Joint Meeting of the
Health Care Cost Transparency Board's

Advisory Committee of
Health Care Stakeholders
&
Advisory Committee on Data Issues

June 12, 2024

Washington State
Health Care Authority

Washington State Health Care Authority

Joint Meeting of the Health Care Cost Transparency Board's
Advisory Committee on Data Issues *and*
Advisory Committee of Health Care Stakeholders

Wednesday, June 12, 2024
3:00 – 4:00 PM
Hybrid Zoom and in-person

Agenda

Members of the Advisory Committee on Data Issues					
☐	Christa Able	☐	Chandra Hicks	☐	Mark Pregler
☐	Megan Atkinson	☐	Leah Hole-Marshall	☐	Russ Shust
☐	Amanda Avalos	☐	Lichiou Lee	☐	Mandy Stahre
☐	Jonathan Bennett	☐	David Mancuso	☐	Julie Sylvester
☐	Bruce Brazier	☐	Ana Morales		
☐	Jason Brown	☐	Hunter Plumer		

Members of the Advisory Committee of Health Care Stakeholders					
☐	Emily Brice	☐	Adriann Jones	☐	Natalia Martinez-Kohler
☐	Patrick Connor	☐	Jodi Joyce	☐	Sulan Mylnarek
☐	Bob Crittenden	☐	Louise Kaplan	☐	Paul Schultz
☐	Paul Fishman	☐	Stacy Kessel	☐	Dorothy Teeter
☐	Justin Gill	☐	Eric Lewis	☐	Wes Waters
☐	Nariman Heshmati	☐	Vicki Lowe		

Chair of the Advisory Committee of Health Care Stakeholders	Eileen Cody
Chair of the Advisory Committee on Data Issues	Bianca Frogner

Time	Agenda Items	Tab	Lead
3:00-3:07 (7 min)	Welcome, Introduction of New Chairs, Agenda, Roll Call	1	Rachelle Bogue, HCA
3:07-3:10 (3 min)	Approval of Meeting Summary	2	Rachelle Bogue, HCA
3:10-3:15 (5 min)	Review of May Cost Board Meeting and 2024 Workplan Review	3	Liz Arjun, HMA
3:15-3:45 (30 min)	Analytic Support Initiative Disease Expenditure Report and Discussion	4	Joe Dieleman IHME
3:45-3:55 (10 min)	Update on Provider Reporting & Methodologies	5	Sheryll Namingit, HCA
3:55-4:00 (5 min)	Public Comment (Stakeholder and Joint Meetings)	6	Rachelle Bogue, HCA
4:00	Adjourn		Rachelle Bogue, HCA

Meet Chair Eileen Cody, RN, BSN, CRRN

Advisory Committee of Health Care Stakeholders

- Earned Bachelor of Science degree in nursing from Creighton University.

- Retired after working over 40 years at Seattle's Kaiser Permanente (formerly Group Health Cooperative) as a neuro-rehab nurse certified in rehabilitation nursing and multiple sclerosis care.

- A founding member of District 1199 NW/SEIU Hospital and Health Care Employees Union.

- From 1994 – 2022, served constituents in the 11th district and then the 34th in the House of Representatives. Dedicated career to achieving affordable, quality health care for all residents of Washington State.

- Current member of the Health Care Cost Transparency Board

Meet Chair Bianca Frogner, PhD

Advisory Committee on Data Issues

- Dr. Frogner is a health economist (NIH T32 trainee) with expertise in health services delivery, health workforce, labor economics, health spending, health insurance coverage and reimbursement, and international health systems.

- Her current research focuses on allied health and the training and education of health professionals to address health equity.

- Associate Professor, Department of Family Medicine

- Director, Center for Health Workforce Studies

- Deputy Director, Primary Care Innovation Lab, UW

- Current member of the Health Care Cost Transparency Board

Tab 2

Joint Meeting of Advisory Committee on Data Issues and Advisory Committee of Health Care Providers and Carriers meeting summary

March 7, 2024

Virtual meeting held electronically (Zoom) and in person at the Health Care Authority (HCA)
2–4 p.m.

> **Note:** this meeting was video recorded in its entirety. The recording and all materials provided to and considered by the Committees is available on the **Advisory Committee on Data Issues** and the **Advisory Committee of Health Care Providers and Carriers** webpages.

Advisory Committee on Data Issues

Members present

Christa Able
Jonathan Bennett
Bruce Brazier
Amanda Avalos
Jason Brown
Chandra Hicks
Leah Hole-Marshall
David Mancuso
Ana Morales
Mark Pregler
Russ Shust
Mandy Stahre
Julie Sylvester

Members absent

Megan Atkinson
Lichiou Lee
Hunter Plumer

Advisory Committee of Health Care Providers and Carriers

Members present

Justin Evander
Jodi Joyce
Louise Kaplan
Eric Lewis
Vicki Lowe
Natalia Martinez-Kohler
Jeb Shepard
Dorothy Teeter
Wes Waters

Members absent

Bob Crittenden
Paul Fishman
Stacy Kessel
Ross Laursen
Todd Lovshin

Important note: A member of a committee sent an <u>unsolicited</u> invitation to all meeting invitees offering live notes via Otter.ai, an artificial intelligence (AI) transcription service. This program was used in lieu of the

Joint Meeting of Advisory Committees on Data Issues and Health Care Providers and Carriers DRAFT meeting summary
March 7, 2024

Page | 1

member's attendance, but using such a service is not considered formal meeting attendance. As all board and committee meetings are subject to open public meeting rules, the meeting materials and meeting recordings of each are publicly available to view online. Additionally, Health Care Authority (HCA) staff does not use AI tools to produce the official record, the meeting summary.

