# Oregon All Payer All Claims Database (APAC)

# Use Case Document

August 2018

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# Introduction

The Oregon All Payer All Claims Database (APAC) houses administrative health care data for Oregon's insured populations, representing 80% of Oregon's four million residents. The database, which is operated by the Oregon Health Authority (OHA), is an integral component of the state's ongoing health care improvement efforts and provides access to timely and reliable data that are essential to improving health care quality, reducing costs, and promoting transparency.

APAC data offer a range of applications for Oregon state agencies and other users by shedding light on such topics as:
- Health care spending and cost trends;
- Health care delivery system performance;
- Health care utilization;
- Population health;
- Disease prevention; and
- Insurance coverage.

This document presents the various ways in which APAC data are being used by Oregon state agencies and other entities in Oregon and across the United States. Use cases are divided into the following three main groups, based on the type of user and overall purpose of the project:
- The section entitled *Oregon State Agency Uses – Mandated by Statute* describes the ways in which state agencies have used APAC data to meet statutory requirements and other mandates issued by the Oregon State Legislature.
- The section entitled *Oregon State Agency Uses – Not Mandated by Statute* highlights other, non-mandated ways in which state agencies use APAC data to evaluate and inform policies and programs.
- The section entitled *External Data Uses* illustrates the various ways in which external, non-state entities such as researchers, health care providers, and private companies use APAC to answer complex questions and drive new innovations.

# Oregon State Agency Uses – Mandated by Statute

OHA and other Oregon state agencies use APAC data to inform policy development and evaluation as mandated by the Oregon State Legislature. The use cases below describe the ways in which state agencies are using APAC to meet legislative requirements.

## Use Case Category: Health Care Spending and Cost Trends

1. **Primary Care Spending in Oregon**
   **Data Users:** OHA and the Department of Consumer and Business Services (DCBS)
   **Type of APAC Data Used:** Custom Data Set
   **Description:** OHA and DCBS used APAC to create a report on primary care spending in Oregon, as mandated by Senate Bill 231 of the 2015 Legislative Session. Specifically, APAC data were used to identify claims-based medical spending allocated to primary care by

major commercial payers, Medicaid, and health plans contracted by the Public Employees Benefit Board and the Oregon Educators Benefit Board; these data were then combined with other non-claims based spending information. The report provides a statewide snapshot of the percentage of total medical spending allocated to primary care across multiple payers, and summarizes the level of primary care spending among individual plans as both a percentage of total medical spending and on a per-member, per-month (PMPM) basis. The report and its methodology offer an innovative measurement strategy that Oregon policymakers can use to gradually close the gap in primary care spending across all payers.  The 2018 report is available here.

2.  **Annual Reporting on Median Hospital Payments**
    **Data User:** OHA
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** December 2015
    **Description:** In 2016, OHA launched the first in a series of annual Hospital Payment Reports showing variations in payments made to hospitals from commercial payers in Oregon for common procedures including medical, surgical, diagnostic, and pregnancy services. For each procedure, the report provides a hospital-to-hospital comparison of the median paid amount for the most common procedures, and the range of paid amounts. The purpose of the annual report, which the Oregon State Legislature mandated in Senate Bill 900, is to bring increased price transparency to the health care market.

3.  **Commercial Insurer Quality and Cost Reports**
    **Data User:** Oregon Health Care Quality Corporation (Q Corp), on behalf of DCBS
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** July 2014
    **Description:** On behalf of DCBS, Q Corp used APAC data to produce quality and cost reports about commercial insurers offering individual and small group plans in Oregon. This project was funded through the U.S. Department of Health and Human Services' Cycle III and Cycle IV grants to inform and improve health insurance rate review activities. DCBS used these reports to supplement the information that insurers currently submit during the rate review process.

4.  **Commercial Insurer Rate Review of Individual and Small Group Health Plans**
    **Data User:** Oregon Department of Consumer and Business Services (DCBS)
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** May 2015
    **Description:** Building on earlier work completed by Q Corp, DCBS continues to use APAC data in its review of premiums for individual and small group health benefit plans in Oregon. As outlined in ORS 743.018, DCBS is charged with determining whether insurers' proposed premium rates for individual and small group plans are reasonable, not excessive, inadequate, or unfairly discriminatory.  DCBS uses APAC data to analyze insurers' enrollment, medical, and pharmacy expenses as part of this rate review process.  Over time, these reports – and APAC data – may replace some of the information currently submitted

for rate review, thereby decreasing the reporting burden for insurers. Information from these reports may also be released publicly through the DCBS website, thus promoting increased transparency in the market.

5. **Analyzing Oregon's Basic Health Plan (BHP) Program**
   **Data User:** OHA's Health Policy and Analytics Division on behalf of DCBS
   **Type of APAC Data Used:** Custom Data Set
   **Date of Original APAC Application:** July 2016
   **Description:** OHA used APAC data to inform DCBS's analysis of the Basic Health Plan (BHP) program in Oregon, an insurance affordability program established by the Affordable Care Act (ACA). The BHP program offers coverage in lieu of Marketplace coverage for individuals with incomes between 138-200 percent of the federal poverty level (FPL), as well as for individuals with incomes up to 200 FPL who are lawfully present in the U.S. but who do not qualify for Medicaid due to their immigration status. Per Legislative mandate and by request of DCBS, OHA used APAC data to develop an estimated comparison, at an aggregate level, of provider reimbursement levels from Medicaid and commercial payers in Oregon in 2015. Information provided by OHA to DCBS and its contractors Wakely Consulting Group and the Urban Institute was also used to inform the estimated financial impact of a BHP program as required by House Bill 4017 of the 2016 Legislative Session. The study was completed in the fall of 2016 and submitted to the Oregon Legislature in advance of the 2017 Legislative Session.

