis, and there is a choice of providers. Some services do meet these criteria, at least some of the time; examples include

preventive screenings such as mammography or colonoscopy, elective hip or knee replacement, vaginal delivery, and imaging. Many services such as cancer care, complex surgical procedures, and emergency services, however, are not candidates for shopping.

- APCDs lack the detailed information about provider networks and benefit design that determine an individual's coverage level and out-of-pocket cost, and states have managed this limitation in different ways. Visitors to Massachusetts' CompareCare encounter a pop-up window on the home page recommending that the visitor "Get a better estimate from your health insurer" because the amount shown does not distinguish between insurer and consumer out-of-pocket components.[24] Maine's CompareMaine features a similar statement and requires that the user click through a disclaimer before accessing the data.[25]
- Even with efficient processes and quick turnaround, data available through APCDs will lag due to the time required to collect, validate, and analyze data for public release. In March 2019, Washington State's HealthCareCompare tool[26] and Maine's CompareMaine displayed 2017 data, while Massachusetts' CompareCare featured 2015 data.

Moreover, many consumer decision tools are underutilized, likely due to a combination of lack of consumer awareness and the challenges noted above. A 2014 study of New Hampshire's consumer-facing website found that it was used by only 1 percent of the state's residents.[27] Indeed, consumers may not use such tools even when the price estimates accurately reflect their own out-of-pocket costs. In 2018, California Public Employees' Retirement System (CalPERS) discontinued use of the Castlight tool for its preferred provider organization (PPO) members after an evaluation showed low use (23 percent) and no change in spending.[28] However, price and quality transparency are fundamental to gaining traction on system change, and public reporting that is accessible to a broad array of audiences—including consumers—must be a central component of the HPD Program. Even with low consumer use, a recent study credits New Hampshire's NH HealthCost website with driving down the cost of certain services, such as imaging.[29] Given that most consumers and patients are not likely to use the information generated by the HPD System for decision making, resources spent to build and maintain a consumer-facing website with detailed price and quality data may be better used to strengthen data quality and analysis in support of policy decisions and quality improvement initiatives, as well as developing reliable data products for non-public data releases.

While transparency is a central aspect of the legislative intent for the HPD Program, the focus is on informing policy decisions in support of quality, equity, and affordability—not consumer decision making. At least in the initial stages of the HPD Program, the legislative intent and other states' experience with consumer transparency tools both point toward the HPD Program focusing on public reporting rather than consumer decision making.

Tiered Approach to Data and Reporting to Support Use Cases

The ability of the HPD System to fulfill use cases hinges on the availability of reliable and accurate data. Exhibit 11 provides a high-level overview of the anticipated trajectory for HPD data and the types of data products that can be supported. Initially, the HPD System's data collection could focus on core data elements that are readily available in health plans' and insurers' data warehouses, with a reporting focus on summary statistics and aggregate results.

Over time, the types of data available and the HPD System's capabilities and functionality can grow, enabling more sophisticated analyses and more complex reporting. In the long run (labeled "Tier 3: Maturity" in Exhibit 11), pending availability of additional data sources and advances in health care data interoperability, more advanced uses can be pursued.

Data analysis, including development of initial public reporting, can begin once payers have submitted a minimum of three years of historical data to the HPD System, and the data have been evaluated and processed. Starting with at least three years of data will allow for calculation of the initial measures over multiple years and support some analysis of trends. Generation of the initial measures; careful examination of results by year, payer type, and individual submitter; and stakeholder and partner engagement with the results are essential steps prior to public release of the first HPD Program results. These first steps provide opportunities for in-depth quality assessment and fostering greater confidence in the data. Moreover, successful execution of progressively more complex use cases over time will support continuous improvement of data quality. See Chapter 8 (Data Quality) for more detail.

Exhibit 11. Data and Reporting Through the HPD

	TIER 1: CORE	TIER 2: EXPANSION	TIER 3: MATURITY
Data Categories	• Claims and encounters (medical and pharmacy) • Member enrollment • Provider information	• Capitation: alternative payment models (APMs), pharmacy rebates, pay for performance, etc. • Dental claims, encounters, member enrollment, and provider information	• Lab values and other clinical information through electronic medical records (potentially)
Leveraging Other Data Sources: Examples	• Census data elements (such as race/ethnicity, income, and housing)	• Hospital discharge data (OSHPD)[a] • Vital statistics (birth and death records) • Surveys (e.g., California Health Interview Survey,[b] Behavioral Risk Factor Surveillance System[c]) • CA's open data portal (e.g., air and water quality[d]) • Other public sources[e]	• Immunization registries • Chronic disease registries (e.g., CA Parkinson's[f]) • CA Reportable Disease Information Exchange (infectious disease, CalREDIE[g]) • California Cancer Registry[h] • Controlled Substance Utilization Review and Evaluation System (CURES)[i]
Output Examples	• Web displays, including maps and dashboards • Predefined reports on de-identified aggregate data	• Interactive reports • Access to data by application through a data enclave • Custom datasets (one-time data extracts)	• Web or enclave-enabled data analysis
Reporting Level and Capabilities	Summary statistics, statewide and regional by age, gender, race/ethnicity	By payer (Medi-Cal, Medicare, commercial) and product (HMO, PPO, ACO)	Patterns of care over time, such as episodes of care, longitudinal analyses (e.g., cost in last six months of life)
Use Case Examples	1.1 Utilization, Spending, and Total Cost of Care (utilization and spending components) 2.1 Quality Comparisons 3.1 Coverage Trends by Region and Payer (region component) 3.2 Regulatory Oversight of Insurance 4.1 Prevalence, Management, and Cost of Chronic Conditions (prevalence component)	1.1 Utilization, Spending, and Total Cost of Care (total cost of care component) 1.2 Identify and Reduce Low-Value Care 2.2 Quality and Continuity of Care Through Coverage Transitions 3.1 Coverage Trends by Region and Payer (payer component) 4.1 Prevalence, Management, and Cost of Chronic Conditions (management and cost components) 4.2 Understanding the Opioid Epidemic 5.1 Report on Statewide System Performance 5.2 Effect of Consolidation on Quality and Cost	More complex analysis and sophisticated reporting on all use cases (e.g., episodes of care for a chronic condition such as diabetes—Use Case Example 4.1).

Sources:

[a] Office of Statewide Health Planning and Development. 2019. "Healthcare Utilization." https://oshpd.ca.gov/data-and-reports/healthcare-utilization/.
[b] CHIS. 2017. California Health Interview Survey. http://healthpolicy.ucla.edu.
[c] Centers for Disease Control and Prevention. 2019. "Behavioral Risk Factor Surveillance System." November 5. https://www.cdc.gov/brfss/index.html.
[d] State of California Government Operations Agency. 2019. "California Open Data." https://data.ca.gov/.
[e] Hillcrest Advisory. 2019. "California Data Sources." January 20. https://hillcrestadvisory.com/2019/01/20/california-data-sources/.
[f] California Department of Public Health. 2019. "Chronic Disease Surveillance and Research Branch (CDSRB)." https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDSRB/Pages/California-Parkinson's-Disease-Registry.aspx.
[g] California Department of Public Health. 2019. "California Reportable Disease Information Exchange." May 28. https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/CalREDIE.aspx.
[h] State of California. 2018. "California Cancer Registry." https://www.ccrcal.org/learn-about-ccr/.
[i] State of California Department of Justice. 2019. "Controlled Substance Utilization Review and Evaluation System." https://oag.ca.gov/cures.

A brief overview of each of the areas outlined in Exhibit 11 is provided below: data categories, mapping to other datasets, outputs, reporting levels and capabilities, and use case examples.

Data Categories (see Chapter 2 for additional information)

Core APCD data categories that are included in Tier 1 include claims and encounters, member eligibility/enrollment, and provider information. Additional data categories, including dental claims, capitation, and information about APMs such as bundled payments, would be included as part of Tier 2; the results of laboratory tests (through electronic medical records) could be pursued for Tier 3. See Chapter 2 (Data Sources and Formats) for additional information about what is in each of these data categories.

Leveraging Other Data Sources (see Chapter 3 for additional information)

Other data sources have the potential to substantially increase the ability of the HPD to answer important questions that cannot be addressed with claim and encounter data alone. For example, data on race/ethnicity, income, housing, and other socioeconomic factors are important to understanding disparities in care but are not available in a reliable and consistent way through administrative data; Tier 1 anticipates drawing on census data for that information. Other state APCDs have obtained that information from census data; a current project underway by the U.S. Census Bureau and the Utah Department of Health aims to "examine the link between demographic, social, economic, and housing factors and ED visits to reduce preventable or avoidable ED utilization."[30]

Tier 2 anticipates mapping to OSHPD's existing hospital discharge data, which could contribute important data elements such as person-level characteristics (e.g., race/ethnicity) and facility- or area-level quality indicators (e.g., preventable hospital admissions). Vital statistics data, including birth and death records, would be added as well, and survey data, including the California Health Interview Survey (CHIS) and state-specific information from the Behavioral Risk Factor Surveillance System (BRFSS), could be pursued. In Tier 3, an array of registries, including tumor registries for cancer and chronic disease registries, present opportunities to link detailed clinical data with the HPD System's cost and utilization data to answer questions about variation in patterns of care, the cost of disease, and disparities.

Of note, the feasibility of, and approach to, mapping the HPD data to other sources will vary depending on the availability of key elements and the unit of analysis. In some cases, such as birth and death records or disease registries, the mapping could be at the level of the individual. In other cases, a one-to-one mapping of records is not possible, and the best approach is to overlay information based on other identifiers such as geography. For example, if member nine-digit ZIP code is available in the core HPD System data, census information on race/ethnicity, income, and other sociodemographic factors could be overlaid at the level of the neighborhood or block. Survey data, such as the CHIS or BRFSS data, lacks a person-level identifier for mapping, but local area estimates for data elements of interest such as risky behaviors may be available at the level of the county/metropolitan area.[31] Similarly, air quality may be an important data element to include in analysis of asthma prevalence, management, and cost; again, environmental data would map to HPD System data based on geography rather than at the person level. OSHPD's health care utilization data includes quality indicators, such as preventable hospitalizations for ambulatory-sensitive conditions, which could be linked at the level of the facility or the geographic area.[32]

Outputs, Reporting Level, and Capabilities

Initially, the HPD Program outputs would focus on reports available to a broad audience of policymakers, payers and purchasers, providers, researchers, and the public. Maps and dashboards would be available online, and standard predefined reports could be accessed. Over time, both the reporting level and the outputs would become more sophisticated, including payer type and product-level reports and custom datasets. In Tier 3, a tool allowing web-enabled data analysis could be developed to facilitate use of the data. Likewise, reporting level and capabilities would expand over time, allowing more complex analysis (e.g., episodes of care, reference pricing, patterns of utilization and cost over time) to be performed. Common data dissemination strategies and reporting formats used by other state APCDs can serve as useful guidance.[33]

Finally, it should be noted that all of the use case examples presented in this chapter fit into Tiers 1 and 2, though any of the use cases could also be built out as Tier 3 examples by mapping to additional data sources, undertaking more complex analyses, and creating more sophisticated outputs.

Summary: All-Payer Claims Databases and Use Cases

APCDs support analysis and public reporting on a wide array of topics that includes geographic variation in health care cost, quality, and utilization; prevalence of and costs to treat chronic disease; and health system performance. States generate analytic datasets, reports, and other information products to support research, public health, and health care operations, among many other uses.

The HPD Program fits well with OSHPD's existing Cost Transparency program, which includes hospital and long-term care facility financials, hospital chargemasters, prescription drug costs, and other data assets that support and advance health care cost transparency.

The HPD System will initially collect medical and pharmacy claims, encounters, member enrollment, and provider information; three years of historical data will be collected at the outset. Data collection will subsequently expand to include capitation, other non-FFS payments, and dental services. Researchers, policymakers, and others have expressed a strong interest in using the HPD System to meet a variety of analysis and policy uses. Data analysis will address a wide array of important questions about California's health care system, such as:

- How is California's health system performing?
- How can payment data help ensure fairness and protect consumers?
- How much do cost and utilization vary, and what are the trends over time?
- What are the most common areas and drivers of low-value care, and how much do they contribute to cost?
- To what extent does health care quality vary, and what characteristics distinguish high- from low-performers?
- How frequently do people switch among coverage sources ("churn"), and how do care patterns differ when they do?
- What is the prevalence and cost of chronic conditions, and what is the geographic distribution of disease burden?
- What can we learn about prescribing patterns and utilization that can contribute to addiction treatment and prevention?
- What are the likely effects of health plan and/or facility consolidation on competition and cost?

The HPD System's dataset will be more comprehensive and detailed than other data sources currently available to California policymakers and researchers. The variety and volume of data the HPD System will collect and link to will increase over time, as will the complexity of supported analyses.

Chapter 2: Data Categories and Formats

Introduction

This chapter defines the categories of data the HPD System will collect in support of the previously discussed use cases, highlights the essential components in those datasets, and identifies the typical formats used to transmit the data. The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC: Section 127672, subdivision (d)(1)(C): "*defines and prioritizes data elements to collect . . . "*

In addition, given the prevalence of managed care in California and the significant payments made outside of FFS arrangements, this chapter includes options for the collection of non-claims payment information. Subsequent chapters cover the types of entities that will submit this data, how data will be linked within the HPD System, and how the HPD data can be linked to other data.

Data Categories

This section describes the categories of data to be collected through the HPD System, including:

- Claims and encounters for medical care, prescription drugs, and dental care.
- Enrollment data for all covered individuals, including type of coverage and member demographics.
- Provider data, including provider identifiers, specialty, and network affiliations.
- Capitation, alternative payment models, and other non-claims payment data.

Claims and Encounters

Medical, Prescription Drug, and Dental Claims

A claim is a record of a billing transaction and represents a provider's request for payment for health care services rendered. A claim is generated when an insured person visits a doctor, is admitted to a hospital, receives care in an emergency room, fills a prescription, undergoes a lab test, or receives other health care services. This information originates in provider billing offices and is submitted on behalf of a patient to the "payer" primarily responsible for covering the costs for health care for that individual. Payers include public programs (Medicare or Medicaid) and commercial health plans and insurers. Some payers use outside administrators, such as a third-party administrator (TPA), to process these claims.

What is in Claim and Encounter Data?*

Information on health care services provided, including utilization data and amount paid.**

- Payer providing coverage/responsible for reimbursement
- All providers involved in delivering a service
- Facility information where services were rendered
- Patient identifiers and demographics
- Dates of service
- Diagnosis codes
- Procedure codes, including professional services, supplies, and durable medical equipment
- Provider payment including submitted charge and allowed amounts**
- Patient share of cost, including deductibles, coinsurance, and copays

Elements Specific to Prescription Drug Data
- National Drug Codes (NDCs)
- Prescribing provider
- Detailed prescription drug information

Elements Specific to Dental Data
- Mouth quadrant, tooth number, tooth surface
- Dental procedure codes

* Not a complete list. Also, some elements are not consistently reported.

** Financial details may not be available on encounter records.

Most FFS claims are submitted to the payer electronically in a format that adheres to national standards. The payer then adjudicates (or "processes") the claim, checking to make sure that the patient's insurance covered the service from that medical provider. The payer also assigns the plan's payment amount, including discounts negotiated with the provider and the patient's financial responsibility. The payer then sends the adjudicated claim, payment information, and remittance advice to the provider.[iii] The claim and the result of the payer's adjudication process (including the payment amount for the provider and any patient cost sharing such as coinsurance and deductibles) combine to produce what is known as a "post-adjudicated claim". Payers' APCD submissions are based on these post-adjudicated claims.

Encounters

Like claims, encounters contain information on the services provided to a patient, including the medical diagnoses and procedures performed. Unlike claims, encounters do not include a request for payment. Rather, encounters are sent to a payer to document the health care services provided under a non-FFS arrangement. Because encounters are not directly tied to reimbursement, and providers may not have a direct financial incentive to ensure complete and accurate reporting of all services provided to patients, the encounter records often are less complete than FFS claims. Though the encounter data files do not include actual payments,

[iii] A list of reasons why the provider was paid a different amount than they requested for the billed services (e.g., exclusions for non-covered services or patient financial responsibility).

they do, similar to post-adjudicated claims, include utilization data that are essential to analysis using the HPD System.

Enrollment

APCD systems require information on all the individuals with health coverage, regardless of whether they received health care services during the reporting period. This type of data is commonly referred to both as "eligibility" and "enrollment" data. Enrollment data supports generation of population-based measures such as access to care, rates of admission, prevalence of chronic conditions, and costs per member by payer. Enrollment files provide information on every person covered by a payer or health plan during a specific reporting period. Plans use enrollment data to respond to provider requests for verification of member eligibility. Enrollment data can also be a source of some demographic data, but the completeness of that data depends on what information was required in the plan's enrollment application and system.

What is in Enrollment Data?*

Health insurance coverage information to create denominators that support population-based analyses such as admission rates, prevalence of conditions, and costs per member.

- Coverage period (beginning and ending dates)
- Type of payer (e.g., private payer, Medi-Cal, Medicare)
- Type of plan (e.g., HMO, PPO)
- Type(s) of coverage (e.g., individual, family)
- Subscriber and member identifiers
- Dependent relationship to subscriber
- Demographic data (e.g., sex, street address, birth date, race, ethnicity)
- Primary care provider
- Medi-Cal Aid Category

* Not a complete list. Some elements are not consistently reported.

Provider

Information about the providers involved in the health care system, including professional (e.g., physicians) and facility (e.g., hospitals, nursing homes, clinics) providers, is essential for several of the use cases described in Chapter 1. Tracking patterns of care over time, creating episodes of care, and assessing variation in cost and quality by provider all require this information. Some provider information is included in the actual claim and encounter data, while other information is collected separately by the payer, such as the provider specialty, facility type, licensure information, and network relationship. Payers will provide both types of provider information to the HPD System to ensure that the providers rendering and billing for services are accurately identified, and that all pertinent provider information has been collected.

What is in Provider Data?*

Directory-type demographic and network information about providers to support analyses such as facility comparisons, network adequacy, and workforce trends.

- Provider name and street address
- Provider type and specialties
- Provider identifiers such as the plan-assigned number, National Provider Identifier (NPI), state license number, Medicare identifier
- Information on the hierarchical network of provider relationships

*Not a complete list. Some elements are not consistently reported.

Capitation, Alternative Payment Models, and Other Non-Claims Data

As noted above, capitation is an important form of payment in California. In addition, many California health plans and provider systems participate in APMs such as ACOs, shared savings (and losses), and bundled payment. Capitation and other APM financial data support analysis of total health care expenditures and Total Cost of Care (TCoC), a measure of payments for each patient's care, including professional, pharmacy, hospital, and ancillary services, plus consumer cost-sharing amounts.

What is in Non-Claims Data?*

Health care-related expenditures that do not appear in claim and encounter data, to support analysis of total cost of care.

- Population-based payment/capitation
- Bundled/episode-based payment
- Performance incentives/penalties
- Shared savings
- Shared savings/risk

These payments are aggregated amounts that apply across a group of patients or providers.

* Not a complete list. Some elements are not consistently reported.

Currently, two of the 19 state APCDs (Oregon and Massachusetts) collect annual aggregated APM financial data. California's HMOs also have experience reporting capitation and other non-claims payment information to the Integrated Healthcare Association (IHA) for the TCoC calculations related to IHA's Align. Measure. Perform. (AMP) program and/or IHA's California Regional Health Care Cost & Quality Atlas program.

Pharmacy rebates are a form of price concession paid by a pharmaceutical manufacturer to the health plan or the pharmacy benefit manager (PBM), typically in exchange for improved market access such as inclusion in the plan's drug formulary or favorable "tier" placement. Including pharmacy rebate information in the HPD System will improve understanding of total health care spending in California and of cost information contained in prescription drug claims.

Pharmacy rebates are significant, accounting for 12-53 percent of total prescription drug spend depending on the payer, as shown in Exhibit 12.[34, 35]

Exhibit 12. Pharmacy Rebates—Percentage of Total Drug Spend by Payer

SOURCE	DATA ANALYZED	MEDICARE PART D	MEDICAID	PRIVATE INSURANCE
Roehrig[36]	2016	22.0%	51.0%	12.0%
Massachusetts Center for Health Information Analysis (CHIA)[37]	2017	17.9%	MCO: 51.7% FFS: 52.7%	12.4%

Note: MCO is managed care organization, FFS is fee for service.

Premiums are monthly amounts paid to a health plan to cover medical care costs for enrolled members. Premium payments are often split between employers and employees, and plans do not have information on the employee share of the premium. Premium information is used by policymakers to support insurance rate review, medical loss ratio calculations, analysis of network adequacy, and benefit design.

Collecting relevant financial information that is not available through claim data will be an important component of the HPD System. Capitation and other non-claims data are not typically housed in a health plan's claims processing system, nor attributable to health care procedures or claims on a one-to-one basis—these data must be collected in a file separate from claims and encounters.

Data Sources

It is anticipated that the HPD System will primarily collect data from three sources:

- California Department of Health Care Services (DHCS) (Medi-Cal)
- Centers for Medicare & Medicaid Services (CMS) (Medicare FFS)
- Commercial plans and insurers, including medical and dental plans

Chapter 4 (Data Submitters) covers in more detail the topic of the entities that will supply data to the HPD System.

DHCS (Medi-Cal)

California's Medicaid program, Medi-Cal, covers approximately 13 million members (approximately one-third of the state's population), 10.5 million through contracted managed care plans (MCPs). California residents eligible for Medi-Cal include low-income individuals and families, seniors, persons with disabilities, children in foster care, pregnant women, and low-income people with specific diseases.

About half of state APCDs obtain Medicaid data (FFS and managed care data) directly from the organization in their state that administers the program, since the Medicaid program often already has access to those data. The other states require the Medicaid MCPs to submit directly to the APCD through processes used by commercial insurance lines of business. Re-using data collected by the Medicaid agency allows state APCDs to leverage data that Medicaid MCPs have already provided and not require them to resubmit the data. States that collect data from Medicaid rely on a variety of approaches depending on the unique circumstances and requirements of their state program.

Similar to the approach taken by many other states, the HPD Program can use the following datasets already collected and/or produced by DHCS for both encounter data submitted by MCPs and FFS claims paid directly by Medi-Cal:

- Member enrollment
- Provider enrollment
- Claims and remittance advice
- Encounters

CMS (Medicare FFS)

Medicare-eligible individuals are covered either through managed care (Medicare Advantage) or the traditional FFS program, also known as original Medicare. Medicare FFS covers approximately 3.5 million California residents who are 65 or older, or permanently disabled. Subject to an application process and certain conditions, states can obtain Medicare FFS data

from CMS. CMS makes claim and member eligibility data available to approved users on a quarterly and/or annual basis in a number of prescribed formats that the HPD System would need to transform and integrate with data collected from other sources. The format of data received from CMS is non-negotiable.

Commercial Health Plans and Insurers

Commercial health plans and insurers provide health care coverage for approximately 17 million Californians. These plans and insurers serve several populations, including those obtaining coverage through:

- Private employers.
- Public employers or purchasers, such as the University of California and CalPERS.
- Individuals and families purchasing coverage on the individual market or through Covered California.
- Medicare Advantage.

Data Formats

This section briefly describes the file formats that the HPD System could use to collect the claim, encounter, enrollment, provider, and APM financial data from the three data sources outlined in the section above.

Core APCD Data (Claim and Encounter, Member Enrollment, and Provider Information)

There are two primary format options for core APCD data:

1. **Transactional file formats based on Health Insurance Portability and Accountability Act of 1996 (HIPAA) standards such as the X12 837 or National Council for Prescription Drug Programs (NCPDP)** are variable-length files sent on a daily or monthly basis and align with national HIPAA transaction format standards. These files are structured to support the financial transactions between providers and payers. These files include the data elements from the original claim and/or remittance form.
2. **Common Data Layout for State APCDs (APCD-CDL™) and similar flat-file formats** are monthly, quarterly, or annual variable or fixed-length (or "flat") files, extracted from the payer's claims payment data warehouse for a specified reporting period, typically based on the month the data was processed. These extract files include a subset of the most analytically useful data elements from the underlying administrative data.

Transactional File Formats

HIPAA transactions are regularly used by payers and providers to support the electronic processing of claims. As such, they are a potential source of administrative data to support APCDs. DHCS requires these formats for the receipt of encounter data from Medi-Cal MCPs. These transactional file formats offer the potential benefit of better representing source data in a more timely fashion. In practice, however, payers must adjudicate the claims, load them into their own data warehouse, and then output them for receipt by a system such as an APCD. As a result, formats based on the transactional file formats often are not available any sooner, nor are they any closer to the source data, than an APCD-CDL™ type format. Using transactional formats to support an APCD system also presents challenges for the APCD administrator, including the need to manage far more data than is needed to support an analytic database.

APCD-CDL™ and Similar Flat-file Formats

In May 2016, the APCD Council began working with states, their vendors, and the payer community to develop a draft APCD-CDL™ in an attempt to harmonize the content and format of data submissions to support APCDs.[36] The first version of the APCD-CDL™ was completed in June 2017, based on the referent standards from X12 and NCPDP and aligned with submitters' available data. A process to maintain and improve the APCD-CDL™ every two years has been established, with version two anticipated for release in January 2021. The APCD-CDL™ includes a layout for medical claims and encounters, pharmacy claims and encounters, dental claims and encounters, eligibility, and provider information. The APCD-CDL™ is intended to become a national standard for APCDs. It has been adopted as the standard for Virginia's APCD.

Most state APCDs—and multi-payer claims databases (MPCDs) like those maintained by IHA and CalPERS in California—use a monthly or quarterly file format like the APCD-CDL™ for data provided by commercial insurance plans and certain types of self-insured payers. Discussions with the likely submitters to the HPD Program indicate a preference for the emerging APCD-CDL™ standard. Payers that operate in multiple states especially appreciate the prospect of a standard format that can be used to support multiple APCD systems. DHCS has also indicated a preference for providing data in this format. The recommendations at the end of this chapter suggest use of the APCD-CDL™ standard for core APCD data from commercial payers.

As an example of the types of data elements available in these formats, Exhibit 13 shows the claim and encounter data elements that are transmitted on the APCD-CDL™ and similar flat-file formats:

Exhibit 13. Claim and Encounter Elements in APCD-CDL™ and Similar Flat-File Formats

DATA CATEGORY	ELEMENT	DATA CATEGORY	ELEMENT
Payer Information	• Submitter/Payer Code • Insurance Product Category Code • Insured/Group Policy Number • Plan Specific Contract Number • NAIC Number • Medicaid Aid Category • Alternative Payment Arrangement/Capitation Indicator	Claim Information	• Claim Control Number • Line Counter • Version Number • Cross Ref. Claim ID • Member Sequence • Claim Status • Admission Information • Discharge Information • Institutional Bill Type Indicator • Place of Service Code • Revenue Code • Date of Service-From • Date of Service-Thru • Service Units/Quantity
Diagnosis Information	• Admission Diagnosis • External Cause Code • ICD 9/10 Codes • Principal Diagnosis • Other Diagnosis	Procedure Information	• Procedure Code • Procedure Modifier • ICD 9/10 Principal Procedure • ICD 9/10 Other Procedure

DATA CATEGORY	ELEMENT	DATA CATEGORY	ELEMENT
Subscriber Information	• Subscriber Name • Social Security number (SSN)	Member Information	• Member Name • SSN • Individual Relationship • Date of Birth • Sex • ZIP Code • Plan-Specific Patient Control Number
Financial Information	• Charged Amount • Allowed Amount • Plan Paid Amount • Copay • Coinsurance • Deductible • Prepaid Amount • Coordination of Benefits Amount • Third-Party Liability Amount	Servicing/Rendering Provider Information	• Name • Street Address • Payer-Assigned ID • NPI • Specialty/Taxonomy Code • Group NPI
Billing Provider Information	• Payer-Assigned ID • National Provider Identifier (NPI) Name/Organization • Tax ID	Prescription Information	• Pharmacy ID • Associated Carrier • Paid Amounts • National Drug Code (NDC) • Date Prescription Filled

Medicare FFS Formats Available from CMS

CMS makes data available to APCDs in a variety of flat-file formats called “Research Identifiable Files.” CMS does not modify its standard format based on state APCD file submission guidelines. These files include:

- Eligibility
  - Person-level demographics
  - Chronic conditions
  - Per-person total cost and utilization
- Medical Claims
  - Facility
  - Inpatient
  - Outpatient
  - Professional
  - Skilled nursing facilities
  - Hospice
  - Home health
  - Durable medical equipment
- Pharmacy Claims
  - Medications
  - Cost
  - Prescriber information

Other Potential Sources of Provider Data

IHA Symphony Provider Directory

The Symphony Provider Directory is California's statewide provider data management solution, helping plans, providers, and purchasers more easily comply with state and federal requirements and improve the accuracy of demographic and contractual information in their member directories. As of early 2020, more than 90 provider organizations and 11 health plans are onboarding. With many stakeholders involved in the initiative, it could offer an additional source of provider information for the HPD System.

Hierarchical X12 274 Health Care Provider Directory

While there is not a HIPAA standard for transmitting provider data, the X12 274 file is used by Medi-Cal to collect data for their network adequacy measurements. This file includes detail about the relationships among providers and provider groups within an MCP. The hierarchical format of the X12 274 allows the flexibility to associate a provider with multiple groups or locations and represents a comprehensive look into a plan's entire provider network.

National Plan and Provider Enumeration System

Managed by the Center for Program Integrity at CMS, the National Plan and Provider Enumeration System (NPPES) is the National Enumeration System responsible for assigning the National Provider Identifier (NPI) as mandated by HIPAA.[37] CMS makes the NPPES data available, and it can serve as an additional source of provider information for APCDs. There are limitations in the NPPES data, however. The information is sometimes out of date, and it excludes certain types of providers that will appear in the claim and encounter data. Like the IHA Symphony data, it could offer a supplementary source of provider information for the HPD System.

Capitation, Alternative Payment Models, and Other Non-Claims Payments

Non-claims payment data differs significantly from the core APCD data. APM financial data are typically only available from the payer's financial and actuarial services units, which have insight into contractual payments, settlements, and provisions that are not recorded in a claim payment and are often made several months after the close of the contract period. Often the data are reported at the physician group level and do not contain member-level information. For the few state APCDs that collect these data, the files are typically provided in flat-file formats unique to each state.

Massachusetts and Oregon have established statutory or regulatory authority to collect APM information. They use the APM data primarily to assess overall progress towards state health policy goals. Massachusetts state law related to health care cost containment (separate from the APCD data collection mandate) requires payers to submit annual data on the payment methods they implement, the number of members covered by various APMs, and the total health care expenditures reimbursed under each APM.[38] The data are used to assess the cost performance of the Massachusetts health care system. In Oregon, state rules require Medicaid managed care organizations (MCOs) and commercial carriers to file annual reports on total APM payments made to each provider or organization, with primary-care-related payments

separated from those not related to primary care.[39] These data are used to monitor uptake of APMs as well as the percent of total spending on primary care services. Exhibit 14 summarizes the APM files collected by Massachusetts and Oregon.[40,41]

Exhibit 14. Comparison of the Two APCD States that Collect APM Financial Data

	MASSACHUSETTS	OREGON
Lines of Business Reported	Medicare, Medicare Advantage Medicaid Commercial Dual Eligibles	Medicare Advantage Medicaid managed care organization (MCO) Commercial State Employees/Educators
Reporting Methodology	Payments by Provider/Group that Received Payment Payments by ZIP Code of Member (requires attributing all payments to members, not currently used for analysis or reporting)	Payments by Provider/Group that Received Payment Payments by Provider/Group that bore the risk for the members for whom the payment was made (OPTIONAL)
Payment Models Collected	"Homegrown" categories that have evolved over time[a]	HCP-LAN[c] categories with a few additions
Payments with Multiple Components	Hierarchy for what payment arrangement category to assign the entire payment to	Requires all payments to be parsed out by type or category
Captures link to quality?	No[b]	Yes–HCP-LAN categories capture this
File Format	Excel. Different from other APCD data files.	Flat File, Tab-Delimited. Same as APCD data.
Authority to Collect Data	Separate law–total medical expenditure collection	APCD Enabling Statute
Submission Frequency and Deadline	Annual File Collected in May for the previous year (preliminary) and then again, the following year (final)	Annual File Collected in August for the previous year Continues to be refined annually

Notes:
[a] Global budget (full benefits), global budget (partial benefits), limited budget, bundled payment, other non-FFS, and FFS.
[b] Massachusetts recently (March 25, 2019) combined their APM file with their total medical expenses file. Previously, they collected information on whether the payment was tied to financial performance measures, quality performance measures, or both. They no longer do so.
[c] The Health Care Payment Learning & Action Network (HCP-LAN) is a public-private partnership established to accelerate transition in the health care system from an FFS payment model to ones that pay providers for quality care, improved health, and lower costs.

As discussed above, California HMOs have experience reporting APM data via IHA's TCoC calculation file. Unlike the core APCD data, however, there are neither established standards nor a lot of experience collecting this type of information from payers. Payers have also expressed challenges in producing the data. The HPD Program will need to work closely with submitters to establish reporting formats that meet the needs of the HPD Program while balancing the challenges associated with data availability.

Premiums

Premium information is currently collected by four state APCDs either as a field in the member enrollment file or as supplemental data collected separately from the core data submission. These states collect premium information only for a subset of commercial health plans and insurers and not in a comprehensive way across multiple payers. The experience of the four states currently collecting premium information is summarized in Exhibit 15. The APCD-CDL™, developed after these states began their collection efforts, includes premiums as part of the standard eligibility file. Going forward, more states are likely to use the APCD-CDL™ format to collect data about insurance premiums.

Exhibit 15. States Collecting Health Insurance Premium Information

STATE	COLLECTION PARAMETERS	COLLECTION METHOD	REPORT/USE CASE
Connecticut	Total Subscriber Monthly Premium for Qualified Health Plans in the Individual and Small Group Markets[a]	Member Eligibility File	Proposed use case: Analysis of health care utilization vs. health insurance costs
Massachusetts	Subscriber and Total Monthly Premium for large group, fully-insured plans with more than 50,000 covered lives	Member Eligibility File Separate Submission of an Annual Report	Track and report on changes in premiums, member cost sharing, benefit levels/benefit design
New Hampshire	Monthly Premium or Equivalent for carriers and TPAs[b] with 10,000 or more covered lives	Member Eligibility File Separate Submission	Validation of Annual Hearings reports on Medical Loss Ratios (MLRs) and premium rate filings. Assess trends in costs and premium rate increases.
Oregon	Total Subscriber Monthly Premium for fully-insured and Medicare Advantage plans and stand-alone Pharmacy Benefit Managers (PBMs)	Separate Submission	Network analysis and calculation of MLRs

Notes:

[a] Limited information reported; required only for plans sold on the state marketplace (i.e., individual and small group markets).

[b] A third-party administrator (TPA) is an organization that processes insurance claims or certain aspects of employee benefit plans for a separate employer entity.

Summary of Formats by Data Category and Source

Exhibit 16 summarizes the recommended formats by data category and source.

Exhibit 16. HPD Program Data Formats by Data Category and Source

DATA CATEGORY	MEDI-CAL	MEDICARE FFS	COMMERCIAL PLANS
Claims and Encounters	APCD-CDL™	CMS Research Identifiable Formats	APCD-CDL™
Enrollment	APCD-CDL™	CMS Research Identifiable Formats	APCD-CDL™
Provider	APCD-CDL™	N/A	APCD-CDL™
Capitation, Alternative Payment Model (APM), and Other Non-Claims Payments	Supplemental File(s)	N/A	Supplemental File(s)

Note: APCD-CDL™=Common Data Layout for State APCDs; N/A=not applicable.

There are many efforts underway locally and nationally to allow health care information to be more easily and quickly exchanged to meet a variety of industry needs. As the California health information technology (HIT) landscape progresses toward interoperability, with plan and provider systems using real-time application programming interfaces (APIs) to exchange health care data, the HPD System can adapt to the industry's latest data exchange format standards. Possible formats for that interoperable future include Fast Healthcare Interoperability Resources (FHIR®), which are open-source Health Level Seven International (HL7®) standards for exchanging health care information electronically.[iv]

[iv] More information about FHIR is at ecqi.healthit.gov/fhir, where it is presented by CMS and the Office of the National Coordinator for Health Information Technology's joint electronic clinical quality improvement effort as an emerging national standard.

Summary and Recommendations: Data Categories and Formats

Administrative data, originating from health care claims and encounters, are commonly available from payers and support the types of uses envisioned for the HPD System. Based on a review of available data formats and the likely uses of the data, the following recommendations cover the primary sources and data collection formats for the HPD System:

HPD Review Committee Recommendations

1. ***Sources of Data***: The HPD Program should establish collection methods and processes specific to sources of data: 1) Department of Health Care Services (DHCS, for Medi-Cal), 2) Centers for Medicare & Medicaid Services (CMS, for Medicare Fee for Service (FFS)), and 3) All other, including commercial health plans and insurers for those with employer-based, individual, Medicare Advantage, or dental coverage.
2. ***Collect Medi-Cal Data***: The HPD Program should pursue the collection of Medi-Cal FFS and managed care data directly from DHCS.
3. ***Incorporate Medicare Data***: The HPD Program should pursue the collection of Medicare FFS data, in the formats specified by CMS.
4. ***APCD-CDL™***: The HPD System should use the APCD-CDL™ for all submitters except CMS.
5. ***Three Years of Historical Data***: The HPD Program should initially pursue three years of historical data (enrollment, claims and encounters, and provider) from submitters.
6. ***Non-Claims Based Payments***: The HPD System should collect non-claims-based payments, in order to capture the total cost of care. Since these payments are not included in the APCD-CDL™, the Office of Statewide Health Planning and Development (OSHPD) will work with stakeholders to specify the format(s) and source(s) of the supplemental file(s).