Call to order

Rachelle Bogue, committee facilitator, called the meeting to order at 2:04 p.m.

Agenda items

Welcoming remarks

Rachelle Bogue, Cost Board Manager at HCA, welcomed committee members to the joint session and reviewed the agenda.

Meeting summary review from the previous meeting

The Board **voted by consensus to adopt** the February 2024 meeting summary. One member abstained from approval as they were not present at the meeting.

Public comment

Having received no written comments prior to the meeting, Rachelle Bogue called for comments. There were no comments offered by those attending the meeting.

Legislative Updates

Evan Klein, Special Assistant for Policy and Legislation, HCA

Evan Klein offered a brief overview of the short 60-day legislative session that had concluded. Among bills which passed, of highest relevance to the functioning of the Health Care Cost Transparency Board (the Board) and its committees is HB 1508. This bill changes the composition of the Advisory Committee of Providers and Carriers, expanding membership to include representation from consumers, employers, and labor. An annual public hearing will now be part of the Board's work, as will two new biennial studies reporting on underinsurance and cost trends in the employer and employee space. Follow-on budget discussions will likely result in new funding for Data and Policy staff positions to accomplish the new work requirements. Discussion from board members regarding this bill clarified that members will only be added to the committee rather than turning over the entire membership. Additional legislation which passed included additional regulation of pharmacy benefit managers and the prohibition of balance billing for ground ambulance services.

One bill that failed to pass was SB 5241, the Keep Our Care Act, which was designed to monitor mergers and acquisitions in the health care market, studying the impacts that consolidation would have on health care accessibility. The Health Benefit Exchange supported a bill that sought to standardize the individual market. Both bills engaged the House and Senate in discussions around improving accessibility and will likely be reintroduced in a future legislative session.

Other successful legislative work included a bill that capped out-of-pocket costs for commonly used health care like EpiPens and inhalers. The Legislature also invested $20 million in additional Apple Health Expansion to cover individuals whose immigration status is not federally recognized, additional funding for graduate medical training and workforce development, support for the Medicaid Transformation Project, and studying a possible consolidation of Public Employees Benefit and School Employees Benefit Boards to increase purchasing power.

Discussion of Cost Board Retreat

Liz Arjun, Health Management Associates
Gary Cohen, Health Management Associates

Joint Meeting of Advisory Committees on Data Issues and Health Care Providers and Carriers DRAFT meeting summary
March 7, 2024

Page | 2

The consultants from Health Management Associates (HMA) offered a summary of the Cost Board retreat on February 9th, describing reports addressing health care affordability delivered by the Office of the Insurance Commissioner (OIC) and Attorney General's Office (AGO). Additionally, state experts from Massachusetts, Oregon, and Rhode Island offered perspective on policies implemented in their own states, describing the successes, challenges, and required stakeholder management of implementing solutions to address health care cost growth.

Discussion with committee members included getting an overview of the Board's top choice policy of interest to investigate, provider rate setting and price growth caps. Policies like these empower the state to either set rates directly or set growth rate maximums for a variety of health care services to control cost growth, not unlike how public utilities are regulated. Another member speculated that based on the OnPoint cost driver analysis, utilization rather than price was the key driver of health care cost growth, and therefore expressed skepticism that growth caps, anti-competitive contracting, and rate setting would be effective. In response, another member noted that the policies being discussed were not immediately recommended to the Legislature, but rather the policies were identified for assessment and study. Opportunities may exist to study policies leveraging the work of other agencies, such as the Department of Health regarding policies around Community Benefit. One board member looked for clarity around policies addressing facility fees, seeking information about the impact on access and other possible negative consequences.

One member asserted that cost drivers not targeted by the list of policies were things like labor, prescription drugs, and utilization. Other members voiced concerns that the policy list lacked ambitious policies like global budgeting work being implemented in Maryland, but it was noted that analyses performed by other agencies like the OIC study such approaches. It was remarked that impacts, trade-offs regarding accessibility, and continued feedback were essential to the policy development process. Finally, one member noted that the urgency of all these efforts must be regarded in the context of patients and consumers, who are most impacted by spiraling health care costs.

2024 Data Call Update

Sheryll Namingit, HCA

Led by HCA's Health Economics Research Manager, the committee reviewed the 2024 timeline call for provider and carrier benchmark data call, which will cover 2020-2022. Preliminary provider reports would be available in the next couple of months for review with opportunities to offer feedback and have questions answered.

Adjournment
The meeting was adjourned at 3:24 p.m.

Next meeting

June 12, 2024
Meeting to be held in-person and on Zoom
2–5 p.m.

Joint Meeting of Advisory Committees on Data Issues and Health Care Providers and Carriers DRAFT meeting summary
March 7, 2024

Page | 3

Tab 3

Health Care Cost Transparency Board
2024 Workplan

- Primary Care AdvCmte: Jan 23
  - Making Care Primary, Workforce development
- Joint Data / Prov & Carrier: Jan 18
  - Benchmark, Workplan preview

January 2024 Committee Meetings

February 9, 2024 Board Retreat

- Longer Meeting (Retreat)
- Planning for 2024
- Policy levers discussion and prioritization for further review and discussion with potential recommendations

- Primary Care AdvCmte: Feb 29
  - Workforce Recommendations, Patient engagement, Multi-payer models, PC spend
- Joint Data / Prov & Carrier: Mar 7
  - Legislative update, 2024 Data Call
- Primary Care AdvCmte: Apr 25
  - Patient engagement

Feb-Apr 2024 Committee Meetings

April 10, 2024 Board

- Legislative Updates
- HB 1508 Cost Board Impact
- Noam Levey: Medical Debt
- MedDebt Policy Discussion
- Benchmark Report Approval