## Use Case Category: Health Care Delivery System Performance

6. **Evaluating Policy Efforts to Promote and Sustain Oregon's Health Care Workforce**
   **Data User:** The Lewin Group, on behalf of OHA's Health Policy and Analytics Division
   **Type of APAC Data Used:** Custom Data Set
   **Date of Original APAC Application:** February 2016
   **Description:** OHA's Health Policy and Analytics Division engaged the Lewin Group to create a report to assist policymakers in evaluating the effectiveness of ongoing efforts to promote and sustain an adequate health care workforce in Oregon. In particular, the report provided a thorough overview of various incentives offered by the state (as described in House Bill 3396 of the 2015 Legislative Session) to recruit qualified health care providers statewide, including in rural and medically underserved areas, and subsequently evaluated the effectiveness of these incentives. Using APAC data, the study found evidence that Oregon's incentive programs did increase the size and longevity of the provider workforce in rural areas. Based on Lewin's analysis, several incentive programs have a recruiting effect (they attract new providers into the area), others have a retention effect (they keep providers in the area longer), and others have both a recruiting effect and a retention effect. Lewin's report also provided a number of recommendations that have the potential to improve the analysis and evaluation of Oregon's provider incentive programs in the future. More information on this study is available here.

7. **Billing Advisory Group Recommendations for Balance Billing Reimbursement Rates**
   **Data User:** Oregon Department of Consumer and Business Services (DCBS)
   **Type of APAC Data Used:** Summarized Data Set
   **Date of Original APAC Application:** September 2017
   **Description:** DCBS is using APAC data to develop reimbursement rate recommendations—
   that will be presented to the Oregon Legislature by December 31, 2017—for services
   provided to patients by out-of-network providers at an in-network health care facilities.
   House Bill 2339 of the 2017 Legislative Session prohibited the practice of out-of-network
   providers from balance billing patients who were covered by a health benefit plan for
   services provided at an in-network facility. This bill required that DCBS convene an advisory
   group, the Billing Advisory Group, to develop these reimbursement rate recommendations.

# Oregon State Agency Uses – Not Mandated by Statute

In addition to meeting legislative requirements, Oregon state agencies are also using APAC to
measure existing policies and programs and to inform future initiatives. The sections below
describe these uses.

## Use Case Category: Health Care Spending and Cost Trends

8. **Leading Indicators Reports**
   **Data User:** OHA
   **Type of APAC Data Used:** Custom Data Set
   **Description:** In addition to supporting state policy and programmatic efforts, OHA uses
   APAC data to publish reports that inform the public's understanding of important health
   care issues. OHA has released a Leading Indicators Report showing the state's progress in
   health care transformation, based on indicators for enrollment, utilization, and spending.
   This report provides yearly trends, broken out by type of insurance (Commercial, Medicare
   Advantage, Medicaid, Public Employees Benefit Board, and Oregon Educators Benefit
   Board).

9. **All-Payer Prescription Drug Costs and Trends**
   **Data User:** High Cost Prescription Drug Workgroup
   **Type of APAC Data Used:** Summarized Data
   **Date of Original APAC Application:** October 2015
   **Description:** In late 2015, the High Cost Prescription Drug Workgroup (chaired by
   Representative Robert Nosse) requested APAC data to provide insight on prescription drug
   cost and trend information across all payers. The request was targeted at helping to identify
   recent utilization and cost trends for both brand and generic drugs, as well as specific drugs
   with the highest cost impact on payers, and the corresponding medical condition
   "categorization" of these highest cost impact drugs. Data provided through APAC have
   assisted the Workgroup in determining a potential definition of "high cost" prescription

drugs, which has informed several legislative concepts that the Workgroup intends to introduce during the 2017 Legislative Session.

10. **Analyzing Health Spending in Oregon**
**Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA
**Type of APAC Data Used:** Custom Data Set
**Date of Original APAC Application:** January 2015
**Description:** On behalf of OHA's Office of Health Analytics, CHSE used APAC data to analyze Oregon's health expenditures over time and across service areas, to inform work associated with OHA's Sustainable Health Expenditure Workgroup (SHEW). This work examined the extent to which changes in spending could be attributed to changes in price versus changes in utilization. This project also conducted analyses of potentially overused procedures or low value care.

## Use Case Category: Health Care Delivery System Performance

11. **Evaluating the Influence of Coordinated Care Organizations for Dual-Eligible Members**
**Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA
**Type of APAC Data Used:** Custom Data Set
**Date of Original APAC Application:** August 2015
**Description:** OHA engaged CHSE to use APAC data to examine the influence of Coordinated Care Organizations (CCOs) on the cost and quality of care for dual-eligible Oregonians – that is, those who are eligible for both Medicare and Medicaid. This work includes an assessment of how access, utilization, and the quality of care for dual-eligibles in CCOs compare to those enrolled in fee-for-service plans.

12. **Patient Centered Primary Care Home (PCPCH) Program Evaluation**
**Data User:** Portland State University (PSU), on behalf of OHA
**Type of APAC Data Used:** Custom Data Set
**Date of Original APAC Application:** April 2015
**Description:** Under contract with OHA, researchers at PSU used APAC data in their evaluation of the Patient Centered Primary Care Home (PCPCH) program. In particular, PSU used the data to assess the impact of the PCPCH program as a whole in terms of expenditure and utilization outcome measures, and to examine outcomes for PCPCH practices that are deemed exemplary based on one or more of the six PCPCH core attributes. Initial evaluations demonstrated progress towards Oregon's goals of achieving the Triple Aim (improved health, reduced cost, and improved patient experience) among early adopters of this program. PSU also used APAC to help provide longer term evidence of PCPCH program success and to explore the considerable variation in implementation at the practice level to better understand how program success is being achieved and how it might be improved. The report on OHA and PSU's program findings is available here.