Chapter 3: Linkages

Introduction

This chapter focuses on the topic of linkage, both 1) internally within the HPD System to support analyses of the same person, provider, and payer across data submitters; and 2) to data external to the HPD System in order to support additional use cases. The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(1)(C): "*Define and prioritize data elements to collect, including the requirements for data linkages to meet specified purposes and use cases.*"
- HSC Section 127672, subdivision (d)(2)(F): Describe "*how the database can map to other datasets, including public health datasets on morbidity and mortality, and data regarding the social determinants of health.*"

For purposes of this chapter, "linkage" refers to the general process of associating multiple data sources for statistical or research purposes. In the context of an APCD that incorporates datasets from several sources, linkages are essential to provide more complete and detailed information about the cost, utilization, and quality of health care services than a single dataset alone can provide. This chapter also uses the term "match" to refer to one of the common methods by which datasets are linked. Computerized processes help determine if there is a match between records in the data. These processes, or algorithms, can be used to match patients, providers, and other data elements to enable linkages and therefore improve the analytic value of the resulting APCD system. A variety of tested, reliable technical strategies are available to create and maintain these augmented resources. Legal restrictions often apply to the collection, use, creation, and release of such linked data; those issues are covered in Chapter 6 (Privacy and Security).

The Importance of Linking

Patients or Individuals

The HPD System is most valuable when patient information is uniformly represented in the database. Individuals change health plans or insurers for a variety of reasons, including selecting a new plan or insurer during their employer's open enrollment period, changing jobs, moving to a new location, and becoming eligible for Medicare or Medi-Cal. Many of the use cases identified in Chapter 1 depend on the consistent identification of the same individual across multiple records. In fact, one of the many benefits of an APCD is the ability to consolidate data for the same individual in one place so that broader policy questions and population health analyses can be pursued. Use cases that depend on such linking include longitudinal analyses of services received over time across payers; the evaluation of patients treated for specific conditions over time; variations in access to care based on patient characteristics; and measurement of enrollment churn among commercial plans, Medi-Cal, and Medicare. The need for the HPD System to reliably indicate that an individual is the same

person across submitters and over time becomes increasingly important as more years of data are added.

Each health plan or insurer assigns its own specific identifier for its members. It is not uncommon for the same individual to have several such identifiers over their lifetime. Although the Social Security number (SSN) has been one of the most reliable identifiers to match individuals across datasets, its use has declined. Commercial health plans and insurers often no longer receive or store the SSN. In fact, CMS removed the SSN-based Health Insurance Claim Numbers from Medicare cards and is now using Medicare Beneficiary Identifiers for Medicare transactions such as billing, eligibility status, and claim status.[42]

Although included in the original HIPAA law to support health information exchange (HIE), care coordination, and administrative simplification, the U.S. Department of Health and Human Services has yet to implement a national unique health identifier that moves with individuals over time. In order to reliably link patient records, the HPD System must collect identifying information, including names, dates of birth, street addresses, SSNs when available, plan or insurer identifiers, and other demographic data. APCD systems strictly control access to these direct identifiers. Once datasets are linked, the identifying information need not be displayed on views, reports, and analytic products.

Linking data for the same patient or person requires a match determination. Patient record matching is the process of comparing patient information in different health records to determine if the records refer to the same patient.[43] There has been considerable focus on the accuracy of patient matching, especially with the growth in electronic health records (EHRs) and HIE to support real-time patient care. APCDs match records for retrospective, analytic purposes, and the accuracy of the matching process is essential to the success of the HPD System.

Providers

Linking provider information across different sources of data is also important. There is considerable overlap of providers across payer networks. Many of the same physicians, medical groups, hospitals, and clinics will appear in the claim, encounter, and provider files supplied by different submitters to the HPD System. Although an NPI mandated by HIPAA has been used in standard health care transactions since 2007, challenges remain. Problems of reliably identifying providers in claim and encounter data include:

- Variations in spelling, abbreviations, and punctuation between the claim and the provider directory, and across payers.
- Facilities are permitted to register for one or more NPIs based on internal needs rather than as a method for unique identification to external parties. For example, organizational health care providers can legally obtain one NPI for all facilities, separate NPIs for each facility, or even multiple NPIs for different entities within a facility.
- Provider directory information is not always kept up to date.
- Non-NPI provider identifiers, including Drug Enforcement Administration (DEA) identifier, OSHPD Facility ID, and State Licensing Number continue to be used for various reasons.

- Atypical providers that appear on health care claims, such as those that provide transportation, personal care, and respite care, do not use an NPI.

Payers

Although less complex than the person or provider matching described above, the HPD System will also need to consistently identify the payer, and the lines of business or products offered by that payer, regardless of the data source. Submitters will likely use identifiers in their data systems that differ from the identifiers for the same payers and lines of business used by other submitters. For example, in 2019, Blue Shield of California provided coverage to Californians through employer group plans, Medicare Advantage, Medi-Cal, Covered California, and directly to individuals and families. Assuming data come into the HPD System for all those variations of Blue Shield products and plans, it will be important to keep track of each of those lines of business separately and also to retain their relationship to the parent payer. Other APCDs typically create a registration process that allows this differentiation without significant analytic effort.

Approach to Linking—Master Indexes

As described above, in order to support typical APCD use cases, datasets need to be linked. Most APCDs accomplish this through the creation of a master index—essentially a cross-reference that keeps track of an entity's various identifiers in the various datasets, along with a new identifier assigned for use in the APCD. The processes used to determine matches and assign the new identifier often involve sophisticated algorithms and manual review of records. The primary approach to creating indexes, regardless of entity, is fundamentally the same—specific data elements used by algorithms must be identified in each dataset, data quality must be enforced on those data elements, and algorithms must be continually enhanced.

Data Elements

For each index (person, provider, and payer), data elements need to be identified as inputs to the matching algorithms. The data typically collected by an APCD, including the elements in the APCD-CDL™ files, include sufficient elements to support the type of indexing needed.

Data Availability and Quality

Dataset linking and the creation of indexes are particularly sensitive to the availability and quality of the data elements needed to associate records between datasets. For example, SSNs, often used as an unofficial unique identifier, are now used and shared less often by and among organizations in health care data, due largely to concerns about identity theft.[44] As a result, names, dates of birth, and street addresses become increasingly important elements to support linkage.

Data quality also impacts match success rates, and the use of standard formats generally improves quality and can have significant impacts on match rates. Standardizing street addresses using the U.S. Postal Service format for street address, for example, can improve record match rates by up to three percentage points.[45] If the match rate before such standardization was 90 percent, this address change alone would reduce the unmatched

records by almost one-third. Standardizing all elements across all submitters may be unrealistic in the short term, but in the long term, the HPD System can automate the evaluation of data quality for each data element used in the index. To do so, data quality enforcement rules will need to be clearly defined and disseminated to establish expectations with submitters. Policies, processes, and timelines for error correction and resubmission of files that fail to pass initial data quality checks must also be established.

Enhanced Matching Algorithms

The methods for matching data range from simple (exactly matching the same identifier in two datasets) to very complex (machine learning that intuits matches in data that are similar but not identical). The most common methods are often used in combination and are described below:

- **Deterministic matching** attempts to join different pieces of demographic information (such as last names or person identifiers) between datasets and only links records if an exact match is found or a threshold of similarity is met. Deterministic matching is straightforward in its approach but limited by fluctuations in the quality and completeness of the data being matched.
- **Probabilistic matching** allows additional records to be matched, after accommodating typos or other irregularities in the data, if the algorithm determines that the records are likely matches despite not meeting the deterministic test described above. "These algorithms often factor in, for example, that letters can be transposed or that a person moved addresses when, on the whole, the data suggest it is the same person".[46] These algorithms can be fine-tuned to provide greater weight to certain elements and establish thresholds for when records should be considered a match. The probabilistic matching algorithm can be adjusted over time as knowledge about the data grows. The main challenge with the probabilistic approach is configuring the matching algorithms so as not to produce false positive matches that would relate separate persons or providers incorrectly.

The goal from both approaches is to make as many correct matches as possible while minimizing false positives (matching two records that do not represent the same entity) and false negatives (failure to match two records that do represent the same entity). To improve accuracy, the index and linking mechanisms must be continually fine-tuned through automated and manual analytic efforts that determine under what conditions records are considered a match. Extensive testing and close monitoring of the matching algorithms requires ongoing human oversight.

As described above, data availability and quality also impact match rates. **Referential matching** is a relatively new approach to improve match rates of individuals. In referential matching, algorithms use demographic data available from non-health care sources to improve match rates.[47] HIE organizations are increasingly using this approach to help match patient identities when exchanging EHR information between provider organizations.

Master Person Index

As described above, the existence of multiple records for the same person, each with slightly different identifying information, is a common occurrence in health care data. All state APCDs

use some sort of master person index process to identify the same individuals across datasets and to assign a new unique identifier that does not contain personal information. Through this process, the newly assigned identifier is used with the APCD's claim, encounter, and eligibility datasets in order to more accurately analyze costs per person, health care services provided over time, and coverage changes. In many cases, the data management vendor employed by the state to manage the APCD supplies the master person index solution.

In California, OSHPD has experience with matching algorithms through their work linking the patient discharge dataset to vital records data. The HPD System may also be able to leverage the record reconciliation work completed by CHHS with the USC Children's Data Network, which included linking client-level records across eight major CHHS programs (CalFresh; CalWORKs; Child Protection; Developmental Services; Family Planning, Access, Care, and Treatment [Family PACT]; In-Home Supportive Services; Medi-Cal; and Special Supplemental Nutrition Program for Women, Infants, and Children).[48]

APCD Strategies for Intake of Personally Identifiable Information

As described above, the master person index depends on personally identifiable information (PII) such as name, street address, and SSN. Depending on the practices of the state's data management vendor or the preferences of the organization administering the APCD, the approach to handling PII varies among existing state APCDs. Four general approaches are summarized below and in Exhibit 17:

1. **Collect No PII**: Submitters do not send member PII other than the payer-assigned member identifier.
2. **Hashing/Pre-Processor**: Hashing is a form of encryption that consistently "hashes," or scrambles, PII data elements via a computer algorithm into new values that no longer resemble or reflect the original data. In this approach used by some state APCDs, the submitter uses a vendor's tool to hash, and therefore remove, the PII before submitting data to the APCD (sometimes referred to as a proprietary "pre-processor").
3. **Lockbox**: Submitter obtains the APCD master person index standard member ID from the state's identity management contractor and then uses only that assigned ID in their submissions; no other PII is included.
4. **Collect PII**: The APCD provides a secure submission method for submitters to transmit encrypted files with PII; the APCD then uses PII to assign a unique de-identified APCD member ID during data processing. Once the APCD member ID is assigned, access to the PII is strictly controlled.

The recommendations related to data linkage, summarized at the end of this chapter, recommend the fourth approach described above—collecting PII directly from each of the data submitters to the HPD System. Collecting PII will improve the ability to link to other datasets, including existing OSHPD datasets that already use PII.

Exhibit 17. APCD Strategies for Intake of Personally Identifiable Information (PII)

	COLLECT NO PII	HASHING/ PRE-PROCESSOR	LOCKBOX	COLLECT PII
Examples of where used*	FL	AR, CT, MA, MN, NH, VT, WA Note: also used by the Integrated Healthcare Association's California Regional Health Care Cost & Quality Atlas data management vendor	RI	CO, DE, MD, NY
Strength of the member ID	Weak Does not support cross-payer analysis over time. Member ID may change when the individual enrolls in a different product line within the same payer or when the individual changes payers.	Medium If all the data go through the same process, the member ID should be strong, but if data are taken from different sources (e.g., Medicaid and commercial), it may be difficult to match individuals who appear in both datasets.	Strong Uses consistent methodology within and across payers over time.	Strong Uses consistent methodology within and across payers over time.
Relative cost	Low	Low National commercial submitters are accustomed to installing a pre-processor.	High APCD has to procure a separate contractor, and submitters must implement a two-stage process prior to data submissions.	Medium No special action for submitters. Member ID is created as part of APCD data processing.
Support for linking to other data	None Only supports aggregate population analyses; no individual or member matching possible.	Good Must hash the PII in the other data file to get matches. Match potential is high if both files have the same PII data elements. Likely to require additional probabilistic matching by the data manager(s).	Poor Special processes and permissions required if matches to other datasets are desired.	Excellent APCD administrator controls permissions and access to PII to match to other data. May perform matching on behalf of data requestors, limiting APCD release of PII. Can more easily match to other datasets with PII (e.g., hospital discharge data, public health registries, vital records)

Source: Author's analysis. Note: *Not a complete list; examples only.

Master Provider Index

The master provider index could be built in a way that is similar to the master person index, with multiple submitters' provider files merged and combined into a list or directory of service providers. Provider identifiers that appear in health care administrative data represent a wide range of provider types, including physicians, medical groups, clinics, hospitals, pharmacies, transportation companies, and home health agencies. The master provider index matches multiple source records and assigns a unique identifier to each provider.

In addition to the source provider data file provided by submitters to the HPD System, the master provider index can be supplemented with other provider data available from sources like the CMS NPPES NPI Registry, state provider licensing files, and OSHPD facility files. IHA's Symphony Provider Directory offers another potential source of up-to-date provider information for California providers. The statewide roll-out of Symphony began in early 2019 with over 90 provider organizations and 11 health plans (including Blue Shield, Anthem, and Aetna) onboarding as of early 2020. Statewide use of Symphony could provide more up-to-date provider demographic and contractual information to the HPD System and improve the master provider index. The information in Symphony could also be used to help document and analyze the complex relationships among individual physician providers, medical groups, health systems, and payers..

Master Payer Index

Similar to the person and provider indexes described above, a master payer index can help manage the consistent identification of payers across datasets in the HPD System. To simplify this process, most state APCDs require submitters to register on the state APCD website prior to submitting data. The registration process collects the name of the organization and lines of business (e.g., small group HMO, large group PPO, Medicare Advantage). Once submitters complete the registration process, the state APCD assigns a unique identifier to each payer and line of business. The submitters must use that assigned identifier in all their claim/encounter, provider, and eligibility file submissions. The data from each line of business might come from different places within the submitting organization due to mergers, legacy claims systems, and other reasons. Some submitters will submit one large feed for all lines of business; others will submit one data feed per line of business.

External Linking or Mapping

Chapter 1 outlined several other datasets that could potentially be used to enhance the analysis of claim, encounter, eligibility, and provider information that state APCDs collect, including:

- Census data elements (e.g., race/ethnicity, income, housing)
- Vital statistics, such as birth and death data
- Hospital discharge data (OSHPD)
- Surveys, such as the CHIS and the BRFSS[49]
- California's open data portal (e.g., air and water quality, regional demographics, social program data, regional financials, transportation data[50])
- Immunization registries
- Chronic disease registries (e.g., California Parkinson's Disease Registry)[51]

- California Reportable Disease Information Exchange (infectious disease, CalREDIE)[52]
- California Cancer Registry[53]
- Controlled Substance Utilization Review and Evaluation System (CURES)[54]
- Laboratory test results or other clinical data in EHRs, as recommended by the Precision Medicine Advisory Committee of the Governor's Office of Planning and Research[55]

While these are just a few examples, there are numerous use cases for external linkages enabled by the master indexes. Further, each dataset may have its own set of policies, rules, and regulations that limit use, and data owners will need to work closely to develop appropriate policies and procedures. Subject to those caveats, the HPD System can potentially link or map to these external datasets in at least three ways:

1. **Link and Persist in HPD System:** link to an external dataset at the person- or provider-level and persist in the HPD System elements discovered from that external dataset.
2. **Ad hoc External Link:** link to an external dataset, at the person- or provider-level, to support a specific analysis or research need, without persisting the linked data in the HPD System.
3. **Overlay Analysis:** use common elements that are not person- or provider-based, such as geography, to map HPD **System** data to external datasets such as census, surveys, and other publicly available data.

The first two methods require access to personal identifiers in both the HPD System and the external dataset to support person-level linkage. Overlay analyses also benefit from the collection of PII in the HPD **System** but can be completed without linking at the person-level. Each of these methods is discussed in more detail below.

Link and Persist in HPD System

Examples where data would be matched and then perhaps stored in the HPD System include elements from vital records data available from the California Department of Public Health (CDPH), such as birth date, death date, and ethnicity. These data elements, if successfully matched between the two datasets, could be added to the eligibility record maintained in the HPD System for use in reports and analyses. Similarly, additional provider information, such as licensing data, could be used to supplement the provider-directory type of information from submitters that is contained in the APCD-CDL™ Provider file.

Ad Hoc External Link

By collecting and storing person- and provider-based identifiers, the HPD System will be better able to support analyses that utilize identifiers common to other datasets. For example, OSHPD staff already have experience linking death records to the OSHPD Patient Discharge Data (PDD). Another example includes combining PDD about a hospital stay with the ambulatory services identified on the professional claim or encounter for the same patient in order to evaluate pre- or post-admission care.

Other potential examples, once the core HPD System is established and mature, include linking to health and human service data, including social services, nutrition assistance, and

developmental services. It should be noted that these examples require appropriate safeguards to protect privacy and ensure authorized use. These examples would also depend on there being consistent PII elements in each dataset to support the link. The CHHS Data Sharing Framework[56] may facilitate this type of data sharing, as there is an established master agreement and a structure for participating state departments to describe and agree to specific uses. Depending on the frequency and importance of these linked analyses, OSHPD may need to pursue infrastructure and technical solutions to further support these types of linkages.

Overlay Analysis

As described in Chapter 1, person-level matching between APCD data and external datasets is not always possible, but if the APCD data and the external data share common parameters such as geography, overlay analyses can be supported. Examples from Chapter 1 include overlaying HPD health care cost or utilization data by geographic area with similarly grouped data from the U.S. census (e.g., race/ethnicity, income, housing), survey data such as the BRFSS, publicly available datasets on topics such as air or water quality, and health care facility information already collected by OSHPD.

Linkages and Social Determinants of Health

As described in the introduction to this chapter, the HPD System should enable mapping to data regarding social determinants of health (SDOH). As noted in the World Health Organization's Commission on the Social Determinants of Health Final Report in 2008, many factors beyond medical care determine health; it defined those determinants as the "conditions in which people are born, grow, live, work, and age."[57] The methodologies discussed in this chapter, including the collection of PII and the construction of a master person index, build the foundation to support analyses that will incorporate information on SDOH.

Although limited, the types of data collected by state APCDs can support some analyses of SDOH. For example, access to specialty care often varies by geography. Using a combination of visit data for specific services in the claim data, member ZIP code in the eligibility file, and provider specialty information in the provider files, users of the APCD can analyze disparities in access to specialty care based on where people live. Combining other publicly available data such as census data on race/ethnicity, income, or housing can provide additional insights.

While current administrative datasets like those used by APCD systems lack much of the data needed for comprehensive SDOH analyses, there is considerable interest nationally in collecting SDOH information directly in administrative health care data. By the time the HPD System is implemented, there may be more options to obtain this type of data. The federal government made changes to the ICD-10-CM diagnosis codes in March 2019, for October 1, 2020 implementation.[58] The new codes include information about food insecurity; access to safe drinking water; employment status; and problems related to low income, such as ability to pay for transportation, phone, adequate clothing, or childcare. Efforts are also underway to encourage the collection of SDOH in EHRs. The Gravity Project, sponsored by the Social Interventions Research and Evaluation Network, intends "to develop a strategy for achieving

consensus-based comprehensive coding standards for SDOH data capture in EHR systems" including development of an HL7® FHIR® Implementation Guide.[59]

Summary and Recommendations: Linkages

An APCD offers the opportunity to collect data from various sources to provide greater transparency regarding health care costs and inform policy decisions regarding the provision of quality health care, reduction of disparities, and reduction of health care costs. Meeting that promise requires the implementation of methodologies to properly link and integrate data for the same persons, providers, and payers over time and across source datasets within the HPD System; support mapping of HPD data to external datasets across common elements such as geography; and enhance policymakers' understanding of the social factors that may contribute to health status. Recommendations related to data linkages include:

HPD Review Committee Recommendations

1. ***Ensure broad authority for OSHPD to securely collect available personally identifiable information***: Legislation should ensure authority for OSHPD to securely collect detailed patient identifiers such as first and last name, date of birth, sex, street address, and Social Security number. These identifiers are necessary in order to use methodologies, such as a master patient index, to support analyses of the same individuals over time and the impacts from social determinants of health. OSHPD will ensure that its data collection is in compliance with California and federal law.
2. ***The HPD Program should use robust methodologies to match patients, providers, and payers across datasets***: OSHPD should build and maintain a master person index, master provider index, and master payer index as part of the HPD System implementation. These indexes should be supplemented with data from other sources (e.g., vital statistics, statewide provider directory information when available, and OSHPD facility data) to improve matching success and the analytic value of the HPD System.

Chapter 4: Data Submitters

Introduction

This chapter provides an overview of health and dental insurance in California and describes the various categories of potential data suppliers and considerations specific to each, including the legal authority required to collect protected health information (PHI). The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(1)(B): *"Specifies entities and individuals required to report data, including those specified in Section 127673."*
- HSC Section 127672, subdivision (d)(2)(A): *"Additional legislation needed to ensure the database receives appropriate data from identified data submitters including, those specified in subdivision (b) of Section 127673…"*

APCDs rely primarily on claim and encounter data, which are generated by transactions among payers and providers on behalf of insured individuals. Claim, encounter, eligibility, and provider files will be sent to the HPD System by payers—the health plans, insurance carriers, self-insured employers and trusts, TPAs, dental plans, and other organizations that are involved in those transactions. In addition, as outlined in Chapter 2 (Data Categories and Formats), DHCS will play a major role in the HPD Program by submitting Medi-Cal data.

California's population reached 39.6 million in 2018. Approximately 93 percent of the state's residents had some form of health insurance in 2017, a figure that has grown substantially with implementation of the ACA. Approximately 2.8 million Californians remain uninsured.[60]

The main sources of coverage for Californians are:

- Medi-Cal, which in 2019 covered approximately 10.5 million beneficiaries through managed care and an additional 2.3 million beneficiaries through FFS (12.8 million total).[61]
- Medicare, which in 2018 covered 2.6 million beneficiaries through Medicare Advantage (known as Part C or managed care) and an additional 3.5 million beneficiaries through FFS (6.1 million total).[62]
- Commercial coverage, which includes both fully-insured and self-insured employers in the public and private sectors, as well as non-group (individual and family) purchasers—totaling 19.9 million, of which 14.4 million are fully insured and 5.5 million are self-insured.

Exhibit 18 shows the estimated number of covered lives in each of those categories in California, along with the potential submitter of the data.

Exhibit 18. HPD Target Populations and Data Submitters

COVERAGE CATEGORY		COVERED LIVES (MILLIONS)	DATA SUBMITTER
Medi-Cal	Managed care	10.5	California Department of Health Care Services (DHCS)
	Fee for service (FFS)	2.3	DHCS
Medicare	Medicare Advantage (Part C) and Medicare Advantage with Prescription Drug Coverage	2.6	Health plans and insurers
	Fee for Service (Parts A, B, and D)	3.5	Centers for Medicare & Medicaid Services (CMS)
Commercial	Fully insured	14.4	Health plans/insurers
	Private self-insured (voluntary)	4.6	Health plans/insurers or other third-party administrators (TPAs)
	Public self-insured	0.9	Health plans/insurers or other TPAs

Sources and Notes:

- Individuals can have more than one coverage source during the year; the largest source of duplication is dual eligibles (Medicare plus Medi-Cal) with 1.4 million.
- Medi-Cal figures from DHCS (*Medi-Cal Monthly Enrollment Fast Facts*: November 2018, July 2019).
- Medicare figures from CMS (*Medicare Enrollment Dashboard Data File*, April 26, 2019).
- Commercial numbers from CHCF *(2019 Edition—California Health Insurers*, May 2019).
- Estimates for private vs. public self-insured plan enrollment based on a 2017 bulletin from the U.S. Department of Labor, *Health Insurance Coverage Bulletin: Abstract of Auxiliary Data for the March 2016 Annual Social and Economic Supplement to the Current Population Survey*. According to Table 3A, 84 percent of self-insured employer-sponsored coverage in California in 2015 was private and 16 percent was public. Those percentages were applied to the 5.5 million Administrative Services Only (ASO)/self-insured enrollment estimate for 2018 (see Exhibit 21).

Approximately 32 million Californians have dental benefits: 11 million through fully-insured dental plans, 9 million through self-insured and other private coverage, and about 12 million through Medi-Cal.[63]

When mapping anticipated data submitters to state regulatory authority, federal law, importance to accomplishing HPD Program objectives, and feasibility, a four-part framework for data submission emerges (see Exhibit 19). This framework is based, in large part, on how other state APCDs have structured their requirements for data suppliers. Each of the four reporting groups is described below:

- **Mandatory**: entities that would be required by law to submit data to the HPD System.
- **Voluntary (Not Subject to State Law)**: federal health benefit programs are not subject to state law, and private self-insured employers and trusts cannot be compelled to contribute data to the HPD due to the U.S. Supreme Court decision *Gobeille v. Liberty Mutual;* see the section on voluntary submission for details.
- **Acquisition**: Medicare FFS data will be requested from CMS. CMS cannot be compelled to submit data to the HPD System, nor will CMS make changes to its standard data file format based on state specifications; accordingly, this is a process of acquiring the data.
- **Excluded**: lines of business excluded from submitting data to the HPD.

Exhibit 19. Framework for Data Submission

SUBMITTER CATEGORY	COMPONENTS
Mandatory	• Fully-insured commercial health plans and insurers • Public payers – Health plans for Medicare Advantage – Medi-Cal managed care plans through Department of Health Care Services (DHCS) – Medi-Cal fee for service (FFS) through DHCS – Public self-insured plans (public employers, trusts) and their third-party administrators, including pharmacy benefit managers (PBMs) when separately contracted • Dental plans/insurers
Acquisition	• Medicare FFS from the Centers for Medicare & Medicaid Services (CMS), including Medicare Part D (pharmacy)
Voluntary (Not Subject to State Law)	• Private self-insured plans (and their third-party administrators) • Private Taft-Hartley Trusts • Federal Health Benefits – Federal Employee Health Benefits Program – TRICARE – Veterans Affairs – Indian Health Service
Excluded	• Anything defined as not health insurance in California Insurance Code Section 106(b) • Supplemental insurance, including Medicare supplemental • Stop-loss • Student health insurance • Vision-only, chiropractic-only, discount

Mandatory Data Submission

Key aspects of mandatory submission to the HPD System include the types of organizations required to submit, their required and excluded lines of business, the coordination of submissions (i.e., which entity is responsible for submitting data when there are multiple potential data feeds, such as medical coverage and a separate PBM), size or covered lives thresholds below which submitters are exempt from the submission requirements, frequency of data submission, and the population for which data submission is required.

Mandatory Submitters and Required Lines of Business

The main groups of mandatory submitters to the HPD System should be:

- Health plans and insurers, for fully-insured commercial and Medicare Advantage coverage
- DHCS, for Medi-Cal data
- Public self-insured plans
- Dental plans and insurers

Claims for services that may be carved out through subcontracts, such as pharmacy and behavioral health, are essential to the completeness of the HPD System's data; collection of those data streams is addressed in the section on coordination of submission.

Claim and encounter data are personal health information held by health plans and insurers that must comply with relevant federal and state laws; see the section on authority to submit and collect personal information.

Virtually every APCD requires data submission from fully-insured commercial payers across all lines of business, from the Medicaid program, and from self-insured plans (unless exempt from state mandate due to federal law). Much of the data submitted by payers to APCDs originates from providers—physicians, facilities, and other health care providers that generate administrative data for payment or reporting purposes. All APCDs currently in operation collect data from payers, and not directly from providers, because most of the data is available from plans and insurers. To this point, the benefit of collecting additional data from providers has not justified the costs of data collection and de-duplication for thousands of providers. Exhibit 20 shows the decisions made by three established, long-running APCDs—Colorado, Massachusetts, and Oregon—on the types of public and private payer organizations required to submit data.

Exhibit 20. Comparison of Select APCDs on Mandated Submitters

SUBMITTERS	COLORADO	MASSACHUSETTS	OREGON
Commercial Carriers including Exchange	✓	✓	✓
Medicaid Managed Care Organizations	✓	✓	✓
Medicaid Fee for Service (FFS)	✓	✓	✓
Medicare Advantage (Part C)	✓	✓	✓
Self-Funded Plans including State and Municipal Employees	✓	✓	✓
Dual Eligible Special Needs Plans (D-SNPs)		✓	✓
Vision only Plans	✓	✓	
Dental only Plans	✓	✓	
Pharmacy Benefit Managers (PBMs)		✓	✓

Health Plans and Insurers

Consistent with the approach taken by other states, private health plans and insurers should be required to submit data to the HPD System across all lines of business, within the constraints of current state and federal law, and with the exclusions and exceptions outlined in subsequent sections of this chapter. The health plan and insurance market includes coverage that is fully-insured (i.e., the employer contracts with a health plan to assume financial responsibility for the enrollees' medical claims and for all incurred administrative costs) and self-insured (i.e., the employer bears the risk for claims and hires a TPA, often a health plan or health insurer, for claims processing and related services). Only public self-insured plans can be required to submit; see the section on voluntary submission for details.

Plans regulated by the Department of Managed Health Care (DMHC) covered about 93 percent of Californians enrolled in commercial plans in 2018. Plans regulated by the California Department of Insurance (CDI) covered the remainder. Exhibit 21 provides an overview of enrollment in California by line of business and regulator. "Administrative Services Only" (ASO) refers to self-insured enrollment for which the health plans and insurers do not bear risk.

Exhibit 21. California Enrollment by Line of Business and Regulator, 2018

LINE OF BUSINESS	CDI	DMHC	TOTAL
Individual	176,698	1,942,060	2,118,758
Small Group	193,938	2,127,912	2,321,850
Large Group	692,349	9,260,806	9,953,155
Commercial Total	**1,062,985**	**13,330,778**	**14,393,763**
Medicare Managed Care ("Medicare Advantage")	146,121	2,392,529	2,538,650
Administrative Services Only (ASO)	4,794,622	703,136	5,497,758
Commercial + Medicare Managed Care + ASO	**6,003,728**	**16,426,443**	**22,430,171**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*. CDI is California Department of Insurance; DMHC is Department of Managed Health Care.

Exhibit 22 provides detail on commercial enrollment by type of coverage and regulator. Of the 14.4 million fully insured commercial lives in California in 2018, 10.5 were enrolled in HMOs—all of them regulated by DMHC.

Exhibit 22. Commercial Enrollment by Network Type and Regulator, California, 2018

NETWORK TYPE	CDI	DMHC	TOTAL
HMO		10,554,169	10,554,169
PPO	499,018	2,712,352	3,211,370
Point of Service (POS)	328,323	64,257	392,580
Exclusive Provider Organization (EPO)	24,329		24,329
Fee for Service	38,223		38,223
High-Deductible Health Plan	148,687		148,687
CDI Other	24,405		24,405
Commercial Total	**1,062,985**	**13,330,778**	**14,393,763**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File.* California Department of Insurance=CDI, Department of Managed Health Care=DMHC

A complete enrollment list by plan and market segment (commercial, Medicare managed care, and ASO) is available in the Appendix Supplement to Chapter 4. The health plans and insurers in each of the three market segments with the largest market share are shown in Exhibits 23-25. Plan size thresholds for exemption from data submission requirements are discussed later in this chapter, including the number of submitters and enrollees that would be included in the HPD System based on various thresholds.

Kaiser has the largest share of the fully-insured market, with about 6.8 million enrollees. Kaiser and the other six largest plans collectively account for 94 percent of the total.

Exhibit 23. Commercial Fully-Insured Enrollment, California, 2018

HEALTH PLAN/INSURER (PARENT)	ENROLLMENT	MARKET SHARE
Kaiser	6,808,964	47%
Blue Shield	2,554,513	18%
Anthem	2,074,601	14%
UnitedHealth	775,905	5%
Centene (Health Net)	646,698	4%
CVS (Aetna)	395,763	3%
CIGNA	329,565	2%
All Others	807,754	6%
Total	**14,393,763**	**100%**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*.

More than 6 million Californians obtained coverage through Medicare in 2018. About 3.5 million of them, almost 60 percent, are in the traditional FFS program ("original Medicare"); data on those individuals will be requested from CMS for inclusion in the HPD System. The remaining 2.5 million, just over 40 percent of California's Medicare population, were enrolled in a health plan through Medicare Advantage (also called Medicare Part C). Kaiser has 47 percent of enrollment in the state, and the top seven health plans together have 89 percent of the Medicare Advantage enrollment.

Exhibit 24. Medicare Advantage Enrollment by Plan, California, 2018

PLAN	ENROLLMENT	MARKET SHARE
Kaiser	1,182,347	47%
UnitedHealth	449,446	18%
SCAN	184,468	7%

PLAN	ENROLLMENT	MARKET SHARE
Blue Shield	155,849	6%
Centene (Health Net)	136,795	5%
Humana	77,506	3%
Anthem	74,091	3%
All Others	278,148	11%
Total	**2,538,650**	**100%**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*.

Anthem enrollment accounted for almost half of the ASO market in 2018, as shown in Exhibit 25, with Kaiser playing a much smaller role. An estimated 16 percent of ASO enrollment is in public plans and subject to state mandate for data submission; the remaining estimated 84 percent is in private plans and cannot be compelled to submit (see the section on voluntary submission).[64]

Exhibit 25. Administrative Services Only (ASO) Enrollment, by Plan, California, 2018

PLAN	ENROLLMENT	MARKET SHARE
Anthem	2,555,475	46%
UnitedHealth	764,390	14%
CVS (Aetna)	741,545	13%
Blue Shield	703,136	13%
CIGNA	589,639	11%
Kaiser	141,009	3%
All Others	2,564	<1%
Total	**5,497,758**	**100%**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*.

In 2018, Covered California enrolled over 1.3 million people statewide in 11 fully-insured plans, also known as Qualified Health Plans (QHPs). All QHPs on the Covered California exchange would submit data to the HPD System unless exempted due to small size. The Appendix Supplement to Chapter 4 provides 2018 enrollment in Covered California by plan and network type.

Public Self-Insured Plans

The U.S. Supreme Court decision *Gobeille v. Liberty Mutual* does not apply to governmental plans that cover public employees because such plans are exempt from the Employee Retirement Income and Security Act of 1974 (ERISA). Accordingly, self-insured health benefit programs for state employees and other public workers (including state, county, and municipal employees and retirees; and public school teachers and retirees) can be included as mandatory submitters to the HPD System.

CalPERS is the largest health benefit program for public workers in California and provides coverage to 1.5 million current and retired public workers, including state employees, schools, and public agencies.[65] CalPERS offers HMO, PPO, exclusive provider organization (EPO), and Association products. Most of their enrollment is fully-insured and therefore would be covered by the mandate on health plans and insurers described above. CalPERS also has several self-insured options (e.g., PERS Choice). CalPERS would be responsible for ensuring submission of data for these plans, but the data would likely come from the TPAs managing these plans on behalf of CalPERS. The Appendix Supplement to Chapter 4 provides 2018 enrollment in CalPERS by plan; Anthem and Blue Shield currently manage much of CalPERS' self-insured enrollment.

Other public employers, local public agencies, and school districts can choose to join CalPERS to obtain health benefits for their workers, or to provide those benefits through an alternative pathway. Some examples of public entities that manage their health benefits outside of the CalPERS system include:

- The University of California, covering employees and retirees across campuses statewide.[66]
- Self-Insured Schools of California, serving public school districts across the state.[67]
- California Valued Trust, covering school districts, community colleges, and county education offices throughout the state.[68]
- Special District Risk Management Authority Health Program, a public agency serving local governments across the state.[69]

Public health benefit programs generally offer a mix of fully-insured and self-insured offerings, just as CalPERS does. As with CalPERS, data for the fully-insured would be covered by mandatory submission from those entities to the HPD System, and the public health benefit program would be responsible for ensuring the self-funded data are provided, likely by their contracted administrator.

To maximize data available to the HPD System, all self-insured public employers should be included in the mandate, and the HPD System should be prepared to accept data from either the self-insured public employers/trusts or their TPAs. See the "coordination of submission" section for additional detail on how submissions might be coordinated in these cases.

DHCS—Medi-Cal

About one in three Californians—almost 13 million—was covered through Medi-Cal in 2019, with more than 80 percent enrolled in an MCP. Managed care is mandatory for most Medi-Cal

enrollees including children, pregnant women, parents/caretaker relatives, adults without dependents, seniors, and people with disabilities who are not also eligible for Medicare. Medi-Cal managed care is implemented differently across counties, with several distinct models ranging from one county-organized health system for all beneficiaries in a county to a geographic managed care model with multiple (5-7) plan choices. Most large counties have a two-plan model, featuring a choice between a local initiative plan and a commercial plan; about 64 percent of enrollees are in two-plan model counties.

An estimated 2.4 million enrollees (18 percent) are in FFS Medi-Cal; this includes dual eligibles and foster children/youth who are not voluntarily covered by managed care, people receiving long-term care, those with other health insurance, those with a medical exemption, and others without full-scope Medi-Cal. Individuals who are not otherwise eligible for Medi-Cal such as undocumented adults over age 26 may be able to receive some services such as pregnancy-related and emergency care.

Chapter 2 (Data Categories and Formats) describes how the HPD System will pursue the collection of Medi-Cal data directly from DHCS, for both managed care and FFS. Obtaining data directly from DHCS for Medi-Cal enrollees would facilitate the HPD System receiving Medicaid data for dual eligibles ("duals"), the 1.4 million Californians who are eligible for both Medi-Cal and Medicare,[70] whose coverage is described below:

- About 130,000 duals obtain coverage through Medicare Advantage Dual Eligible Special Needs Plans (D-SNPs). It is anticipated that the HPD System would obtain the medical claim and encounter data through the commercial plans, while data on long-term services and supports would come through DHCS since those are Medi-Cal benefits.[71]
- About 110,000 duals are enrolled in demonstration programs at the county level.[72] Since all of these participating plans provide Medi-Cal coverage, those data would come through DHCS.
- About 9,000 duals obtain coverage through the Program of All-Inclusive Care for the Elderly (PACE); there are 13 PACE plans in California with enrollment ranging from 56 to 2,656.[73] The HPD System would likely obtain these data through DHCS.
- The remaining 1.15 million duals obtain Medicare and Medi-Cal benefits separately through each program, either in an MCP or on an FFS basis. Medi-Cal data would come to the HPD System through DHCS, and Medicare data would come through the commercial plans (for managed care enrollment) or through CMS (for FFS enrollment).