May 15, 2024 Board

- Longer Meeting (3hr)
- Primary Care Policy
- Hospital Profits & Cost Briefing
- Merger&Acq Discussion
- Facility Fees
- MedDebt Policy Discussion
- ASI: DEX Report
- Nomination Cmte Approvals

- June Board Meeting Moved to July
- Joint Data & Stakeholder meeting moved to June 12
  - Policy discussion and ASI: DEX Report
- Primary Care AdvCmte: June 26
  - Prioritize Policy recommendations

May-June 2024 Committee Meetings

Workplan will change depending on progress made in each meeting

Health Care Cost Transparency Board
2024 Workplan

July 30, 2024 Board

- Longer Meeting
- Board Policy Topics
- Cost Driver Analysis Update, if available
- Primary care committee recommendations
- Other updates as available

- Hold for potential Data & Providers & Carriers Meeting, depending on Board's needs

September 19, 2024 Board

- Board Policy Topics
- OIC & AG's Reports
- ASI Updates, if needed
- Legislative Priorities
- Draft Legislative Report

October 24, 2024 Board

- Board Policy Topics
- Finalize Legislative Report
- ASI: Updated Expenditure Report

November 2024 Board Hold

- Hold for potential Benchmark information
- Hold for potential Data & Stakeholder Meeting, depending on Board's needs

December 2024 Board Hold

- Hold for potential Benchmark information
- ASI: 2025 Analytic Strategy

July 2024 Primary Care Advisory Committee

August 2024 Committee Meetings

November 2024 Advisory Committee Meeting

Workplan will change depending on progress made in each meeting

MAY COST BOARD MEETING

» Primary Care Advisory Committee & strategies to achieve the 12% goal

» Findings from the analysis of Washington hospital financials to understand more about how hospitals contribute to growth in health care costs.

   » Grouped hospitals into categories according to low, medium and high for price, cost and profit.

» Analytic Support Initiative Update

COMMITTEE SUPPORT

Provide more immediate protection to consumers from medical debt

Facility fees

Business oversight

Tab 4

Analytic Support Initiative Preliminary Disease Expenditure Report

May 15, 2024

HCA & Institute for Health Metrics and Evaluation

ASI

Refresher

1. In March, IHME finished its **first complete set of estimates** tracking spending by health condition, age, sex, type of care, payer, and county of the entire US for 2010 through 2019

2. In April, IHME produced an updated draft of the **Preliminary Disease Expenditures Report**

   Caveats about the Preliminary Disease Expenditure Report

   - *It doesn't not include novel analyses*

   - *It is based on previous research focused on estimating spending by county in the US*

   - *It is a model of the type of research that could be done for the ASI*

Objective of today's presentation to the Joint Committee

1. *Evaluate the Draft Preliminary Disease Expenditure Report and identify ways it could be strengthened prior to finalization*

   ➢ How can these estimates be presented or fine-tuned to be clearer and more relevant to the work of Cost Board?

2. *Identify ways this research could be tailored to meet the goals and strategic objectives of the Cost Board*

   ➢ Ahead of the completion of the draft ASI report in October, how can these analyses be delivered to aid the Cost Board policy study efforts?

Estimates feeding into the report

IHME Disease Expenditure estimates come from the broader national-wide study, and span 2010-2019.

Over 60 billion insurance claims and 1 billion administrative records are used to inform that national estimates.

Over 550 million insurance claims and 30 million administrative records informed the WA estimates.

Estimates are adjusting for comorbidities in order to track spending attributable to each health condition.

Pharmaceutical spending includes spending on pharmaceuticals in a retail setting, and drugs administered in a clinic or inpatient are included in the ambulatory care and inpatient care categories.

2019 WA spending per capita

WA spending the 16th lowest amount of spending per capita across US states.

Because WA has a slightly younger population than the US, age-standardized spending estimates are slightly larger than the observed spending estimates.

2019 WA spending

2019 WA spending

Payer	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Dental	Nursing Facility	Emergency Department	Home Health
All Payers	$51.2b	$24.6b	$11.5b	$4.4b	$4.4b	$3.2b	$1.3b	$1.8b
Medicare	$13.5b	$5.7b	$3.9b	$1.8b	$0b	$0.8b	$0.5b	$0.8b
Medicaid	$8.4b	$3.6b	$2.2b	$0.6b	$0.4b	$0.7b	$0.1b	$0.7b
Private Insurance	$23.6b	$13.1b	$5b	$1.9b	$2b	$0.6b	$0.6b	$0.3b
Out-of-Pocket	$5.7b	$2.3b	$0.4b	$0.1b	$1.9b	$1b	$0.1b	$0.1b

2019 WA spending

Payer	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Dental	Nursing Facility	Emergency Department	Home Health
All Payers	$6715	$3229	$1503	$575	$572	$421	$174	$242
Medicare	$10498	$4482	$3039	$2034	$30	$655	$395	$593
Medicaid	$5319	$2276	$1402	$378	$271	$452	$73	$466
Private Insurance	$4659	$2590	$981	$376	$404	$128	$123	$57
Out-of-Pocket	$745	$296	$48	$8	$243	$131	$11	$7