13. **Evaluating the Spread and Impact of the Coordinated Care Model (CCM)**
    **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** January 2015
    **Description:** Under contract with OHA, CHSE is used APAC data to evaluate the adoption and spread of the state's Coordinated Care Model (CCM) and its impact on spending, utilization, and quality in different market segments. This work was part of OHA's self-evaluation efforts under the State Innovation Model (SIM) grant – a $45 million grant awarded to OHA in 2013 by the Center for Medicare & Medicaid Innovation within the Centers for Medicare and Medicaid Services (CMS). CHSE also examined whether changes in spending and utilization observed in the Medicaid context are spreading to the non-Medicare commercial and Medicare fee-for-service populations.

14. **Summative Evaluation of Oregon's Medicaid Section 1115 Waiver**
    **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** January 2017
    **Description:** OHA's Office of Health Analytics has contracted with CHSE to carry out an independent evaluation of Oregon's Medicaid Section 1115 Waiver.  The federal Centers for Medicare and Medicaid Services (CMS) approved Oregon's Medicaid Waiver in July 2012 that enabled Oregon to launch its Coordinated Care Organizations (CCOs).  Unlike the Medicaid Managed Care Organizations (MCOs) that preceded them, CCOs are charged with integrating physical health, behavioral health, and dental care, and are accountable for the health of the population they serve.  As part of the Waiver, Oregon is required to contract with an independent evaluator to assess trends and determine whether OHA's and CCOs' actions to transform Medicaid were associated with changes in five outcome areas: 1) health care spending; 2) health care quality; 3) access to care; 4) member experience of care; and 5) health status.

## Use Case Category: Health Care Utilization

15. **Monitoring Outpatient Antibiotic Prescribing**
    **Data User:** OHA Public Health Division
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** August 2016
    **Description:** The Oregon Alliance Working for Antibiotic Resistance Education (AWARE), a program based in the Acute and Communicable Disease Prevention (ACDP) Section of OHA's Public Health Division, will use APAC data to gain a better understanding of the magnitude and determinants of antibiotics use in Oregon and to inform policy discussions and educational programs to decrease unnecessary use. AWARE's mission is to reduce antibiotic resistance by discouraging inappropriate use of antibiotics for respiratory infections. Since 2001, AWARE has sought to educate both providers and the general public about the dangers of antibiotic misuse, and work with insurers, health plans, academia, providers and

health professional students to achieve this goal. In particular, AWARE intends to use APAC data to estimate the proportion of outpatient cases of infections such as acute otitis media (AOM), sinusitis, pharyngitis, bronchitis and upper respiratory infection (URI) that receive antibiotic prescriptions in Oregon; as well as the rates of diagnosis and treatment of those conditions; and medications to treat those infections.

16. **Impact Analysis of Changes to Benefit Coverage for Bariatric Surgery**
    **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** January 2015
    **Description:** Under contract with OHA's Health Evidence Review Commission (HERC), CHSE used APAC data to analyze impacts on utilization and cost that have resulted from changes in benefit coverage for bariatric surgery. The Oregon Health Plan (OHP) first began covering bariatric surgery for individuals with type 2 diabetes in 2008. CHSE analyzed data over a recent three-year period to show similar bariatric surgery utilization rates for OHP adults compared to those for adults in commercial plans, which generally have less restrictive coverage criteria. Pharmaceutical claims in APAC were then used to show reductions in antidiabetic medications and found that about 50% of OHP patients eliminated this type of filled prescriptions after surgery, suggesting possible remission of the disease. This work is being reported to HERC as it considers broadening OHP coverage for bariatric surgery to certain non-diabetic obese patients and develops evidence-based coverage guidance on the topic for other payers and purchasers. More information is available [here](#).

17. **Health Care Utilization by People Living with HIV**
    **Data User:** OHA Public Health Division
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** August 2016
    **Description:** The Oregon Health Authority, Public Health Division, HIV/STD/TB Program is using APAC data to assess the utilization of medical services by persons living with HIV in Oregon, to assess the number of persons prescribed HIV pre-exposure prophylaxis, assess the number or persons prescribed HIV anti-retroviral medications and to measure the number of HIV-related co-infections diagnosed and treated. The analyses will be used to measure success in meeting goals set in the Statewide Integrated HIV Prevention and Care Plan and the Oregon State Health Improvement Plan.

## Use Case Category: Population Health

18. **Public Health Surveillance of Chronic Diseases**
    **Data User:** OHA Public Health Division
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** May 2015
    **Description:** APAC data continue to be used by the Health Promotion and Chronic Disease Prevention Section (HPCDP) of OHA's Public Health Division to conduct public health

surveillance to describe the burden of asthma, arthritis, cancer, heart disease, diabetes, and stroke; as well as other cancer-related, diabetes-related, mental health-related, tobacco-related, and obesity-related diseases. For each of these chronic diseases, HPCDP uses APAC to calculate disease measures and risk factors. In 2015, HPCDP presented findings from their asthma surveillance at a conference hosted by the US Centers for Disease Control and Prevention (CDC).

19. **Factors Affecting School Performance in Oregon**
    **Data User:** The Department of Human Services (DHS), Oregon Enterprise Data Analytics
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** July 2016
    **Description:** Oregon Enterprise Data Analytics, under the umbrella of DHS's Shared Services, uses APAC data to create a comparison group to examine factors affecting school performance in Oregon. In particular, the study aims to understand the ways in which high mobility rates and low family resources impact student performance, as well as whether student outcomes correlate to Medicaid and private insurance coverage. This study will support the development of a report for Oregon's Department of Education.

20. **Risk Analysis of Aging and People with Disabilities**
    **Data User:** The Department of Human Services (DHS), Oregon Enterprise Data Analytics
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** December 2016
    **Description:** Oregon Enterprise Data Analytics uses APAC data to understand the demographic of past and current populations of Aging and People with Disabilities (APD) to forecast the future APD populations. By investigating demographics such as age, health status, and financial stability, this study aims to better understand the degree of risk associated with future APD populations.