While the HPD Program may be able to rely on an interagency agreement between DHCS and OSHPD for data submission, increasingly, state APCDs are extending the submission mandate to state agencies as well as to private payers. Several states, including Arkansas, Colorado, Delaware, Hawaii, and Massachusetts, have made the Medicaid agency a mandatory submitter. Such a mandate accomplishes several objectives, including:

- Cover state agencies that require their managed care contractors to submit data beyond what is already available to the agency, such as APM or other non-claims payment data.

- Achieve compliance when state agencies are reluctant reporters and avoid the need to negotiate customized agency-specific data use agreements (DUAs) that can limit downstream data uses.
- Establish enforceable standards with respect to data quality and completeness, as well as requirements regarding error correction and resubmissions.

Given that OSHPD and DHCS are related departments under the CHHS Agency and have a long-time working relationship, it is anticipated that DHCS will be a strong partner in the HPD Program. The HPD Program's authorizing statute should list DHCS among required submitters to ensure that data submission legal requirements are fully met.

Dental Plans and Insurers

Dental coverage is not normally integrated with medical coverage and features a distinct set of market players and characteristics.[74] Approximately 11 million Californians are enrolled in dental plans regulated by the DMHC and CDI (see Exhibit 26 for the largest plans; a complete list is in the Appendix Supplement to Chapter 4). In addition, 12.2 million Medi-Cal beneficiaries have dental benefits provided on a FFS basis and administered by Delta Dental in all counties except Sacramento (where managed dental is mandatory) and Los Angeles (where managed dental is an alternative to FFS).[75] Medicare does not include a dental benefit, but some Medicare Advantage plans include dental benefits, and standalone dental HMO and PPO plans are available to Medicare beneficiaries. In addition to the dental benefits provided by Medi-Cal and by fully-insured plans regulated by DMHC and CDI, self-insured employers and trusts provide dental benefits to several million Californians. Private employers and trusts cannot be compelled to submit data, but public programs and their TPAs can be required to submit data to the HPD System.

Exhibit 26. Dental Enrollment by Plan, 2018

PLAN	ENROLLMENT	MARKET SHARE
Delta Dental of California	4,896,000	44%
Metropolitan Life Insurance Company	779,193	7%
Cigna Health and Life Insurance Company	574,357	5%
Guardian Life Insurance Company	520,454	5%
Anthem Blue Cross Life and Health Insurance Company	456,388	4%
United Concordia Insurance Company	375,791	3%
Aetna Life Insurance Company	289,586	3%
Principal Life Insurance Company	273,275	2%
SafeGuard Health Plans, Inc.	271,531	2%
California Physicians' Service/Blue Shield of CA	236,911	2%

PLAN	ENROLLMENT	MARKET SHARE
Access Dental Plan	230,580	2%
Cigna Dental Health of California, Inc.	204,359	2%
All Other	2,122,434	19%
TOTAL	**11,230,859**	**100%**

Source: Author calculations based on CDI data from website http://www.insurance.ca.gov/01-consumers/110-health/60-resources/Dental-MLR.cfm and DMHC data sent to OSHPD.

For the purpose of the HPD System data collection, responsibility for data submission would be structured as follows:

- For commercial enrollment, including employer-based dental benefits: dental plans and insurers.
- For Medi-Cal enrollment: DHCS.
- For Medicare beneficiaries, the responsible submitters are:
  - Medicare Advantage health plans that offer dental benefits.
  - Dental plans and insurers that serve the Medicare market with standalone dental coverage.
- For self-insured public employers and trusts: public programs and their TPAs.

Of the 19 state-mandated APCDs, 11 are collecting (or will soon be collecting) dental claim data. One additional APCD (Rhode Island) has recently added the collection of dental claims to supporting regulations but has not yet executed the data collection. All but two of the states collecting dental claims have chosen to use a standalone file rather than an integrated file, since many of the fields differ from medical claims. For that reason, the APCD-CDL™ has a separate file format for dental claims.

Coordination of Submission

Many health plans, health insurers, and self-insured employers (public and private) subcontract with other organizations to administer their health benefit programs. These include TPAs, PBMs, behavioral health organizations (BHOs), risk-based organizations (providers that bear financial risk), and restricted Knox-Keene licensees (provider organizations licensed by the DMHC to accept global risk). In all cases, the mandatory submitter should retain the responsibility for complete submission of required claim, encounter, eligibility, provider, and non-claims payment files. Mandatory submitters can coordinate with their subcontracted entities to submit data directly to the HPD System on their behalf. Those specifics can be worked out during the submitter onboarding and registration process.

TPAs provide an array of services to self-insured employers and trusts, including claims administration; provider network management; utilization review; and eligibility, billing, and Consolidated Omnibus Budget Reconciliation Act (COBRA) administration. They operate in workers compensation, retirement, life, and other types of insurance as well as health. In California, "administrators" as defined in Insurance Code Section 1759 are required to register with CDI. Two examples of self-insured public employers that work with an administrator to manage their health benefits are:

- Regional Employer/Employee Partnership for Benefits, providing benefits to school districts in Southern California and administered by Keenan.
- California Schools Voluntary Employee Benefits Association covering education, municipal, and public agency employees in Southern California and administered by McGregor & Associates/Arthur J. Gallagher & Co.

PBMs administer prescription drug plans on behalf of a variety of sponsors including commercial health plans, self-insured employer plans, Medicare prescription drug (Part D) plans, state government employee plans, and Medi-Cal MCPs. PBMs negotiate with drug manufacturers and pharmacies and have a significant behind-the-scenes impact in determining total drug costs for insurers and shaping patients' access to medications.

As of January 1, 2020, PBMs that have contracts with DMHC-regulated health plans are regulated by DMHC, per legislation enacted in 2018 (Business and Professions Code § 4079.5 and HSC § 1368.6).

These changes require PBMs to report quarterly to purchasers on rebates received, as well as on aggregate wholesale acquisition costs and payments to pharmacies. The law also establishes a Task Force on Pharmacy Benefit Management Reporting to determine what information related to pharmaceutical costs, if any, DMHC should require from health care service plans or their contracted PBMs.

BHOs contract with health plans, health insurers, and self-insured employers or trusts to provide behavioral health services to enrollees. Some of the largest BHOs in California include Beacon Health Options (acquired by Anthem in 2019), Magellan, Optum Behavioral Health, and Cigna Behavioral Health. A BHO accepts financial risk for a specified set of services and is responsible for managing the provider network and paying contracted providers for those services.

Risk-based organizations and restricted Knox-Keene licensees. Health plans will be responsible for submitting all required claim, encounter, and related data to the HPD System. The provider organizations they contract with to deliver care will not be responsible for data submission, even when they bear financial risk for professional and/or institutional services. In California, health plans often capitate medical groups and independent practice associations for professional services and delegate associated responsibility for care management to those physician organizations. Health plans may capitate hospitals as well, or they may create shared risk pools that reward or penalize physician organizations and hospitals for performance relative

to cost and quality targets. Some provider organizations have obtained a restricted Knox-Keene license from DMHC that allows them to accept global risk (i.e., financial responsibility for both professional and institutional services). However, these entities may not sell directly to employers or consumers; they must go through fully licensed health plans. Those fully licensed health plans receive claim and encounter data from the contracted provider entity (the restricted Knox Keene license-holder), and those health plans are responsible for submitting the data to the HPD System.

Excluded Lines of Business

State APCDs generally explicitly exclude lines of business that are lower priority and/or higher effort to focus resources on high-priority data streams. The most commonly excluded product lines in other state APCDs are accident, disability, hospital indemnity, long-term care, specific disease policy, and workers compensation. Massachusetts also explicitly excludes programs for federal employees and the military. Exhibit 27 summarizes the approach taken by three states—Colorado, Massachusetts, and Oregon. There is broad consistency in excluded product lines, with some variation—in part because states tailor their exclusions to the specifics of existing state law. For example, Oregon and Massachusetts do not collect automobile medical; they simply do not need to exclude those lines of business because the relevant state law is in a different chapter than the one used to define health insurance.

Exhibit 27. Exclusions for Insurance Lines of Business for Three State APCDs

LINE OF BUSINESS	CO	MA	OR
Accident	✓	✓	✓
Automobile medical	✓		
Disability	✓	✓	✓
Hospital Indemnity	✓	✓	✓
Liability insurance	✓		
Long-term care insurance	✓	✓	✓
Medicare supplemental insurance (pays cost-sharing)		✓	✓
Specific disease policy	✓	✓	✓
Stop-loss plans		✓	✓
Student Health Insurance		✓	✓
Supplemental insurance (pays cost-sharing)		✓	✓
Vision-only			✓
Workers Compensation	✓	✓	✓

Source: Author's analysis, including referencing state APCD websites, enabling legislation, and supporting regulations.

In California, Insurance Code Section 106(b) defines health insurance as "an individual or group disability insurance policy that provides coverage for hospital, medical, or surgical benefits" and explicitly excludes accident, disability, hospital indemnity, liability, long-term care insurance, specific disease policies, and workers compensation. Accordingly, the HPD System should exclude those lines of business.

In addition, lines of business that are only tangentially related to health insurance, or that are substantially different from standard medical benefits such that the claim data are not comparable, should also be excluded. That said, lines of business should only be explicitly excluded if there is a high degree of certainty that the HPD Program will not pursue collection of the relevant claim data due to a combination of relatively high burden and relatively low value. Recommendations for exclusion from the HPD Program are as follows:

- **Supplemental insurance that covers cost-sharing only**: Claim data already includes information on individuals' financial responsibility, so supplemental insurance data could be duplicative.
- **Stop-loss plans**: These plans protect self-insured employers and trusts from catastrophic losses; they are not health insurance.
- **Student health insurance**: This coverage is generally required by colleges and universities before students are allowed to register. Historically, the benefits were thin, but these plans have had to come into compliance with the ACA benefit requirements. According to the CHCF 2018 data files released in 2019, enrollment was approximately 829,000, all of it was regulated by CDI. Several other APCDs collect student health insurance data, but there have not yet been any strong use cases to date.
- **Chiropractic-only, Discount (providing access to provider network discounts), and Vision-only**: Each of these types of coverage is narrow and limited (e.g., vision insurance covers predictable expenses such as routine eye exams and corrective lenses). Note that comprehensive medical plans that offer eye exams as a covered service will be required to include those claims in their submissions.

Exemption: Thresholds for Enrollment

For submitters with relatively low enrollment, the value of the additional data may not be worth the costs related to registration, management of monthly data submissions, data integration, and other ongoing per-submitter operations costs. APCD administrators set thresholds to balance the benefit of additional data with the incremental cost. Thresholds are typically not relevant for Medicaid, Medicare FFS, or QHPs. For other submitters, entities under the threshold are exempted, allowing the APCDs to focus resources on the larger submitters and alleviating the burden on small carriers. As shown in Exhibit 28, most state APCDs have based the threshold on the number of covered lives, though several states reference annual claims volume and one state bases the threshold on market share. Thresholds are typically based on the cumulative total across all lines of business for a particular payer.

Exhibit 28. State APCD Submitter Threshold

THRESHOLD	STATE
Covered Lives	
>1,000 covered lives	Colorado, Delaware, Maryland, Massachusetts
>2,000 covered lives	Arkansas
>2,500 covered lives	Utah
>3,000 covered lives	Connecticut, Rhode Island
>5,000 covered lives	Oregon
>10,000 covered lives	New Hampshire
Other Measures	
>$3M in medical or $300k in pharmacy claims per year	Minnesota
>$5M in medical or $1M in pharmacy claims per year	Tennessee
>$2M in adjusted premiums or claims paid per year	Maine
>1% market share	Kansas

Source: Author's analysis, including referencing state APCD websites, enabling legislation, and supporting regulations.

Scenarios for Exemption Threshold: Medical

Several scenarios for exemption thresholds from mandatory submission to the HPD System are shown in Exhibit 29 and shaded in blue. A complete list of all plans and insurers with enrollment by market segment is in the Appendix Supplement to Chapter 4. Because California is so much larger than the states shown in Exhibit 28 above, the scenarios for the HPD Program start with a threshold of 10,000 and go up to 50,000 covered lives. For this purpose, enrollee numbers include commercial, Medicare managed care, and ASO lines of business; they do not include Medi-Cal managed care because those data will be submitted by DHCS.

If the threshold is set at 10,000 lives, 31 of 76 plans/insurers would be required to submit, covering an estimated 99.7 percent of the commercial, Medicare managed care, and ASO population; approximately 72,000 individuals' data would be excluded. If the threshold is set at 50,000, then 14 of the 76 plans/insurers would be required to submit and just under 98 percent of covered lives would be included; 62 plans and about 569,000 enrollees would be excluded. Each submitter may have multiple data feeds (e.g., distinct feeds for each line of business and for subsidiaries operating independently).

Exhibit 29. Health Plan/Insurer 2018 Enrollment (Commercial, Managed Medicare, and ASO) and Threshold Scenarios—Medical

HEALTH PLAN/INSURER (PARENT GROUPING)	SUM OF COMMERCIAL, MANAGED MEDICARE, AND ASO	% OF TOTAL
Kaiser	8,132,320	36.26%
Anthem	4,704,167	20.97%
Blue Shield	3,413,498	15.22%
UnitedHealth	1,989,741	8.87%
CVS (Aetna)	1,172,149	5.23%
CIGNA	919,204	4.10%
Centene (Health Net)	783,493	3.49%
SCAN	184,468	0.82%
Sharp Health Plan	142,649	0.64%
Western Health Advantage	125,882	0.56%
Humana	91,316	0.41%
Sutter	83,874	0.37%
L.A. Care	68,181	0.30%
Molina	50,208	0.22%
THRESHOLD AT 50,000 (14 submitters)	21,861,150	97.46%
SIMNSA	49,800	0.22%
Western Growers	46,464	0.21%
Central Health Plan	40,781	0.18%
Citizens Choice	40,309	0.18%
Oscar	39,609	0.18%
United Agricultural Employees	37,935	0.17%
Valley Health Plan	34,042	0.15%
Universal Care	32,844	0.15%
Easy Choice	30,501	0.14%
Inland Empire Health Plan	25,855	0.12%
THRESHOLD AT 25,000 (24 submitters)	22,239,290	99.15%

HEALTH PLAN/INSURER (PARENT GROUPING)	SUM OF COMMERCIAL, MANAGED MEDICARE, AND ASO	% OF TOTAL
Inter Valley	21,836	0.10%
Nippon	20,933	0.09%
Chinese Community Health Plan	20,444	0.09%
CalOptima	15,736	0.07%
Ventura County Health Care Plan	14,947	0.07%
Scripps	13,277	0.06%
Medi-Excel, SA de CV	11,608	0.05%
THRESHOLD AT 10,000 (31 submitters)	22,358,071	99.68%
All Others (46 plans)	72,100	0.32%
Total (76 plans)	**22,430,171**	**100%**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*.

Setting of threshold limits should be informed by the possibility of inadvertently excluding regional plans that may have relatively low enrollment statewide but have a greater concentration of members in a specific geographic area. Western Health Advantage and Sharp Health Plan, with geographic concentrations in the Sacramento and San Diego regions respectively, would both be included in mandatory submission at the 50,000 covered lives threshold, but Chinese Community Health Plan, a small health plan on a statewide basis with a geographic focus in San Francisco and the Bay Area, would be excluded. Another consideration is ensuring complete data submission for all of Covered California's participating plans. The QHPs offered through Covered California in 2019 were:

- Anthem
- Blue Shield of California
- Chinese Community Health Plan
- Health Net
- Kaiser Permanente
- Molina Healthcare
- LA Care
- Oscar
- Sharp Health Plan
- Valley Health Plan
- Western Health Advantage

While all the current QHPs would be required to submit data to the HPD System if the threshold were set at 10,000 covered lives, three would be exempt from submission requirements if the threshold were set at 50,000 covered lives: Oscar, Valley Health Plan, and Chinese Community

Health Plan. In addition, in the future, Covered California may include participating plans with total enrollment below even the 10,000 threshold. To ensure that all plans participating in Covered California submit data to the HPD System, a zero threshold for QHPs would be needed.

Scenarios for Exemption Threshold: Dental

Exhibit 30 displays the number and percent of enrollees with dental coverage that would be included under various exemption thresholds. For fully-insured dental coverage, 20 plans/insurers have enrollment of over 100,000 members, 30 have enrollment of over 50,000, and 41 have enrollment of over 10,000. Delta Dental has 4.9 million enrollees and 44 percent of the market share. The second largest is Metropolitan with 7 percent of the market, followed by Cigna Health & Life and Guardian Life, each with 5 percent; 51 of the 58 plans/insurers had market shares of 2 percent or less, 38 of them under 1 percent. See the Appendix Supplement to Chapter 4 for a complete list of enrollment by plan/insurer.

Exhibit 30. Threshold Scenarios for Exemption from Mandatory Reporting to HPD—Dental

	SUBMITTING			EXEMPT	
Threshold	# of Plans/Insurers	# of Enrollees	% of Enrollees	# of Plans/Insurers	# of Enrollees
>100,000	20	10,216,647	91.0%	38	1,014,212
>75,000	23	10,484,498	93.4%	35	746,361
>50,000	30	10,947,589	97.5%	28	283,270
>25,000	33	11,062,896	98.5%	25	167,963
>10,000	41	11,184,927	99.6%	17	45,932
TOTAL	58	11,230,859	100.0%	0	0

Source: Author calculations based on 2018 data from CDI website http://www.insurance.ca.gov/01-consumers/110-health/60-resources/Dental-MLR.cfm and DMHC data sent to OSHPD.

Population and Frequency of Submission

State APCDs vary somewhat in their approach to defining the relevant member population, as well as the frequency of submission for different data types. Submission of claim, encounter, eligibility, and provider data occurs on a quarterly or monthly basis. States that collect supplemental data (e.g., for non-claims payments) generally do so on an annual basis because the APM process is distinct from the claims submission process and submitters must gather and organize information from multiple departments within their organization. The population for data submission can be defined based on the member's state of residence, data for all products sold in the state regardless of where the covered individual resides ("situs"), and/or the inclusion of public employees and retirees regardless of where they live. The approaches taken by Oregon, Colorado, and Massachusetts are summarized in Exhibit 31.

Exhibit 31. Comparison of Select APCDs on Frequency of Submission and Population Definition

	OREGON	COLORADO	MASSACHUSETTS
Frequency of submission (core data)	Quarterly	Monthly	Monthly
Definition of population	Residents and state employees and retirees regardless of residence	Residents	Policy sold in Massachusetts or state resident or employed in Massachusetts

Source: Author's analysis, including referencing state APCD websites, enabling legislation, and supporting regulations.

Based on the experience of other states and what is needed in California, the following structure is included in the recommendations in this Report:

- **Monthly submission of claim, encounter, eligibility, and provider files; at least annual submission of all other data**. Because California is so large, many of the data submitters will be transmitting very large files even on a monthly basis; a quarterly transmission would result in a file size that could create challenges. Monthly submission would create a more manageable flow of data and will enable earlier detection and resolution of any quality and completeness problems with files. A process for requesting an exception to monthly submission requirements will accommodate small plans/lines of business or unusual circumstances. For supplemental data such as non-claims payments, the default should be annual submission in order to balance the burden of submission with timely access to the data. In some cases, more frequent submission of non-claims data may more appropriate; the HPD Program should retain flexibility to adjust course as needed.
- **Defining the population as residents**. Based on the subscriber's street address, this approach is simple and accomplishes the intent of the legislation (to understand cost and utilization in California to support cost containment, quality improvement, and equity) while minimizing the burden on data suppliers.

Voluntary Submission (Subject to State Law)

California law cannot compel : federal health benefit programs or private self-insured plans to submit data to the HPD System, but data could be obtained on a voluntary basis.

Federal Health Benefit Programs

Federal programs are not subject to state regulatory authority. Such programs include the Federal Employee Health Benefits Program, military-provided health benefits (Veterans Administration and TRICARE), and the Indian Health Service. While there is no prohibition against such programs contributing data to APCDs, no state has yet secured submission of these data.

Private Self-Insured Plans

In March 2016, the U.S. Supreme Court ruled that states cannot require self-insured employer plans regulated under ERISA to submit data to a state APCD. The decision, *Gobeille v. Liberty Mutual*, resulted from a lawsuit by a self-insured employer that challenged Vermont's right to require the employer's TPA to submit claim data to the state APCD.[76] The Supreme Court

found that ERISA preempted Vermont's ability to compel the submission of claim data for self-insured employers.

The Supreme Court ruling applies to entities that are subject to ERISA and are self-insured. Two groups are worth noting:

- **Private self-insured employers**. Many large firms opt to bear the financial risk associated with providing health benefits for their employees, rather than paying an insurance company to do so. They generally outsource claims payment and often other services to a TPA.
- **Taft-Hartley trusts.** Collectively bargained and administered by an equal number of management and union representatives, Taft-Hartley trusts are generally multi-employer arrangements and are often used to cover workers in project-based or seasonal jobs such as construction.[77]

Private self-insured employers and Taft-Hartley trusts are not prohibited from contributing data to state APCDs, but they cannot be compelled to do so. Indeed, many large employers and trusts are increasingly concerned about the continued escalation of health care costs and are interested in using analytics based on APCDs to contribute to the development of solutions. The main concern is the prospect of 50 different state APCDs with 50 different sets of data formats and submission rules. The release of the APCD-CDL™ in early 2019, as described in Chapter 2 (Data Categories and Formats), could address concerns about proliferating standards and encourage voluntary participation in state APCDs by multi-state businesses. An estimated 4.8 million Californians are in such plans.

Even when self-insured employers and trusts would be interested in contributing data to an APCD, they may not be aware of the opportunity. One option that California could pursue is a requirement that the carriers and TPAs notify their self-insured clients that they may opt in to the HPD Program, and to require carriers and TPAs to submit data to the HPD System if their clients opt in. The State of Washington's most recent legislation states: "Employer-sponsored self-funded health plans and Taft-Hartley trust health plans may voluntarily provide claim data to the database within the time frames and in accordance with procedures established by the lead organization. Any data supplier used by an entity that voluntarily participates in the database must provide claims data to the data vendor upon request of the entity."[78] In Utah, every plan or administrator providing administrative services to a self-insured plan must provide an opt-in form annually to all such clients. The form was developed by the APCD and endorsed by the Governor and the Chamber of Commerce. Utah has made it simple to opt in, as a single signature from anyone at the self-insured entity requires the plan administrator to submit the data to the APCD.[79]

To maximize the data submission from private self-insured employers and trusts, the HPD Program should be statutorily authorized to receive data from voluntary submitters, and the HPD Program should develop processes that encourage voluntary submission from these organizations.

Authority to Submit and Collect Personal Information

Claim and encounter data are personal health information held by health plans and insurers that must comply with HIPAA and also with California laws related to protection of personal health information such as the Confidentiality of Medical Information Act or CMIA (for health care providers and health care service plans), and the Insurance Information and Privacy Protection Act (IIPPA) (for insurers). Each of these laws generally prohibits disclosure of personal health information but provides specific exceptions. These rules allow for disclosure of the protected information without authorization by the patient if the disclosure is required by law, so a statutory mandate for the payers to submit claim, encounter, and related data would make it possible for the HPD System to collect necessary data.

Payers such as private self-insured employer benefit plans, multiemployer self-insured plans, and Taft-Hartley trusts are exempt from this type of state regulation under ERISA, and therefore cannot be mandated to submit data to the HPD System. For the ERISA plans to submit personal health information to the HPD System, there must be another applicable HIPAA exception. Under defined circumstances, HIPAA permits plans to disclose protected health information for certain "health oversight" activities or "public health" activities. Other state APCDs have used these exceptions in HIPAA to obtain data from voluntary submitters.

Health Oversight

Some states reference the health oversight exception to justify disclosure to the APCD. Under HIPAA, covered entities may disclose PHI to a health oversight agency for activities that are authorized by law, such as audits; civil, administrative, or criminal investigations; licensure or disciplinary actions; or other activities for oversight of the health care system or government benefits programs. A health oversight agency includes a federal, state, or local government agency authorized by law to oversee the public and private health care system, or government programs that require health information for determining eligibility or compliance, or to enforce civil rights laws.

Public Health

Some state APCDs have used the public health activities exception to collect data from voluntary submitters. The HIPAA Privacy Rule allows covered entities to share PHI with public health authorities that are "authorized by law to collect or receive such information for the purpose of preventing or controlling disease, injury or disability, including but not limited to…the conduct of public health surveillance, public health investigations, and public health interventions . . . " (45 CFR § 164.512, subd. [b][i]). HIPAA defines "public health authority" as "an agency or authority of the United States, a State, a territory, a political subdivision of a State or territory, or an Indian tribe, or a person or entity acting under a grant of authority from or contract with such public agency, including the employees or agents of such public agency or its contractors or persons or entities to whom it has granted authority, that is responsible for public health matters as part of its official mandate" (45 CFR § 164.501). Examples include state and local health departments, the Food and Drug Administration, the Centers for Disease Control and Prevention (CDC), and the Occupational Safety and Health Administration. More than one state agency may be responsible for activities that are considered public health matters.

HSC Section 127671 identifies broad public health goals for the HPD:

- "*...inform policy decisions regarding the provision of quality health care, reduce disparities, and reduce health care costs.*"
- "*...achieve a sustainable health care system with more equitable access to affordable and quality health care for all.*"
- "*...develop innovative approaches, services, and programs that may have the potential to deliver health care that is both cost effective and responsive to the needs of enrollees, including recognizing the diversity of California and the impact of social determinants of health.*"

Given the important public health issues that the HPD will address, it is anticipated that the HPD Program can be structured so that the public health exception would allow the ERISA plans to voluntarily provide data to the HPD System. While there is not a formal process for granting an organization public health authority, the CDC provides guidance on the public health provisions of the Privacy Rule, such that other entities conducting activities under a "grant of authority" from a public health agency (or "at the direction of a public health authority") may receive PHI from covered entities.[80] In addition to including language in the statute that specifically addresses public health goals, OSHPD would need to work with the CHHS Agency and CDPH to identify it as a public health authority authorized to receive data from submitters in accordance with the HIPAA public health exception.

Acquisition of CMS Medicare FFS Data

Medicare-eligible individuals are covered through either managed care (Medicare Advantage) or the traditional FFS program. Data for those in Medicare Advantage plans will come directly from mandated health plans and insurers as described above. Medicare FFS data must be obtained through CMS and can come through one of two pathways: State Agency Request process and Qualified Entity (QE) Certification Program. Both pathways require the state to receive the data as formatted and delivered by CMS; CMS does not tailor its data submission formats to states' preferences.

The State Agency Request process is designed for state governments interested in conducting research.[81] The program allows a state to conduct multiple projects under one DUA, and to disseminate data to other state agencies and entities conducting research. States can request data for Medicare beneficiaries in the state, plus a 5 percent national sample for benchmarking.

The QE Certification Program allows organizations to obtain Medicare claim data for use in evaluating provider performance.[82] As of October 2017, 22 organizations were certified as QEs, including state APCDs in Colorado, Virginia, and Minnesota. QEs are required to produce and publicly disseminate reports on provider performance.

As part of its QE application process, Colorado's APCD created a comparative overview of the two pathways to obtaining Medicare FFS data.[83] The two pathways are complementary: access through the State Agency Request process restricts use of the data to research, and

access through the QE process restricts use to provider comparisons and public reporting of performance measures. To maximize flexibility, the HPD Program could pursue both.

Summary and Recommendations: Data Submitters

Enabling legislation will be required to support the HPD Program's ability to collect data; to ensure that OSHPD is able to adjust to changes in the environment and to course correct as needed, the legislation should be written in broad terms, pointing to regulations for specificity. In turn, the regulations will point to the HPD System data submission guide for detail that operationalizes the regulations.

HPD Review Committee Recommendations

1. ***Authority to Submit and Collect Personal Information:*** Legislation should clearly authorize data submitters to send, and OSHPD to receive, personal information to meet the legislative intent of the HPD Program. To support the submission of data by voluntary submitters, legislation should clearly specify public health as one of the intended uses of the HPD System.
2. ***Mandatory Data Submitters:*** The types of organizations required to submit data to the HPD System ("mandatory submitters") should be based on federal and existing California laws and definitions, and initially include:
   a. Health care service plans and health insurers
   b. DHCS, for Medi-Cal managed care plan and fee for service data
   c. Self-insured entities as permitted under federal law (currently, public payer plans such as state, county, and local governments that are not subject to ERISA)
   d. Third-party administrators of plans (not otherwise preempted by ERISA)
   e. Dental plans and insurers

Continued on next page.

Standards for Mandatory Submission should be broadly specified in statute and clearly defined in regulations, with initial guidance as follows (applies to Recommendations three through eight):

3. ***Required Lines of Business***:
   a. Commercial: individual, small group, large group, Medicare Advantage
   b. Self-insured plans as permitted under federal law (currently, public payer plans such as state, county, and local governments that are not subject to ERISA)
   c. Dental
   d. Medi-Cal FFS and managed care
4. ***Coordination of Submission***: The mandatory submitters are responsible for submitting complete and accurate data directly and facilitating data submissions from appropriate data owners, including data feeds from pharmacy benefit management companies, behavioral health organizations, subsidiaries, and other services carved out to a subcontracting organization.
5. ***Excluded Lines of Business***: All those listed in Insurance Code section 106b as excluded from the definition of health insurance, plus the following:
   a. Supplemental insurance (including Medicare supplemental)
   b. Stop-loss plans
   c. Student health insurance
   d. Chiropractic-only, discount, and vision-only insurance
6. ***Plan Size***:
   a. OSHPD shall establish an exemption for plans below a threshold not to exceed 50,000 covered lives to be defined and overseen by OSHPD with consideration given to feasibility, cost, and value of data procurement, for:
      i. Combined Medicare Advantage, commercial, and self-insured plans not subject to ERISA
      ii. Dental
   b. Given that DHCS will be submitting Medi-Cal data, there is no plan size threshold for Medi-Cal FFS or managed care.
   c. With consultation between OSHPD and Covered California, all Qualified Health Plans (plans participating in Covered California) are required to submit either directly or through Covered California.
7. ***Frequency***:
   a. Monthly submission for all core data (claims, encounters, eligibility, and provider files)
   b. Submission at least annually for non-claims-payments data files
8. ***Population***: The population for data submission is defined as residents of California

9. ***Voluntary Submitters***:
   a. The HPD Program should be statutorily authorized to receive data from voluntary submitters.
   b. The HPD Program shall develop an appropriate process to encourage voluntary data submission.

Chapter 5: Funding and Sustainability

Introduction

This chapter focuses on costs and revenue sources to support ongoing operations of the HPD Program, including necessary state, vendor, and information technology (IT) costs. The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(2):
  - (2) "*The report shall also include recommendations including the following:*
  - *(C) A plan for long-term, non-General Fund financing to support the ongoing costs of maintaining the database.*"

The HPD System will be a statewide resource and will require investment to build and operate. The Legislature appropriated $60 million on a one-time basis to support the HPD initiative, including planning, development, and build through 2025. For ongoing operations, the Legislature required development of a sustainability plan and specified no General Fund financing should be included.

Current OSHPD Funding for Data Assets and Activities

Health facilities licensed by the State of California, except those owned and operated by the state, are required to pay a fee that goes to the Health Data and Planning Fund. The fee cannot exceed 0.035 percent of the gross operating cost of the facility for the prior year (HSC § 127280). Revenue from this fund supports the health care data reporting programs. For Fiscal Year 2019-20, the facility fee was 0.027 percent for hospitals and 0.025 percent for long-term care facilities on gross operating cost of $122.3 billion for hospitals and $11.3 billion for long-term care facilities, generating revenue of $35.8 million (92 percent from hospitals and 8 percent from long-term care facilities). In addition, licensed freestanding ambulatory surgery centers (ASCs), pay an amount based on the number of data records submitted to OSHPD in the prior year. ASCs currently pay 50 cents per record, the maximum allowed by HSC Section 127280, subdivision (f)(1). The ASC fee raised only about $50,000 in 2017-18 due to the relatively small number of ASCs currently licensed by CDPH. In 2016, 791 freestanding ASCs reported data to CMS, while 34 reported to OSHPD.

OSHPD's programmatic mission is to support informed decisions and to make data accessible, open, and usable to all authorized data consumers, and the Health Data and Planning Fund supports that mission. As of July 2018, OSHPD no longer charges for patient-level datasets for eligible requesters. This includes patient discharge, ED, and ambulatory surgery data, and it applies to limited dataset and research data requests.[84] Since OSHPD eliminated the cost associated with requests for patient-level data, the number of years of data requested has increased substantially, increasing the staff costs associated with fulfilling the requests. OSHPD does charge nominal cost recovery fees for select custom analyses that require substantial staff time to produce. However, such charges do not generate revenue for the OSHPD Health Data and Planning Fund.

SB 17 (Hernandez, Chapter 603, Statutes of 2017) imposed new reporting requirements on drug manufacturers related to wholesale acquisition cost and other metrics beginning in 2018 and charged OSHPD with collecting the data and publishing that information on its website on a quarterly basis. OSHPD's SB 17 activities are funded by health plans and insurance companies through assessments collected by DMHC and CDI. For Fiscal Year 2019-20, OSHPD's funding needs for implementation of SB 17 were set at $850,000. DMHC raised 93 percent (based on regulatory market share), or about $790,000, through increasing plan assessments by $0.018 (just under 2 cents) per enrollee for full-service plans and $0.007 (7/10 of a cent) per enrollee for specialized health plans (e.g., dental, chiropractic, behavioral health). CDI was responsible for generating the remaining 7 percent, about $59,000.

Estimated HPD Operations Costs

Developing a sustainable funding plan for ongoing operating costs requires an estimation of those operating costs. Using the experience of other states, results from a request for information (RFI) process with the vendor community, and an assessment of current staffing levels and resources, OSHPD estimates annual costs of approximately $15 million to support the HPD Program. OSHPD worked with the CHHS Office of the Agency Information Officer and the California Department of Technology, as part of the state's formal IT Project Approval Lifecycle (PAL) process, to build the budget estimate. The estimated annual operating cost includes:

- IT procurements: hardware, software, services, and licenses
- Vendor consulting and professional services
- Interagency consulting and professional services
- State staff salaries, benefits, operating expenses, and equipment
- Departmental administrative services

Data on annual vendor contract cost and covered lives for 11 state APCDs is displayed in Exhibit 32. No two APCDs structure their operations exactly alike, and no two data management contractors have precisely the same scope of services. Some states dedicate few state staff positions to the project and rely on data management contracts for most, if not all, tasks. Elsewhere, state employees perform some of the tasks. As a result, comparing averages across the states may not fully represent factors such as variation in vendors' fixed cost structures; investment needed to scale up to intake very large files; and differences in deliverables, business intelligence tools, and remote access to files. A simple calculation suggests that vendor cost per covered life per year ranges from 17 cents in Minnesota to $4.38 in Delaware.

Exhibit 32. Comparison of State APCD Estimated Vendor Cost Per Covered Life

STATE	COVERED LIVES (MILLION)	ANNUAL COST (MILLION)	$/COVERED LIFE/YEAR
Connecticut	2.9	$1.38	$0.48
Delaware	0.8	$3.50	$4.38
Maine	1.4	$0.98	$0.70
Maryland	3.8	$1.80	$0.47
Minnesota	4.2	$0.70	$0.17
New Hampshire	0.9	$0.46	$0.49
New York	~15.0	$17.90	$1.19
Oregon	3.9	$0.97	$0.25
Rhode Island	1.0	$1.15	$1.12
Utah	2.1	$0.70	$0.33
Washington	4.1	$2.00	$0.49

Source: Freedman HealthCare analysis. Annual cost reflects publicly available contracted vendor costs for running the state's APCD; services covered by state contracts vary from state to state. "Covered lives" refers to the number of persons with health benefit coverage and represented in the APCD. Cost estimates do not include state staff.

Based on Chapter 4 (Data Submitters) estimates related to data submitters and enrollment, the HPD System would obtain data on up to 34 million lives: 13 million Medi-Cal, 6 million Medicare, and 15 million commercial plans and insurers.

California should benefit from economies of scale and decreasing marginal costs relative to other state APCDs, given its large population; at the same time, size brings complexity and may result in higher costs, at least in the initial years. The HPD Program's $15 million annual cost estimate equates to approximately 45 cents per covered life per year in the state.

Revenue Sources

The APCD Council's Development Manual section on funding provides a useful overview of the multiple and varied revenue sources state APCDs have relied upon for operations.[85] They include:

- **State Funds**: The majority of APCDs have some core funding from general state appropriations; others use special fund sources such as from industry assessments.
- **Medicaid Match**: CMS provides matching federal funds to cover APCD costs attributable to Medicaid, including for analytic activities using the APCD data that benefit state Medicaid programs.
- **Data User Fees for Requests**: Most states have a data request process and charge a cost-based data use fee for request fulfillment.

- **Grant Funding**: This includes both federal grant funding and philanthropy. State Innovation Model (SIM) funding and Center for Consumer Information and Insurance Oversight (CCIIO) rate review grants have been used to develop or add functionality to state APCDs, and state or local foundation partners have contributed some funding to APCDs to support specific analytic and reporting projects of mutual interest.

Of note, state APCDs typically create a restricted revenue fund that is authorized to accept revenue from non-government sources (e.g., data users) and restrict its use for a specified purpose (e.g., APCD-related costs). Without such a fund, revenue could be directed away from the APCD and to other state needs. Such a fund should be created for the HPD Program, and it should be allowed to carry funds over from year to year to allow for use when needed.

Exhibit 33 provides an overview of the revenue sources that each of the state-mandated APCDs relies on for support of ongoing operations. Some APCDs rely primarily or entirely on a single funding source, while others have diversified revenue sources.