Type of Care

Per capita

Per beneficiary

Per capita

8

WA health spending over time
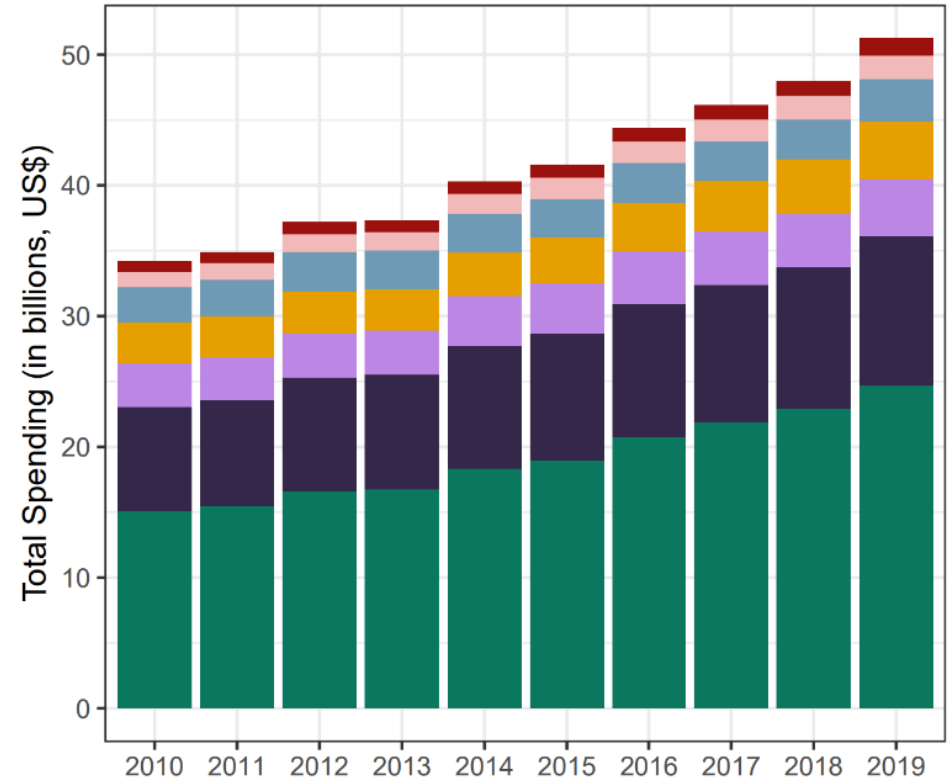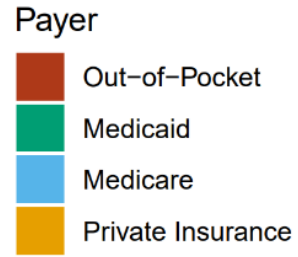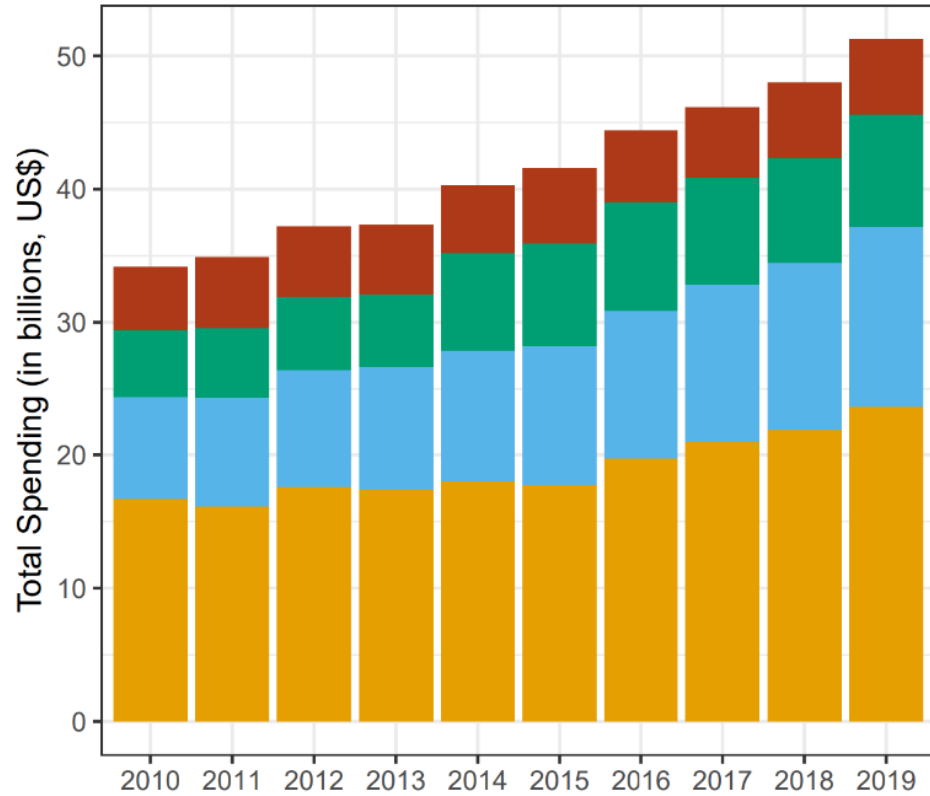
WA state spending growth 2010-2019

WA has spending increase that is 30th lowest.