21. **Analysis of Health and Well-Being of DHS Clients**
    **Data User:** The Department of Human Services (DHS), Oregon Enterprise Data Analytics
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** March 2017
    **Description:** Oregon Enterprise Data Analytics is currently using APAC data to better understand the health and well-being of Department of Human Services (DHS) client—Oregonians who have received services through DHS programs like the Supplementary Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Child Welfare, and/or Aging and People with Disabilities (APD). This project will examine the relationship between APAC data and data from various DHS programs, like those mentioned above, and whether there is a systematic pattern to how DHS clients use healthcare and for what purpose. The results of this project will lead to a better understanding of the complex relationship between various programs that are targeted to improve the health and well-being of current and future DHS clients.

## Use Case Category: Disease Prevention

**22. Evaluating Programs and Procedures Associated with Breast, Ovarian, and Colorectal Cancers**
**Data User:** OHA Public Health Division
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** February 2015
**Description:** The Center for Public Health Practice (CPHP), under the umbrella of OHA's Public Health Division, uses APAC data to evaluate procedures associated with breast, ovarian and colorectal cancers – specifically breast and ovarian genetic testing, mastectomy, oophorectomy, and colonoscopy procedures. APAC data were used to examine changes in these procedures and services over time and assess differences in these procedures by demographics. In addition, CPHP used findings from their research to evaluate the effectiveness of program activities and to plan future intervention strategies.

**23. Public Health Surveillance of Bacterial Sexually Transmitted Diseases**
**Data User:** OHA Public Health Division
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** February 2015
**Description:** The Oregon Sexually Transmitted Disease Control Program in the Public Health Division's Center for Public Health Practice will conduct population-based surveillance for bacterial sexually transmitted diseases including chlamydia and gonorrhea. Pelvic Inflammatory Disease (PID) is a lower genital tract infection caused by Neisseria gonorrhoeae or Chlamydia trachomatis. Prevention of PID is the principal rationale for population-based screening and treatment for chlamydial infection and for investigation and treatment of reported cases of gonorrhea and efforts to treat sexual partners. The Oregon Sexually Transmitted Disease Control Program will use APAC to determine the proportion of insured Oregon women who have had one or more episodes of PID by calendar year.

## Use Case Category: Insurance Coverage

**24. Adding Increased Efficiency to Oregon's Medicaid Claims Payment System**
**Data User:** DHS's Office of Payment Accuracy and Recovery (OPAR)
**Type of APAC Data Used:** Custom Data Set
**Date of Original APAC Application:** February 2015
**Description:** OPAR uses APAC to identify Oregon Health Plan members with unreported third party insurance and update the Oregon claims payment system (MMIS) accordingly to ensure that Medicaid claims are appropriately paid and denied. APAC provides OPAR with a timely and streamlined method of contacting other insurance companies or pharmacy benefit managers to obtain policy information and update MMIS.

**25. Assessing Current and Historical Insurance Rates in Oregon**
**Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE), on behalf of OHA

**Type of APAC Data Used:** Custom Data Set

**Date of Original APAC Application:** July 2016

**Description:** Under contract with OHA, CHSE is using APAC data to develop a report that will depict the current and historical insurance rates seen in Oregon. This report will include insurance coverage estimates at the state and county level, broken out by insurance type, for individuals in Oregon. A fundamental reason these estimates are possible is that APAC allows tabulations of the number of individuals with coverage at more than one payer. In addition to showing changes in group insurance in the state, the results may provide independent evidence of the low rate of uninsurance found by state surveys since implementation of the ACA.

## External Data Uses

Through its data release process, OHA also shares APAC data with qualified external, or non-state, data users. The following OHA-approved research studies highlight the ways in which external entities in Oregon and across the country are using APAC data to inform their work and help solve complex problems.

### Use Case Category: Health Care Spending and Cost Trends

**26. Identifying High-Level Spending and Payment Patterns**
   **Data User:** Verus Financial, LLC
   **Type of APAC Data Used:** Public Use Data Set
   **Date of Original APAC Application:** May 2016
   **Description:** Verus Financial, a technology and auditing company, is using de-identified APAC data to identify payment patterns, evaluate out-of-network spending, and analyze payments made directly to patients/enrollees.

**27. Understanding the Distribution and Relative Cost of Care for Surgical Procedures**
   **Data User:** Surgical Care Affiliates, Inc.
   **Type of APAC Data Used:** Public Use Data Set
   **Date of Original APAC Application:** June 2016
   **Description:** Surgical Care Affiliates, an outpatient ambulatory surgical care company, uses de-identified APAC data to understand the distribution of care and relative cost of care for surgical procedures performed across hospitals and ambulatory surgical centers.

**28. Understanding Health Care Expenditures in Oregon**
   **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE)
   **Type of APAC Data Used:** Limited Data Set
   **Date of Original APAC Application:** July 2016
   **Description:** CHSE will use APAC data to shed light on the causes of increased health care spending by constructing per member, per month (PMPM) costs for commercially insured, Medicare, and Medicaid populations in Oregon. From these estimates, researchers at CHSE will construct a preliminary estimate of statewide per capita expenditures. After

establishing trends in health care spending, this study will seek to examine why health care spending continues to rise.

29. **Understanding Typical Health Care Spend of a Self-Insured Employer**
    **Data User:** Harvard Business School
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** March 2017
    **Description:** Graduate students at Harvard Business School will use APAC data to identify variation in spend across different populations to better understand the typical health care spend of a self-insured, midsize employer.  The ultimate goal is to identify potential savings opportunities while maintaining or improving quality outcomes.  This analysis will replicate population characteristics of various types of workforces of a midsize employer (e.g., various mixes of age and gender) and will endeavor to understand the differences in spend, the key drivers of that spend, and outcome indicators—like hospitalization rate, length of stay, etc.