Colorado's APCD, run by the private, non-profit Center for Improving Value in Health Care (CIVHC), is among the most diversified: four of the five funding sources have been utilized for ongoing operations. CIVHC received early grant funding from Colorado foundations to support development and implementation of the APCD. CIVHC has also focused since APCD inception on building a revenue stream associated with fulfilling data requests; between FY 13 and FY 18, CIVHC's total earned revenue from grants, contracts, and data user fees increased from $113,000 to $3.8 million. In 2018, CIVHC pursued Medicaid matching funds from CMS. Initially, the state matching funds were provided by the Colorado Health Foundation; the Colorado Legislature subsequently provided annual state funding to qualify for the federal match. To help certain entities obtain access to Colorado's APCD data, a scholarship program funded by the state at $500,000 per year offsets the cost of requests from eligible institutions (non-profits, State of Colorado government agencies, and academic research institutions).[86]

Exhibit 33. State APCD Revenue Sources for Ongoing Operations

STATE APCD	STATE FUNDS (GENERAL AND SPECIAL)	MEDICAID MATCH (FEDERAL FUNDS)	DATA USER FEES FOR REQUESTS	GRANT FUNDING
AR	x		x	
CO	x	x	x	x
CT			x	x
DE	x	x		x
FL	x	x	future	
HI	x			
KS	x			
ME	X (agency)		x	x

STATE APCD	STATE FUNDS (GENERAL AND SPECIAL)	MEDICAID MATCH (FEDERAL FUNDS)	DATA USER FEES FOR REQUESTS	GRANT FUNDING
MD	x			x
MA	X (agency)		x	
MN	x			x
NH	x	x	x	
NY	x	x	future	
OR	x	x	minimal	
RI	x	x	x	
UT	x	x	x	
VA	x	x (as of 7/1/19)	x	x
VT	X (agency)		minimal	
WA	x		x	

Source: Freedman HealthCare analysis, discussions with state APCDs.
Notes: Agency = revenue goes to the agency that administers the APCD, not specifically to the APCD.

To be successful over the long term, the HPD Program needs a sustainable funding model that provides predictable revenue. The remaining sections in this chapter cover the potential revenue sources for the HPD: state funding, Medicaid match, data user fees, and grant funding.

State Funding

Most state APCDs receive state appropriations to support APCD operations, in full or in part. For example, Minnesota's APCD receives an ongoing appropriation for required activities conducted by the Department of Health, including program operations, claim data collection, and the development of public use files; those funds derive from Minnesota's Health Care Access Fund, which generates revenue from a tax on providers in Minnesota that dates back to the early 1990s.[87] The APCD also receives some funding from the state to support health care transformation, including research and reporting on quality improvement.

The HPD System will be a valuable asset for other state departments, and one pathway for obtaining state funding for the HPD Program may be through interagency agreements with other departments—particularly those under the purview of the CHHS Agency.[88] CHHS oversees 16 departments and offices that provide a range of health care services, social services, behavioral health services, income assistance, and public health services to Californians. Once the HPD System is established, OSHPD may have the opportunity to enter into interagency agreements to provide information products or analytic resources that meet the needs of CHHS's other departments, thereby offsetting a portion of the HPD Program's operating costs. The interagency agreements may function as licensing agreement as part of a data user fee arrangement.

There will be many opportunities to use the HPD Program to improve California's health care system that other state departments find valuable; Chapter 1 outlines an array of use cases. The HPD Program has the potential to provide, for example:

- Statewide and regional health care cost benchmarks to support market and policy decision making.
- Data to inform the evaluation of health plan and health facility mergers and acquisitions.
- Data on regional chronic health condition prevalence as an input for environmental and population health monitoring.
- Data on payments made to providers as an input for state health system financial audits.
- A single infrastructure for managing state health care data research requests.

As the HPD System matures and becomes increasingly comprehensive and reliable, there may be further opportunities to centralize and streamline health care data aggregation, analytics, and research functions agency wide. In addition to benefits for state agencies, a coordinated approach could consolidate reporting requirements and reduce the reporting burden for health plans and insurers.

While there is great potential for use of HPD System data across state departments, interagency agreements should not be relied upon as a funding stream until the HPD System is well established.

In addition to General Fund appropriations, special funds such as revenue generated by industry assessments provide a stable source of funding for several state APCDs, as outlined in Exhibit 34. Six states charge annual fees to a variety of industry entities, including payers, TPAs, hospitals, and other health facilities such as nursing homes and intermediate care facilities. Most of the assessments are levied by state health agencies that have responsibility for the APCD, rather than by the APCD itself; the revenue generated supports the entire agency, including the APCD. By contrast, Kansas and Virginia have an approach that is specific to the APCD. Kansas charges entities that submit data to the APCD a fee based on the entity's market share. Virginia's assessment is broader, including hospitals as well as payers; it is also unusual in that it has been based on voluntary contributions rather than mandatory assessments. As of July 1, 2019, Virginia ended assessments, and the APCD is now funded through state appropriation with some federal funds available through Medicaid match.

Exhibit 34. State APCDs Supported by Industry Assessments

STATE	REVENUE SUPPORTS	ASSESSMENT FORMULA
Kansas[a]	APCD only	Annual fee charged to each reporting entity in proportion to entity's share of total health insurance premiums, subscriber charges, and member fees, up to $250,000.
Maine[b,c]	Agency wide	Legislature approves budget, of which: Hospitals pay 38.5% Insurers pay 38.5% Non-hospital health care facilities pay 11.5% (maximum $2500 each) Third-party administrators (TPAs) pay 11.5% Within each category: hospitals, TPAs, insurers pay based on share of total net revenue in the state
Maryland[d]	Agency wide, but broken out by functional area	In FY 2019, the APCD Operations budget was supported by fees from: Payers 36% Hospitals 32% Nursing homes 10% Health occupations boards 21%
Massachusetts[e]	Agency wide	Center for Health Information and Analysis (CHIA) calculates a percentage annually for hospitals, ambulatory surgery centers (ASCs), and insurers, up to the total of CHIA expenses
Vermont[f,g]	Agency wide	Hospital: 6% of net patient revenues Nursing home: $4,919 per bed per year Intermediate care facility: 5.9% of total annual direct and indirect expenses Pharmacy fee: $.10 per prescription Home health agency tax: 4.25% of net revenues per year Ambulance agency assessment: 3.3% of net patient revenues per year
Virginia[h]	APCD	Between 2013 and 2019, Virginia had a voluntary data submission model allocating the cost of the APCD as follows: 40% from Virginia Hospital and Healthcare Association (which requested member contributions based on net revenue) 40% from Virginia Association of Health Plans (which assessed members a fixed amount regardless of size) 20% from Virginia Health Information, the non-profit administrator that covered the remaining cost As of 7/1/19, the APCD shifted to mandatory data submission and replaced industry contributions with state funding and federal Medicaid match.

Sources:

[a] Kansas Office of Revisor of Statutes. 2019. 40-2251. https://www.ksrevisor.org/statutes/chapters/ch40/040_022_0051.html.

[b] Maine Health Data Organization. 2008. Chapter 10: Determination of Assessments. February 17. https://mhdo.maine.gov/_boardMtngItems/Chapter%2010%20Assessments_V2_131204.pdf.

[c] Maine Health Data Organization. 2019. *Maine Health Data Organization Briefing Memo*. January 22. https://mhdo.maine.gov/_pdf/MHDO%20Legis%20Briefing%20Memo%20to%20HHS_190122.pdf.

[d] Maryland Health Care Commission. 2016. *Report on MHCC User Fee Assessment*. December 16. https://mhcc.maryland.gov/mhcc/pages/home/assessment/documents/MHCC_USER_FEE_ASSESSMENT_201701.pdf.

[e] Commonwealth of Massachusetts. 2018. 957 CMR 3.00: Assessment on certain health care providers and surcharge payors. June 29. https://www.mass.gov/regulations/957-CMR-300-assessment-on-certain-health-care-providers-and-surcharge-payors.

[f] State of Vermont. 2012. *No. 48. An act relating to a universal and unified health system*. http://www.leg.state.vt.us/docs/2012/Acts/ACT048.pdf.

[g] Green Mountain Care Board. 2018. FY 2019 Budget. June 27. https://gmcboard.vermont.gov/sites/gmcb/files/GMCB%20Budget%20Presentation%20SFY19.2018.06.26.pdf.

[h] Virginia Health Information. 2018. *2018 Annual Report and Strategic Plan Update*. http://www.vhi.org/about/annual_report.pdf.

Medicaid Match

Medicaid is a key partner to many state APCDs. States may receive federal matching Medicaid funds for costs associated with implementing and maintaining an APCD, assuming the state meets certain conditions described in federal regulations. Among those conditions, the state Medicaid agency must request and receive approval in advance and demonstrate that the data collected and maintained by the APCD will support the Medicaid program. The specifics are described in the Code of Federal Regulations (CFR) Title 42, Part 433, Subpart C, Mechanized Claims Processing and Information Retrieval Systems (referred to as the Medicaid Management Information System, or MMIS). States use the Advance Planning Document (APD) process to request the Medicaid match funding from CMS. The federal regulations refer to this type of funding as Federal Financial Participation (FFP).

CMS encourages states to pursue FFP for developing and implementing APCDs and has recognized the value of APCDs in supporting a state Medicaid agency's understanding of cost, efficiency, utilization, quality, care patterns, and geographic differences.[89]

FFP to support APCD activities is available in two broad categories:

- **Administrative Match**—provides regular FFP (50 percent in California's case) to offset expenditures for general Medicaid program administration related to an APCD (Social Security Act, § 1903, subd. [a][7]).
- **Enhanced FFP MMIS**—provides 90 percent FFP for design, development, and installation activities related to an APCD, often provided when setting up a new database to support Medicaid business needs that cannot otherwise be met or reorienting/configuring an existing database to support Medicaid, and 75 percent FFP for ongoing maintenance and operations (M&O) activities.

The amount of FFP received by states for their APCD programs varies. Some states have received FFP just for the development of Medicaid dashboards or reports (e.g., Utah). Other states receive FFP for the entire Medicaid portion of the APCD based on the percent of Medicaid beneficiaries in the database or some other cost allocation methodology (e.g., Colorado), while others have received Medicaid FFP for all APCD costs (e.g., Rhode Island, Delaware).

All requests for FFP funding must come from the state Medicaid agency, and no federal funding sources may be used to cover the state share of costs attributable to Medicaid. To receive match funding, states must submit APDs to CMS for review and prior approval. The FFP request and APD processes involve extensive collaboration among multiple entities and may require many months to complete.

- A Planning APD (P-APD) is optional, generally brief, and recommended in the case of large statewide IT system development and hardware acquisition projects.
- An Implementation APD includes the results of activities conducted under a P-APD (if any) and detailed project information necessary to support CMS review and approval of requests.

To be eligible for enhanced FFP, the state Medicaid agency must meet several additional conditions and standards from 42 CFR Section 433.112, subdivision (b), including:

- Use a modular, flexible approach to systems development.
- Align to, and advance in, Medicaid Information Technology Architecture maturity for business, architecture, and data.
- Align to and incorporate industry standards such as HIPAA and HIE interoperability rules.
- Promote sharing, leverage, and reuse of Medicaid technologies and systems within and among states.
- Support accurate and timely data processing.
- Produce transaction data, reports, and performance information that contribute to program evaluation and continuous improvement.
- Support seamless coordination and integration with other health and human service systems.

Experience of Other States

Nine states (CO, DE, FL, NH, NY, OR, RI, UT, VA) have been successful in obtaining Medicaid matching funds to support at least some of the costs associated with their APCDs. It does not appear that any state has applied for and been denied funding, although the level of FFP support does vary by state.

States have proposed a variety of APCD-Medicaid use cases to justify varying levels of FFP. Rhode Island and Delaware received enhanced FFP for all APCD costs (including staffing and other non-IT costs) for multiple years. Colorado and Utah followed a different approach, focusing on using administrative match (50 percent) to support analytics and reporting for Medicaid. The experience of four states in leveraging FFP to support their respective state APCDs is summarized in Exhibit 35.

Exhibit 35. Federal Financial Participation (FFP) Comparison for Four States

	COLORADO	UTAH	RHODE ISLAND	DELAWARE
Type of FFP	Administrative	Administrative	Enhanced	Enhanced
Percent Federal Match	50/50	50/50	90/10 Year 1 75/25 Years 2-5	90/10 Year 1 75/25 Years 2-5
Start Date	2018	2009	2018	2019
Total FFP Awarded	$1.05M first year, increasing to $2.3M	$185,000/year	$1.8M/Year 1 $1.4M/Years 2-5	$3.65M Year 1 $3.6M Years 2-5
Share of APCD Total Costs	Medium 41% of total Colorado APCD budget	Small Analysis and reporting only	Significant All APCD operating costs, including staff salaries and analytic enhancements	
Purpose	Enhanced reporting capabilities to support Medicaid 41% share is based on the APCD budget attributed to Medicaid members	Produce up to two Medicaid-specific reports per year Provide Medicaid access to episode of care data, including cost and quality measures	APCD as a module within the Medicaid data warehouse and analytic layer Support Medicaid operational, reporting, and evaluation needs Support new federal Medicaid reporting requirements	

Colorado requested administrative FFP to support the Medicaid portion of ongoing APCD operating costs, expanded data and analytic services, and increased public reporting. Specifically, FFP funding supports the 41 percent of annual APCD costs attributable to Medicaid; enhanced benchmarking and trend analysis capabilities to support Medicaid operations; and expanded, multi-payer public reporting of cost, utilization, and quality measures. This funding was also used to create an APCD data mart for Medicaid analysts to support internal program evaluation and policy intervention assessments

Utah has also pursued the administrative FFP pathway, with a narrow scope that focuses specifically on analysis and reporting that supports the state Medicaid program.

Rhode Island requested enhanced FFP to convert the entire existing APCD into a module of the Medicaid Enterprise system to support Medicaid's operational, reporting, and evaluation needs. Medicaid match funding supports ongoing data collection and validation, as well as production of Medicaid analyses and reports in a cost-effective way, and it contributes to greater efficiency in evaluating progress toward realizing health system transformation goals. APCD integration facilitates a more complete understanding of care provided to Medicaid beneficiaries across payers and over time, provider comparisons and benchmarking, evaluation of Medicaid program interventions, and compliance with federal reporting requirements.

Delaware has taken a similar pathway as Rhode Island, with a plan to integrate a subset of the recently piloted APCD as a module within the Medicaid data warehouse and analytic layer. To

support the Delaware Medicaid program, the APCD will produce a Medicaid-specific data extract, delivered to the Medicaid agency on a regular basis, which will include a view of Medicaid beneficiaries over time, provide benchmarks for commercial and Medicare populations, and meet federal Medicaid reporting requirements. The APCD extract will be loaded into the Medicaid Data Warehouse and will be accessible to Medicaid analysts via an analytic layer already present within the Medicaid Enterprise environment.

Federal Financial Participation: Potential for California

Based on the following assumptions, including DHCS and CMS review and approval, California could potentially receive federal funding support from CMS to cover approximately 25 percent of the annual operating costs of the HPD Program:

- Medi-Cal covers approximately one-third of the state's insured population, and therefore would account for about one-third of the data and the work, or cost, to maintain the HPD Program.
- M&O FFP is available at 75 percent match rate (75 percent * 1/3 of the APCD annual costs = 25 percent).
- OSHPD and DHCS would work together to plan for the integration of Medi-Cal data and use into the HPD System.
- DHCS would actively use the HPD System to benefit California's Medicaid program.
- DHCS would request and receive advance approval for these funds, updating the request each year via an M&O APD.
- CMS would review and approve, in advance, all HPD Program procurement and contract documents.

Of note, the above description applies to ongoing M&O funding. Similar opportunity exists for enhanced FFP (at 90 percent) for the implementation costs but would significantly complicate and prolong the contracting process, as CMS would require prior review and approval of every solicitation and contract prior to release and execution.

Data User Fees for Requests

Several states with APCDs charge fees for data products and/or access to offset the costs of generating the data products and operating the APCD. According to the APCD Council, "the majority of health data programs, public and private, eventually supplement their core revenues with [data use fees], but these revenues do not occur until one or two years after the data system is established." The APCD Council further states that data use fees "are tied to release policies, and broad release policies enable a state to spread the cost of the system to the data users."[90]

In general, the contribution of data use fees to an APCD's budget is relatively modest. An APCD Council report prepared for New Mexico's APCD notes that the share of revenue from fees related to data products generally does not exceed 10 percent of the total budget.[91] Colorado is the only state that has relied extensively on data use fees for funding its APCD, largely due to necessity: no General Funds were appropriated for the initial setup or operation of the state's APCD. In FY 2018, about $3.85M (91 percent) of the $4.2M operating budget for

the APCD came from “earned revenue”, of which some is derived from data use fees; the remainder came from contracts and grants. As noted earlier, Colorado is now receiving some state funding through its Medicaid program, allowing the state to qualify for federal matching funds.

State APCD Experience with Data User Fees

There is substantial variation in whether and how states set user fees for data from their APCDs. To begin the process, several states (CT, ME, MD, MA, RI, UT) charge an application fee ranging from $25 to $300 to cover application review costs and discourage frivolous applications. A number of factors contribute to APCDs’ pricing strategies for data products. Colorado, for example, identifies the following considerations: indirect costs including legal fees, labor costs/time required, number of unique and specific data elements, output type (e.g., Tableau reports, Excel spreadsheet), and additional professional services/consultation required. Each Colorado data extract is different, as are the costs.

States may charge for the creation of a specific dataset or report, or offer a subscription or license for multiple users or uses. As shown in Exhibit 36, fees for data files and reports range from a few hundred dollars up to $300,000, depending on the number and types of files and the entity obtaining the data. Several states vary pricing based on the entity making the request. For example, Connecticut charges different prices for commercial, nonprofit or educational, state agencies, and assessed entities. Washington has four fee tiers—reduced for nonprofits and state agencies, standard for data suppliers or reportable entities, premium for single general users, and premium+ for multiple users. Financial aid for applicants is available in two states (Arkansas and Colorado). Under statute and rule, all requests for Colorado APCD data must benefit the state by helping to identify opportunities to improve population health and the quality of care or reduce costs and health disparities.

Exhibit 36. Comparison of Pricing and Revenue for Data Products for Several State APCDs

STATE	PRICING PER FILE	LICENSE OR SUBSCRIPTION	PRICE VARIES BASED ON APPLICANT	START OF DATA RELEASE	NUMBER OF PAYING APPLICANTS LAST YEAR
AR[a]	$2,800 - $3,800 per year	$200,000 - $300,000	✓	Not available	Not available
CO[b]	$10,000 +	$30,000 - $50,000	✓	2013	69
CT[c]	$3,000 - $12,000		✓	2017	7
ME[d]	$3,500 - $10,000		✓	Not available	20
MD[e]	$4,000 - $8,000		✓	2014	3
MA[f]	$7,500 - $37,500		✓	2013	9
OR[g]	$500 - $1,000			Not available	Not available
RI[h]		$25,000 - $87,500		2016	12
UT[i]	$20,000	$150,000	✓	Not available	Not available
WA[j]	$7,500 +	$40,000 - $107,500	✓	2018	Not available

Sources: APCD websites; Freedman HealthCare Analysis, June 19, 2019; Center for Improving Value in Health Care, "Colorado All Payer Claims Database: Annual Report-2018". https://www.civhc.org/wp-content/uploads/2019/01/2018-CO-APCD-Annual-Report-incl.-Appendices.pdf

[a] Arkansas APCD. 2019. "2019 Data Request Pricing Schedule." June. https://www.arkansasapcd.net/Docs/283/.

[b] Center for Improving Value in Health Care. 2019. "Access Fees." https://www.civhc.org/get-data/custom-data/access-fees/.

[c] Data for Connecticut were gathered in 2019 from a fee schedule on the website of the former operating entity, Analyze Health CT. Responsibility for operating the CT APCD has since transitioned to a state agency, the Office of Health Strategies. https://healthscorect.com/researcher

[d] Maine Health Data Organization. 2013. "Statute and Rules, Chapter 50." https://mhdo.maine.gov/rules.htm.

[e] Maryland Health Care Commission. 2019. "MCDB Data Release." April 18. https://mhcc.maryland.gov/mhcc/pages/apcd/apcd_data_release/apcd_data_release_mcdb.aspx.

[f] Center for Health Information and Analysis. 2017. *All-Payer Claims Data Fee Schedule*. Administrative Bulletin 16-13. February 1. http://www.chiamass.gov/assets/docs/g/chia-ab/16-13.pdf.

[g] Oregon Health Authority. 2019. *Oregon APAC-2 Application*. https://www.oregon.gov/oha/HPA/ANALYTICS/APAC%20Page%20Docs/APAC-2.pdf.

[h] State of Rhode Island, Department of Health. 2019. HealthFacts RI Database. http://www.health.ri.gov/data/healthfactsri/.

[i] Utah Department of Health. 2019. "Access to Data Series." http://stats.health.utah.gov/about-the-data/data-series/.

[j] Washington HealthCareCompare. 2019. "WA-APCD Data Product Fee Schedule." https://www.wahealthcarecompare.com/pricing.

Pricing for individual files can be substantial, with fees in some states reaching several thousand dollars for each year and type of data. Several states provide discounts or waive fees for entities contributing data to the APCD. Detail on available data products and fees for several states is below.

Arkansas charges $2,800 for each year with a standard data pull for each of four file types—enrollment information, medical claims, dental claims, and pharmacy claims. The fee for a data subset for each of these files is $3,800.

Colorado fees vary with the amount of data and level of detail requested. Fees for standard reports start at $500, fees for custom reports start at $1,500, and fees for datasets start at $10,000.

Maryland charges $4,000-$8,000 per year for four file types—eligibility, professional services claims, institutional services claims, and pharmacy claims; the fees for dental claims files are $2,000-$4,000. Maryland also charges $500-$2,000 for re-use of each existing file for a purpose/project other than originally requested/approved.

Massachusetts has fees for five different file types that vary from $2,500 for researchers to $37,500 for resellers; fees for dental data files range from $1,000 to $15,000. Payers, providers, and provider organizations required to contribute data to the APCD, and others contracted with state government agencies can apply to receive a full fee waiver. Researchers can apply for a full or partial fee waiver, and some nonprofit organizations can apply for a partial fee waiver.

Utah charges a fee for their Standard Research Data of $20,000 for the first year and $10,000 for each additional year. Discounts include 50 percent for data contributors and single use/users, and 75 percent for students.

Washington charges from $4,000 to $28,800 for standard datasets; fees for custom reports range from $7,500 to $17,500.

Several state APCDs have entered into data licensing agreements or research partnerships. Access to personal information is generally restricted, often available only to researchers with institutional review board (IRB) approval. Examples include:

- **Arkansas** subscription fees vary for academic vs. non-academic users ($200,000 vs. $300,000, respectively).
- **Colorado** has multiple subscription agreements in place with state departments and a few providers/systems; specific pricing is not available, but the cost of custom datasets ranges from $30,000-$50,000.
- **Rhode Island** charges $25,000 for single-use, single agency; $50,000 for multi-use, single agency; and $87,500 for multi-use, multi-agency.[92]
- **Utah** charges a fee of $150,000 a year for a university-wide license for the APCD and several other datasets such as facilities data, Healthcare Effectiveness Data and Information Set (HEDIS), and Consumer Assessment of Healthcare Providers and Systems (purchased by the University of Utah) that includes up to 250 hours of staff time; the APCD is responsible for overseeing this arrangement, with approved users and IRB.
- **Washington** has annual subscription fees ranging from $40,000 to $100,000+ for a single license.

Considering Data User Fees for the HPD

For the HPD Program, user fees are an important potential source of revenue. Data products for which OSHPD could potentially seek data user fees include access to a data enclave,

customized data products (e.g., benchmarking reports), and research datasets (subject to the data access standards addressed in Chapter 9 [Governance]). The data will be valuable to an array of users, including policymakers, purchasers, health plans, providers, and researchers. As described in the State Funding section, data use licensing agreements for other state agencies is a strong potential funding option. Chapter 1 provides detail on the value of the HPD Program and multiple examples of use cases for various target audiences. Some specific examples:

- In a survey of researchers, the Public Policy Institute of California found that over ninety percent of respondents were "likely" or "very likely" to request access to HPD System data and that a similar proportion would be willing to pay for that access.[93]
- Covered California has developed an array of use cases anticipating that HPD will generate tangible value. Examples include evaluating network value ("What are the major cost drivers in different networks? Which providers are 'outlier poor performers' on either cost or quality?"); understanding coverage transitions, given that one-third of the Covered California individual market turns over annually; and designing and monitoring interventions such as value-based benefits.[94]
- The California Health Benefits Review Committee currently relies on a proprietary national data source for the analysis it is mandated by the legislature to conduct. The HPD System could provide a more comprehensive and representative data source for California.
- Governor Newsom's proposed Office of Health Care Affordability will increase transparency and develop strategies and cost targets for health care industry sectors—with consequences for entities that fail to meet the targets. The HPD Program will provide data that are essential to support this new initiative and its important objectives.

In developing a fee schedule, consideration should be given to ensuring that data fees do not create an access barrier for users such as students. The financial aid programs available for APCD users in Colorado and Arkansas may be instructive.

Of note, the funding stream from data user fees would not be realized during the first one-to-three years of HPD Program operation, so alternative funding sources would need to be identified during the early years.

Grant Funding

Grant funding has been a source of APCD funding for several states. Federal grants have come from CMS Innovation Center initiatives such as SIM grants, and from agencies such as CMS's CCIIO to support rate review. Private foundations have also contributed some funding to state APCDs, including significant support for Colorado's CIVHC for the development/build stage, operations for the first three years, and the initial funding to obtain federal Medicaid match. In March 2019, Virginia received a $2.2 million grant from Arnold Ventures to create a statewide pilot to reduce the provision of low-value care in the state; this project relies on data from the APCD and will contribute approximately $170,000 in APCD funding each year for the next three years.[95] In general, however, grant funding has not been a major source of funding for state APCDs, and it is not a sustainable source of operational funding.

California has several foundations that collectively provide philanthropic funding in the tens of millions of dollars annually. Among the largest foundations active in health-related philanthropy in the state are The California Endowment, The California Wellness Foundation, CHCF, the Blue Shield of California Foundation, and the Gordon and Betty Moore Foundation. CHCF, in particular, has a history of supporting price transparency efforts in California.[96]

In general, foundations are more likely to fund specific projects that have defined objectives and timeframes, rather than core operations. To the extent the HPD System can be used for specific initiatives that align with foundation strategic priorities, philanthropy may be a valuable source of funding. Examples might include a one-time investment to demonstrate the feasibility of linking to external sources of data on SDOH, contributing to a research enclave to facilitate or streamline access to HPD System data for qualified researchers, or funding creation of reports of interest to a broad audience that can be easily updated on an annual basis.

Potential Revenue Sources for the HPD Program

In January 2020, the Review Committee met to discuss funding and sustainability for the HPD Program. In addition to approving recommendations to pursue Medicaid match and user fees, Committee members held a wide-ranging discussion of potential funding sources. Among the options raised by one or more members for consideration:

- General Fund.
- A statewide tax on residents.
- Fees or assessments on data submitters, much like hospitals contribute funding to OSHPD's current hospital-related data collection, analysis, and reporting activities.
- Licensing fees for research universities interested in ongoing access to the data for many users.
- Analytic consultation paired with data access for purchasers currently using proprietary datasets and analytics.

Summary and Recommendations: Funding and Sustainability

To be successful over the long term, the HPD Program needs a sustainable funding model that provides predictable revenue. Exploration of potential funding streams resulted in the following Review Committee recommendations:

HPD Review Committee Recommendations

1. ***Special Fund for the HPD Program***: A special fund should be created for the HPD Program, and revenue to support the HPD Program should be directed to that fund. Any funds not used during a given year will be available in future years, upon appropriation by the Legislature.
2. ***Pursue CMS Medicaid Matching Funds***: Maximum possible CMS Medicaid matching funds, or other federal funds, should be pursued to support the HPD Program.
3. ***Establish User Fee Schedule to Support the HPD Program***: Develop a fee schedule and charge data user fees for data products to support the HPD Program and stakeholder access to data.
4. ***Explore Other Revenue Sources***: For the remainder of HPD Program operational expenditures, other revenue sources should be considered in collaboration with stakeholders.

Chapter 6: Privacy and Security

Introduction

This chapter discusses the privacy and security protections the HPD Program will need to implement in order to safeguard the privacy and confidentiality of sensitive health information. It reviews how other state APCDs protect personal information[v] and makes recommendations for how OSHPD can leverage existing standards in federal and state laws to build the appropriate framework of protections. This chapter focuses on issues related to personal privacy. Chapter 9 (Governance) discusses other issues related to privacy, including processes related to use and access.

The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(1)(D): "*Analyze data aggregation and the protection of individual confidentiality to advise on privacy and security.*"
- HSC Section 127672, subdivision (d)(2)(B): Provide recommendations about "*legislation needed to protect individual privacy rights and confidentiality of the data.*"
- HSC Section 127673, subdivision (e): Describe "*policies and procedures … [to] ensure that the privacy, security, and confidentiality of individually identifiable health information is protected.*"

Developing and implementing strong privacy and security protections will be critical for the HPD Program, given the nature of a statewide APCD that houses detailed health care information for most insured individuals in the state. The HPD System will hold sensitive information such as patient names, health plan/insurer identifiers, dates of service, procedures performed, diagnoses assigned, drugs prescribed, and names of providers and facilities visited. Although much of that information is needed only temporarily or in the background of the system to create unique individual identifiers and to aggregate data for public reports, detailed person-level data are required to satisfy the legislative intent and the types of use cases described in Chapter 1 of this Report.

Background

APCDs are an important resource for policymakers and researchers to understand the drivers of health care costs, the value of health care interventions, and the efficacy of policy initiatives.[97] APCDs also serve broad public and population health goals by supporting monitoring of utilization, identification of disparities, and assessment of outcomes. To be effective, APCDs must have a robust set of data to support analytics; however, protecting the data in an APCD is

[v] When referring to data or information collected on individual patients, any number of terms may be used, often in the context of an applicable privacy law. These include, but are not limited to, personally or individually identifiable information, protected health information, and confidential information. Throughout this chapter, unless speaking about a specific legal concept, the term "personal information" is used as a common means of describing information that identifies an individual patient.

essential for building trust while creating value through appropriate use of and access to information.[98]

The United States has a long history of collecting and using public health data, including vital records, morbidity and mortality statistics, and disease and immunization registries. In California, public health agencies collect and use data to monitor health outcomes, prevent the spread of diseases, and promote healthy lifestyles. These data collection efforts are carried out within an evolving legal and regulatory framework designed to serve societal benefits while protecting individual privacy.

Despite broad agreement on the need for curbing health care costs and improving health, the collection of claims payment information, such as that envisioned by the HPD Program, has been limited to voluntary efforts in California. Previous legislation aimed at establishing an APCD in California stalled, in part, due to concerns about the processes to protect personal information. California has long led the nation in developing robust privacy and security standards to protect personal information, particularly when it comes to information regarding individual health status. As described in this chapter, the HPD Program can build upon best practice policies, procedures, and technical approaches that recognize the vital privacy protections afforded to Californians. More specifically, OSHPD has considerable experience managing the collection, analysis, protection, and appropriate sharing of data from hundreds of facilities throughout California.

Privacy Protections in Existing Laws

Federal and state privacy laws and related policies established over the past several decades share common principles related to the appropriate collection, use, access, and release of personal information, often referred to as Fair Information Practices. Variations of these principles have informed numerous existing federal and state laws. The U.S. Department of Health and Human Services relied on a version of the Fair Information Practices when implementing the HIPAA privacy and security provisions.

In California, the state Constitution establishes a personal right of privacy, and state laws provide specific legal protections for personal information. The Information Practices Act (IPA) (Civ. Code § 1798 et seq.) limits collection, use, and release of personal information by state agencies in order to protect the fundamental right of privacy. While the federal HIPAA law sets the baseline for HIPAA-covered health information privacy and security in all states, HIPAA does not preempt state laws in cases where state laws are more protective of personal privacy. In California, the CMIA and IIAPPA were enacted prior to HIPAA and have been updated over time to strengthen privacy and security protections and generally align with federal law. The CMIA applies to health care providers and health care service plans; the IIPPA provides similar standards for insurance plans. Other state and federal laws place additional protections on sensitive information such as mental health or substance use disorder (SUD) treatment information.

While the organizations that manage legislatively mandated APCDs are not HIPAA-covered entities or HIPAA business associates and therefore are not subject to HIPAA, HIPAA provides an established legal and regulatory framework for protecting individual information and remains the most well-known and accepted privacy framework for protecting health care data. Other states reference HIPAA in their enabling APCD legislation, but California state law cannot make the HPD Program, or OSHPD as California's APCD administrator, subject to HIPAA for areas in which HIPAA does not apply. Since existing California state laws require similar, and often more protective safeguards than HIPAA, organizations such as OSHPD can reference well-established policies and procedures to protect personal information.

It is important to note that the HPD Program would not require the collection of new information from individuals; the information will have been collected by other entities through the delivery of health care services. As a state-agency custodian of the data, OSHPD has an obligation to keep that information confidential. OSHPD serves in this custodian role today for several types of data, including the patient discharge and ED data collected from California's health care facilities.

Substance Use Treatment Information

Title 42 of the CFR Part 2 (Part 2) protects the confidentiality of SUD patient records by restricting the circumstances under which Part 2 programs or other lawful holders[vi] can disclose such records.[99] Part 2 programs are prohibited from disclosing information that would identify a person as having a SUD without their written authorization. Part 2 regulations do not apply to every record maintained by any health care provider showing that a patient has a SUD; only certain entities are subject to Part 2.[100]

In response to researchers' and state APCDs' concerns about missing SUD treatment data, the Substance Abuse and Mental Health Services Administration (SAMHSA) recently modified its regulations to align with advances in the health care delivery system, while retaining important privacy protections. In the most recent rulemaking in 2019, SAMHSA proposed aligning Part 2 with HIPAA to support the kinds of activities performed by an APCD. The proposed rule seeks to amend the "research" exception to permit disclosures to non-HIPAA covered entities in accordance with the HIPAA research provisions.[101] The HPD Program will continue to monitor the federal rule provisions and adjust state requirements when data collection begins in 2022-2023, thereby averting SUD data collection limitations experienced in the past in other states.

Mental Health Information

In California, the Lanterman-Petris-Short (LPS) Act applies to patients who are voluntarily or involuntarily treated in an institutional setting for a mental illness. Information and records generated during the course of providing such services are confidential and may only be disclosed under certain circumstances, such as for treatment and payment. While the LPS Act

[vi] A lawful holder is an individual or entity that has received patient identifying information as a result of a Part 2 compliant authorization or as otherwise permitted under the Part 2 statute, regulations, or guidance.

does not explicitly address downstream disclosures of applicable information, such as from a health plan or insurer to the HPD Program, an explicit state mandate will provide an avenue for data submitters to share mental health information protected by the LPS Act.

Other Flow-Through Restrictions

Some of the data stored in or linked to by the HPD System may have additional rules about allowable uses. For example, use of the Medicare data obtained through the State Agency Request process is limited to research purposes, and use within the HPD Program will need to be similarly limited. Data from Medi-Cal will also have conditions related to use and disclosure. Similar restrictions may apply to datasets that are linked to the HPD System, such as vital records and immunization registries. The HPD System will need to properly flag records and document these flow-through restrictions to ensure that use aligns with the rules of the source data.

Purpose and Goals of Program and Privacy Principles

Formally defining the overall purpose and goals for an APCD helps to clarify the role of personal information in APCD development and the allowed uses of the information collected. The sections below suggest some overriding privacy principles and formalization of legislative intent to ensure that data are appropriately protected and used in a manner consistent with the overall purpose.

Legislative Intent

The overall purpose of an APCD, established in statute, provides an important privacy guardrail by identifying the intended uses of APCD data. These "purpose statements" help APCD administrators ensure the collected data are used in a way that meets the legislative intent and provides a foundation by which all uses and requests for access can be evaluated to ensure alignment with the intent.

For the HPD Program, the language from the HSC provides clear initial direction on the purpose and use of data in a California APCD:

- HSC Section 127671, subdivision (a): "*It is the intent of the Legislature in enacting this chapter to establish a system to collect information regarding the cost of health care. Health care data is reported and collected through many disparate systems. Creating a process to aggregate this data will provide greater transparency regarding health care costs, and the information may be used to inform policy decisions regarding the provision of quality health care, reduce disparities, and reduce health care costs*."
- HSC Section 127671, subdivision (b): "*It is the intent of the Legislature to improve data transparency to achieve a sustainable health care system with more equitable access to affordable and quality health care for all*."
- HSC Section 127671, subdivision (c): "*It is the intent of the Legislature in enacting this chapter to encourage health care service plans, health insurers, and providers to use such data to develop innovative approaches, services, and programs that may have the potential to deliver health care that is both cost effective and responsive to the needs of enrollees,*

including recognizing the diversity of California and the impact of social determinants of health."

Formalizing those purposes in statute will help further protect privacy and ensure that all uses tie back to the legislative intent. The HPD Program implementing legislation should include a clear statement of the Legislative intent to protect personal privacy.

Privacy Principles for the HPD Program

Acknowledging that sensitive personal information would be required to meet the intent of the Legislature to provide greater transparency about health care spending in California, the following privacy concepts can serve as guiding principles for the development of privacy protections and practices for the HPD Program:

- **The primary purpose of the HPD Program is to learn about the health care system and populations, not about individual patients.** Sensitive person-level data must be collected to meet the use cases envisioned for the HPD Program, including linking services for the same person over time and across payers, but those data should not be used to generate findings about specific patients.
- **The HPD Program must protect individual patient privacy.** Existing state privacy laws provide a solid foundation, but the HPD Program must also develop practices, policies, and a culture of privacy protection.
- **Californians have a constitutional right of privacy.** The state Constitution gives each citizen an "inalienable right" to pursue and obtain privacy (Cal. Const., art. I, § 1).