Spending growth

Legend: Per Capita, Age-Standardized

WA state spending growth 2010-2019
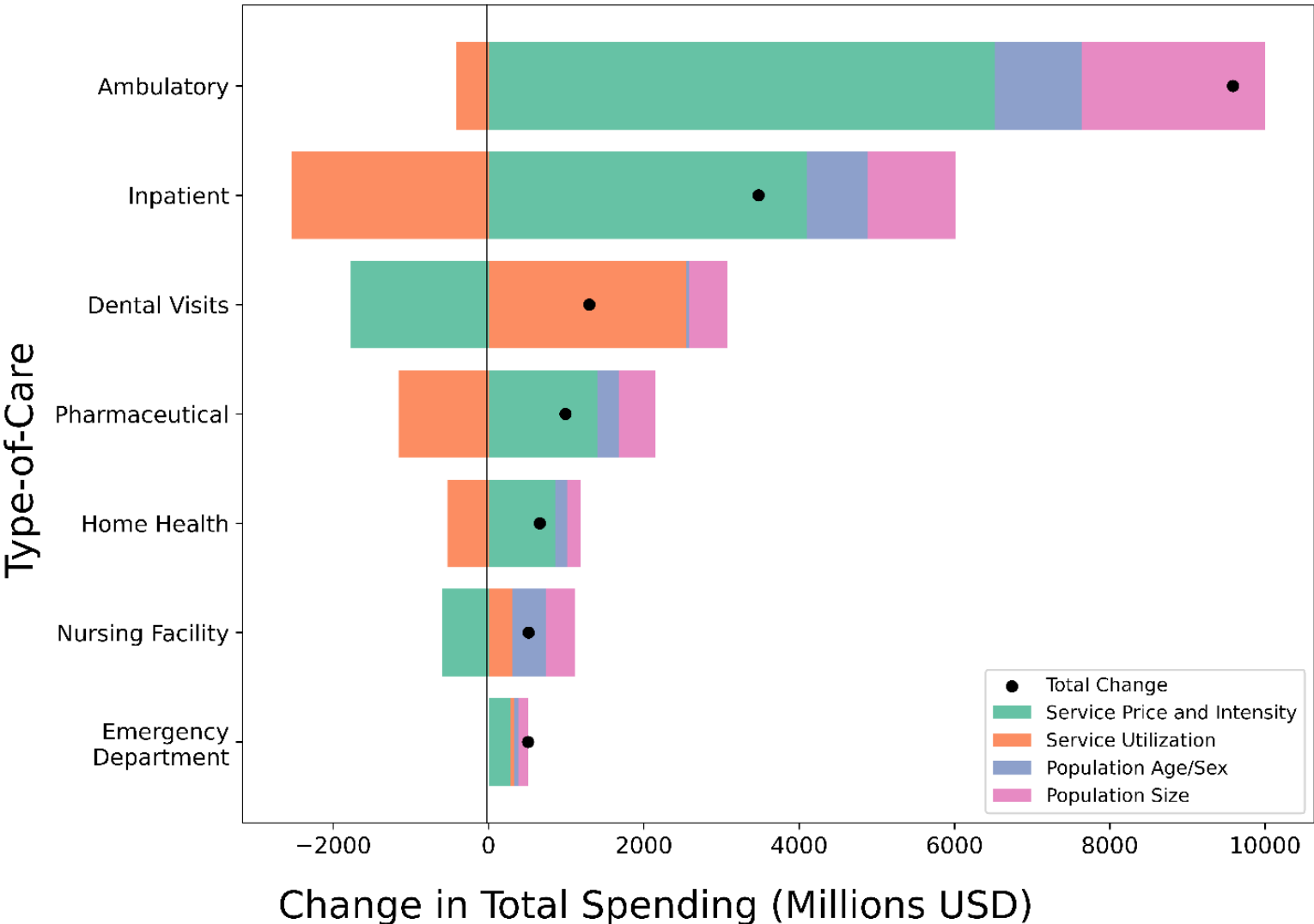
WA state spending growth
2010-2019