30. **Consumers' Responses to High Deductible Health Plans**
    **Data User:** Columbia University
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** May 2017
    **Description:** Columbia University is using APAC data to study the effect of high cost-sharing measures on enrollees choice of health care consumption. Columbia University is using econometric techniques to capture consumer behavior including selection of high-deductible plans when offered as part of a choice set and how these decisions differ by employee characteristics such as prior health care utilization.

## Use Case Category: Health Care Delivery System Performance

31. **Integrating Behavioral and Physical Health Care to Improve Quality**
    **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE)
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** February 2016
    **Description:** CHSE is using APAC data to measure changes in the quality of care due to the integration of behavioral and physical health care. This study aims to develop new metrics to track care integration through claims data and to identify what is working and why. The work includes collaborating with a Patient Advisory Panel to identify outcomes associated with behavioral health that reflect patient priorities and creating an Integration Learning Collaborative to facilitate shared learning. The project is funded by a $2.1 million federal grant, which was secured in part because of the team's ability to use APAC data to inform the study. More information on this project is available here and here.

32. **Assessing Services Performed in and out of Ambulatory Surgery Centers**
    **Data User:** 6 Degrees Health, Inc.

**Type of APAC Data Used:** Public Use Data Set
**Date of Original APAC Application:** September 2016
**Description:** 6 Degrees Health, a health care analytics company based in Beaverton, Oregon, is using APAC data to compare services performed in and out of ambulatory surgery centers (ASCs), and subsequently identify services that could be performed more safely and efficiently in ASC settings. The company will use its findings to inform patients, doctors, payers and other interested parties in order to allow for informed decisions when choosing place of service.

33. **Informing Primary Care Methods in the TOPMED Trial**
    **Data User:** Oregon Health & Science University's Department of Medical Informatics & Clinical Epidemiology
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** November 2014
    **Description:** The Department of Medical Informatics & Clinical Epidemiology at the Oregon Health & Science University (OHSU) uses APAC data to test methods for practice facilitation, health information technology, and financial incentives related to the Oregon Patient-Centered Primary Care Home (PCPCH) program in its primary care-based cluster randomized controlled trial (cRCT). The purpose of this study, called "Transforming Outcomes for Patients through Medical home Evaluation & reDesign" (TOPMED), is to improve the quality of clinical care for adults with chronic illness, while reducing hospitalizations and other unplanned utilization and providing a high level of patient satisfaction. The research team undertook the trial at eight clinics in diverse health care settings, including: 1) small clinics in rural areas, 2) medium-sized clinics in rural areas, 3) clinics associated with moderate-sized health systems, and 4) an academic medical center. APAC data were used to calculate global measures such as current emergency department visits and hospitalization rates for patients who were seen at least twice during the study.

34. **Evaluating the CCM and PCPCH Models**
    **Data User:** The Urban Institute
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** January 2016
    **Description:** The Urban Institute, with funding from the Centers for Medicare & Medicaid Services, will use APAC data to study the spread of Oregon's Coordinated Care Model (CCM) to Public Employees' Benefit Board (PEBB) plans, as well as evaluate the anticipated outcomes of the Patient Centered Primary Care Home (PCPCH) model. In addition, the Urban Institute will study whether the CCM and PCPCH models have resulted in improved quality of care, reduced cost per member, better coordination of care across providers, and improved health outcomes. Finally, the study team's descriptive tracking analyses will test whether statewide outcomes after implementation of the federally-funded State Innovation Model (SIM) deviated from baseline trends and how deviations compared to similar metrics in five other SIM states.

**35. Evaluating the Economic Impact of the CCO Model**
   **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness
   (CHSE)
   **Type of APAC Data Used:** Custom Data Set
   **Date of Original APAC Application:** May 2013
   **Description:** CHSE, in partnership with Portland State University and the University of
   Colorado Denver, used APAC data to evaluate the economic impacts of Oregon's Medicaid
   transformation into the Coordinated Care Organization (CCO) model. This study used data
   from before and after the policy was implemented to examine the effects of CCOs on
   spending, utilization patterns, and quality of care. The resulting report found that
   transformation into CCOs was associated with a 7 percent relative reduction in
   expenditures, attributable primarily to reductions in inpatient utilization. The change to
   CCOs also demonstrated reductions in avoidable emergency department visits and
   improvements in some measures of appropriateness of care, but also exhibited reductions
   in primary care visits, a potential area of concern."

**36. Assessing Low-Value Care in Medicaid and Commercially Insured Populations**
   **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness
   (CHSE)
   **Type of APAC Data Used:** Custom Data Set
   **Description:** CHSE used APAC data to compare claims-based measures of low-value care in
   Medicaid and commercially insured populations, to test whether provision of low-value care
   is associated with insurance type and/or local practice patterns. Because relatively little is
   known about the relationship between these factors and the delivery of low-value care,
   CHSE examined how reducing unnecessary tests and treatments can be used as an
   approach for improving value in health care. CHSE found that Oregon Medicaid and
   commercially insured patients received moderate amounts of low-value care in 2013, and
   found no consistent association between insurance type and low-value care. However,
   associations were found between Medicaid and commercial rates of low-value care within
   primary care service areas (PCSAs). The study concluded that low-value care may be more
   closely related to local practice patterns than to reimbursement generosity or insurance
   benefit structures. More information on this study and its findings is available here.

**37. Improving Care Coordination and Management**
   **Data User:** Kaiser Permanente
   **Type of APAC Data Used:** Custom Data Set
   **Date of Original APAC Application:** January 2016
   **Description:** Kaiser Permanente, a not-for-profit health plan and health care provider, will
   use APAC data to improve its member services by performing disease burden assessments
   and subsequently pairing new members with the proper care and case management
   programs. These efforts will work to improve Kaiser Permanente's ongoing coordination
   and management of health care and related services.