Data Use, Access, and Release

As noted elsewhere in this Report, the HPD Program will use the data collected to create public reports, analyses, and other products that meet the broad policy goals outlined in the legislative intent. In addition, to fulfill their purpose, nearly all state APCDs make information available to researchers, policymakers, and other stakeholders. APCD statute and regulation determine what data can be accessed, by whom, and for what purposes. To protect personal information, APCDs set up processes to categorize the type of information and the rules associated with access and release.

Two Categories of Data

From a personal privacy perspective, data can be classified into two categories: (1) publicly releasable data, defined as aggregate de-identified data; and (2) controlled data, defined as non-public, potentially identifiable data that requires secure, structured processes around authorized use, access, and release.

Publicly Releasable Data—Aggregate De-Identified Data

De-identified data refers to data that cannot be tracked back to a specific patient. Aggregating data by compiling it into summary reports (e.g., counts, percentages, rates, averages, other statistical grouping) is a common method to reduce the risk of reidentification. Reports, analyses, and other analytic products that include only aggregate de-identified data may usually be publicly released. Aggregated data generally does not include personal information, but even aggregate data must be reviewed to determine whether it could still include identifiable

information. The CHHS Data De-identification Guidelines describe the procedure to be used by departments and offices within CHHS to assess aggregate data to determine whether they are sufficiently de-identified for public release.[102] The steps taken are intended to assist with ensuring that data are de-identified in a manner that meets the requirements of both the IPA and HIPAA to prevent the disclosure of personal information. OSHPD currently releases de-identified aggregate patient data according to CHHS Data De-Identification Guidelines.

Controlled Data—Non-Public, Potentially Identifiable Data

Potentially identifiable data include sufficient elements such that, either directly or indirectly by combining with other available information, users of the information might be able to identify specific individuals. California and federal laws identify certain specific elements that, if included in report or dataset, would be considered to render the data identifiable (see Exhibit 37).

Exhibit 37. Personal Identifiers in California and Federal Law

CALIFORNIA: PERSONAL INFORMATION	HIPAA: 18 IDENTIFIERS
Any information that identifies or describes an individual, including but not limited to (Civ. Code § 1798.3, subd. [a]): • Name • Social Security number (SSN) • Physical description • Home address • Home telephone number • Education • Financial matters • Medical history • Employment history Electronically collected personal information includes all of the above as well as password, email address, and information that reveals any network location or identity (Gov. Code § 11015.5, subd. [d][1]).	• Names • All geographic subdivisions smaller than a state, including street address, city, county, precinct, ZIP code, and their equivalent geocodes, except for the initial three digits of the ZIP code if, according to the current publicly available data from the U.S. Census Bureau: – The geographic unit formed by combining all ZIP codes with the same three initial digits contains more than 20,000 people; and – The initial three digits of a ZIP code for all such geographic units containing 20,000 or fewer people is changed to 000 • All elements of dates (except year) for dates that are directly related to an individual, including birth date, admission date, discharge date, death date, and all ages over 89 and all elements of dates (including year) indicative of such age, except that such ages and elements may be aggregated into a single category of age 90 or older • Telephone numbers • Fax numbers • Email addresses • SSNs • Medical record numbers • Health plan beneficiary numbers • Account numbers • Certificate/license numbers • Vehicle identifiers and serial numbers, including license plate numbers • Device identifiers and serial numbers • Web Universal Resource Locators (URLs) • Internet Protocol (IP) addresses • Biometric identifiers, including finger and voice prints • Full-face photographs and any comparable images • Any other unique identifying number, characteristic, or code

Data Access Policies

The policies regarding access to non-public data will need to be carefully calibrated to allow use of the HPD System data consistent with legislative intent while protecting personal privacy. The HPD Program will need to:

- Develop criteria by which requests for identifiable data will be assessed, consistent with applicable federal, state, and program privacy and security requirements.
- Establish a data release committee (DRC) to manage requests for identifiable data against such criteria.
- Create and implement a process to review and assess the requestor's purpose of use, qualifications, and experience with handling personal information.
- Ensure that access is the minimum necessary to accomplish the intended purpose.
- When appropriate, require review and approval of data requestor's research protocol by their IRB or privacy board.
- Develop and execute a DUA with each requestor that restricts use to the agreed-upon purpose(s) and prevents subsequent sharing.
- Prepare data that meet the criteria for approved applications.
- Establish secure environments for data access or delivery.

These processes will need to be integrated into an overall HPD data governance program, detailed further in Chapter 9 (Governance).

As noted above, the IPA (Civil Code § 1798 et seq.) was adopted to protect the privacy of individuals by strictly limiting the collection, maintenance, and dissemination of personal information by state agencies. State agencies may not disclose personal information unless so authorized by statute. Statutory authority to disclose personal information may be found in program statutes or in the IPA, which specifically permits certain types of disclosures. In the absence of specific language in statute, OSHPD would be limited to releasing data only as currently described by the IPA. Since OSHPD will need to provide broader access to HPD data to accomplish the statutory goals of the HPD Program, enabling legislation will need to provide specific guidance on such permitted access.

The IPA generally provides a right for individuals to review information about themselves held by any state agency. This should be limited for the HPD Program, since the HPD data will be collected from third parties, the HPD Program will have no ability to confirm the accuracy of the personal information, and the data will not be used for decision making related to the individuals.

Most state APCDs prohibit the APCD administrator from complying with public record act requests that would identify individuals. The California Public Records Act (PRA) was enacted in 1968 to: (1) safeguard the accountability of government to the public; (2) promote maximum disclosure of the conduct of governmental operations; and (3) explicitly acknowledge the principle that secrecy is antithetical to a democratic system of "government of the people, by the people and for the people."[103] A vital component of California's commitment to open government, the PRA expressly provides that "access to information concerning the conduct of

the people's business is a fundamental and necessary right of every person in this state (Gov. Code § 6250)." While the fundamental precept is that government records be made available to the public upon request, the PRA provides a number of exemptions, many designed to protect privacy rights.[104]

The Health Data and Advisory Council Consolidation Act (HSC § 128675) currently prohibits OSHPD from publicly disclosing information that could be used to identify an individual (for example, HSC § 128735, subd. [h]). The Legislature suggested a similar exemption in HSC Section 127673, subdivision (f), stating "Individual patient-level data shall be exempt from the disclosure requirements of the California Public Records Act". Because the foundation of the HPD System will be patient-level health care information, the HPD Program's statute should specify that the database itself is exempt from the disclosure requirements of the PRA.

Information Security

While the focus of privacy in health care data is on defining what types of information need to be protected, the focus of information security is typically on specific safeguards used to protect personal information. APCDs use the same types of safeguards as health plans, insurers, and state organizations responsible for administering health data programs use to protect health care data. Information security practices ensure data are protected at all stages: for example, data files are submitted by secure means and encrypted in motion and while at rest, direct identifiers are removed through assignment of unique identification numbers prior to analyses, and access to personal information is limited by established policies and procedures.

Security Standards

The HIPAA Security Rule provides administrative, physical, and technical safeguards to ensure the confidentiality, integrity, and security of electronic personal information.[105] Because the HIPAA Security Rule leaves considerable discretion to covered entities in terms of how specifically to meet its requirements, several other national or global information security frameworks and standards are used by health care organizations. Many of these standards are also part of the security requirements for California state agencies.

The Federal Information Processing Standards Publication Series of the National Institute of Standards and Technology is the official series of publications relating to standards and guidelines adopted and promulgated under the provisions of the Federal Information Security Management Act of 2002. They include standards related to system security, security categorization of systems, and other security controls. The security standards published jointly by the International Organization for Standardization and the International Electrotechnical Commission provide best practice recommendations on information security management within the context of an overall Information security management system.[106] Many states, including California, incorporate these national security standards into requirements for state information systems.

As with privacy laws, there are also state laws and regulations applicable to information security that will apply to the HPD System. The IPA requires state entities to "establish appropriate and

reasonable administrative, technical, and physical safeguards to ensure…the security and confidentiality of records, and to protect against anticipated threats or hazards...” (Civ. Code § 1798.21). Additionally, state entities are required to comply with the information security and privacy policies, standards, and procedures issued by the Office of Information Security (OIS) (Gov. Code § 11549.3). The OIS has developed the State Administrative Manual (SAM)[107] and California Statewide Information Management Manual (SIMM)[108] that require state organizations to maintain information security at the organization, personnel, and data levels. This includes policies and procedures for incident management, threat management, access management, and contract/procurement management. The OIS standards adopt most, if not all, industry standards for information security.

Given the comprehensive information security provisions included in state laws and regulations by which OSHPD, as a state organization, must adhere, the HPD Program should develop an information security program that uses existing state standards and complies with applicable federal and state laws. In addition, any entity that receives non-public, record-level data must maintain the data under the same security standards as does the HPD Program.

Summary and Recommendations: Privacy and Security

Determining how data will be collected, used, accessed, and released can be among the most sensitive aspects of an APCD implementation.[109] State APCDs develop statutes, regulations, policies, and processes to appropriately manage and use personal information. These processes are consistent with federal and state laws and regulations, include multiple layers of review and oversight, and support a variety of allowable uses.

California has particularly strong privacy laws and a long history of protecting personal privacy. The HPD Program will need to appropriately protect personal information while meeting its intended public policy goals. The following recommendations establish a strong foundation of protections.

HPD Review Committee Recommendations

1. ***Privacy Principles:*** The HPD Program should adopt the following patient privacy principles:
   a. The HPD Program shall protect individual patient privacy in compliance with applicable federal and state laws.
   b. The HPD Program is established to learn about the health care system and populations, not about individual patients.
2. ***Limiting Access to Non-Public Data:*** Only aggregate de-identified information will be publicly accessible. OSHPD should develop a program governing access to non-public HPD System data, including a data request process overseen by a data release committee.
3. ***Information Security Program:*** The HPD Program should develop an information security program that uses existing state standards and complies with applicable federal and state laws.

Chapter 7: Technology Alternatives

Introduction

This chapter focuses on the technical alternatives and recommended implementation approach of the HPD System,[vii] the main components of which are summarized below:

- Medi-Cal data collected from DHCS.
- Medicare FFS data acquired from CMS.
- Commercial health plan and insurer data collected by a vendor partner.
- Source data files stored in OSHPD's environment.
- Data quality, integration, and enhancement activities applied to the data.
- Cleaned, integrated, and enhanced data stored in a structured data warehouse and made available for analytics.
- OSHPD will produce standard and custom reports from the data as well as data extracts and a data enclave for researchers.

Informing the chapter are considerations of the HIT landscape in California and other states that have implemented APCDs. High-level technical requirements for implementing the HPD have been identified and grouped into three categories: data collection, data management, and data access. Four HPD implementation alternatives are considered: (1) build the HPD as a brand-new system, (2) integrate the HPD into other HIT systems as part of a large network, (3) leverage an existing California MPCD, and (4) leverage HIT system assets as part of a modular implementation.

The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(2)(D): Recommend "*the type of technology solutions required…, including whether to build a new database, leveraging [existing] databases, or developing a network of networks to facilitate a hybrid [solution]...*"
- HSC Section 127672, subdivision (d)(1)(E): "*Analyzes and provides advice regarding existing technology, existing systems, and available data that can be leveraged to ensure a streamlined system.*"

APCD Solution Research

Building on the 2017 analysis completed during the *Health Care Cost, Quality, and Equity Data Atlas* (SB 1159: Hernandez, Chapter 727, Statues of 2016) effort, OSHPD performed additional research into how to build a successful APCD in California. OSHPD gathered information from 19 other states that have implemented (or are implementing) APCDs, researched the existing

[vii] A system is a set of software programs with rules and procedures designed to process electronic information (data). It includes the infrastructure that the software runs on, which can be physical or virtual computer servers that are hosted in a physical building or virtually (on the 'cloud'). A system reads and writes information to a database as it processes electronic data files. The execution of business rules produces results, which are also stored in the database and can be used to generate business intelligence.

HIT resources in California (public and private), and completed a survey of the vendor marketplace through an RFI. The RFI, which asked vendors about their capabilities in the areas of data collection, integration, aggregation, analytics, publishing, and release, was distributed to the marketplace with the help of the California Office of Systems Integration. It elicited 22 responses from vendors. OSHPD collected further data through follow-up question and answer sessions and product demonstrations. With this information, OSHPD identified common technical goals and high-level requirements of an APCD, as well as how other states approach APCD solutions.

Goals for the HPD Technical Solution

Information gathered from California MPCD solutions and other states' APCD solutions identified common goals for the HPD System:

- Provide a secure platform for data collection and an environment for data management.
- Provide a standardized, routine, and stable process for data submitters to submit claim, encounter, enrollment, provider, and non-claims payments data.
- Implement processes that provide meaningful, actionable feedback on data quality.
- Automate data quality evaluation and validation processes as much as possible.
- Promptly communicate data processing results to data submitters and stakeholders.
- Provide secure data access for approved data uses.
- Enable the timely and consistent delivery of analytic products.
- Be flexible enough to process other datasets in the future (e.g., clinical datasets for health care outcomes analysis).

HPD System High-Level Technical Requirements

As derived from examining other states' APCDs and the market research gathered from the RFI, the HPD technical requirements can be categorized as follows:

- **Data Collection**
  - Data Intake—Provide a mechanism to securely receive data files and perform initial data quality evaluation and validation.
  - Submitter Management—Register data submitters, securely communicate with submitters, and provide a repository of documentation (e.g., data submission guides).
  - Data Quality Communication—Track each submitter's files, communicate data quality evaluation results, and provide a mechanism for requesting and receiving exceptions to data quality threshold rules.
- **Data Management**
  - Data Integration—Combine Medicare, Medicaid, and commercial health plan and insurer datasets into a common structure that allows for analysis of persons across plans and years.
  - Data Enhancement—Add reference data, payer and provider identity management, calculations, and linkage to other datasets that expand the system's ability to generate analytic products.
  - Data Storage—Store the source files, the structured data, and the results of analyses.

- **Data Use**
  - Reporting—Provide business intelligence tools to help create analytic products and publish reports.
  - Data Access—Provide tailored data access to authorized users via a data enclave[viii] that allows use of the data for analysis but prohibits data download.
  - Data Release—Provide a mechanism to securely transmit data files to authorized users.

Other State APCD Implementations

Other states have successfully implemented APCDs in a variety of ways. Some have outsourced the data collection, data management, and data use functions, while others have built these capabilities internally. Others have used both approaches to implement their system (see Exhibit 38).

Exhibit 38. State APCD Approaches to Data Collection, Management, and Use

STATE	DATA COLLECTION	DATA MANAGEMENT	DATA USE
Arkansas	Internal	Internal	Both
Colorado	Outsourced	Outsourced	Internal
Connecticut	Outsourced	Outsourced	Outsourced
Delaware	Internal	Outsourced	Outsourced
Florida	Outsourced	Outsourced	Outsourced
Hawaii	Outsourced	Outsourced	Outsourced
Kansas	Outsourced	Outsourced	Internal
Maine	Outsourced	Outsourced	Both
Maryland	Outsourced	Outsourced	Both
Massachusetts	Outsourced	Outsourced	Both
Minnesota	Outsourced	Internal	Internal
New Hampshire	Outsourced	Outsourced	Both
New York	Outsourced	Outsourced	Outsourced
Oregon	Outsourced	Outsourced	Both
Rhode Island	Outsourced	Outsourced	Both
Utah	Outsourced	Outsourced	Both

[viii] A data enclave is a secure network through which confidential data can be stored and accessed. In a virtual data enclave, a researcher can access the data from their own computer but cannot download or remove it from the remote server. Only analytic results and summary reports may be removed from the secure enclave.

STATE	DATA COLLECTION	DATA MANAGEMENT	DATA USE
Vermont	Outsourced	Outsourced	Both
Virginia	Outsourced	Outsourced	Both
Washington	Outsourced	Outsourced	Outsourced

Source: Freedman HealthCare analysis.

The term "Outsourced" in the exhibit above covers a wide range of vendor solutions—from a whole-APCD vendor that meets all the state's requirements to the targeted outsourcing of select components (e.g., data collection, data processing, reporting tools, a data enclave).

HPD Solution Requirements

California has some unique challenges in implementing an APCD due to its population size. The HPD System will need to handle the data for upwards of 34 million Californians. It must accommodate system growth as multiple years of data are accumulated and technology advances. Scalability is a key consideration in selecting the HPD System's components.

The complete HPD System will include components to meet a variety of software, real or virtual hardware, network connectivity, storage, security, and other needs. These components must scale, both in their individual capacity to accommodate an increasing volume of data and as a combined system that will mature and evolve over time.

HPD Data Collection Requirements

FUNCTION	DESCRIPTION
Data Submission	A data submission usually starts with a registration process, which includes submitters completing a submitter profile and indicating any third parties that will submit data on their behalf. Once registered, submitters upload data on a specified schedule. The HPD System's workflow control module will provide automated data validation and compliance results to each submitter, facilitating timely and up-to-date communication about the status of each submitted file.
Data Validation	There are generally multiple steps involved with validating data submissions. The data validation function performed during the initial intake of a submission focuses on validations that can clearly be enforced through semantics, structure, accuracy, and completeness of a dataset. For example, the structure and data elements of the APCD-CDL™ are clearly defined by the standards group, most of which can be programmed into a business rule engine to test a submission against the definition. Data validation results are promptly reported to data submitters, with actionable feedback to facilitate data quality improvements.
Security	Physical and electronic security protocols are applied during data submission and will continue throughout the HPD System's processes. Those protocols apply security standards that control access and protect the data.

HPD Data Management Requirements

FUNCTION	DESCRIPTION
Data Processing	Beyond the initial data validation steps, data submissions undergo further processing steps to make the data easier to use or prepare for subsequent steps. The data submitted to the HPD System will undergo a conversion process to transform source data to database structures, enabling the data to be read and combined with other submissions. The conversion process facilitates linking and the application of more complex business rules that include exception conditions. Once data are converted, they will be available for further automated or manual data quality checks, such as trend analysis.
Data Enhancements	Once a data submission has been converted, it can be enhanced with additional information that supports a broader range of use cases and makes the data easier to analyze. Potential enhancements include: • Reference data for data element lookups • Descriptions of health care codes • Data groupings across multiple records and code sets • FFS equivalents for capitated encounters • Groupings of avoidable or low-value services • Application of risk scores • Provider affiliations • Benchmarks (by region and/or plan type) • Quality measures. Other data such as census data and geocoding can be linked in through an automated process during this phase to further enhance the data.
Master Indexes	A master index is used to identify an entity (person/place/thing) based on matching key fields within a data file against a master list. If the algorithm cannot match the entity through the automated index process, human review will be needed. Master indexes will be created to identify patients, providers, and payers, and these can be used to link entities across dataset submission types.
Data Persistence	Enables the system to store data in a variety of formats that support analytics, from source files to data marts. As the HPD System grows, storage will need to scale effectively to not adversely impact performance.

HPD Data Use Requirements

To facilitate research, the HPD System must allow analysts to have secure access to the data. Access will be restricted to those individuals and systems that are authorized to use the data, and the available data will be tailored depending on the terms of that authorization. For example, if an analyst only has permission to view aggregate, de-identified data, then the technical security functions would prevent the system from displaying record-level data.

FUNCTION	DESCRIPTION
Data Quality Analysis	Before data analytic products can be released for review, they must undergo a quality assurance (QA) process. It is not currently possible to automate all QA measures in an APCD, so HPD Program analysts will perform some QA steps manually. When possible, results from the QA process will be programmed into the data validation or data processing modules in order to improve the automated process. User and submitter groups will also give input to refine the QA process.

Data Marts	A data mart is a distinct populated data structure used to support specific use cases, simplifying analytic product creation and research. Data marts are built to be intuitive and used by analysts and non-technical users.
Analytic Products	After the data are gathered into the HPD System and analyzed, the system must be able to support a variety of analytic needs. The HPD solution will provide the facility and tools to generate analytic products, including standard reports, ad hoc queries, and custom data extracts.
Data Enclave	A data enclave allows users to securely access HPD data for research purposes using their own computer, and potentially upload and incorporate other data into their analysis, but the user cannot remove HPD data from the enclave. The results of the user's analysis are reviewed to confirm proper aggregation and de-identification rules have been followed before the analytic product is released from the enclave.

Modular Approach

The HPD Program's technical solution should be composed of modules[ix] that correspond to each of the high-level requirement categories. For example, the HPD Data Validation Module would only be able to accept HPD datasets; execute semantic, structure, accuracy, and measure completeness of business rules on those datasets; and provide the results of the validation in a manner that the submitter can understand. The module would not have the functionality to perform beyond that scope (e.g., applying a master index to a dataset). The benefits of a modular strategy include:

- Creates clearly defined boundaries and facilitates future system improvements through encapsulation of like functionality to a single module.
- Supports evaluation of system performance, as modules have distinct measurable objectives.
- Allows tightly defined APIs that can be monitored at runtime.
- Facilitates scalability, as compartmentalized functionality can be more easily upgraded or replaced without impacting the functionality of other modules.

Implementation Alternatives

This section provides a further assessment of four alternatives to implementing an APCD. Three of those alternatives are outlined in the 2017 *Health Care Cost, Quality, and Equity Data Atlas, Technical Feasibility Analysis*: (1) build an entirely new system, (2) have the APCD join a network of networks, or (3) leverage an existing MPCD. The fourth alternative is leverage existing HIT modules.

Build a New HPD System

Building a new HPD System includes acquiring infrastructure—computer servers (physical or virtual), networking equipment, space to host the environment (physical or "cloud"), software licenses for operating systems and development, and staff to manage the infrastructure.

[ix] A software module is an independent unit that contains functionality to perform only one aspect of a broader system. A module is independent and interchangeable, with discretely defined functions and communication channels. It is able to receive a defined dataset, perform an action or set of related actions, and return the result according to its data definition.

Implementing a new system requires design and development from scratch, implementation of all necessary components, and performance of ongoing activities for system maintenance.

Advantages
When building a new system, many barriers to system implementation are removed, such as overcoming the challenges of deploying legacy resources for purposes beyond their original design. An internally developed design would give OSHPD complete control of all HPD modules and allow OSHPD to develop hands-on expertise in the implementation of the HPD System.

Disadvantages
Building a new system would be a long and expensive process. There are schedule risks in building any system from scratch, the consequences of which are higher when an implementation deadline is defined in statute. A large number of staff must be hired and trained, new infrastructure must be acquired, and contracted developer costs could increase to meet implementation deadlines.

Join a Network of Networks

All member organizations in a network of networks seamlessly share information with each other through true interoperability. A network of networks does not have a central, single database. Instead, each member organization stores its data in an identical structure and makes it electronically available to other network organizations. Conceptually, a network of networks design would allow the HPD System to connect directly to participating health care organizations using common communication and data standards. These standards, called APIs, define the data exchange format, security, and communication protocols so each data source knows how to connect to and exchange data with every other data source (or node) on the network.

Advantages
The advantage of a network of networks is interoperability amongst all organizations in the network. Data are shared and disseminated seamlessly without requiring one central database to keep track of all the data. A network of networks HPD System could produce an analytic report by sending a request for data out to all organizations in the network and then generate that report from the returned information without actually storing the source data in a separate database. This approach avoids duplication of data, promotes accurate reporting, and helps source systems maintain the quality of their data.

Disadvantages
None of the 19 active state APCDs have used a network of networks approach; to date, such an approach has been used more for clinical data (through HIEs) than for administrative data (e.g., claims). Moreover, California's scale presents a major challenge to this approach: sending out a request for a report over the network on an as-needed basis could quickly overwhelm the transmission systems for a project that envisions reports based on data for more than 34 million people. Additional challenges would emerge related to state regulation of

submitter compliance with complete and conforming data. A network of networks design may be feasible for the HPD System at some point in the future but not on the implementation timeframe required by statute (substantially complete by July 2023).

Leverage an Existing Multi-Payer Claims Database

MPCDs in California include systems in place at DHCS, CalPERS, Covered California, Manifest Medex, and IHA. Each of these databases houses claim and encounter data on a subset of insured Californians, with some overlap among the initiatives. The HPD Program could potentially outsource the HPD System to an existing MPCD, assessing best fit through gap analyses to select the MPCD that meets the most HPD System requirements.

Advantages

Leveraging an existing MPCD would provide the HPD System with already-functioning data collection processes, data quality measures, data quality evaluation processes, analytics, indexes, tools, and enhancements. An HPD System built on that foundation would likely require less development and testing time than it would take to build a new HPD System.

Disadvantages

Outsourcing the HPD Program to an existing MPCD risks divergence from the legislative mandate set forth in AB 1810. By statute, the HPD Program has a broad mandate to collect data to enable cost containment, quality improvement, and equity—and a tight completion deadline. To maximize the value of the HPD System, data submission must be mandatory—which in turn requires enforcement capabilities. There are also a number of non-technical disadvantages to outsourcing the HPD System to an existing MPCD. Each of the existing MCPDs is operated and governed to meet their own purposes, which may or may not align with the legislative intent for the HPD Program. There would also be considerable contracting, funding, legal, and other administrative hurdles to overcome. While any of the existing MPCDs in California could provide a technical foundation for the HPD System, substantial expansion and modification would be required in all cases.

Leverage Existing HIT Modules

Information gathered from the RFI market research process and other state APCD implementations showed that there is no single solution for the entirety of identified HPD System needs. However, many vendor APCD/MPCD solutions were composed of discrete modules that could function together to perform the required HPD System activities (e.g., a master person index module from one system and a data quality validation module from another system could be combined to meet the HPD System's data integration requirements).

OSHPD has multiple modules available now, suitable for the HPD, such as: processes for collecting and securing patient-level health care-related data; functionality to receive, store, and produce analytic products from health care data; mechanisms for publishing datasets; mature data governance practices; thorough data quality evaluation and improvement processes; and dataset linking capabilities.

Other available California HIT modules include DHCS's Medi-Cal data intake, integration, enhancement, and quality validation processes; and IHA's commercial claim data gathering, submitter onboarding, and stakeholder management expertise.

Advantages

Leveraging existing HIT modules would take advantage of the experience and developed capabilities of vendors in the marketplace and the expertise within OSHPD, while limiting dependency on one single commercial solution or vendor. It would also provide flexibility in upgrading or replacing modules when better solutions become available, without impacting the rest of the HPD System. The approach also strikes a balance between OSHPD maintaining control of the HPD data while outsourcing much of the burden of initially implementing, operating, and maintaining the HPD System.

Disadvantages

Leveraging individual modules creates additional contract management work for OSHPD in system implementation and ongoing operations. The added complexity of contract coordination and vendor management may introduce scheduling risks for system implementation and upgrades.

Implementation Alternatives Summary

Exhibit 39 summarizes the advantages and disadvantages of the solution alternatives considered for the HPD System.

Exhibit 39. HPD Solution Alternatives, Advantages and Disadvantages

IMPLEMENTATION ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Build a New HPD System	• Eliminate having to retrofit a legacy system or systems • Build exactly to requirements	• Increased implementation time • Most expensive
Join a Network of Networks	• Seamlessly share data with health care organizations in the network	• Not currently practical in California due to data system, data supplier, and technology limitations
Leverage an Existing MPCD	• Lower up-front costs • Shorter implementation time	• No existing solution is comprehensive enough to meet anticipated HPD System needs • Risks integration issues with legacy systems
Leverage Existing HIT Modules	• Use the best existing capabilities of vendors and state resources • Balances maintaining OSHPD's control of the data with outsourcing system maintenance and operations	• Increased contract management activities

Recommended HPD Solution

The recommended HPD System solution is to leverage existing modules in the California HIT landscape, including OSHPD's capabilities, and combine those with best available vendor services to meet all the HPD System requirements.

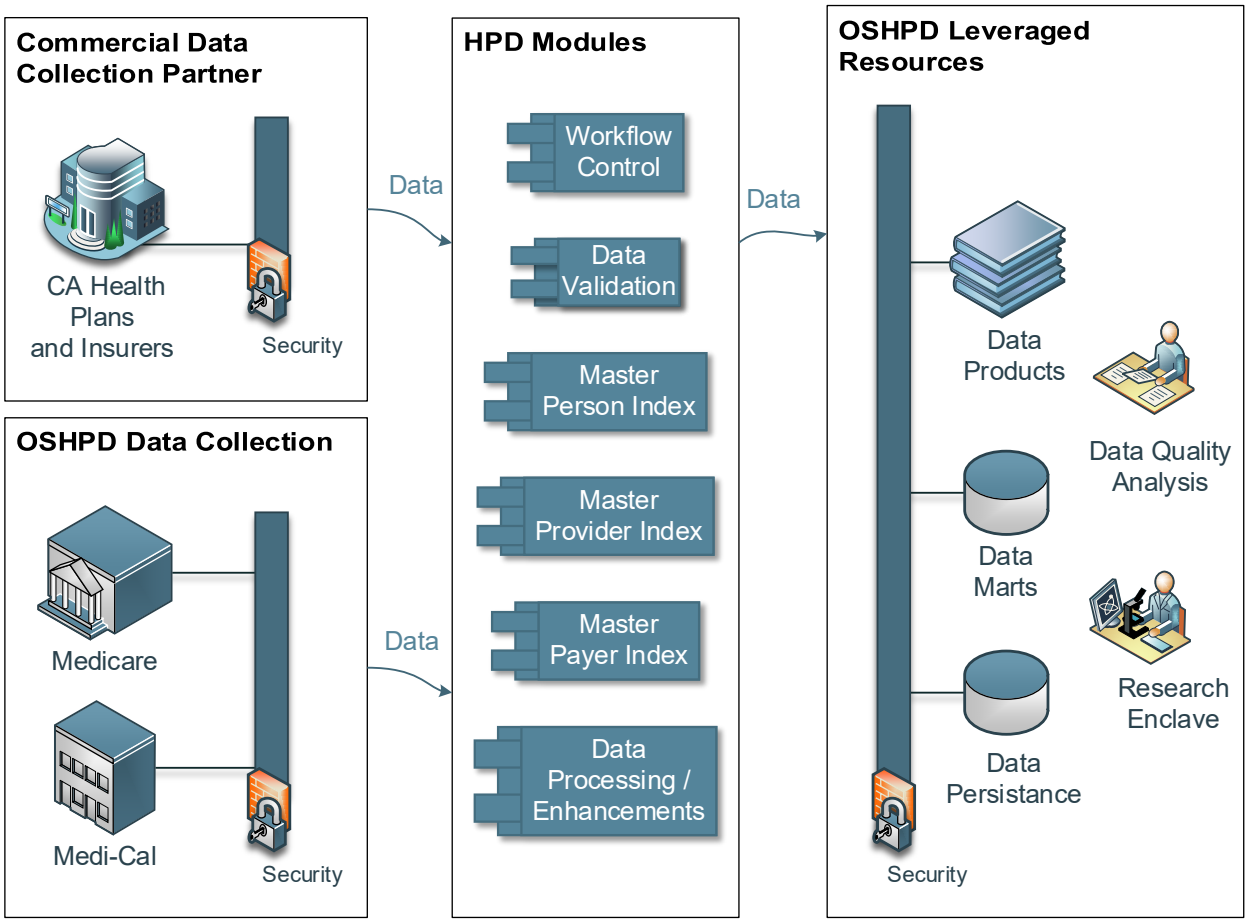
This solution is aligned with OSHPD's market research, the HPD Program's statutorily mandated implementation deadline, the California health care system's characteristics, and OSHPD's expertise in data program management and analytics. By utilizing a modular approach, OSHPD will leverage the strengths of each state agency and vendor partner, assigning modules to those most able to fulfill each system function. OSHPD's oversight, IT integration, and governance responsibilities will allow continued control over the collected data while still taking advantage of vendor expertise and industry best practices.

The system activities will be completed through the interaction of many system modules, with each module performing a discrete function. A system of integrated modules creates an ongoing opportunity to improve the system in an efficient and economical way by allowing for replacement of an underperforming module rather than the entire system. This approach also distributes the responsibilities among vendors, which helps to ensure that no vendor becomes indispensable regardless of performance.

The recommended solution offers a balance across the factors of cost, timely implementation, control of the data, and the flexibility to adapt during and after the system implementation.

Exhibit 40 depicts the three main functional categories of the HPD System from left to right: data collection, data management, and data use. DHCS will supply Medi-Cal data, much of it previously provided by Medi-Cal MCPs. Medicare FFS data will be provided directly by CMS, and a vendor partner will collect commercial health plan and insurer data. The source data files will be stored in OSHPD's environment, and then a series of data quality, integration, and enhancement activities will be performed. These cleaned, integrated, and enhanced data will be stored in a structured data warehouse and made available for analytics. OSHPD will produce standard and custom reports from the data as well as data extracts and a data enclave for researchers. There are opportunities for OSHPD to partner with vendors to carry out these functions.

Exhibit 40. Main Functional Categories of the HPD System



Summary and Recommendations: Technology Alternatives

The following recommendations include consideration of the analysis performed in the *Health Care Cost, Quality, and Equity Data Atlas* report and the research gathered in the development of this Report:

HPD Review Committee Recommendations

1. ***Leverage Resources and Expertise***: OSHPD should leverage existing resources and expertise to facilitate a faster time to implement, maximize the early capabilities of the system, and learn from subject matter experts in the all-payer and multi-payer database industry.
2. ***Modular Approach***: The HPD System should be implemented with a modular approach, with each module performing a discrete system function.
3. ***Data Collection Vendor***: Commercial health care data should be initially collected by a vendor with established submitter management and data quality processes, and that is experienced in aggregating/synthesizing/standardizing commercial claims data files from multiple payer sources. It is preferred that the vendor have experience with state APCD programs.

Chapter 8: Data Quality

Introduction

This chapter focuses on policies and processes commonly used to establish and maintain the credibility and completeness of APCD data to support intended uses. APCDs typically establish these processes with a focus on commercial health plan data because submitters customize their data submissions to meet each state's APCD requirements. This chapter also discusses DHCS quality initiatives that will allow submission of HPD System-compliant Medi-Cal files. A brief discussion of CMS file submission formats identifies opportunities to assess whether incoming Medicare FFS claim data are complete. In addition, this chapter highlights ongoing data quality evaluation and improvement efforts at OSHPD, in California more generally, and elsewhere that may be applicable to the HPD Program.

Robust data quality evaluation and improvement processes are essential for the credibility and sustainability of APCDs. Claim and encounter data, generated from transactions to support the administration of health care among payers and providers, have tremendous analytic value but were not originally designed to support APCD use cases. These data change hands many times throughout the data lifecycle, creating opportunities for error and misinterpretation. Appropriate management of voluminous claim and encounter data from disparate sources presents a significant challenge, and the resulting outputs must be carefully evaluated prior to use. To establish and maintain the fitness of claim and encounter data to support APCD uses, collaborative and ongoing attention to data quality is essential. Effective quality evaluation and improvement processes help to ultimately build stakeholder trust and confidence in the data and contribute to positive database perceptions and sustainability.

APCD Data Quality Evaluation and Improvement

Overview

The goal of robust data quality evaluation and improvement processes is to establish and maintain the fitness of APCD data to support intended uses. These uses are described in Chapter 1 of this Report, defined in general terms in APCD authorizing legislation, and typically evolve over time. From APCDs' earliest days in the mid-2000s, every state implemented data quality processes, typically through contracts with data management vendors. In 2017, recognizing the opportunity to share lessons learned, NAHDO and the APCD Council convened a state Data Quality Forum to compile best practices and published a report summarizing innovative approaches. The report provided a consensus definition of data quality as "an assessment of a data's ability to serve its purpose in a given context. If you apply valid statistical techniques, the user will be able to conduct accurate/correct analysis."[110]

While approaches to APCD data quality evaluation and improvement vary by state, essential elements of these processes generally include:

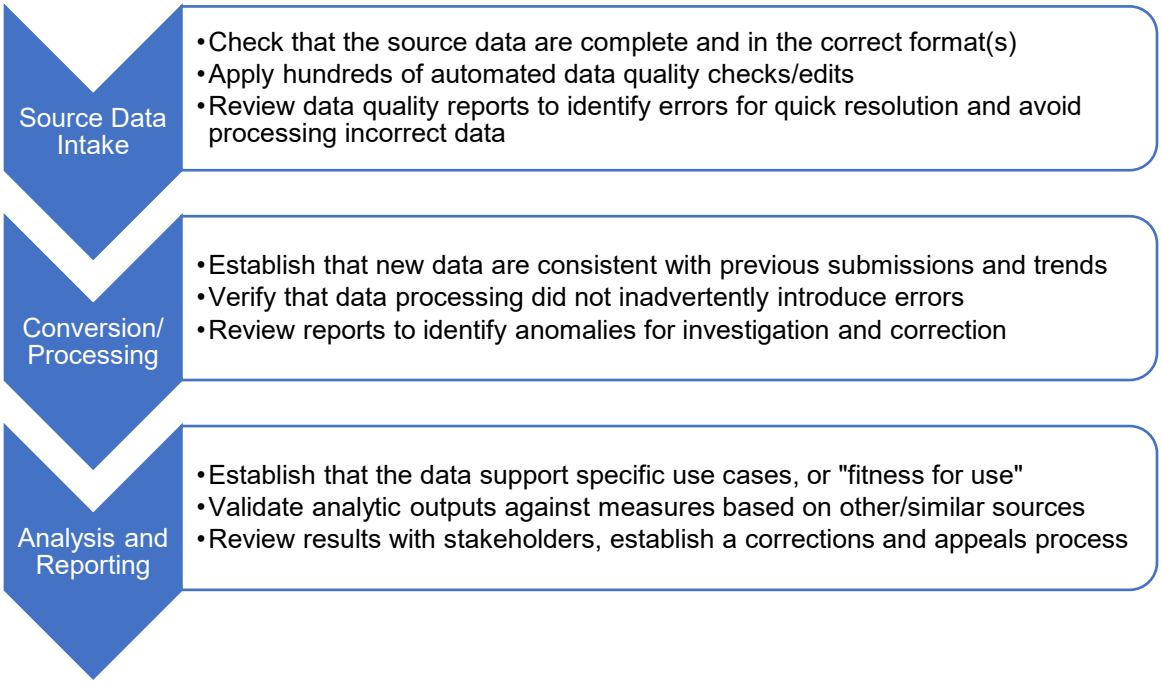
- Close collaboration and communication among the APCD administrator, data submitters, and stakeholders.