WA state spending by disease

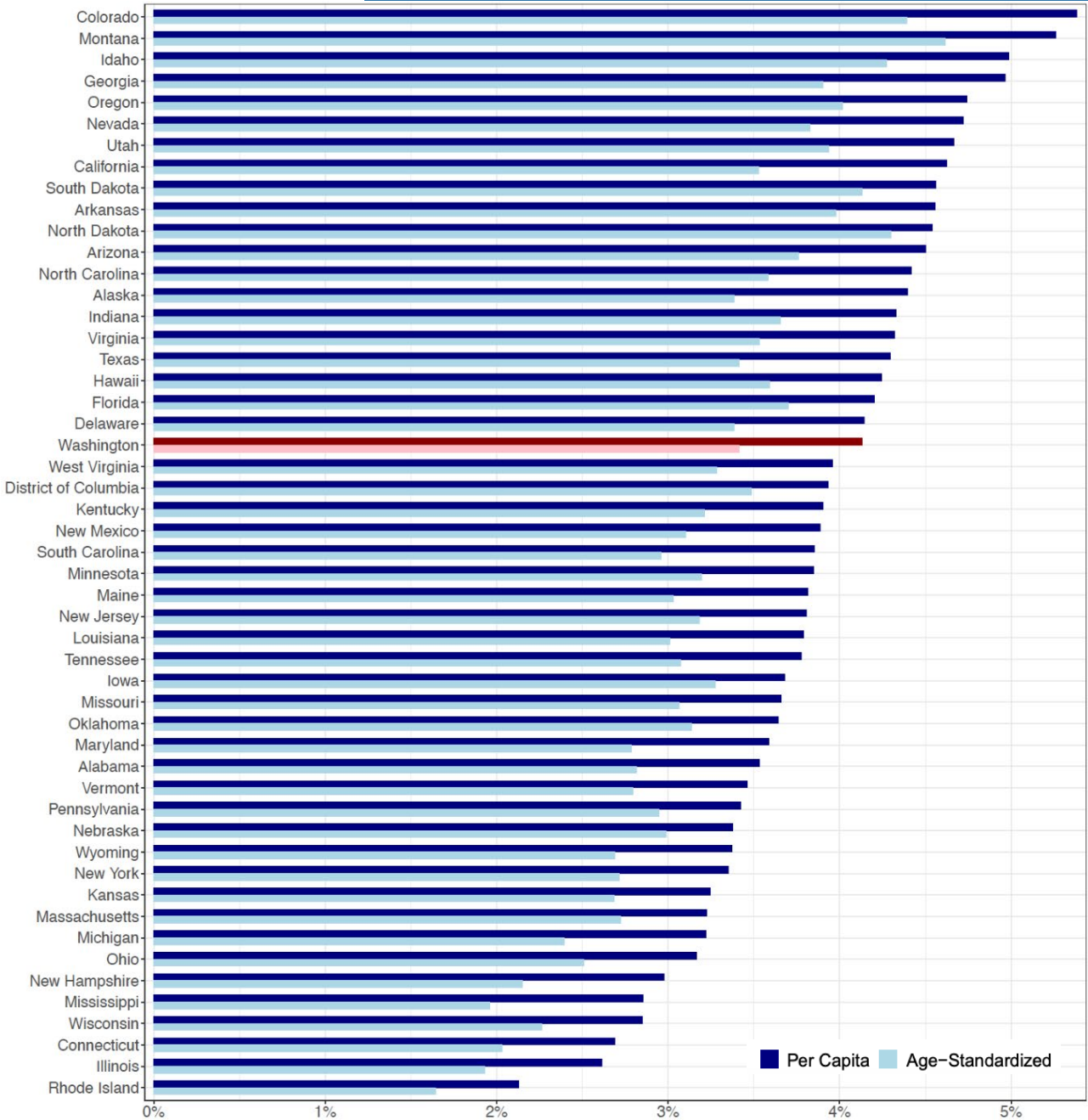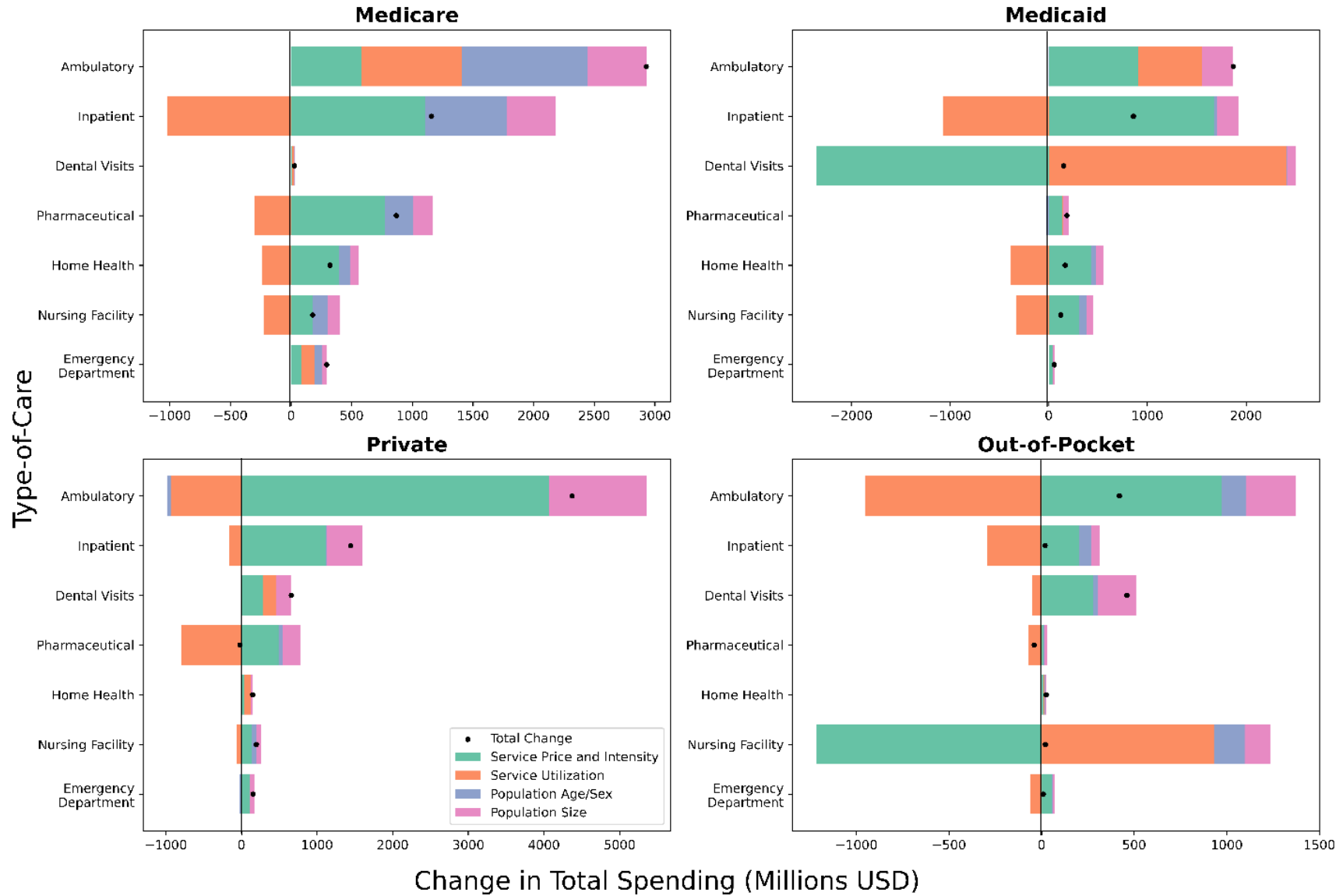| Cause	Total Spending (billions)	Growth Rate	Age-Standardized Growth Rate	Under 20	Over 65	Inpatient	Ambulatory	Pharmaceutical	Nursing Facility	Medicare	Medicaid	Private Insurance	Out-of-Pocket
Oral disorders	$3.05	1.5%	1.4%	17.0%	18.4%	0.7%	1.9%	0.1%	0.0%	1.2%	2.9%	40.1%	55.8%
Joint pain	$2.74	3.6%	3.0%	8.8%	29.6%	9.1%	78.2%	6.7%	2.7%	22.7%	8.9%	58.7%	9.7%
Diabetes mellitus type 2	$2.18	2.7%	1.3%	0.1%	53.6%	9.6%	42.1%	23.0%	18.7%	36.9%	14.2%	36.9%	12.0%
Lower back and neck pain	$1.68	0.4%	0.0%	1.9%	34.2%	16.6%	75.5%	1.3%	2.0%	25.8%	7.1%	56.7%	10.5%
Skin and subcutaneous diseases	$1.53	2.1%	1.7%	12.5%	32.0%	16.9%	51.6%	23.7%	1.8%	27.4%	16.8%	48.3%	7.4%
Urinary tract disorders	$1.51	1.6%	0.6%	6.7%	48.7%	18.4%	60.9%	5.0%	5.8%	35.5%	16.9%	38.8%	8.7%
Ischemic heart disease	$1.48	1.0%	-0.5%	0.1%	65.5%	45.8%	34.1%	3.4%	9.1%	43.9%	10.4%	37.6%	8.2%
Well dental	$1.40	3.1%	3.2%	28.5%	13.2%	0.0%	0.0%	0.0%	0.0%	0.8%	25.9%	62.0%	11.3%
Heart Failure	$1.30	4.8%	3.1%	0.3%	80.8%	49.6%	7.0%	0.8%	34.7%	54.2%	14.2%	15.8%	15.9%