38. **Comparing Real-World Pharmaceutical Usage with Clinical Trials**
    **Data User:** Wellisch Software Technologies, Inc.
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** October 2016
    **Description:** Wellisch Software Technologies, Inc., a health care data analytics firm, is using APAC data to build a methodology that aims to compare the effectiveness of a drug in use versus effectiveness claims stated in clinical trials. The ultimate goal is to help insurance companies better price drugs for a given population.

39. **Assessing the Potential for a State Medicaid Reform Model to Reduce Disparities**
    **Data User:** Oregon Health & Science University's Center for Health Systems Effectiveness (CHSE)
    **Type of APAC Data Used:** Custom Data Set
    **Date of Original APAC Application:** October 2016
    **Description:** The State of Oregon has explicitly identified "Health Equity and Eliminating Health Disparities" as one of the key targets of its Medicaid reform. The goal of this study is to assess the extent to which Oregon's Medicaid reform model can reduce racial and ethnic disparities. In particular, CHSE is assessing the impact of reform across multiple dimensions of care, including access, resource use, and quality. In addition, CHSE is assessing the impact of Oregon's Coordinated Care Organizations' (CCO) effort in reducing racial and ethnic disparities and factors associated with performance differences, as well as the role of Community Health Workers among CCOs. Using APAC data, CHSE will couple an in-depth analysis of changes in disparities with a broader, comprehensive assessment of Medicaid's performance as it compares to private insurance and as it applies to rural populations.

40. **Health Risks and Their Effects on Emergency Department and Inpatient Utilization**
    **Data User:** Portland State University (PSU), Division of Public Administration
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** August 2016
    **Description:** A PSU doctoral student is performing a relative effectiveness evaluation of the application of the Patient Centered Primary Care (PCPCH) model. The focus of this research is to evaluate the health risk levels in PCPCH patient panels to determine whether patients who are considered "high risk"—in other words, those with multiple chronic conditions, high utilization, and high health care costs—are enrolled in recognized PCPCHs, receiving primary care services, and improving utilization of emergency department and inpatient care.

41. **Children with Special Health Needs in Primary Care**
    **Data User:** Portland State University
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** May 2017
    **Description:** Portland State University will assess differences in cost and utilization outcomes for children with special health care needs in patient centered primary care homes compared to other primary care settings. The assessment will include differences in

generalizable characteristics including age, insurance coverage duration and type, urban or rural place of residence, and treatment settings.

42. **Review of Payor Claims to Improve Business Operations**
    **Data User:** OCHIN, Inc.
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** November 2017
    **Description:** OCHIN will use APAC data to identify trends in use and possible improvements in service delivery for use by their members. OCHIN members are largely safety net clinics and federally-qualified health centers.

43. **Generating Better Predictive Representations of Health State**
    **Data User:** ClosedLoop.ai
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** January 2018
    **Description:** ClosedLoop.ai is using APAC data to determine if artificial intelligence based approaches can be used to assess the relationships between diagnoses, procedures and pharmaceuticals to improve health risk stratification. Improved prediction of needs will improve the efficiency of care management systems.

44. **Efficient Hospital Care: Oregon**
    **Data User:** Axene Health Partners, LLC
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** August 2018
    **Description:** Axene Health Partners, LLC is using APAC data assess the potential for improved efficiency in hospitals related to length of stay by MS-DRG code for different populations (age group, payer type and whether rural or urban area).

## Use Case Category: Health Care Utilization

45. **Analyzing Health Care Utilization in Central Oregon**
    **Data User:** Central Oregon Regional Health Assessment (RHA)
    **Type of APAC Data Used:** Summarized Data
    **Date of Original APAC Application:** June 2015
    **Description:** The Central Oregon Regional Health Assessment (RHA) is responsible for reporting on the health and well-being of residents of Crook, Deschutes, and Jefferson Counties. RHA used APAC data to analyze health care utilization in Central Oregon and inform public health activities that support the partnership between health care and public health. Additionally, APAC data were examined during the development of the Regional Health Improvement Plan.

46. **Health Care Cost and Utilization Analyses**
    **Data User:** Chicago Technology for Value-Based Healthcare
    **Type of APAC Data Used:** Public Use Data Set

**Date of Original APAC Application:** July 2016
**Description:** Chicago Technology for Value-Based Healthcare, a group of computer software professionals focused on health care data, use de-identified APAC data to perform data analytics using IBM Watson and Amazon Machine Learning tools. This group is focusing its analyses on counts, such as length of stay, drugs prescribed, costs of drugs and procedures, as well as analyses of insurance network groups.

47. **Understanding the Frequency of Service Utilization to Treat Chronic Conditions**
    **Data User:** Take Command Health
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** August 2016
    **Description:** Take Command Health, a Texas-based startup dedicated to helping individuals choose and save on their health insurance, will use de-identified APAC data to research the frequency of medical claims and procedures for common chronic conditions by age range and gender. The goal of this study is to help individuals managing chronic conditions to make smarter insurance choices and reduce costs.

48. **Examining Factors that Affect Prescription Drug Adherence Rates**
    **Data User:** University of Chicago's Booth School of Business, Economics Department
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** September 2015
    **Description:** The Economics Department at the University of Chicago Booth School of Business is using APAC data to examine factors that cause changes in prescription drug adherence rates. Researchers are investigating the possibility of travel costs, drug patent expiration, and co-pay scheduling changes as factors behind non-adherence. Specifically, this study examines the role that access to pharmacy services plays in adherence rates.

49. **Access and Quality of Contraceptive Care in Oregon**
    **Data User:** Oregon Health & Science University's Department of Obstetrics & Gynecology
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** March 2016
    **Description:** OHSU's Department of Obstetrics & Gynecology is using APAC to evaluate several policy and programmatic changes that impact access to and quality of contraceptive care delivered to Oregonians. In particular, this study aims to determine the impact of Coordinated Care Organization (CCO) incentives on contraceptive services and contraceptive continuation rates. Researchers at OHSU will also examine the quality of publicly funded contraceptive services by analyzing whether women at risk of unintended pregnancy are receiving the most effective forms of contraception.