- Multi-stage methods, tools, policies, and processes applied throughout the APCD data lifecycle from source data intake, to data conversion and processing, to the use of the data for analysis and reporting.

Well-designed data quality processes endeavor to identify and resolve as many data quality issues as possible during source data intake and processing. These processes also recognize that some quality issues emerge later in the lifecycle, when the data are used to support analysis of specific health care questions. Once the HPD Program is established, OSHPD will focus on analyses that address the Tier 1 use cases described in Chapter 1. These include analysis of variation in utilization, spending, and quality; coverage trends by payer and plan type; and the prevalence of and costs to treat chronic conditions. Generating these and other population health measures is based on aggregated claim and encounter data and will likely identify additional aspects of data quality that require attention. More advanced use cases envisioned for Tiers 2 and 3 may surface additional issues and generate user feedback that contributes to improved data quality. Specific examples of use cases will be provided in the discussion that follows. To ensure ongoing improvement, APCDs often form user groups to discuss data quality concerns and their potential implications, as well as to develop solutions.

The key components of APCD data quality evaluation and improvement processes are summarized in Exhibit 41 and discussed in greater detail later in this chapter.

Exhibit 41. Components of APCD Data Quality Evaluation and Improvement Processes



First Phase: Source Data Intake

Data quality evaluation and improvement begins with source data intake and requires collaboration among the APCD administrator, submitters, and the data collection vendor, also referred to as the data manager. Source data refer to the files prepared by commercial health

plan/insurer submitters in the formats specified by an APCD. The purpose of these processes is to establish that data submissions are accurate, complete, and in the correct format. Close attention to data quality at intake avoids problems associated with processing incorrect data that require greater levels of time and effort to correct down the road. Intake processes typically involve hundreds of automated data quality checks or edits that inform decisions regarding whether to accept or reject incoming files. Summary statistics and quality reports are generated automatically and delivered to the APCD administrator and data submitter within hours so that problems identified at this stage are clearly defined and can be corrected quickly—often within a matter of days. These processes are also applied to files submitted by other payer types (e.g., Medicaid, Medicare FFS), but quality issues in these data during the intake phase are less common.

For the intake phase, the APCD administrator works closely with the data manager to establish the quality checks/edits, format of the quality reports, and process for sharing this information with submitters. Both parties review the intake quality reports to identify source data issues requiring investigation and resolution. Data issues are clearly identified in the quality reports and brought to the attention of the data submitters for correction and resubmission of corrected files. Source data intake checks include these examples:

- Is every required data element populated?
- Are the codes for individual values accurate (e.g., “F” for female), or verified against the current reference table for that code set (e.g., Current Procedural Terminology [CPT] codes).
- Are the dates of service within expected parameters (e.g., no claims from January 1900)?

APCDs have generally adopted certain best practices around source data intake quality, although the specifics vary by state and data manager. These include:

- Provide submitters with a complete list of all data quality checks/edits so they understand the standards against which their files will be evaluated.
- Establish and share detailed data intake standards including required vs. optional data elements and thresholds for completeness.
- Develop an automated process for submitters to request temporary variances, or exceptions, from data submission requirements. Variances should be granted on a temporary basis and subject to periodic/annual review and approval.

Intake Quality Reporting: Reports produced by the data manager summarizing the results of these checks must be reviewed by the APCD administrator and provided to data submitters who may be required to revise and resubmit source files. APCDs have learned that careful review of these reports is an essential task. Moreover, the reports provided to data submitters must be actionable and clearly point to the records that are triggering the files to be rejected. This helps to address quality issues before the APCD administrator takes any further action to advance the data to the data conversion and processing phase.

Timeliness: APCD administrators establish timeframes to conduct initial data quality reviews and provide documentation of issues or concerns to submitters. The APCD administrator, or its

assigned data manager, must perform hundreds of automated data checks/edits as soon as files are received, with programming that accounts for submitter-specific approved variances. Quick turnaround allows submitters to efficiently resolve problems and achieve compliance with APCD data submission requirements in a timely manner.

Resubmissions: For files rejected based on data intake quality checks/edits, APCDs have established policies, timelines, and requirements for resubmissions to correct incomplete or inaccurate data. While source data intake processes identify most errors at the time of submission, in rare instances, problems with files may not be discovered until the data are analyzed in the context of a particular use. Resubmission policies must recognize that errors in "old" data may not be fixable, and administrators generally should work collaboratively with data submitters on a timeline for resubmission. If there are missing data that cannot be supplied (e.g., servicing or rendering provider demographics), an approach used by several states is to document and share information on such errors so that users can develop workarounds or take other appropriate actions.

Second Phase: Data Conversion and Processing

Part 1: Checking for Stability in the Data

During the conversion and processing phase, the APCD establishes that submissions passing source data intake quality checks contain expected values consistent with historical trends observed in previous files. These processes confirm the stability and consistency of the submitted files. APCDs use these checks to find and correct errors in the source data when they occur so that anomalies are not inadvertently introduced into the data stream.

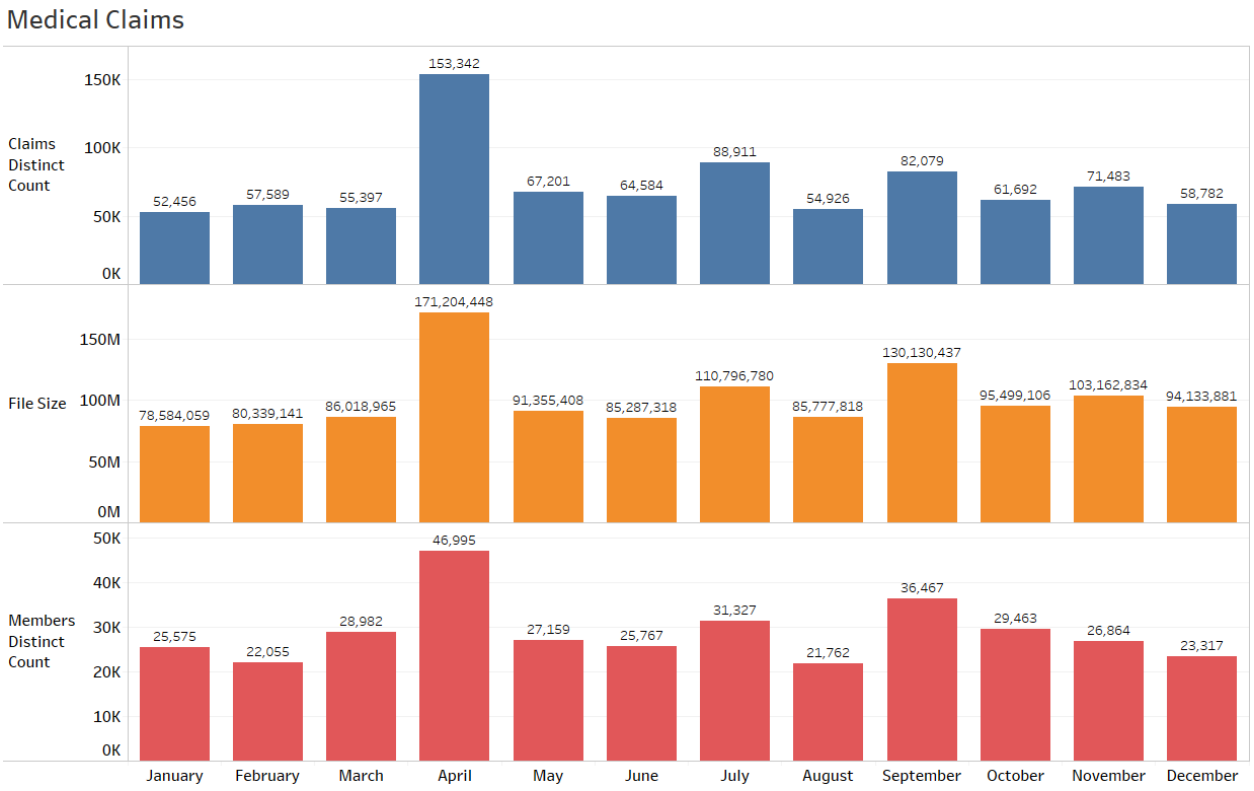
Measures and quality reports are typically developed by the data manager in collaboration with the APCD administrator. Both groups review the results. When suspected anomalies are identified, the data in question are typically quarantined pending investigation and resolution. Issues uncovered at this stage require the APCD administrator and data manager to work closely with submitters to investigate and resolve suspected data quality problems.

Specific processes in this phase include comparing volumes of claims, encounters, members, providers, total dollars, and per-member-per-month spending in the new data files to similar measures calculated based on previous submissions. Examination of month-over-month results and trends is performed to establish stability in submissions over time. These reviews also support ongoing validation and refinement of the data manager's processing logic, which contribute to additional quality improvements. If discovered as part of data stability checks, errors can be addressed with the submitter before the data are subjected to full processing, including application of enhancements.

Exhibit 42 shows an example of a report on trends in monthly medical claims volume, file size, and unique member counts. While there is some expected month-to-month fluctuation, a noticeable and sudden upward spike in all three measures is observed for April. An APCD administrator or data manager analyst reviewing this quality report would document this and

investigate the root cause of the issue. Spikes in volume for a single month may be caused by files containing duplicate claims, failure to properly manage and account for resubmissions to correct errors discovered at intake, or flaws in the underlying data processing logic. In this example, the April spikes were caused by processing both the initial submission and a subsequent resubmission, thus duplicating information for that month.

Exhibit 42. Example of Monthly Data Quality Trend Report



Part 2: Validation of Data Enhancements

Data quality processes at this stage are applied to establish that the application of enhancements including member, provider, and payer identity management; risk adjustment; service category groupings; and provider attribution produced reasonable results. In addition, these quality checks establish that data processing did not inadvertently introduce errors that would persist in the data and affect subsequent analyses if not corrected. Application of enhancements increases the number and complexity of use cases the data can support, and validation of results provides another important source of insight into APCD data quality.

Quality checks at this stage also assess the distribution of medical diagnosis and procedure codes for reasonableness and alignment with expectations, historical trends, and other sources such as hospital discharge data. Application of grouping tools to assign claims and encounters to service categories (e.g., diagnosis-related groups, inpatient and outpatient hospital, professional, and pharmacy) should find very few instances of “ungroupable” services. Unusually large numbers of “ungroupable” services suggest that the underlying claim and encounter data are incomplete despite passing prior source data intake and stability checks.

Results of the application of risk adjustment tools, to account for variation in the underlying health status of patients, are assessed for reasonableness and consistency over time at the individual patient, provider group, and population levels. Results of applying identity management logic are also validated to establish that most members and providers match to existing identifiers and that the proportion of newly assigned identifiers is both relatively low and consistent with historical trends. The APCD administrator and data manager share responsibility for overseeing validation of enhancement results. If problems are identified, analysis is performed to identify the root cause, and remediation may involve resubmission of incorrect source data or correction of faulty data processing logic, as well as reapplication and validation of the enhancements.

Third Phase: APCD Ability to Support Analysis and Reporting

The third phase of APCD data quality evaluation and improvement processes is focused on establishing "fitness for use" and that analyses generate results that are as accurate, valid, and reliable as possible. A bright-line rule to measure fitness for use does not exist. However, although it is not possible to validate an APCD *per se,* it is both possible and necessary to demonstrate that the database's quality, consistency, and completeness will support specific use cases.

Internal Data Use: APCD administrators typically develop processes to validate internal analyses in collaboration with data managers and stakeholders having health care data technical expertise. Determining fitness for use generally involves identifying the data elements necessary to support a specific use case and assessing whether the consistency, completeness, and other dimensions meet requirements. APCDs often compare analytic results to similar information generated from other sources such as hospital discharge data, HEDIS measures, and other national sources including Agency for Healthcare Research and Quality (AHRQ) databases and reports. For reports created internally or by other state agencies, validation generally involves previewing results with affected stakeholders, thereby providing an opportunity to review the findings or underlying data and request corrections.

External Data Use: When external users produce reports or other information products based on non-public data, those users are required to sign DUAs that specify that the APCD is not responsible or liable for the user's analysis or conclusions. Some APCDs require internal review of reports and other information products generated by outside entities from non-public data to ensure consistency with statutory purpose/legislative intent, data release policies, and any other unique regulatory requirements. A DUA protects APCD administrator interests and limits the extent to which recipients of non-public data can further distribute or reuse the information.

Documentation and Transparency: To build stakeholder trust and confidence in the data, APCDs offer transparency into data quality evaluation and improvement processes. Despite comprehensive and ongoing efforts to establish data quality, claim and encounter data will never be perfect. Given this reality, an effective approach used by states is to document known data quality issues and to provide accessible reports to users that identify the nature and impact

of the issues, strategies to address them, and anticipated dates for resolution. APCDs also engage data users to build understanding regarding what others have done with the data and to stimulate thinking about potential future uses. Some states periodically convene data user groups to share information about new releases and showcase recent projects. APCDs can also compile user feedback about issues encountered (and workarounds created) to add to user documentation. This feedback can also identify additional data quality checks at earlier stages in a cycle of continuous quality improvement. With this information, users can make better informed decisions regarding whether data quality is adequate to support the intended use case or if viable options exist to overcome known issues. Robust data quality evaluation and improvement processes, combined with transparency for data users and other stakeholders, builds trust and confidence, and contributes to positive perceptions and database sustainability.

Special Considerations in APCD Data Quality Evaluation and Improvement

Encounter Data

Claims represent billing transactions and a provider's request for payment for services rendered. Because providers are generally reimbursed for all services under FFS payment, financial incentives encourage submission of claims that represent a complete record of all patient care. Encounters are sent to a payer to document services provided to patients reimbursed under alternatives to FFS including capitated arrangements and other APMs, and they can support many of the same uses as claims. Because encounters are not typically tied to reimbursement, providers generally have no direct financial incentive to ensure complete and accurate reporting of all services rendered to patients, and sometimes these records are incomplete relative to FFS claims.

In addition, because encounters are not directly tied to reimbursement in most cases, often no payment or cost information for services rendered is provided to the health plan or insurer. As established in HSC Section 127671, subdivision (a), the HPD Program is intended to "collect information regarding the cost of health care" to "provide greater transparency regarding health care costs." For the HPD Program to satisfy legislative intent, some means of collecting cost information for encounters, such as FFS equivalents, must be developed. Without FFS equivalents or similar payment information comparable to what is included in claims, the ability of the HPD Program to support cost transparency will be limited. Data quality evaluation and improvement processes must be developed to support the comparison of encounter costs to payment information for FFS claims.

These differences between claims and encounters have important implications for the value of the HPD Program in supporting desired use cases because of the high penetration of capitation, managed care, and other FFS alternatives in the California marketplace. An overview of federal and California initiatives focused on improving the quality and completeness of encounter data is presented later in this chapter.

Medicare FFS Data

As discussed in Chapter 2 (Data Categories and Formats), state APCDs currently have two options for requesting claim data for individuals covered by Medicare FFS. Because this

information is provided by CMS, federal law preempts state law, and state APCD data submission requirements cannot be enforced. Medicare FFS claim data are submitted in formats determined by CMS, and states are not able to request resubmissions unless the files are pulled incorrectly by the Medicare data manager. APCDs establish robust data quality processes to check the completeness of Medicare FFS claims files at the time of submission to ensure the files can be loaded and contain all requested data elements for the relevant time period. Additional quality checks must be applied to establish that the CMS data files were accurately transformed. Data for individuals covered by Medicare Advantage plans is submitted by the commercial plans and insurers administering those plans and is subject to the same data quality evaluation and improvement processes.

The Effect of Prompt Payment Laws on Data Quality

Separate from APCD legislation, many states have enacted laws to require health plans and insurers to pay providers promptly if all necessary information has been submitted to the payer. Provisions of such laws and penalties for noncompliance differ by state and, in practice, these minimum requirements may affect the information submitted and retained in claims processing systems. Thus, submitters may have limited ability to submit every required data element at established frequency rates.

Variation in Payers' Claims Processing Systems

Payers often maintain multiple claim processing systems, especially after mergers or other market consolidations. Variation in claim processing systems both within and across payers drives the need for customized, sometimes submitter-specific intake programming logic that transforms the raw files into formats compatible with the requirements and the structure of the APCD data warehouse. In addition, payers vary in their approaches to managing the information necessary to ensure claim and encounter data can support desired use cases. Finally, over time, submitters update their internal systems and claims payment rules, which in turn may result in changes that appear to be data quality issues. Experienced APCDs find that a strong communications plan, a process to flag known changes, and a test data submission process are effective strategies to maintain and support an ongoing data quality effort.

Data Quality Evaluation and Improvement Initiatives in California

The HPD Program will benefit from the accumulated knowledge and expertise of the state agencies and stakeholder organizations engaged in improvement initiatives and data quality efforts.

OSHPD

OSHPD has more than 35 years of experience collecting, analyzing, and creating products based on patient-level data, which provides a solid foundation for HPD data quality functions. In-house policy, program, and analytic staff will contribute their deep knowledge of key aspects of the delivery system as they build capacity for the HPD Program. OSHPD's programmatic units are well-positioned to augment current capacity and offer the benefits of their insights into the HPD System's design, implementation, and operation. The Enterprise Data Operations

Branch oversees data collection, analysis, and reporting within OSHPD. The Patient Data Section is responsible for the collection and validation of all patient-level administrative data.

Patient-level data files are subjected to more than 1,000 edits to assess quality and must be below a two percent error tolerance level to be accepted.[111] Data submission approval criteria, specified in regulation, include consistency with prior submissions and trends as well as correct file formats. Specific automatic edit programs include transmittal validation, facility licensing checks, trend edits, comparative distribution edits, validation of diagnosis codes, and other standard edits to capture record-level and relational errors and inconsistencies. Transparency is addressed by providing detailed descriptions of each edit to submitters along with access to electronic tools for review of data quality results. In addition, OSHPD staff actively monitor the data through the submission process to flag potential data quality issues and engage directly with health care facility staff to address them.

A critical edit flag results in either a facility's data being rejected or applied towards the facility's error tolerance level. If more than two percent of records have one or more critical edit flags, then the data submission fails, and file resubmission is required. Non-critical edit flags are "warnings" that alert a facility to review possible errors in the data but will not result in rejection of files. Another form of validation is obtaining feedback from users who occasionally identify anomalies in the OSHPD data. Users notify OSHPD's Healthcare Analytics Branch of issues discovered, and this information is routed back to appropriate OSHPD staff. Research is conducted into the issue(s), possibly resulting in new edits or validation rules, and discrepancies may be noted in the data documentation. These processes are well aligned with APCD data quality best practices described earlier in this chapter.

OSHPD has established automatic notification processes to keep facility submitters informed regarding the results of data quality assessment, as well as error correction and exception processes. A facility may request modifications to data reporting requirements due to hardship or because they were unable to complete specific fields as required or were determined to be out of compliance at the time of reporting. A modification is an override of an edit and includes a notation that a specific part of the data was out of compliance. This process is detailed in regulations, but in general, a facility must provide justification explaining the reasons they were unable to meet submission requirements and describing any attempts they made to satisfy them. Edit overrides are performed by OSHPD data analysts when a data submission has failed the data quality checks but the facility has verified that the data are correct as reported. For example, data for a facility in the Bay Area may have failed a comparative check for having a high percentage of records with "homeless" in place of ZIP codes, but the facility justified the data are correct as reported because there is a large homeless population in the area.

The Patient Data Section is mandated to approve or reject data submissions within 15 days; however, data quality assessment is usually complete within a few hours. Once the data have been validated in the electronic data submission system and are in an "approved" status, they go through an extract, transform, and load process and are transferred to the data warehouse to support analysis and reporting.

OSHPD's expertise extends to other units and data sources. The Clinical Data Group within the Healthcare Analytics Branch collects clinical data on coronary artery bypass graft (CABG) surgery and performs statutorily mandated (annual) medical chart reviews to assure the quality of the clinical data that are submitted to OSHPD. They also compare the clinical data submissions to the administrative PDD for data quality checks and create a "Data Discrepancy Report" to share with hospitals to correct the clinical data. Through this process, OSHPD has identified CABG surgeries and percutaneous coronary intervention procedures that were not reported in the PDD and/or the ASC data. In addition to the Clinical Data Group, the Administrative Data Group is currently working on a statutorily mandated auditing project and medical chart review to enhance quality of data reporting in the PDD and Emergency Discharge Database.

OSHPD's experience with patient-level information has led to the development of data quality evaluation and improvement processes that establish the fitness of the data to support intended uses. These OSHPD processes address the essential elements described earlier in this chapter for source data intake, conversion and processing, and analysis and reporting. This experience is directly relevant to the development of robust data quality evaluation and improvement processes for the HPD System that contribute to stakeholder trust and confidence, as well as HPD Program sustainability.

California Multi-Payer Database Initiatives

California has a rich history of voluntary health data collection and analytic efforts that offers insights into specific aspects of the health care system. This section describes the initiatives, along with guidance and lessons learned that may be applicable for the HPD Program.

IHA Provider Performance Reporting

Since 2001, IHA has led multi-stakeholder initiatives centered on improving the affordability and quality of care delivered to patients through data collection, analysis, and public reporting. Through collaborative initiatives, IHA seeks to provide credible and actionable information intended to identify solutions to achieve improvements in the California health care system and beyond. To accomplish its mission, IHA collects multi-payer claim and encounter data to support a variety of measurement and reporting initiatives. IHA uses evaluation and improvement processes to establish fitness for use of patient-level data to support valid and reliable analysis, measurement, and public reporting.

Source Data Intake: IHA's assessment of data quality starts with establishing that the data collected from payers and providers represents a complete and accurate accounting of all services rendered to patients. Payer and provider data submissions must meet clear expectations based on established use cases, and IHA has established well-documented definitions, standards, and data file submission requirements. Automated quality checks are applied at the time of data intake to ensure submissions align with required file formats and layouts and that individual fields contain expected values. Quality reports are generated and reviewed by IHA staff and the data manager to identify anomalies and determine whether corrective actions, including resubmissions, are needed.

An important consideration in these processes is whether submitters and providers are able to submit data consistent with established standards and requirements. In some instances, submitters may not collect or maintain all required elements in their claim and encounter data warehouses or other systems and may be unable to provide the required information. Or, it may be necessary to identify and provide alternative data elements to achieve the same concept. Because submitters sometimes maintain multiple data processing systems, consistent patient and provider identifiers are required on all files submitted to facilitate identity management and data integration across multiple data files. Alternatively, algorithm-based patient and provider identity management processes can also be applied.

Data Conversion and Processing: Data quality at this stage of the lifecycle focuses on what is most important in the context of specific IHA use cases. The California Regional Health Care Cost & Quality Atlas, initiated through a collaboration of IHA, CHCF, and CHHS generates and publishes cost, quality, and utilization measures by region, payer and product type, and certain market segments. These measures are calculated based on aggregated multi-payer claim and encounter data, reveal significant variation by region, and help to identify specific opportunities for cost and quality improvement. Measures calculated based on data aggregated by region require that submissions completely and accurately reflect services rendered to patients. In addition, quality checks are applied to establish that individual fields, including procedure and diagnosis codes, are well populated and that the distribution of values is reasonable and consistent over time.

IHA's value-based incentive program, AMP, generates and reports cost, quality, and utilization measures for named provider groups. Measurement and reporting at this more granular level of detail requires additional data quality evaluation steps to establish that patients have been properly attributed to provider groups so that results reasonably reflect performance. Currently, IHA leverages the provider selection and assignment information received from submitters to attribute members to practices, which supports measurement and reporting. Because AMP program results are tied to performance-based payments, additional validation steps are necessary to establish that risk adjustment generates individual patient and provider group scores that are reasonable and consistent over time.

Data Analysis and Reporting: At this stage, data quality is focused on assessing whether the application of cost, quality, and utilization measures generated results that are reasonable and align with expectations based on historical trends. Output files undergo analysis of variation by payer, provider group, and region. Results are compared to similar measures generated based on other state and national sources. Comparisons across submitters and providers help to identify outliers and potentially anomalous results, and drivers of observed differences are also analyzed. Results of these additional validation processes are documented and shared with payer and provider data submitters, contributing to transparency. Involving submitters and providers in the review and validation of underlying data and analytic results generates valuable feedback that supports data quality evaluation and improvement and builds stakeholder trust and confidence.

Provider Group Performance Reports: The AMP program produces reports for individual provider groups and ACOs but does not generate measures or reports for individual physicians. Results are reviewed with submitters and provider groups prior to public release of the summary reports. A process for questions and appeals creates an opportunity for providers to ask questions to clarify their understanding and allows appeals in the case of results believed to be inaccurate. Appeals must include evidence that the results generated by IHA are either incorrect or fail to accurately reflect provider group performance. The questions and appeals process is part of a collaborative approach to data quality evaluation and improvement, helps to establish the validity and reliability of results, and also contributes to payer and provider confidence.

Lessons for the HPD Program: IHA's experience collecting, analyzing, and generating measures and public reports based on patient-level claim and encounter data is similar to those of other state-mandated APCDs and offers valuable insights and lessons learned, including:

- Close collaboration with and effective support of submitters, clear submission standards, and timely reporting of information on data quality are critical.
- Partnering with an experienced data manager, with specific experience in the California market, and with its submitters' data, has been essential to IHA's success.
- Adequate resources and technical support devoted to helping submitters will be necessary.
- Validation of underlying data is essential to reliable analytics and will require specific processes and systems that address unique circumstances in the California market.

Pacific Business Group on Health and the California Healthcare Performance Information System

The Pacific Business Group on Health (PBGH) is a membership organization consisting of private employers and public agencies seeking to increase "value in the health care system through purchaser collaboration, innovation, and action, and through the spread of best practices." Between 2012 and 2016, PBGH managed the California Healthcare Performance Information (CHPI) System, created to produce physician-level quality reports based on claims, encounters, and clinical information for more than 10 million members covered by commercial insurance and Medicare.[112] This section focuses on data quality evaluation and improvement processes developed to establish the fitness of the data to support provider-level quality measurement and reporting, as well as the validity and reliability of results.

Source Data Intake, Conversion, and Processing: CHPI collected claim and encounter data from three large California commercial health plans for their HMO, PPO, POS, and Medicare Advantage lines of business, and obtained Medicare FFS data through the CMS QE Certification Program. Data files submitted to CHPI were subjected to more than 1,000 automated quality checks/edits, with results summarized in data quality assessment reports. The initial checks focused on establishing that files were submitted in the correct format, that individual fields were populated accurately and completely, and that they contained reasonable values. Collaboration with submitters was effective in identifying and resolving data errors discovered at this stage, although resubmission of files was sometimes required.

Upon acceptance, processing linked individual files and aggregated the data across payers to support generation of the selected clinical quality measures. Data integrity checks, applied at various levels to ensure usable data, included analysis of patterns in member enrollment, utilization by service category (e.g., inpatient, outpatient, ED, radiology), and volume of individual services. Integrity checks were also applied to ensure that the individual files comprising payer submissions (e.g., member eligibility, medical and pharmacy claims, provider information) could be reliably linked to support analysis. Results of data integrity checks were assessed in aggregate, by submitter, and at the individual provider and practice site levels for reasonableness and consistency with prior submissions. Provider data files were validated against outside sources including the NPPES NPI Registry, the Medical Board of California, and others.

Data Analysis, Reporting, and Release: Data files passing initial quality and integrity checks were then aggregated in the MPCD to support calculation of the selected clinical quality measures. Results at the population level were evaluated and compared to state and national benchmarks calculated based on other sources including the National Committee for Quality Assurance, California Office of the Patient Advocate (OPA), and IHA. Results were also sorted and evaluated by payer to check for inconsistencies, outliers, and unexpected results. Finally, measure results at the level of individual physicians, specialties, and practice sites were assessed for reasonableness and consistency over time.

Results were shared with physicians and provider groups prior to publication, and CHPI established a 60-day review and corrections process consistent with CMS requirements. Initially, results were mailed to practice sites, but this proved time consuming and burdensome, and an online portal was eventually built to support more efficient electronic review. The portal provided views of measure results and drill-down capability to the level of individual patients. Physicians could use this information to validate results against medical records and determine whether patients were appropriately included/excluded in the calculation of a particular measure. Patient attribution to primary care and specialty providers and assignment of individual providers to practice sites were also subject to the review and corrections process.

Lessons for OSHPD and the HPD Program:

- Advisory groups provide valuable input and guidance. Members representing a variety of clinical specialties and California regions met on a regular basis to provide input on a variety of topics.
- Rigorous data quality processes are effective in identifying data problems and ensuring that resulting analyses generate valid and reliable results.

California's Government-Led Efforts to Improve Encounter Data

Government agencies have implemented many efforts focused on data quality evaluation and improvement that are relevant for the HPD Program. Because of the predominance of capitation, managed care, and other alternatives to FFS in California, these efforts have largely focused on improving the quality of encounter data. OSHPD will work closely with California state agency partners to develop data submission processes and feedback loops regarding the

quality of source data files. A shared understanding of data quality is an essential first step in creating the pathways to appropriate analysis and valid interpretation of results.

DHCS—Medi-Cal

DHCS, in its role administering the Medi-Cal program, performs extensive data quality monitoring through the Encounter Data Quality Unit and contracting with an external quality review organization (EQRO). While the Encounter Data Quality Unit uses many tools to assist Medi-Cal MCPs in submitting high quality data, its main vehicle for assessing encounter data quality is the Quality Measures for Encounter Data (QMED).[113] DHCS published the QMED to establish measures and standards against which encounter data submitted by MCPs will be evaluated. By providing clear data submission guidelines and quality measures in a transparent manner, and actively working with MCPs, DHCS hopes to improve the quality of encounter data for Medi-Cal beneficiaries.

DHCS defines encounter data quality as "the fitness for use of the data." Through its Encounter Data Improvement Project, DHCS seeks to "use metrics to drive data quality improvement efforts" to support "improved analysis, management, and policy" for the department. Dimensions of data quality established by DHCS for encounter data include completeness, accuracy, reasonability, and timeliness (CART). **Completeness** measures assess the extent to which Medi-Cal encounter data capture all real-world events (no missing information) and that only real-world events are represented in the data (no surplus or duplicate encounters). **Accuracy** measures help to determine whether the encounter data submitted by Medi-Cal MCPs correctly depict real-world events. To assess accuracy, each year, a subset of MCP encounters is validated against Medi-Cal beneficiary medical records by the EQRO. **Reasonability** has two components—validity and plausibility—and is focused on establishing that individual records are valid, and that analysis of the full encounter dataset will generate plausible results. Validity measures assess whether encounter data submissions are structured appropriately and in the proper format, and that they contain appropriate data types, reasonable values, and pass basic edit checks. Plausibility measures assess whether the characteristics of the data conform to expectations under statistical analysis. **Timeliness** measures assess the lag time between dates of service and data submissions, with the goal of ensuring encounter data support timely analysis.

Transparency is realized by providing Medi-Cal MCPs with detailed descriptions of and expectations for CART measures, along with information on how the results will be used and by whom. DHCS also prepares encounter data quality summary reports that are provided to Medi-Cal MCPs on a quarterly basis. QMED has established two types of data quality measures that are applied to encounter data submitted by MCPs—"threshold" and "informational only" measures. Results for threshold measures are compared to expected values or ranges and inform encounter data grading over the assessment period. Informational only measures are also shared with the MCPs to provide additional details regarding the quality of the data submitted but are not included in encounter data quality grading. As required by CMS, DHCS has incorporated provisions and incentives around encounter data quality in contracts with the Medi-Cal MCPs.

As part of a recently implemented monitoring tool, DHCS collaborates with its capitated rate development vendor to develop quarterly reports that assess encounter data completeness through comparisons against utilization benchmarks. These comparisons include a variety of Medi-Cal beneficiary aid groupings and service categories, are calculated using DHCS's encounter data, and are compared against similar plan-reported data. When these utilization rates differ to a significant degree, this is reflected in the quarterly reports that are shared with health plans as examples of poor encounter data completeness. Health plans identified as having poor encounter data quality in these reports are subject to corrective action plan requirements or financial sanctions.

DHCS has improved these data quality processes over time, and they now serve a critical role in the receipt, validation, and transformation of daily submissions of encounter data from 23 Medi-Cal MCPs. DHCS's performance of these processes will help ensure that they provide complete, accurate, timely, and reasonable Medi-Cal managed care data to the HPD System.

DMHC Data Quality Undertakings

DMHC manages at least two "undertakings" related to encounter data quality improvement. As a condition of approval, and among other objectives, the 2016 Centene/Health Net merger required a $50 million investment (Undertaking 29) to support a multi-year, multi-phased approach to improve the "completeness and accuracy of encounter data" for Medi-Cal providers contracted with MCPs.[114] In 2017 and 2018, the first phase of this undertaking awarded nearly $10 million in grants primarily to Medi-Cal provider organizations to support initiatives focused on encounter data quality improvement. This funding supported resources to help provider organizations identify opportunities to improve encounter data collection and submission processes, enhance data system capabilities and workforce capacity, and monitor progress toward quality improvement. The second phase of the undertaking brought together three workgroups to develop actionable proposals for governance, data standardization, and technology. Although the undertaking focused on Medi-Cal, resulting recommendations will likely support improvements in encounter data statewide. Separately, approval of a 2018 Aetna/CVS merger required an additional $3 million investment over three years to support IHA initiatives to standardize and improve the quality of encounter data.

Federal Government Efforts to Improve Encounter Data

At the federal level, CMS has developed initiatives designed to improve the quality of encounter data for Medicaid MCOs and Medicare Advantage plans. With the growth of managed care and non-FFS payment, there is considerable concern about, and effort directed toward, improving the completeness and accuracy of this information to support analysis and program improvement. Similar to the state-sponsored efforts described above, these federal initiatives highlight the importance of encounter data completeness and accuracy, and the HPD System will indirectly benefit from their progress. Exhibit 43 summarizes some recent federal efforts.

Exhibit 43. Selected Federal Efforts to Improve Encounter Data

FEDERAL DATA QUALITY INITIATIVE	DESCRIPTION
External Quality Review Protocol 4: Validation of Encounter Data Reported by the MCO[a]	• Identifies procedures to assess the completeness and accuracy of encounter data. • Procedures include developing standards for data accuracy and completeness, and methods to determine encounter data validity such as comparing encounters to provider medical records.
Expanded Federal Medicaid Managed Care Regulations (42 CFR § 438.242)	• Managed care organizations (MCOs) must collect information on enrollee and provider characteristics, and on all services rendered. • State Medicaid agencies must verify the accuracy, completeness, logic, consistency, and timeliness of encounter data. • Encounter data must identify the rendering provider, meet all CMS reporting requirements, and be available to CMS upon request. • An independent audit must occur at least once every three years verifying the accuracy, truthfulness, and completeness of encounter and financial data.
Federal Financial Participation (FFP) Tied to Encounter Data Quality (42 CFR Section 438.818)	• CMS assesses state encounter data submissions to determine if they comply with criteria for accuracy and completeness and notifies states of any compliance issues. • CMS may defer or disallow federal funding for MCOs if state Medicaid agencies are unable to bring encounter data into compliance with CMS quality requirements.
Medicare Advantage Data Quality and Submission	• Medicare Advantage plans are required to send encounter records to CMS. • CMS releases encounter data that may be used for analysis of Medicare Advantage program cost, utilization, provider behavior, and quality as compared to the Medicare FFS program. • CMS's goal is to make encounter data the basis for calculation of Medicare Advantage beneficiary risk scores—which are used in part to determine plan reimbursement rates—rather than the current plan-attested risk scores from the CMS Risk Adjustment Processing System.[115] • In an April 2017 call letter, CMS describes the "monitoring measures" used to review and evaluate Medicare Advantage encounter data to ensure it is functionally equivalent to Medicare FFS data, with the exception of payment information.[116]

Note: [a] CMS. 2012. *EQR Protocol 4: Validation of Encounter Data Reported by the MCO*. September. https://www.medicaid.gov/medicaid/quality-of-care/downloads/eqr-protocol-4.pdf.

Summary and Recommendations: Data Quality

Robust data quality evaluation and improvement processes are essential for the credibility and sustainability of the HPD Program. OSHPD's suggested approach to HPD data quality evaluation and improvement are covered in the following recommendations:

HPD Review Committee Recommendations

1. ***Data Quality Processes*:** The HPD Program should develop transparent data quality and improvement processes. In developing the program, OSHPD shall review and leverage known and effective data improvement processes and experiences.
2. ***Data Quality at Each Part of the Life Cycle*:** Data quality processes should be applied to each major phase of the HPD System data lifecycle, including:
   a. Source data intake
   b. Data conversion and processing
   c. Data analysis, reporting, and release
3. ***Stakeholder Access to Data Quality*:** The HPD Program should provide stakeholders with accessible information on data quality, including:
   a. Descriptions of processes and methodologies
   b. Periodic updates on known issues and their implications.

Chapter 9: Governance

Introduction

This chapter covers identification of a governance structure for the HPD Program, as required by the HSC. Topics include stakeholder engagement in the HPD Program through advisory committees; governance issues related to data submission, including enforcement; governance issues related to data use, access, and release, including pathways and terms for accessing data; and public reporting.

The material presented in this chapter aligns to the following requirement for this Report to the Legislature, as outlined in the HSC:

- HSC Section 127672, subdivision (d)(2)(E): "*Identification of governance structure, including identification of the appropriate entity to operate the database*."
- HSC Section 127672, subdivision (d)(2)(A): "*Additional legislation needed to ensure the database receives appropriate data from identified data submitters including, those specified in subdivision (b) of Section 127673 and legislation regarding enforcement mechanisms necessary for these entities to comply with the requirements of the chapter*."

HPD Program Governance: Objectives, Principles, and Leadership

The purpose of the HPD's governance structure is to support and advance the HPD Program's central objectives:

1. To deliver high-quality data and reporting while safeguarding privacy/security.
2. To achieve the legislature's intended goals described in HSC Section 127671: enable cost containment, quality improvement, transparency, equitable access, and reduction of disparities.