Anxiety disorders	$1.25	7.3%	7.4%	26.0%	9.3%	7.2%	78.1%	4.1%	5.4%	8.2%	33.4%	49.7%	8.7%
Gynecological diseases	$1.21	1.5%	1.8%	4.0%	7.1%	3.7%	91.2%	2.9%	0.0%	6.5%	10.1%	73.3%	10.1%
Other neoplasms	$1.09	1.9%	1.2%	3.7%	34.6%	9.1%	86.1%	4.0%	0.2%	25.6%	4.8%	59.6%	10.0%
Alzheimer's disease and other dementias	$1.01	0.5%	-0.5%	0.0%	94.6%	12.8%	6.6%	0.9%	69.1%	39.8%	24.5%	8.5%	27.2%
Acute renal failure	$0.98	3.7%	2.3%	0.9%	46.3%	34.3%	61.5%	1.2%	0.8%	40.9%	32.4%	21.6%	5.1%
Upper digestive system diseases	$0.95	0.7%	-0.2%	6.3%	45.3%	26.7%	46.2%	3.6%	15.6%	32.9%	17.5%	38.9%	10.7%
Osteoarthritis	$0.94	2.9%	1.5%	0.0%	60.8%	44.4%	39.3%	1.4%	10.1%	34.0%	6.4%	49.7%	10.0%
Endocrine, metabolic, blood, and immune disorders	$0.93	1.7%	0.9%	10.8%	43.2%	22.1%	32.1%	22.8%	16.4%	29.6%	16.4%	45.1%	8.9%
Breast cancer	$0.93	4.8%	4.0%	0.0%	32.3%	2.2%	89.2%	7.9%	0.3%	26.8%	5.9%	62.7%	4.6%
Depressive disorders	$0.91	3.4%	3.3%	21.6%	15.7%	25.8%	57.7%	7.3%	2.9%	14.7%	30.1%	49.0%	6.1%
Falls	$0.90	2.8%	2.0%	9.7%	55.7%	36.4%	31.4%	0.1%	16.4%	33.2%	10.7%	43.1%	13.0%