50. **Vasectomies Performed by Nurses**
    **Data User:** Oregon Center for Nursing
    **Type of APAC Data Used:** Summarized Data
    **Date of Original APAC Application:** December 2016

**Description:** The Oregon Center for Nursing, a non-profit organization that facilitates research and collaboration for Oregon's nursing workforce, requested APAC data that summarized the number of vasectomies performed by nurses.

51. **Frequency Analysis for Outpatient Care**
    **Data User:** Algorex Health Technologies
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** April 2017
    **Description:** Algorex Health Technologies, a Boston-based health care analytics company, is using APAC data to perform outpatient service frequency analysis to compare the relative frequency of certain procedures in various Oregonian populations. Observations from populations in Oregon will then be compared to the frequency observed in populations from other states.

52. **Trends in Emergency Department Utilization for Dental Conditions in Oregon**
    **Data User:** DentaQuest Institute
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** May 2018
    **Description:** DentaQuest Institute is using APAC Emergency Department data to analyze Emergency Department utilization and subsequent admission for dental conditions from 2013 through 2015. DentaQuest will assess the frequency and type of care received, as well as distance from residence to Emergency Department by county.

53. **Expansion of GI Services**
    **Data User:** Aldrich CPAs + Advisors
    **Type of APAC Data Used:** Summarized Data
    **Date of Original APAC Application:** February 2018
    **Description:** Aldrich CPAs + Advisors received summarized data to assess the need for expansion of services and to identify underserved areas.

54. **Health Care Utilization Trends Amongst Transgender Individuals**
    **Data User:** Vanderbilt University
    **Type of APAC Data Used:** Public Use Data Set
    **Date of Original APAC Application:** January 2018
    **Description:** Vanderbilt University is using APAC data to evaluate the utilization of medical and surgical services among transgender patients. Oregon APAC data will be compared to data from Vanderbilt and several other locations across the U.S.

55. **Patient Outcome and Adherence Analysis**
    **Data User:** Clavis Health Partner LLC
    **Type of APAC Date Used:** Public Use Data Set
    **Date of Original APAC Application:** May 2018
    **Description:** Clavis is using APAC data to build analytics on patient outcome, adherence to drugs, performance and quality of care. The goal is to understand the full treatment plan

and identify gaps or complexities in the treatment plan to achieve better outcomes for patients.

## Use Case Category: Population Health

**56. Analyzing the Impact of the "Hard-Stop Policy"**
**Data User:** Oregon Health & Science University's Department of Obstetrics & Gynecology
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** June 2014
**Description:** OHSU's Department of Obstetrics & Gynecology is using APAC data to assess Oregon's statewide policy to restrict elective deliveries prior to 39 weeks completed gestation – known as the "hard-stop policy." Implemented in 2011, the hard-stop policy was intended to limit early term elective deliveries to improve the quality of care and health outcomes for Oregon's maternal and infant population. OHSU aims to answer key policy questions about the impact of the hard-stop policy, such as whether the policy achieved its primary goal of reducing early elective deliveries, if the policy reduced the costs of delivery and neonatal care, and if the policy translated to improvements in the health of mothers and babies.

**57. Multi-State Analysis of Skin Cancer Costs, Occurrence, and Treatment**
**Data User:** Brigham and Women's Hospital, Dermatology Department
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** September 2015
**Description:** The Dermatology Department at Brigham and Women's Hospital in Massachusetts is using APAC data to estimate the occurrence, treatment, and cost of care for skin cancer. This research includes a state-by-state analysis, utilizing data from APCDs across the country as well as from CMS. The results will generate comprehensive data regarding the economic impact of skin cancer and will provide patients, physicians, health care administrators and policymakers with information they need to optimize skin cancer prevention and control efforts.

**58. Researching the Health Effects of Wildfire Smoke on Oregonians**
**Data User:** Colorado State University
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** January 2016
**Description:** Researchers at Colorado State University are using APAC data to further understand how wildfire smoke affects Oregonians, as well as which demographics might be at greatest risk for an adverse event during a wildfire event. The study aims to determine if increasing particulate matter attributed to wildfire smoke is associated with an increase in respiratory claims such as asthma, prescription fills for inhalers, or cardiovascular claims such as myocardial infarction.

**59. Informing the Development of Decision-Support Tools for Treating Health Conditions**
**Data User:** Bright.md, Inc.

**Type of APAC Data Used:** Public Use Data Set
**Date of Original APAC Application:** July 2016
**Description:** Bright.md, Inc., a Portland-based start-up which develops software solutions for the diagnosis and treatment of common health concerns, is using de-identified APAC data to understand the frequency, seasonality, cost and demographic mix of patients with ambulatory primary care conditions in Oregon. With this insight, Bright.md, Inc. aims to develop future content for its software that provides decision support for health conditions.

60. **Estimating the Incidence of Clostridium Difficile Infection**
    **Data User:** The Oregon State University (OSU)/Oregon Health & Science University College of Pharmacy
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** April 2014
    **Description:** The OSU/OHSU College of Pharmacy is conducting a study to estimate the incidence of new and recurrent Clostridium difficile infection (CDI) in Oregon and to identify characteristics associated with these outcomes. CDI is a significant cause of infectious diarrhea and is associated with increased morbidity, mortality, and health care costs among infected patients. This study also aims to examine whether care setting (i.e. inpatient versus outpatient) impacts the diagnosis of new or recurrent CDI. The researchers hypothesize that previous studies have underestimated the true incidence of recurrent CDI due to reliance on patients presenting at the index (usually inpatient) care setting, and have not identified patients who presented at other (likely outpatient) care settings. APAC data will allow the research team to examine CDI incidence across care settings.