Principles for HPD Program governance aim to incorporate stakeholder input at all stages of the process. Specifically, the HPD Program will:

- Establish and manage an oversight framework that ensures adherence to federal and California data protection laws and rules.
- Create advisory committees and workgroups that ensure opportunities for stakeholder input into decision making.
- Ensure equitable treatment of HPD Program stakeholders, including data submitters and entities whose data are reported.
- Work collaboratively with data submitters, striving to minimize burden and maximize collaboration.
- Provide transparency into operations and results.
- Demonstrate efficiency and cost-effectiveness in management and operations.

In most states with mandatory APCDs, the state agency with health care oversight authority operates the APCD (exceptions are Arkansas, Colorado, and Virginia, in which the state has delegated legal authority to manage the system to an independent entity). In California, as a

state agency with extensive health care data portfolios, OSHPD is well-positioned to lead the HPD Program based on decades of experience managing the collection, analysis, protection, appropriate sharing, and distribution of data from hundreds of hospitals throughout the state. In-house technical, analytic, and managerial expertise can be applied to the HPD Program to expand and enhance the existing portfolio of data assets. In addition, OSHPD's role as an independent, neutral convener in California, with a mission of supporting informed decisions, aligns with the goals of the HPD Program.

OSHPD will provide robust management by using existing infrastructure, where appropriate, and rely on experience and knowledge to establish new operational structures as needed. With respect to the HPD Program, OSHPD's relevant management experience includes:

- Strategy and planning.
- Setting policy, rulemaking, and enforcement.
- External relations and communications across government agencies, with stakeholder organizations, and with the public.
- Coordinating funding processes to ensure continuous operations.
- Managing operations, including in-house staff and vendor contracts.
- Oversight of compliance with privacy and security requirements.
- Supervision of data products delivery and public reporting outputs.

Facilitating Stakeholder Engagement: Advisory Committees

Broad and ongoing multi-stakeholder engagement, in support of participatory and inclusive governance, is a best practice for state APCDs. Advisory committees facilitate stakeholder representation and engagement, creating a formalized and enduring process to obtain input from a range of experts and perspectives; they also foster accountability and transparency. State-mandated APCDs have taken an array of approaches to stakeholder engagement, customizing the structure to adapt to their legal requirements and local needs. Consideration of several key questions will guide the design of stakeholder engagement approaches.

Question 1: Should the advice focus specifically on the APCD or on a broader set of data programs? In several states, including Delaware, Florida, Maine, Maryland, and Vermont, a multi-stakeholder advisory group provides guidance across a state department or portfolio of data assets. Given that the HPD Program will be one component—albeit a large and complex component—of OSHPD's data portfolio, a new Health Care Data Policy Advisory Committee that can provide guidance across the full range of OSHPD data programs offers the opportunity for coordinated input. During HPD implementation, however, when considerable attention on design and operational issues will likely be needed, the Health Care Data Policy Advisory Committee can focus specifically on the HPD Program. Over time, as the HPD transitions from start-up to ongoing operations, the Committee can expand its focus to other OSHPD data programs and priorities.

Question 2: Should the advisory group provide recommendations or make decisions? In some states, such as Virginia, the APCD is operated by an organization that has a formal board of directors with oversight responsibility for the APCD. In other states, such as Colorado, a

legislatively-mandated advisory committee makes recommendations to the administrator of the APCD. The model of an advisory group that makes recommendations may be a better fit for the HPD Program. A new Health Care Data Policy Advisory Committee could provide valuable input and feedback, with OSHPD retaining decision-making authority over all matters for which it is statutorily responsible.

Question 3: What specific roles should the advisory group perform? Colorado's APCD provides an example, with legislation specifying the composition and role of a broad, multi-stakeholder advisory committee to provide guidance on topics such as data collection, measurement of performance domains, data release, and public reporting.[117] For OSHPD, a group that serves all of OSHPD, such as a Health Care Data Policy Advisory Committee, might be asked to make recommendations on a similar range of topics—the full gamut of issues that arise in managing data collection, analysis and reporting, and enabling secure access and use. Examples include:

- Use cases—identifying and prioritizing actionable uses of HPD data.
- Public reporting—guidance on topics and products/formats, as well as standards to ensure credibility.
- Measurement—advising on measures and statistical methodologies that support meaningful comparisons across patient populations, provider systems, and public and private payers.
- Data access and release—guidance on criteria for eligible users and allowable uses.

Question 4: What representation should be included? In other states with APCDs, advisory committees include broad representation from data submitters, data users, various government agencies, consumer representatives, and technical experts. The composition of the Health Care Data Policy Advisory Committee should reflect broad stakeholder representation. The number of members should be limited to 15, recognizing the tradeoff between broad representation and effective meeting management. The specific members, and a Chairperson, can be appointed by OSHPD's Director, and duration of length for member terms specified. Ideally, the Health Care Data Policy Advisory Committee would meet on a quarterly basis and may create workgroups or subcommittees for specific assignments or topics.

The membership of the OSHPD Health Care Payments Data Review Committee that guided the development of recommendations included in this Report may be considered as a starting place. The Review Committee representation was specified in HSC Section 127672, subdivision (a), with nine seats allocated to specific sectors and two "at-large" seats that OSHPD designated to physician groups and researchers. One approach would be to specify representation from the 11 sectors below, with additional "at large" or ex-officio seats:

- Health care service plans
- Health insurers
- Health care practitioners/physicians
- Hospitals/health care facilities
- Self-insured employers
- Multiemployer self-insured plans/trusts
- Businesses purchasing coverage for employees
- Organized labor

- Consumers
- Physician groups
- Researchers

Consideration should be given to safety net providers such as public hospitals and community health centers; state departments such as DHCS; and other quasi-governmental entities purchasing or arranging coverage for members including Covered California and CalPERS.

It is anticipated that additional opportunities for stakeholder representation will be available on other committees, such as a DRC and a data submitter workgroup. Furthermore, OSHPD may create ad hoc committees to assist the HPD in addressing specific issues as they arise.

Data Governance: Submission and Enforcement

The framework for data submission—data sources and layouts, mandatory and voluntary submitters, and key submission provisions such as required and excluded lines of business and frequency of submission—is laid out in Chapter 2 (Data Categories and Formats), Chapter 4 (Data Submitters), and Chapter 8 (Data Quality). This section provides additional detail related to submission requirements and enforcement provisions for noncompliance.

The HPD Program and the data submitters share responsibility for an effective submission process. Smooth data transmission will depend in part on clear communication. During the planning process, a Technical Workgroup composed primarily of health plans provided valuable input on key design decisions for the HPD Program. The HPD Program should continue soliciting this stakeholder input well into the implementation phase, and on through operations, in the form of a Data Submitters Workgroup. The benefit of this approach is evident in a number of states that have adopted similar workgroups. For example, the Massachusetts APCD administrator, the Center for Health Information and Analysis (CHIA), hosts a monthly one-hour meeting with commercial and public payers to address questions and technical reporting issues. CHIA also holds biweekly calls with each of the largest carriers to address data quality issues identified by the APCD staff and data users. For non-claims payment data, Oregon's APCD administrator convened a limited-term Payment Arrangement File Workgroup, meeting from July to December 2019 to provide file layout recommendations that support required use cases.[118]

Early in the implementation phase, OSHPD will need to clearly communicate to submitters the process and requirements for data submission, exception processes for allowing variances, and the mechanisms of enforcement. Preliminary submission concepts are outlined below:

- **Timeliness**: File is on time (monthly for claim, encounter, eligibility, and provider files; annual for non-claims payment data).
- **Format**: Files are in the correct format (APCD-CDL™), and individual fields contain expected data types and values.
- **Thresholds**: Individual data elements (as defined by the APCD-CDL™) are fully populated (no missing values) or populated at rates within established completeness thresholds, and the file includes complete information for the time period it covers.

Each of the above concepts requires considerable communication with data submitters—these are discussed in Chapter 8 (Data Quality).

To leverage the existing regulatory infrastructure in which virtually all the mandatory submitters operate, OSHPD can coordinate with DMHC and CDI on enforcement. For each mandatory submitter, OSHPD can monitor compliance with data submission requirements on a monthly basis. If data are not submitted or submitted data do not meet requirements, OSHPD can work with the submitter to address the issues. If submission issues are not adequately addressed, OSHPD can work with the submitter and the appropriate regulatory agency (DMHC or CDI) to develop a corrective action plan. The specifics of the corrective action plan will vary based on the circumstances, with the objective of establishing or restoring data submission that passes quality checks. Consideration should be given to a ramp-up period for the new data submission requirements to allow for collaborative learning and adjustments by both the data submitters and OSHPD. Regulators have and may use existing enforcement mechanisms, which may include financial penalties.

In addition to oversight for the data submission requirements, OSHPD will be responsible for an array of related data submission governance functions, some of which may be performed in collaboration with contracted vendor partners. These include:

- Development and maintenance of a secure data submission platform, tools to help meet data submission requirements, and documentation (e.g., data submission guide, frequently asked questions [FAQs]).
- Submitter registration and management—design, develop, implement, and maintain processes for registering and managing each submitter and data feed.
- Coordinating with DHCS on submission of Medi-Cal data.
- Requirements and oversight for data quality processes, including uniform standards across data sources (discussed in detail in Chapter 8 [Data Quality].

Data Governance: Use, Access, and Release

The HPD Program's approach to data release must simultaneously support users in obtaining relevant information for decision making or research while protecting patient privacy. Further, the approach must align with the statutory purpose and comply with any existing state and federal legislative and regulatory requirements. OSHPD will use a multi-faceted approach to accomplish these objectives.

Tiered Access to Data

An important objective of the HPD Program is to produce useful, publicly available information. However, since public data products will not serve to meet all the anticipated use cases, access to more granular data will be necessary to accomplish the policy goals of the HPD Program.

The HPD Program will maximize publicly available information while providing secure access to more granular data. In addition, under limited circumstances, PII may be made available for research purposes, under existing IPA authority. Three tiers of access are envisioned:

1. **Publicly Available**. OSHPD, with assistance of contractors as appropriate, will use the data to produce publicly available data products, analyses, studies, and datasets. As detailed in Chapter 6 (Privacy and Security), public data products will include only aggregate de-identified patient information per the CHHS Data De-Identification Guidelines.[119] OSHPD's Health Care Data Policy Advisory Committee will provide input on priorities for the public information portfolio. OSHPD will also establish a process by which individuals may request custom data products or analyses, for appropriate cost-recovery fees. Additional detail on public reporting is described below.
2. **Non-Public Access by Application**. Requestors may apply for access to more granular data to perform their own analyses; the proposed use must be consistent with the goals of the HPD Program. Much work can be accomplished without patient identifiers; if approved, access to indirect patient identifiers (e.g., date of birth, city/state/ZIP of street address) may be allowed if appropriate and justified.
3. **Researcher Access by Application**. Under limited circumstances, PII (including direct patient identifiers) may be released for research purposes consistent with the provisions of the IPA, Civil Code Section 1798.24(t), which provides for such release to the University of California or other non-profit educational institutions for scientific research. Such research requests are significantly more complex and must be approved by the Committee for the Protection of Human Subjects (CPHS), which is the IRB for CHHS, in addition to the DRC.

OSHPD anticipates creating a data enclave to facilitate access to data of varying levels of sensitivity based on approved uses and data elements, all within a controlled environment. The enclave administrator can structure permissions at the level of the individual user to limit access to personal identifiers and other sensitive information, such as payer and provider identifiers and payment amounts. An enclave can help ensure that data access is consistent with limitations imposed by CMS (for Medicare FFS data) and DHCS (for Medi-Cal data). The enclave can also allow for controlled import of data and export of data products, further protecting personal information. It is anticipated that an enclave will be the main source of access to non-public HPD data. For some approved users and uses, it may be appropriate to create alternative approaches to accessing the data such as a secure API or secure file transfer to distribute the data. For example, health plans or provider organizations may wish to load HPD data into an existing data warehouse for internal analysis and planning activities that support operations.

Data Request Applications and Data Use Agreements

All users of non-public data will be required to complete a data request application. The data request application ensures that the proposed use of the data is consistent with HPD Program purposes and with information privacy and security requirements. Best practices call for collecting this information in an application, followed by state agency staff review and, as appropriate, follow-up discussion with the requestor. The final request documentation is incorporated into the DUA by reference and as an exhibit.

OSHPD has extensive experience managing requests for confidential patient data, including researcher data requests that require review by the CPHS.[120] The HPD data request application will build on OSHPD's existing experience and processes, while developing new

approaches to meet the new needs, and will integrate best practices from other states. The data request application for potentially identifiable data will include the following, at a minimum:

- The requesting entity including name, role in health care, qualifications, and prior experience with similar projects and relevant measurement sciences methods and techniques.
- Project purpose, goals and objectives, specific research questions, and proposed methodology.
- How the proposed project aligns with the HPD Program's statutory purpose, established data release policies, and other requirements.
- A list of requested data elements along with justification, particularly for PHI or other sensitive data (e.g., detailed payment information, payer or provider identifiers, sensitive diagnoses).
- Linkages to other datasets necessary to support the proposed analysis; only those linkages specifically approved by the HPD Program are allowed.
- Identity of those who will have access to the data, including the names of internal project team members and personnel for any outside data analysis or management entities.
- How the results will be shared and with whom.
- Benefit to the State of California and its residents.
- If the data are to be accessed through secure file transfer (rather than through the enclave), a data management plan is required including descriptions of data privacy and security policies and procedures to protect the data from unauthorized access or use.

Approved applicants must sign a DUA, which includes by reference information in the data request application, in order to obtain access to the data. Exhibit 44 identifies features of DUAs that are common among existing APCDs.

Exhibit 44. Common Elements in DUAs Among Active APCDs

	CO	DE	FL	ME	MA	NH	RI	UT	VT	WA
APCD retains ownership		✓	✓	✓	✓		✓	✓	✓	✓
Certificate of data destruction	✓	✓		✓	✓	✓	✓	✓	✓	✓
Data management plan / Requirement of safeguards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Data only to be used as described in application	✓	✓	✓	✓	✓	✓		✓	✓	✓
Indemnification	✓	✓	✓	✓	✓	✓	✓	✓		✓
Prohibition of disclosure (of reports or data) without prior notice	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prohibition on identification of patients (including reverse engineering)	✓	✓	✓	✓	✓	✓	✓		✓	✓

Notes: The following states are excluded from this table for the reasons stated: Minnesota does not have a DUA. Arkansas, Oregon, Maryland, and Connecticut do not have DUAs available online. New York, Hawaii, and Florida are still implementing their APCDs and do not have DUAs set up.
Source: Katherine L. Gudiksen, Samuel M. Chang, and Jaime S. King. *The Secret of Health Care Prices: Why Transparency Is in the Public Interest*, July 2019, CHCF. https://www.chcf.org/wp-content/uploads/2019/06/SecretHealthCarePrices.pdf

The HPD Program will follow proven practices in other states, including requirements and assurances that the data recipient will:

- Use the data solely for the purpose established in the application as approved.
- Make no attempt to use the data to reidentify individuals.
- Not release the data to any other person or entity except as specifically authorized as part of the approved application; all recipients are bound by the terms and conditions of the DUA.
- Not use the data for anti-competitive purposes as defined under antitrust laws.
- Indemnify and hold the APCD administrator harmless in the event of unauthorized or inappropriate access to the data (specifically including personal information) or use of the data for anti-competitive purposes.
- Adhere to minimum cell size and complementary cell suppression rules and CHHS Data De-Identification Guidelines.

Several additional DUA terms are less relevant to access through a data enclave but should be included when files are shared through secure transfer or API:

- Implement and maintain appropriate safeguards to protect the data and comply with all state and federal privacy and security requirements.
- Adhere to retention limits and data destruction requirements at the conclusion of the project.
- Notify the APCD administrator within a specified timeframe of any unauthorized access or use of the data (e.g., breach) and any corrective actions taken.

Other terms and conditions that may be adopted by the HPD Program include:

- Review and release
  - Administrator prior review of all results and information products intended for presentation, publication, or public release.
  - Commitment of the data user to publicly release a summary of the results of the analysis.
- Data use timeframe
  - The data request application and/or DUA may also specify a process for requesting an extension of the original project timeline and requests to use the data to support additional projects.
- Enforcement actions
  - Other state APCDs have adopted an array of enforcement actions, including financial penalties, in response to violation of the terms of the DUA, which constitutes a breach of contract. In California, violation of such a DUA may constitute a violation of the IPA.
  - OSHPD should have the authority to take any or all of the following actions in response to a violation of the DUA:
    - ◊ Require the immediate surrender, return, or destruction of all obtained HPD data.
    - ◊ Deny future access to HPD data.
    - ◊ Potentially impose civil penalties.

Data Release Committee

Virtually every state APCD has a DRC charged with reviewing applications for non-public data and advising the APCD on whether the application meets the criteria for release. In some states, the role of the DRC is restricted to reviewing applications; in others, it includes advising the APCD administrator on policies and procedures related to data release and on related topics.

For the HPD Program, the DRC will:

1. Advise on specific data release policies and procedures to ensure that allowable data uses are consistent with legislative intent and adhere to data privacy and security requirements.
2. Contribute to development of the data request application and DUA, and to related communications materials (e.g., FAQs) for external audiences.
3. Meet to review request applications that include personal information, payment data, and other potentially sensitive information.
4. Make recommendations to OSHPD regarding the approval/denial of applications for HPD data access.

The Health Care Data Policy Advisory Committee may also advise the Director on the appropriate use of HPD data.

The DRC should have multi-stakeholder representation, with members who have direct experience working with health care data and knowledge of privacy and security requirements. University of California San Francisco experts recommend that at least half of the committee's voting membership be non-submitting entities, and that representation include members with direct experience working with health care data as well as experts who understand health care markets, trade secret and privacy protocols, and consumer behavior and interests.[121]

The HPD Program's DRC members will be appointed by the OSHPD Director and include representation from health care payers, providers, purchasers, researchers, consumers, and other stakeholders. Other state departments such as DHCS may be invited to participate as ex-officio, non-voting members.

OSHPD will be responsible for all data access materials, including policies and procedures, data application request(s), DUAs, fact sheets and FAQs on how to access the data, documentation for data users, and other resources for various audiences.

Interagency Agreements on Data Use and Access

For CHHS departments and offices, data sharing is facilitated by the CHHS Intra-Agency Data Exchange Agreement. The agreement includes two components: a Master Agreement and specific "Business Use Case Proposals" (BUCPs) that include information about the purpose, data elements, and other details for each data exchange under the Master Agreement. The Master Agreement, when coupled with the BUCPs, forms the complete, standardized, legally compliant data sharing agreement. Data sharing materials, including process flow,[122] legal agreement,[123] and FAQs,[124] are publicly available at the CHHS website. While the data

exchange agreement currently resides within CHHS, work is underway to expand the agreement across all California state agencies.

In practice, other state agencies will submit BUCPs to OSHPD to obtain HPD data for specific uses. OSHPD will be responsible for ensuring that any requirements on subsets of the data such as Medicare, Medi-Cal, and SUD data are reflected in the BUCPs (these requirements are often called "flow-through restrictions").

Payment Data: Balancing Industry Confidentiality and Public Benefit

HSC Section 127671, subdivision (a) specifies that OSHPD "establish a system to collect information regarding the cost of health care" to "provide greater transparency regarding health care costs." To meet the legislative intent, and identify opportunities to "reduce health care costs," the HPD Program will need to collect, use, and release information on health care payments. Indeed, most APCDs collect, use, and release payment information. Collection and use of this information have contributed to greater cost transparency by highlighting variation and helping to identify cost drivers and specific opportunities to reduce spending.

As shown in Exhibits 45 and 46 below, currently 15 state APCDs collect and 14 state APCDs release payment data.[125] Data elements include charges, total allowed (defined as the plan paid amount plus patient responsibility, with patient responsibility defined as the sum of copay, coinsurance, and deductible amounts), plan paid, and patient cost sharing amounts. Submission of payment information is required for all medical, pharmacy, and dental claims; specific requirements vary by state.

Exhibit 45. Payment Data Most Commonly Collected by APCDs

	AR	CO	CT	DE	HI	ME	MD	MA	MN	NH	OR	RI	UT	VT	WA
Paid amount (plan)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Allowed Amount	✓		✓		✓		✓	✓		✓	✓				
Capitation / Prepaid amount (fee-for-service equivalent amount)	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Charge amount	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cost sharing (copay, coinsurance, deductible)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dispensing fee amount	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Ingredient cost / List price	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Postage amount (for pharmacy)	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓	✓	✓

Note: This table includes financial information collected by at least three-quarters of state APCDs. The table excludes Florida, Kansas, and New York because those states do not have a data submission manual available online.
Source: Katherine L. Gudiksen, Samuel M. Chang, and Jaime S. King. *The Secret of Health Care Prices: Why Transparency Is in the Public Interest*, July 2019, CHCF. https://www.chcf.org/wp-content/uploads/2019/06/SecretHealthCarePrices.pdf

Exhibit 46. Payment Data Elements Most Commonly Available for Release by APCDs

	AR	CO	CT	DE	ME	MD	MA	MN	NH	OR	RI	UT	VT	WA
Paid amount (plan)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Allowed Amount	✓	✓	✓			✓	✓		✓	✓	✓		✓	
Capitation / Prepaid amount (fee-for-service equivalent amount)	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
Charge amount	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Cost sharing (copay, coinsurance, deductible)	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Dispensing fee amount	✓	✓		✓	✓		✓		✓	✓	✓	✓	✓	✓
Ingredient cost / List price	✓	✓		✓	✓		✓		✓	✓	✓	✓	✓	✓
Postage amount (for pharmacy)		✓		✓	✓		✓		✓		✓	✓	✓	✓

Notes: This table excludes Florida, Hawaii, Kansas, and New York, which do not have a data dictionary or data release manual available online. For Minnesota, the "paid amount" field identifies the sum of all plan and member payments for encounters within the record's utilization category.
Source: Katherine L. Gudiksen, Samuel M. Chang, and Jaime S. King. *The Secret of Health Care Prices: Why Transparency Is in the Public Interest*, July 2019, CHCF. https://www.chcf.org/wp-content/uploads/2019/06/SecretHealthCarePrices.pdf

In other states, APCDs hear concerns from stakeholders about issuing reports with actual amounts paid to providers. Payers assert the confidentiality of negotiated rates with providers, often claiming that paid amounts are trade secrets and therefore legally protected from disclosure. Researchers at UC Hastings College of the Law published a CHCF report in July 2019 titled "*The Secret of Health Care Prices: Why Transparency is in the Public Interest*" that examines this issue and finds that ". . . no court has definitively held that negotiated rates between health care providers and insurers constitute trade secrets. Furthermore, even if a court finds that certain price information constitutes a trade secret, that protection may not be absolute."[126] For the HPD Program, the Health Care Data Policy Advisory Committee and the DRC can assist OSHPD in developing policies and practices that balance industry concerns with the public need for pricing information.

In addition, stakeholders have also raised concerns that inappropriate use of APCD payment data could violate antitrust law that is intended to protect against anticompetitive behavior (e.g., health plans sharing payment information in order to collude on rates). To address issues related to exchange of health care pricing information, the U.S. Federal Trade Commission (FTC) and U.S. Department of Justice (DOJ) developed guidelines for an antitrust safety zone under which exchanges of health care price and cost information among providers will not be challenged absent extraordinary circumstances. The safety zone requirements established under FTC/DOJ Statement 6[127] are:

1. The survey [or data collection] is managed by a third-party (e.g., a purchaser, government agency, health care consultant, academic institution, or trade association).
2. The information provided by survey participants [data submitters] is based on data more than three months old.
3. There are at least five providers reporting data upon which disseminated statistic is based, no individual provider's data represents more than 25 percent on a weighted basis of that statistic, and any information that is disseminated is sufficiently aggregated such that it will not allow recipients to identify the prices charged or compensation paid by any particular provider.

When a government agency such as OSHPD administers an APCD, the first two conditions will almost always be met. Reports and datasets that include payment information can be designed to satisfy the third. Using the data for anticompetitive purposes would be in violation of antitrust law and subject to enforcement. For purposes of public reporting, most APCDs disseminate average or median price information and avoid identifying specific providers or payers to remain within the safety zone, although this is not uniformly the case. Examples of state approaches to public release of payment data are shown in Exhibit 47.

Exhibit 47. State Approaches to Public Release of Payment

STATE	WHAT PAYMENT DATA ARE RELEASED
Colorado	• Median or average "prices" in public/custom reports and de-identified datasets • More detailed payment information is available if required/justified • Payment information available by provider or payer, not both
Maine	• Average costs by procedure, facility, and payer • Releases paid/allowed amounts, does not release charged amounts
New Hampshire	• Median payments by procedure, facility/provider, and payer
Utah	• Pricing information by line of business only (e.g., commercial, Medicaid, Medicare)

Source: Author's analysis.

Public Reporting

Two key aspects of public reporting merit mention. **Credibility** refers to ensuring that results reported publicly based on HPD data are valid, reliable, and were produced using scientifically sound methodology**. Accountability and Public Benefit** refers to ensuring the HPD Program is operating in alignment with its key objectives: (1) to deliver high-quality data and reporting while safeguarding privacy/security; and (2) to achieve the legislative intent laid out in HSC Section 127671: enable cost containment, quality improvement, transparency, equitable access, and reduction of disparities. Meeting these objectives requires a robust program of public reporting using HPD data, including payment information, as well as accountability for program operations.

Credibility

It will be essential to the credibility of the HPD Program to ensure that results reported publicly based on HPD System data are produced using scientifically sound methodology. Several states, including Massachusetts, created formal principles for public reporting during early stages of implementation and revisit them periodically. Oregon convenes several workgroups on metrics and measurement, including the Child and Family Well-Being Measures Workgroup, Health Equity Measurement Workgroup, Health Plan Quality Metrics Workgroup, and Metrics and Scoring Committee.[128] A Minnesota advisory group was convened to consider new reporting options and created "guardrails" for public use files to ensure scientific validity and privacy protection.[129]

Common themes among these efforts related to public reporting include:

- Use nationally accepted, standardized measures.
- Report measures and information that are meaningful and actionable.
- Use measures and techniques that are reliable and stable over time.
- Disclose the statistical basis for the analysis and provide documentation.
- Use best practices when creating comparisons, including factors such as appropriate sample sizes, meaningful variation, risk adjustment, and statistical validity.
- Provide information about attribution techniques and results.
- Preview the results with affected stakeholders prior to publication.
- Protect from reidentification with prohibitions on publishing direct identifiers and guidelines such as safe harbor, small cell size suppression, geographic representation, and age bands.

For its AMP Commercial HMO and Medicare Advantage Program, IHA has longstanding governance practices that support credible and scientifically valid public reporting. These include a committee structure that involves program participants in technical measurement and payment methodology issues as well as in broader program decisions;[130] an annual public comment process that solicits input on proposed changes to the measure set and methodologies;[131] a review and appeals process that allows physician organizations to raise concerns about their performance results prior to being considered final and publicly reported; and thorough documentation of program design and methodology.[132] The results of these AMP programs are publicly reported by the OPA and are also used by IHA to recognize top-performing physician organizations[133] and by health plans to allocate millions of dollars in performance incentives annually to those physician organizations.[134]

The QE Certification Program, one pathway through which the HPD Program may pursue acquiring Medicare FFS data, places strong emphasis on ensuring the scientific validity and credibility of results reported by organizations that have obtained Medicare FFS data and integrated it with other sources for public reporting. As outlined in the QE Certification Program Guide, QEs must demonstrate how they are addressing an array of important methodologic issues including measure specification, statistical validity, attribution, risk adjustment, comparison groups, benchmarks, and rating approaches.[135] In addition, if QEs report results at a provider-identifiable level, they must provide a preview of the results in advance to the providers and allow a 60-day corrections and appeals process.

Both Colorado and Virginia APCDs are QEs and have publicly reported results using Medicare FFS data following the CMS guidelines. In August 2019, Colorado's CIVHC released breast cancer screening and diabetes A1c testing rates using Medicaid, commercial, and Medicare Advantage claim data along with Medicare FFS data from CMS for the years 2013-2017.[136] Virginia Health Information recently released results on potentially avoidable ED visits for 2015-2017, with stratification by reason for admission, geography, and type of insurance.[137]

OSHPD's Health Care Data Policy Advisory Committee and DRC will provide specific recommendations for incorporating best practices into the HPD Program's application process, DUAs, and data access and reporting protocols. OSHPD may also want to consider convening a workgroup on scientific methodology, either on a time-limited or standing basis.

Accountability and Public Benefit

Several states report regularly on (1) the operations and key metrics related to the APCD (e.g., funding, number of requests received); and/or (2) issues of significant policy interest, such as cost trends in the state.

Colorado's CIVHC lists all available public reporting in a two-page document with links to each report. Their categories of public reporting are:

- Statewide interactive reports (e.g., cost of care, utilization of services, quality of care).
- "Spot analyses and data bytes" by category (cost and utilization trends, potentially avoidable services, quality of care, condition prevalence, prescription drug price variation, etc.).
- Examples of custom datasets and reports.

In addition, CIVHC publishes an annual report that includes information about new reporting available through the APCD, lists approved data requests and uses, reviews current status and future plans, and highlights recommendations made to the Governor and General Assembly.[138] Massachusetts' CHIA provides another example of robust annual reporting to inform decision making. The 2018 Cost Trends Report includes detailed information about trends in total health care expenditures in Massachusetts, overall and by market segment; utilization of care, including ED admissions; low-value services; variation in spending on provider systems organizations with clinically similar populations; and commercial price trends including comparisons to Medicare.[139] The report also includes policy recommendations for the State of Massachusetts.

OSHPD will develop a plan for annual public reporting, with input from the Health Care Data Policy Advisory Committee. That plan could include posting HPD System data on the California Open Data portal, a statewide resource created to improve collaboration, expand transparency, and lead to innovation and increased effectiveness,[140] as well as creating published reports and analyses. OSHPD currently posts data visualizations and other products through the year, highlighting insights from in-house data analysis. Recent posts include rates of hospital-acquired severe sepsis by hospital size, location, and ownership[141] and wholesale acquisition cost increases for prescription drugs.[142] HSC Section 127673 (g)(2) specifically requires analysis of:

- Population and regional level data on prevention, screening, and wellness utilization.
- Population and regional level data on chronic conditions, management, and outcomes.
- Population and regional level data on trends in utilization of procedures for treatment of similar conditions to evaluate medical appropriateness.
- Regional variation in payment level for the treatment of identified chronic conditions.
- Data regarding hospital and nonhospital payments, including inpatient, outpatient, and ED payments, and nonhospital ambulatory service data.

In addition to public reporting on HPD Program progress and findings, an assessment of implementation could be commissioned from the California Research Bureau (CRB), much like CRB's current work related to implementation of SB 17 on cost transparency of prescription drugs.

Summary and Recommendations: Governance

The HPD System will leverage OSHPD's experience in managing large health care datasets, protecting the confidentiality of patient-level data, producing analytics and information for policymakers and the public, and handling data requests from outside organizations.

HPD Review Committee Recommendations

1. ***Entity to Operate the Health Care Payments Data (HPD) Program:*** OSHPD should operate the HPD Program.
2. ***Health Care Data Policy Advisory Committee***: OSHPD should be authorized to convene a Health Care Data Policy Advisory Committee of stakeholders with expertise to provide guidance on the HPD Program. Over time, OSHPD may expand the scope of the Advisory Committee to obtain guidance on other data assets in the OSHPD portfolio.
3. ***Committees to Support Effective Governance***: OSHPD should create other committees or workgroups to support effective governance as needed, at the discretion of the Director, either as standing bodies or as time-limited ad hoc workgroups.
4. ***Leverage Regulatory Structures for Enforcement***: OSHPD should establish processes for the enforcement of data submission, leveraging existing regulatory structures. Statutory authority should be provided to establish specific processes.
5. ***Comprehensive Program for Data Use, Access, and Release***: OSHPD should have statutory authority to implement a comprehensive program for data use, access, and release for the HPD Program. This program will emphasize both the creation of publicly available information and ensuring only appropriate, secure access to confidential information. The health care payments database should be exempt from the disclosure requirements of the Public Records Act.
6. ***Data Release Committee***: OSHPD should be required to establish a Data Release Committee to advise OSHPD on requests for access to non-public data. The Data Release Committee members should be appointed by the OSHPD Director and include a diverse range of stakeholder representatives with expertise in issues that need to be considered in the release of non-public data. OSHPD will maintain information about requests and disposition of requests. OSHPD and the Data Release Committee should develop processes for the timely consideration and release of data.

Appendix

Acronym List

ACRONYM	MEANING
AB	Assembly Bill
ACA	Affordable Care Act
ACO	Accountable care organization
AHRQ	Agency for Healthcare Research and Quality
AMP	Align. Measure. Perform.
APCD	All-payer claims database
APCD-CDL™	Common Data Layout for APCDs
APD	Advance Planning Document
API	Application programming interface
APM	Alternative payment model
ASC	Ambulatory surgery center
ASO	Administrative services only
BHO	Behavioral health organization
BRFSS	Behavioral Risk Factor Surveillance System
BUCP	Business Use Case Proposal
CABG	Coronary artery bypass graft
CalPERS	California Public Employees' Retirement System
CalREDIE	California Reportable Disease Information Exchange
CalWORKs	California Work Opportunities and Responsibility to Kids
CART	Completeness, accuracy, reasonability, and timeliness
CCIIO	Center for Consumer Information and Insurance Oversight
CDC	Centers for Disease Control and Prevention
CDI	California Department of Insurance
CDPH	California Department of Public Health
CFR	Code of Federal Regulations
CHCF	California Health Care Foundation
CHHS	California Health and Human Services
CHIA	Center for Health Information and Analysis
CHIS	California Health Interview Survey

CHPI	California Healthcare Performance Information
CIVHC	Center for Improving Value in Health Care
CMIA	Confidentiality of Medical Information Act
CMS	Centers for Medicare & Medicaid Services
COBRA	Consolidated Omnibus Budget Reconciliation Act
CPHS	Committee for the Protection of Human Subjects
CPT	Current Procedural Terminology
CURES	Controlled Substance Utilization Review and Evaluation System
DEA	Drug Enforcement Administration
DHCS	Department of Health Care Services
DMHC	Department of Managed Health Care
DOJ	Department of Justice
DRC	Data Release Committee
D-SNP	Dual Eligible Special Needs Plan
DUA	Data Use Agreement
ED	Emergency department
EHR	Electronic health record
EPO	Exclusive provider organization
EQRO	External quality review organization
ERISA	Employee Retirement Income Security Act of 1974
Family PACT	Family Planning, Access, Care, and Treatment
FAQs	Frequently asked questions
FFP	Federal financial participation
FFS	Fee-for-service
FHIR®	Fast Healthcare Interoperability Resources
FTC	Federal Trade Commission
HCP-LAN	Health Care Payment Learning & Action Network
HEDIS	Healthcare Effectiveness Data and Information Set
HIE	Health information exchange
HIPAA	Health Insurance Portability and Accountability Act
HIT	Health information technology
HL7®	Health Level Seven International
HMO	Health maintenance organization

HPD	Health Care Payments Data
HSC	Health and Safety Code
IHA	Integrated Healthcare Association
IIPPA	Insurance Information and Privacy Protection Act
IPA	Information Practices Act
IRB	Institutional review board
ISD	Information Services Division
IT	Information technology
LPS	Lanterman-Petris-Short
M&O	Maintenance and operations
MCO	Managed care organization
MCP	Managed care plan
MMIS	Medicaid Management Information System
MPCD	Multi-payer claims database
NAHDO	National Association of Health Data Organizations
NCPDP	National Council for Prescription Drug Programs
NDC	National Drug Code
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration System
OIS	Office of Information Security
OPA	Office of the Patient Advocate
OSHPD	Office of Statewide Health Planning and Development
P-APD	Planning APD
PACE	Program of All-Inclusive Care for the Elderly
PAL	Project Approval Lifecycle
PBGH	Pacific Business Group on Health
PBM	Pharmacy benefit manager
PDD	Patient Discharge Data
PHI	Protected health information
PII	Personally identifiable information
POS	Point of service
PPO	Preferred provider organization
PRA	Public Records Act

QA	Quality assurance
QE	Qualified entity
QHP	Qualified Health Plan
QMED	Quality Measures for Encounter Data
RFI	Request for information
SAM	State Administrative Manual
SAMHSA	Substance Abuse and Mental Health Services Administration
SB	Senate Bill
SDOH	Social determinants of health
SIM	State Innovation Model
SIMM	Statewide Information Management Manual
SSN	Social Security number
SUD	Substance use disorder
TCoC	Total cost of care
TPA	Third-party administrator
U.S.	United States

APCDs in Other States

State APCD Summary

	STATE	START DATA COLLECTION	OPERATING ENTITY	DATA COLLECTION AND ENHANCEMENT	PUBLIC DATA RELEASE	NON-PUBLIC DATA SET RELEASE	DATA ACCESS AND REPORTING
1	Arkansas	2017	University of AR	University of AR	Reports and Data	Limited Dataset	University of AR
2	Colorado	2012	Non-Profit	Data Manager	Reports and Data	Limited and Research	Mixed Model
3	Connecticut	2014	State Agency	Data Manager	Reports and Data	Limited Dataset	University of CT
4	Delaware	2018	Non-Profit	Mixed Model	Reports and Data	Limited and Research	Mixed Model
5	Florida	2018	State Agency	Data Manager	TBD	TBD	TBD
6	Hawaii	2018	State Agency	University of HI	Reports and Data	TBD	University of HI
7	Kansas	2009	State Agency	Data Manager	Reports	TBD	State Agency
8	Maine	2003	Non-Profit	Data Manager	Reports and Data	Limited and Research	Data Manager
9	Maryland	1996, 2014	State Agency	Data Manager	Reports	Limited	Mixed Model
10	Massachusetts	2007	State Agency	Mixed Model	Reports	Limited and Research	Mixed Model
11	Minnesota	2009	State Agency	Data Manager	Reports and Data	TBD	Mixed Model
12	New Hampshire	2005	State Agency	Data Manager	Reports and Data	Limited and Research	Mixed Model
13	New York	2016	State Agency	Data Manager	TBD	TBD	Data Manager
14	Oregon	2011	State Agency	Data Manager	Reports and Data	Limited and Research	Mixed Model
15	Rhode Island	2012	State Agency	Data Manager	Reports and Data	Limited	Mixed Model
16	Utah	2009	State Agency	Data Manager	Reports	Limited and Research	Mixed Model
17	Vermont	2008	State Agency	Data Manager	Reports and Data	Limited	Mixed Model
18	Virginia	2014	Non-Profit	Data Manager	Reports and Data	TBD	Mixed Model
19	Washington	2017	Non-Profit	Data Manager	Reports and Data	Limited	Data Manager

Notes:

1. Data Manager: Generally, a commercial entity contracted to provide APCD data collection and enhancement services.
2. Reports and Data: Standard public/custom reports and de-identified/public use datasets containing no PHI.
3. Limited Dataset per HIPAA definition: Research Datasets may be identifiable and include direct patient identifiers.
4. Mixed Model: Responsibility for data access and reporting is shared by the data manager and operating entity.