61. **Research to Inform the Identification and Treatment of Adult Congenital Heart Disease Patients**
    **Data User:** Oregon Health & Science University's Knight Cardiovascular Institute
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** October 2014
    **Description:** The Adult Congenital Heart Disease (ACHD) Program of OHSU's Knight Cardiovascular Institute uses APAC data to explore the accuracy of billing codes to identify and accurately characterize ACHD patients. OHSU researchers are also using APAC to explore the demographics and health care utilization of patients identified with ACHD, as well as examining differences in care provided by ACHD centers to care provided by non-ACHD providers. More information on the ACHD Program is available [here](#).

62. **Evaluating Health Care Claims for Neurocysticercosis**
    **Data User:** Oregon Health & Science University's Department of Public Health and Preventative Medicine
    **Type of APAC Data Used:** Limited Data Set
    **Date of Original APAC Application:** December 2013
    **Description:** OHSU's Department of Public Health and Preventative Medicine conducted a study to assess the economic burden of Neurocysticercosis (NCC) in Oregon. NCC is a leading cause of acquired epilepsy in the developing world and is of increasing concern to

public health officials—especially in the Hispanic immigrant population and in travelers from cysticercosis-endemic regions. The complicated and chronic nature of management of the disease results in significant cost, creating a considerable economic burden associated with NCC in Oregon. The report of the study team's findings is available here.

**63. Assessing the Economic Impact of High School Athletic Trainers**
**Data User:** Oregon State University, College of Public Health and Human Sciences
**Type of APAC Data Used:** Limited Data Set
**Date of Original APAC Application:** July 2016
**Description:** Researchers at OSU are using APAC to study the economic impact of Athletic Trainers in high schools. In particular, the research team is examining whether employment of Athletic Trainers in high schools generate favorable cost-benefit analyses and, ultimately, a return on investment.

## Use Case Category: Insurance Coverage

**64. Comparison of APAC Database Rates to Current Contract Rates**
**Data User:** Northwest Acute Care Specialists
**Type of APAC Data Used:** Public Use Data Set
**Date of Original APAC Application:** July 2017
**Description:** In preparation for the implementation of House Bill 2339, Northwest Acute Care Specialists is using APAC data to compare their current contract rates to those in APAC's Public Use data set.  House Bill 2339 was passed in the 2017 Legislative Session and prohibits out-of-network providers from balance billing patients in which they provided care at a facility that was in-network for the patient.

**65. Transition in Health Coverage; Impact on Utilization and Cost**
**Data User:** RAND Corporation
**Type of APAC Data Used:** Custom Data Set
**Date of Original APAC Application:** September 2017
**Description:** RAND Corporation is using APAC data to study patterns of health insurance transitions and to understand the relationship between transition health care utilization for nonelderly adults and families. RAND will determine if transitions in insurance influence cost, quality or patient outcomes through changes in providers and utilization patterns.

**66. Third-party Reimbursement Disparities in Oregon Primary Care**
**Data User:** Oregon Association of Naturopathic Physicians (OANP)
**Type of APAC Data Used:** Summarized Data
**Date of Original APAC Application:** March 2018
**Description:** OANP is using APAC data to determine potential reimbursement disparities among health care practitioners licensed as Medical Doctors, Nurse Practitioners, Physician Assistant, and Naturopathic Physicians for common procedures.

In addition to the use cases described above, other organizations that have received de-identified Public Use data sets from APAC include the following:

- **Leavitt Partners**, a health care consulting firm, uses APAC data to review trends and validate findings for health services and health policy research applications, as well as for private sector and commercial applications. (May 2015)
- **The University of Pennsylvania** is using APAC for health services and health policy research applications. (April 2015)
- **Advanced Medical Strategies** uses APAC data for private sector and commercial applications. (July 2015)
- **The University of North Carolina – Charlotte** is using APAC for health services and health policy research applications. (April 2015)
- **Twine, Inc., Apprise Health Insights, and Axene Health Partners, LLC** have also used APAC data for various applications.

For more information about APAC, please refer to the APAC Overview.

For more information about the types of APAC data sets available, as well as the process for requesting the data, please visit the APAC Data Request page of the APAC website.

For additional questions related to the APAC, please contact OHA at APAC.Admin@dhsoha.state.or.us.

## Appendix: How APAC is Being Used

| | DATA USERS | TYPES OF APAC DATA USES | | | | | |
|---|---|---|---|---|---|---|---|
| | | Health Care Spending and Cost Trends | Delivery System Performance | Utilization | Population Health | Disease Prevention | Insurance Coverage |
| **State Entities** | Oregon Health Authority | ■ | ■ | ■ | ■ | ■ | ■ |
| | Oregon Department of Consumer and Business Services | ■ | | | | | ■ |
| | High Cost Prescription Drug Workgroup | ■ | | | | | |
| | Oregon Department of Human Services | | | | ■ | | ■ |
| **Private Companies** | Verus Financial, LLC | ■ | | | | | |
| | Surgical Care Affiliates, Inc. | ■ | | | | | |
| | 6 Degrees Health, Inc. | | ■ | | | | |
| | Wellisch Software Technologies, Inc. | | ■ | | | | |
| | Take Command Health | | | ■ | | | |
| | Bright.md, Inc. | | | | ■ | | |
| | Algorex Health Technologies | | ■ | | | | |
| **Academic and Policy Researchers** | Oregon Health & Science University | ■ | ■ | ■ | ■ | | |
| | The Urban Institute | | ■ | | | | |
| | Chicago Technology for Value-Based Healthcare | | | ■ | | | |
| | University of Chicago Booth School of Business | | | ■ | | | |
| | Brigham and Women's Hospital | | | | ■ | | |
| | Colorado State University | | | | ■ | | |
| | Oregon State University | | | | ■ | | |
| | Portland State University | | ■ | | ■ | | |
| | Harvard Business School | ■ | | | | | |
| **Other** | Kaiser Permanente | | ■ | | | | |
| | Oregon Center for Nursing | | ■ | | | | |
| | Central Oregon Regional Health Assessment | | | ■ | | | |