Governance by APCD State

	STATE	START OF DATA COLLECTION	REGULATORY AUTHORITY	OPERATING ENTITY	DATA MANAGER
1	Arkansas	2017	Arkansas Insurance Department	Arkansas Center for Health Improvement	Arkansas Center for Health Improvement
2	Colorado	2012	CO Dept. of Health Care Policy and Financing	Center for Improving Value in Health Care	HSRI/NORC
3	Connecticut	2014	CT Office of Health Strategies	Connecticut Office of Health Strategies	Onpoint Health Data
4	Delaware	2018	Delaware Health Info. Network (DHIN)	Delaware Health Info. Network (DHIN)	MedicaSoft
5	Florida	2018	FL Agency for Health Care Administration (AHCA)	FL Agency for Health Care Administration (AHCA)	Health Care Cost Institute (HCCI)
6	Hawaii	2018	Dept. of Human Services, Med-QUEST Division	University of Hawaii (UHI)	UHI Telecomm. and Social Informatics Program
7	Kansas	2009	Kansas Insurance Department (KID)	KS Dept. of Health and the Environment (KDHE)	Cerner and DXC Technology
8	Maine	2003	Maine Health Data Organization (MHDO)	Maine Health Data Organization (MHDO)	HSRI/NORC
9	Maryland	1996—annual 2014—quarterly	Maryland Health Care Commission (MHCC)	Maryland Health Care Commission (MHCC)	Social and Scientific Systems (SSS)
10	Massachusetts	2007	Center for Health Info. and Analytics (CHIA)	Center for Health Info. And Analytics (CHIA)	IBM Watson Health
11	Minnesota	2009	Minnesota Department of Health (MDH)	Minnesota Department of Health (MDH)	Onpoint Health Data
12	New Hampshire	2005	New Hampshire Insurance Department (NHID)	NH Department of Health and Human Services	Milliman
13	New York	2016	New York Department of Health (NYSDOH)	New York Department of Health (NYSDOH)	Optum
14	Oregon	2011	Oregon Health Authority (OHA)	Oregon Health Authority (OHA)	Milliman
15	Rhode Island	2012	Rhode Island Department of Health (RIDOH)	Executive Office of Health and Human Services	Onpoint Health Data
16	Utah	2009	Utah Department of Health (UDOH)	Utah Department of Health (UDOH)	Milliman
17	Vermont	2008	Green Mountain Care Board (GMCB)	Green Mountain Care Board (GMCB)	Onpoint Health Data
18	Virginia	2014	Virginia Department of Health (VDH)	Virginia Health Information (VHI)	Milliman
19	Washington	2017	TBD—Contract Pending	Washington Health Alliance (WHA)	Onpoint Health Data

Data Sources by APCD State

STATE	COMMERCIAL INSURERS AND PLANS	MEDICAID	MEDICARE FFS	MEDICARE ADVANTAGE	OTHER: WORKER'S COMPENSATION	ALTERNATIVE PAYMENTS DATA		
						CAPITATION	DRUG REBATES	PAY FOR PERFORMANCE
1 Arkansas	X	X	X	X	X			
2 Colorado	X	X	X	X		X	X	X
3 Connecticut	X	X	X	X				
4 Delaware	X	X	X	X				
5 Florida	X	X	X	X				
6 Hawaii	X*	X	X	X				
7 Kansas	X							
8 Maine	X	X	X	X				
9 Maryland	X	X	X	X				
10 Massachusetts	X	X	X	X		X	X	
11 Minnesota	X	X	X	X				
12 New Hampshire	X	X	X	X				
13 New York	X	X		X				
14 Oregon	X	X	X	X		X		X
15 Rhode Island	X	X	X	X				
16 Utah	X	X	X	X				
17 Vermont	X	X	X	X				
18 Virginia	X	X	X	X				
19 Washington	X	X	X	X				

Note: * State employees only.

Data Access and Release by APCD State

		AGGREGATE PUBLIC DATA		NON-PUBLIC DATA		OTHER DATA ACCESS		
STATE		PUBLIC REPORTS	DE-IDENTIFIED DATASETS	LIMITED DATASETS	RESEARCH DATASETS	APCD IN-HOUSE DATA ACCESS	PRICE LOOKUP WEBSITE	EXTERNAL CUSTOM REPORTS OR EXTRACTS
1	Arkansas	X	X	X		X		X
2	Colorado	X	X	X	X	X	X	X
3	Connecticut	X	X	X		X	X	X
4	Delaware	X	X	X	X	X		X
5	Florida					X	X	
6	Hawaii	X	X					
7	Kansas	X	X					
8	Maine	X	X	X	X	X	X	
9	Maryland	X	X	X		X	X	
10	Massachusetts	X		X	X	X	X	
11	Minnesota	X	X			X		
12	New Hampshire	X	X	X	X	X	X	X
13	New York	X	X	X	X			X
14	Oregon	X	X	X	X	X		X
15	Rhode Island	X	X	X		X		
16	Utah	X		X	X	X		
17	Vermont	X	X	X		X		X
18	Virginia	X	X			X	X	X
19	Washington	X	X	X		X	X	X

Functional Responsibility by APCD State

	STATE	DATA COLLECTION	DATA ENHANCEMENT	REPORT PRODUCTION
1	Arkansas	ACHI	ACHI	ACHI
2	Colorado	HSRI/NORC	HSRI/NORC	HSRI/NORC/CIVHC
3	Connecticut	Onpoint Health Data	Onpoint Health Data	University of Connecticut
4	Delaware	DHIN and MedicaSoft	MedicaSoft and DHIN	DHIN and MedicaSoft
5	Florida	HCCI	HCCI	TBD
6	Hawaii	University of Hawaii	University of Hawaii	TBD
7	Kansas	Cerner and DXC Technology	Cerner and DXC Technology	KID and KDHE
8	Maine	HSRI/NORC	HSRI/NORC	HSRI/NORC
9	Maryland	SSS	SSS	SSS/MHCC/Other
10	Massachusetts	IBM Watson Health/CHIA	IBM Watson Health/CHIA	CHIA/IBM Watson Health
11	Minnesota	Onpoint Health Data	Onpoint Health Data	MDH
12	New Hampshire	Milliman	Milliman	Milliman/Contractors
13	New York	Optum	Optum	Optum
14	Oregon	Milliman	Milliman	OHA
15	Rhode Island	Onpoint Health Data	Onpoint Health Data	Contractors/Agency Staff
16	Utah	Milliman	Milliman	Milliman/UDOH
17	Vermont	Onpoint Health Data	Onpoint Health Data	Onpoint/GMCB
18	Virginia	Milliman	Milliman	Milliman/VHI
19	Washington	Onpoint Health Data	Onpoint Health Data	Onpoint Health Data

Note: See individual state profiles that follow for details on the entities responsible for APCD data collection, data enhancement, and report production. Acronyms used in this table are spelled out in the detailed profiles for each state's APCD.

State-by-State APCD Profiles

ARKANSAS

Governance

Regulatory Authority: Arkansas Insurance Department
Operating Entity: Arkansas Center for Health Improvement (ACHI), University of Arkansas Medical School
Data Manager: Arkansas Center for Health Improvement (ACHI)
Collecting Data since: 2017

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☒ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: ACHI
Data Enhancement: ACHI
Report Production: ACHI

COLORADO

Governance

Regulatory Authority: Colorado Department of Health Care Policy and Financing (HCPF)
Operating Entity: Center for Improving Value in Health Care (CIVHC)
Data Manager: Human Services Research Institute (HSRI) and National Opinion Research Center (NORC)
Collecting Data since: 2012

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☒ Alternative Payment Data:
- ☒ Capitation
- ☒ Pharmacy Rebates
- ☒ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: HSRI/NORC
Data Enhancement: HSRI/NORC
Report Production: HSRI/NORC/CIVHC

CONNECTICUT

Governance

Regulatory Authority: Connecticut Office of Health Strategies
Operating Entity: Connecticut Office of Health Strategies
Data Manager: Onpoint Health Data
Collecting Data since: 2014

Data Access and Release

Aggregate Public Data

☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data

☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access

☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Onpoint Health Data
Data Enhancement: Onpoint Health Data
Report Production: Onpoint Health Data

DELAWARE

Governance

Regulatory Authority: Delaware Health Information Network (DHIN)
Operating Entity: Delaware Health Information Network (DHIN)
Data Manager: In house/MedicaSoft
Collecting Data since: 2018

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: DHIN and MedicaSoft
Data Enhancement: MedicaSoft
Report Production: DHIN and MedicaSoft

FLORIDA

Governance

Regulatory Authority: Florida Agency for Health Care Administration (AHCA)
Operating Entity: Florida Agency for Health Care Administration (AHCA)
Data Manager: Health Care Cost Institute (HCCI)
Collecting Data since: 2018

Data Access and Release

Aggregate Public Data
☐ Public Reports (results based on aggregated data)
☐ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: HCCI
Data Enhancement: HCCI
Report Production: No reports issued yet

HAWAII

Governance

Regulatory Authority: Department of Human Services, Med-QUEST Division (Hawaii Medicaid)
Operating Entity: University of Hawaii
Data Manager: University of Hawaii, Telecommunications and Social Informatics Program (TASI)
Collecting Data since: 2018

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☐ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☐ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: University of Hawaii
Data Enhancement: University of Hawaii
Report Production: TBD

KANSAS

Governance

Regulatory Authority: Kansas Insurance Department (KID)
Operating Entity: Kansas Department of Health and the Environment (KDHE)
Data Manager: Cerner and DXC Technology
Collecting Data since: 2009

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☐ De-identified and/or Public Use Datasets

Non-Public Data
☐ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☐ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☐ Medicare FFS
☐ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Cerner and DXC Technology
Data Enhancement: Cerner and DXC Technology
Report Production: KID and KDHE

MAINE

Governance

Regulatory Authority: Maine Health Data Organization (MHDO)
Operating Entity: Maine Health Data Organization (MHDO)
Data Manager: Human Services Research Institute (HSRI) and National Opinion Research Center (NORC)
Collecting Data since: 2003

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: HSRI/NORC
Data Enhancement: HSRI/NORC
Report Production: HSRI/NORC

MARYLAND

Governance

Regulatory Authority: Maryland Health Care Commission (MHCC)
Operating Entity: Maryland Health Care Commission (MHCC)
Data Manager: Social and Scientific Systems (SSS)
Collecting Data since: 1996—annual
2014—quarterly claims detail

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☐ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: SSS
Data Enhancement: SSS
Report Production: SSS/MHCC/Other

MASSACHUSETTS

Governance

Regulatory Authority: Center for Health Information and Analytics (CHIA)
Operating Entity: Center for Health Information and Analytics (CHIA)
Data Manager: IBM Watson Health
Collecting Data since: 2007

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☐ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☒ Other: Workers' Compensation
☒ Alternative Payment Data:
- ☒ Capitation
- ☒ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: CHIA
Data Enhancement: CHIA
Report Production: CHIA/IBM Watson Health

MINNESOTA

Governance

Regulatory Authority: Minnesota Department of Health (MDH)
Operating Entity: Minnesota Department of Health (MDH)
Data Manager: Onpoint Health Data
Collecting Data since: 2009

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☐ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Onpoint Health Data
Data Enhancement: Onpoint Health Data
Report Production: MDH

NEW HAMPSHIRE

Governance

Regulatory Authority: New Hampshire Insurance Department (NHID)
Operating Entity: New Hampshire Department of Health and Human Services
Data Manager: Milliman
Collecting Data since: 2005

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Milliman
Data Enhancement: Milliman
Report Production: Milliman; project specific contractors

NEW YORK

Governance

Regulatory Authority: New York Department of Health (NYSDOH)
Operating Entity: New York Department of Health (NYSDOH)
Data Manager: Optum
Collecting Data since: 2016

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☐ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☐ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Optum
Data Enhancement: Optum
Report Production: Optum

OREGON

Governance

Regulatory Authority: Oregon Health Authority (OHA)
Operating Entity: Oregon Health Authority (OHA)
Data Manager: Milliman
Collecting Data since: 2011

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☒ Alternative Payment Data:
- ☒ Capitation
- ☐ Pharmacy Rebates
- ☒ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Milliman
Data Enhancement: Milliman
Report Production: OHA

RHODE ISLAND

Governance

Regulatory Authority: Department of Health
Operating Entity: Executive Office of Health and Human Services, assisted by an interagency collaborative
Data Manager: Onpoint Health Data
Collecting Data since: 2012

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Onpoint Health Data
Data Enhancement: Onpoint Health Data
Report Production: Contractors and Agency Staff

UTAH

Governance

Regulatory Authority: Utah Department of Health (UDOH)
Operating Entity: Utah Department of Health (UDOH)
Data Manager: Milliman
Collecting Data since: 2009

Data Access and Release

Aggregate Public Data

☒ Public Reports (results based on aggregated data)
☐ De-identified and/or Public Use Datasets

Non-Public Data

☒ Limited Datasets (indirect identifiers)
☒ Research Datasets (direct and indirect identifiers)

Other Data Access

☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☐ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Milliman
Data Enhancement: Milliman
Report Production: Milliman/UDOH

VERMONT

Governance

Regulatory Authority: Green Mountain Care Board (GMCB)
Operating Entity: Green Mountain Care Board (GMCB)
Data Manager: Onpoint Health Data
Collecting Data since: 2008

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☐ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Onpoint Health Data
Data Enhancement: Onpoint Health Data
Report Production: Onpoint Health Data

VIRGINIA

Governance

Regulatory Authority: Virginia Department of Health (VDH)
Operating Entity: Virginia Health Information (VHI)
Data Manager: Milliman
Collecting Data since: 2014

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☐ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☒ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Milliman
Data Enhancement: Milliman
Report Production: Milliman/VHI

WASHINGTON

Governance

Regulatory Authority: Washington Health Care Authority (HCA) as of January 2020
Operating Entity: Washington Health Alliance (WHA) as of January 2020
Data Manager: Onpoint Health Data
Collecting Data since: 2017

Data Access and Release

Aggregate Public Data
☒ Public Reports (results based on aggregated data)
☒ De-identified and/or Public Use Datasets

Non-Public Data
☒ Limited Datasets (indirect identifiers)
☐ Research Datasets (direct and indirect identifiers)

Other Data Access
☒ APCD in-house access
☐ Web-based "self-serve" tool for external users
☒ Custom reports or extracts for external users
☒ Price look up website

Data Sources

☒Commercial Insurers and Plans
☒ Medicaid
☒ Medicare FFS
☒ Medicare Advantage
☐ Other: Workers' Compensation
☐ Alternative Payment Data:
- ☐ Capitation
- ☐ Pharmacy Rebates
- ☐ Performance Incentives, Shared Savings

Functional Responsibility

Data Collection: Onpoint Health Data
Data Enhancement: Onpoint Health Data
Report Production: Onpoint Health Data

Supplement to Chapter 4: Data Submitters

California Enrollment by Plan, 2018 (Commercial, Medicare Managed Care, and ASO)

INSURER (PARENT GROUPING)	TOTAL	% TOTAL	COMMER-CIAL (COMM)	% COMM	MEDICARE MANAGED CARE (MMC)	% MMC	ADMIN SERVICES ONLY (ASO)	% ASO
Kaiser	8,132,320	36%	6,808,964	47%	1,182,347	47%	141,009	3%
Anthem	4,704,167	21%	2,074,601	14%	74,091	3%	2,555,475	46%
Blue Shield	3,413,498	15%	2,554,513	18%	155,849	6%	703,136	13%
UnitedHealth	1,989,741	9%	775,905	5%	449,446	18%	764,390	14%
CVS (Aetna)	1,172,149	5%	395,763	3%	34,841	1%	741,545	13%
CIGNA	919,204	4%	329,565	2%		0%	589,639	11%
Centene (Health Net)	783,493	3%	646,698	4%	136,795	5%		0%
SCAN	184,468	1%		0%	184,468	7%		0%
Sharp Health Plan	142,649	1%	139,783	1%	2,866	0%		0%
Western Health Advantage	125,882	1%	125,882	1%		0%		0%
Humana	91,316	0%	13,810	0%	77,506	3%		0%
Sutter	83,874	0%	83,874	1%		0%		0%
L.A. Care	68,181	0%	68,181	0%		0%		0%
Molina	50,208	0%	48,201	0%	2,007	0%		0%
SIMNSA	49,800	0%	49,800	0%		0%		0%
Western Growers	46,464	0%	46,464	0%		0%		0%
Central Health Plan	40,781	0%		0%	40,781	2%		0%
Citizens Choice	40,309	0%		0%	40,309	2%		0%
Oscar	39,609	0%	39,609	0%		0%		0%
United Agricultural Employees	37,935	0%	37,935	0%		0%		0%
Valley Health Plan	34,042	0%	33,465	0%	577	0%		0%
Universal Care	32,844	0%		0%	32,844	1%		0%
Easy Choice	30,501	0%		0%	30,501	1%		0%
Inland Empire	25,855	0%		0%	25,855	1%		0%
Inter Valley	21,836	0%		0%	21,836	1%		0%
Nippon	20,933	0%	20,798	0%		0%	135	0%
Chinese Community Health Plan	20,444	0%	15,489	0%	4,955	0%		0%
CalOptima	15,736	0%		0%	15,736	1%		0%
Ventura County Health Care Plan	14,947	0%	14,947	0%		0%		0%
Scripps	13,277	0%	13,277	0%		0%		0%

INSURER (PARENT GROUPING)	TOTAL	% TOTAL	COMMER-CIAL (COMM)	% COMM	MEDICARE MANAGED CARE (MMC)	% MMC	ADMIN SERVICES ONLY (ASO)	% ASO
Medi-Excel, SA de CV	11,608	0%	11,608	0%		0%		0%
Community Care Health Plan, Inc.	9,842	0%	9,842	0%		0%		0%
Golden State	9,765	0%		0%	9,765	0%		0%
Contra Costa Health Plan	8,519	0%	8,519	0%		0%		0%
Santa Clara Family Health Plan	7,695	0%		0%	7,695	0%		0%
CA Society of CPAs	5,990	0%	5,990	0%		0%		0%
BCS	5,396	0%	5,396	0%		0%		0%
American International	5,116	0%	5,116	0%		0%		0%
State Farm	4,240	0%	4,240	0%		0%		0%
Aspire Health Plan	3,412	0%		0%	3,412	0%		0%
Stanford	2,922	0%		0%	2,922	0%		0%
Trustmark	2,410	0%	2	0%		0%	2,408	0%
Hartford	1,695	0%	1,695	0%		0%		0%
National Health	1,582	0%	1,582	0%		0%		0%
Aegon US Holding	1,122	0%	1,122	0%		0%		0%
Positive Healthcare	702	0%		0%	702	0%		0%
Continental General	361	0%	361	0%		0%		0%
Imperial	335	0%		0%	335	0%		0%
Seaside Health Plan	230	0%	230	0%		0%		0%
AXA INS	176	0%	176	0%		0%		0%
Prudential	167	0%	167	0%		0%		0%
FRESENIUS HEALTH PLANS INS. CO.	118	0%		0%	118	0%		0%
National Guardian	80	0%		0%	80	0%		0%
Metropolitan	74	0%	74	0%		0%		0%
Guardian	22	0%	22	0%		0%		0%
Union Labor	21	0%		0%		0%	21	0%
American National	19	0%	19	0%		0%		0%
Protective Life	14	0%	14	0%		0%		0%
Primerica	11	0%	11	0%		0%		0%
On Lok	10	0%		0%	10	0%		0%

INSURER (PARENT GROUPING)	TOTAL	% TOTAL	COMMER-CIAL (COMM)	% COMM	MEDICARE MANAGED CARE (MMC)	% MMC	ADMIN SERVICES ONLY (ASO)	% ASO
Massachusetts Casualty	9	0%	9	0%		0%		0%
John Hancock	8	0%	8	0%		0%		0%
Northwestern National of Milwaukee	7	0%	7	0%		0%		0%
National Foundation	6	0%	6	0%		0%		0%
Mutual of Omaha	5	0%	5	0%		0%		0%
New York Life	5	0%	5	0%		0%		0%
American States	2	0%	2	0%		0%		0%
Cincinnati	2	0%	2	0%		0%		0%
Combined Ins. Co. of America	2	0%	2	0%		0%		0%
Washington National	2	0%	2	0%		0%		0%
Sequoia	1	0%		0%	1	0%		0%
Illinois Mutual	1	0%	1	0%		0%		0%
Liberty Mutual	1	0%	1	0%		0%		0%
OneAmerica Fin Partners	1	0%	1	0%		0%		0%
THRIVENT FINANCIAL FOR LUTHERANS	1	0%	1	0%		0%		0%
TIAA FAMILY	1	0%	1	0%		0%		0%
Grand Total	**22,430,171**	**100%**	**14,393,763**	**100%**	**2,538,650**	**100%**	**5,497,758**	**100%**

Source: CHCF, *California Health Insurers and Enrollment, Dec. 2019—Data File*. Combined enrollment for plans regulated by the Department of Managed Health Care (DMHC) and the California Department of Insurance (CDI).

Covered California Enrollment by Plan and Network Type, 2018

NETWORK TYPE	HMO	PPO	EPO	TOTAL
Anthem Blue Cross of California	0	0	64,590	64,590
Blue Shield of California	73,360	360,980	0	434,340
Chinese Community Health Plan	10,800	0	0	10,800
Health Net	152,790	36,400	1,800	190,990
Kaiser Permanente	446,770	0	0	446,770
L.A. Care Health Plan	70,730	0	0	70,730
Molina Healthcare	51,430	0	0	51,430
Oscar Health Plan of California	0	0	24,550	24,550
Sharp Health Plan	24,790	0	0	24,790
Valley Health Plan	12,350	0	0	12,350
Western Health Advantage	9,700	0	0	9,700
Total Enrollment	**852,720**	**397,380**	**90,940**	**1,341,040**

Source: Covered California, *Active Member Profile*, September 2018.
Accessed at https://hbex.coveredca.com/data-research/library/active-member-profiles/CC_Membership_Profile_2018_09.xlsx

CalPERS Plan Enrollment, 2018

PLAN	COVERED LIVES	SHARE (%)
Anthem EPO Del Norte	140	0.0%
Anthem HMO Select	23,524	1.6%
Anthem HMO Traditional	15,020	1.0%
Blue Shield HMO	164,356	11.2%
Blue Shield EPO	1,064	0.1%
CAHP (self-insured PPO administered by Anthem)	32,904	2.2%
CCPOA North (fully-insured HMO)	9,701	0.7%
CCPOA South (fully-insured HMO)	32,102	2.2%
Health Net—Salud HMO y Más	8,702	0.6%
Health Net—Smartcare HMO	18,286	1.2%
Kaiser	616,879	42.1%
Kaiser/Out of State	2,915	0.2%
PERS Choice (self-funded)	220,175	15.0%
PERS Select (self-funded)	54,317	3.7%
PERSCare (self-funded)	102,572	7.0%
PORAC (fully-insured PPO)	25,686	1.8%
Sharp	11,540	0.8%
UnitedHealthcare	117,721	8.0%
Western Health Advantage	6,296	0.4%
Total	1,463,900	100.0%
HMOs	986,303	67.4%
PPOs	377,204	25.8%
Associations	100,393	6.9%
Total	**1,463,900**	**100.0%**

Sources: CalPERS, *Health Program Enrollment Report, September 1, 2018.* CalPERS Pension and Health Benefits Committee Agenda Item 5c, June 19, 2018.

Notes: In addition to fully-insured and self-insured plans, CalPERS offers several association plans that are available only to association members. They are:

- CAHP=California Association of Highway Patrolmen
- CCPOA=California Correctional Peace Officers Association
- PORAC=Peace Officer Research Association of California

California Dental Enrollment by Plan, Combined DMHC and CDI, 2018

CALIFORNIA DENTAL PLAN	TOTAL	% OF MARKET
Delta Dental of California	4,896,000	43.6%
Metropolitan Life Insurance Company	779,193	6.9%
Cigna Health and Life Insurance Company	574,357	5.1%
Guardian Life Insurance Company	520,454	4.6%
Anthem Blue Cross Life and Health Insurance Company	456,388	4.1%
United Concordia Insurance Company	375,791	3.3%
Aetna Life Insurance Company	289,586	2.6%
Principal Life Insurance Company	273,275	2.4%
SafeGuard Health Plans, Inc.	271,531	2.4%
California Physicians' Service/Blue Shield of CA	236,911	2.1%
Access Dental Plan	230,580	2.1%
Cigna Dental Health of California, Inc.	204,359	1.8%
Liberty Dental Plan of California, Inc.	162,476	1.4%
Premier Access Insurance Company	147,724	1.3%
Dental Benefit Providers of California, Inc.	147,484	1.3%
Aetna Dental of California Inc.	146,335	1.3%
Western Dental Services, Inc.	143,860	1.3%
Blue Cross of California	124,946	1.1%
Managed Dental Care	122,195	1.1%
UnitedHealthcare Insurance Company	113,202	1.0%
Dental Health Services	95,618	0.9%
Humana Insurance Company	89,412	0.8%
Kaiser Permanente Insurance Company	82,821	0.7%
Ameritas Life Insurance Corp	73,817	0.7%
Lincoln National Life Insurance Company	73,159	0.7%
California Dental Network, Inc.	72,982	0.6%
National Guardian Life Insurance Company	69,728	0.6%
Union Security Insurance Company KC	60,880	0.5%
Dentegra Insurance Company	57,902	0.5%
Humana Dental Insurance Company	54,623	0.5%
Sun Life Assurance Company of Canada	43,936	0.4%
UDC Dental California, Inc.	42,129	0.4%
Blue Shield of CA Life & Health Insurance Company	29,242	0.3%
Physicians Mutual Insurance Company	20,786	0.2%
Consumer Health, Inc.	20,703	0.2%
Standard Insurance Company	17,036	0.2%
Chesapeake Life Insurance Company	16,352	0.1%
Golden West Health Plan, Inc.	13,966	0.1%

CALIFORNIA DENTAL PLAN	TOTAL	% OF MARKET
Nippon Life Insurance Company of America	12,618	0.1%
Reliance Standard Life Insurance Company	10,562	0.1%
Unimerica Insurance Company	10,008	0.1%
Renaissance Life & Health Insurance Company	7,572	0.1%
Dedicated Dental Systems, Inc.	5,876	0.1%
Nationwide Life Insurance Company	5,397	0.0%
Golden Rule Insurance Company	5,289	0.0%
Jaimini Health Inc./PrimeCare	5,159	0.0%
Unicare Life & Health Insurance Company	3,257	0.0%
ManhattanLife Assurance Company of America	2,255	0.0%
Pan American Life Insurance Company	1,778	0.0%
BCS Insurance Company	1,373	0.0%
Madison National Life Insurance Company	1,353	0.0%
Mid-West National Life Insurance Company of Tennessee	1,345	0.0%
Connecticut General Life Insurance Company	1,063	0.0%
Standard Life and Accident Insurance Company	1,018	0.0%
Dearborn National Life Insurance Company	1,014	0.0%
First Health Life and Health Insurance Company	896	0.0%
American National Life Insurance Company of Texas	816	0.0%
UnitedHealthcare Life Insurance Company	471	0.0%
TOTAL	**11,230,859**	**100.00%**

Sources: Combined enrollment for plans regulated by the Department of Managed Health Care (DMHC) and the California Department of Insurance (CDI). Author calculations based on CDI data from website http://www.insurance.ca.gov/01-consumers/110-health/60-resources/Dental-MLR.cfm and DMHC data sent to OSHPD.

Review Committee Meetings

This section of the Appendix summarizes the content of the HPD Review Committee meetings, the recommendations voted on by the committee members, and the dates of those votes. OSHPD posted Review Committee meeting materials, including agendas, presentations, and minutes, on the OSHPD website.[143]

MEETING DATE	TOPICS COVERED	RECOMMENDATIONS APPROVED
March 21, 2019	• Oath of Office • Review Committee Member Introductions • What is an All-Payer Claim Database? • History of APCDs • National APCD Landscape • Future Meeting Topics and Timeline	
April 18, 2019	• APCD Data Types • APCD Use Cases	
May 16, 2019	• MPCD Data Collection Lessons Learned • HPD Data Collection Methods	• Sources of Data • Collect Medi-Cal Data • Incorporate Medicare Data • APCD-CDL™ • Three Years of Historical Data
June 20, 2019	• Data Files Supplemental to the APCD-CDL™ • OSHPD Data Linkage Practices • HPD Data Linkage Concepts and Methods	• Non-Claims Based Payments • Ensure broad authority for OSHPD to securely collect available personally identifiable information • The HPD Program should use robust methodologies to match patients, providers, and payers across datasets
July 18, 2019	• Mandatory Data Submitters	• Mandatory Data Submitters • Required Lines of Business • Coordination of Submission • Excluded Lines of Business
August 15, 2019	• Mandatory Data Submitters, cont. • Voluntary Data Submitters • OSHPD Patient Data Quality Management • HPD Data Quality	• Plan Size • Frequency • Population • Voluntary Submitters • Data Quality Processes • Data Quality at Each Part of the Lifecycle
September 19, 2019	• OSHPD Data Privacy and Governance • HPD Data Privacy and Security	• Stakeholder Access to Data Quality • Privacy Principles • Authority to Submit and Collect Personal Information • Limiting Access to Non-Public Data • Information Security Program
October 17, 2019	• Technology Alternatives • November Agenda Topics	• Leverage Resources and Expertise • Modular Approach • Data Collection Vendor
November 21, 2019	• End User Panel • Presentation: Imputing Race/Ethnicity	

MEETING DATE	TOPICS COVERED	RECOMMENDATIONS APPROVED
	• Presentation: Limitations of Claims Data for Distinguishing Physician Performance • Presentation: Health Net Encounter Data Improvement Project • Presentation: Using Health Data to Make Purchasing and Administrative Decisions	
December 19, 2019	• State Agency Governance • HPD Governance	• Entity to Operate the Health Care Payments Data (HPD) Program • Health Care Data Policy Advisory Committee • Committees to Support Effective Governance • Leverage Regulatory Structures for Enforcement • Comprehensive Program for Data Use, Access, and Release
January 16, 2020	• Data Release Committee • State Government Finance • HPD Sustainability	• Data Release Committee • Special Fund for the HPD Program • Pursue CMS Medicaid Matching Funds • Establish User Fee Schedule to Support the HPD Program • Explore Other Revenue Sources
February 20, 2020	• Final Review of Recommendations • Close Out of Review Committee • Adjournment and Closing Statements	• Reviewed all previous recommendations, made minor adjustments, and approved all unanimously through separate votes

Acknowledgements

This report is an OSHPD publication. Many individuals and organizations contributed to the development of this Report, either directly through the development of the text or indirectly through informational interviews or participation in meetings.

The HPD Review Committee

The HPD Review Committee met monthly from March 2019 through February 2020 on topics related to the design and operations of the HPD Program. Meetings included presentations and discussions with OSHPD staff, health care industry and APCD subject matter experts, sponsors of past and current multi-payer database efforts in California, and other stakeholders. Those meetings resulted in recommendations—approved by Review Committee member vote and included in this Report—that serve as the foundation for a successful HPD Program.

Charles Bacchi
President & CEO, California Association of Health Plans
Representing health care service plans, including specialized health care service plans

Anne Eowan
Senior Vice President, Government Affairs/Secretary, Association of California Life and Health Insurance Companies
Representing insurers that have a certificate of authority from the Insurance Commissioner to provide health insurance, as defined in Section 106 of the Insurance Code

Terry Hill, MD
Chair, California Medical Association (CMA) Administrative Medicine Forum
Representing "suppliers" defined as a physician and surgeon or other health care practitioner, or an entity that furnishes health care services other than a provider

Amber Ott
Group Vice President, Data and Analytics, California Hospital Association
Representing "providers" defined as a hospital, a skilled nursing facility, a comprehensive outpatient rehabilitation facility, a home health agency, a hospice, a clinic, or a rehabilitation agency

Emma Hoo
Director, Pay for Value, Pacific Business Group on Health
Representing self-insured employers

Ken Stuart (Review Committee Chair)
Chairman, California Health Care Coalition
Representing multiemployer self-insured plans that are responsible for paying for health care services provided to beneficiaries or the trust administrator for a multiemployer self-insured plan

John Kabateck
California Executive Director, National Federation of Independent Business
Representing businesses purchasing coverage for employees

Joan Allen
Government Relations Advocate, Service Employees International Union – United Healthcare Workers West
Representing organized labor

Anthony Wright
Executive Director, Health Access California
Note: Mary June Diaz, Health Access California, served March through August 2019. Anthony Wright served September 2019 through February 2020
Representing consumers

William (Bill) Barcellona
Senior Vice President, Government Affairs, America's Physician Groups
Representing physician groups

Cheryl Damberg, PhD (Review Committee Vice Chair)
Distinguished Chair in Health Care Payment Policy, RAND Corporation
Representing the research community

Pacific Health Consulting Group

Bobbie Wunsch provided facilitation of the public Review Committee meetings, including ensuring alignment with the requirements of the Bagley-Keene Open Meeting Act.

National Association of Health Data Organizations

The National Association of Health Data Organizations (NAHDO) is a national non-profit membership and educational association dedicated to improving health care data collection and use. NAHDO's members include state and private health data organizations that maintain statewide health care databases and stakeholders of these databases.

NAHDO is a cofounder and member of the All-Payer Claims Database (APCD) Council. The APCD Council is a learning Collaborative of government, private, non-profit and academic organizations focused on improving the development and deployment of state-based APCDs. The APCD Council is convened and coordinated by NAHDO and the Institute for Health Policy and Practice (IHPP) at the University of New Hampshire (UNH) and is supported in part, through a combination of NAHDO membership and the support of its corporate partners.

NAHDO staff participated in Review Committee Meetings and the HPD Technical Workgroup, reviewed and provided feedback on portions of this Report, and provided subject matter expertise about APCD operations in other states.

- Amy Costello
- Denise Love

- Jo Porter
- Emily Sullivan
- Norm Thurston

The HPD Technical Workgroup

OSHPD convened a Technical Workgroup, composed of likely submitters to the HPD System, users of the information to be included in the HPD System, and APCD subject matter experts. This group provided advice on a range of technical subjects, including likely data collection formats.

- April Blazuk, Aetna
- Tim Brown, California Association of Dental Plans
- Amy Costello, APCD Council
- Viraj Desilva, SCAN Health Plan
- Claire DeCastro, CalPERS
- Anne Eowan, ACLHIC
- David Falla, Kaiser Foundation Health Plan
- Tina Fitzgerald, CalPERS
- Katie Heidorn, Health Net
- Bernie Inskeep, UnitedHealth Group
- Eric Lee, SCAN Health Plan
- Denise Love, NAHDO
- Mike McKinney, Covered California
- Matthew Nakao, CalPERS
- Jesse Pannell, Aetna
- Amol Parab, Blue Shield
- Michelle Santiago, Aetna
- Eleanor Shinsky, Cigna
- Randy Smith, Health Plan of San Joaquin
- Felix Su, Blue Shield
- Walter Suarez, Kaiser Permanente
- Emily Sullivan, NAHDO
- Sheryl Turney, Anthem
- Stephen Vo, SCAN Health Plan
- Christina Wu, California Association of Health Plans (CAHP)
- Dolores Yanagihara, IHA

OSHPD

The following staff members served as the lead OSHPD team directing the development of the Report:

- Scott Christman
- Starla Ledbetter
- Theresa Myles
- Michael Valle
- Tara Zimonjic

Several other OSHPD staff contributed to the Report, including:

- David Ferrell
- Beth Herse
- Chris Krawczyk
- Members of the OSHPD Healthcare Analytics Branch
- Ryan Morris
- Stephen Pollitt
- Amandeep Singh
- Steven Sottana
- Robyn Strong
- Anthony Tapney
- James Yi

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- California Academy of Family Physicians

- California Association of Dental Plans
- California Department of Health Care Services
- California Department of Insurance
- California Department of Managed Health Care
- California Department of Public Health
- California Governor's Office of Planning and Research
- California Health Benefits Review Program
- California Health and Human Services Agency
- California Policy Lab
- California Primary Care Association
- California Public Employees' Retirement System
- California Schools VEBA
- CIGNA Behavioral Health
- Covered California
- Government of the District of Columbia, Health Care Reform and Innovation Administration
- Health Care Cost Institute
- Integrated Healthcare Association
- Kaiser Permanente
- Magellan Rx Management
- Manifest Medex
- Maribeth Shannon
- Massachusetts Center for Health Information Analysis
- Millbank Memorial Fund
- Minnesota Department of Health, Health Economics Program
- Pacific Business Group on Health
- Patient-Centered Primary Care Home Program, Oregon Health Authority
- Public Policy Institute of California
- RAND
- San Diego Health Connect
- UC Davis
- UC San Francisco
- United Healthcare
- Utah Department of Health, Office of Health Care Statistics
- Vermont Healthcare Claims Uniform Reporting and Evaluation System
- Virginia Health Information
- Washington State All-Payer Claims Database

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Endnotes

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