Health conditions with the most growth in annual spending between 2010 and 2019
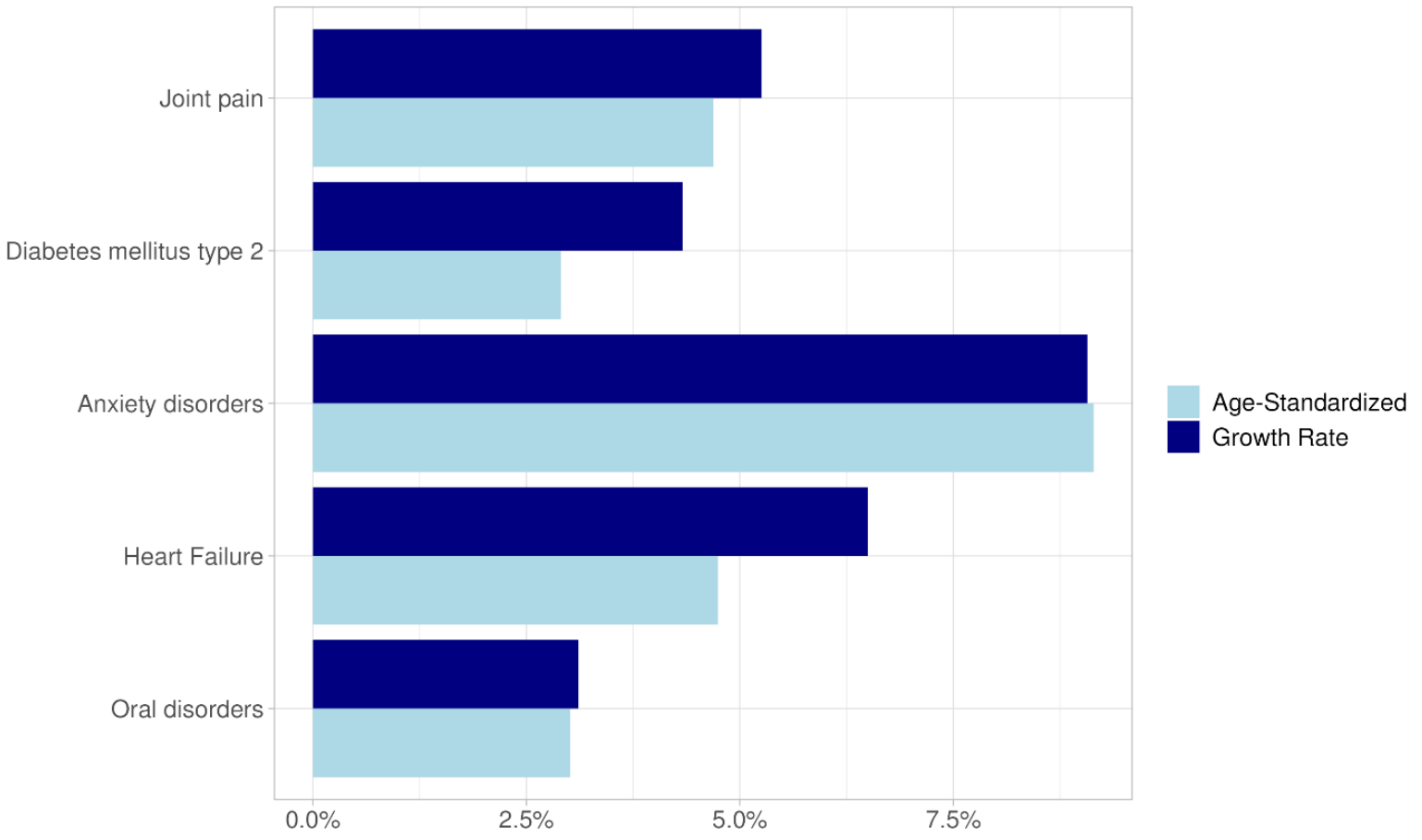
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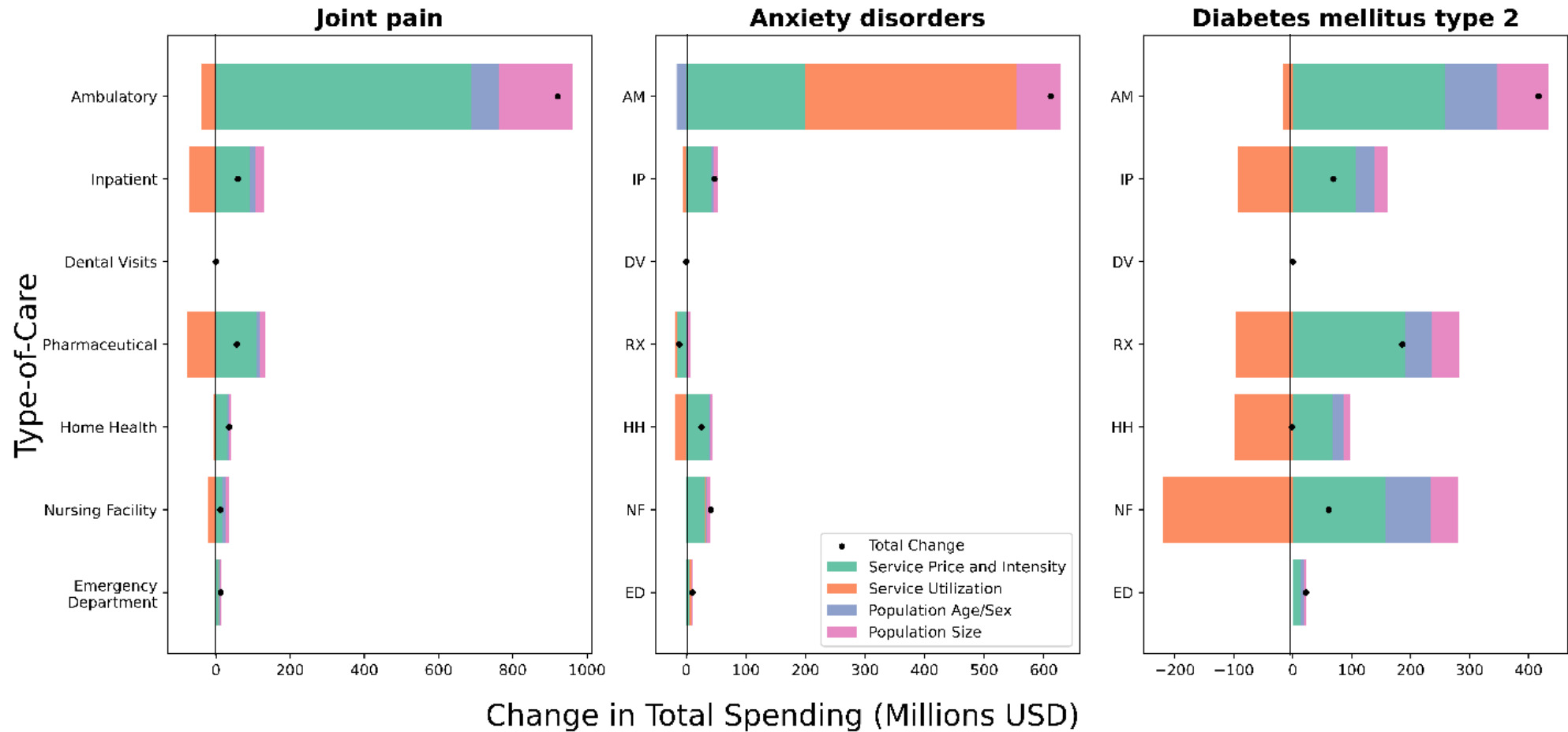
Health care spending in 2019
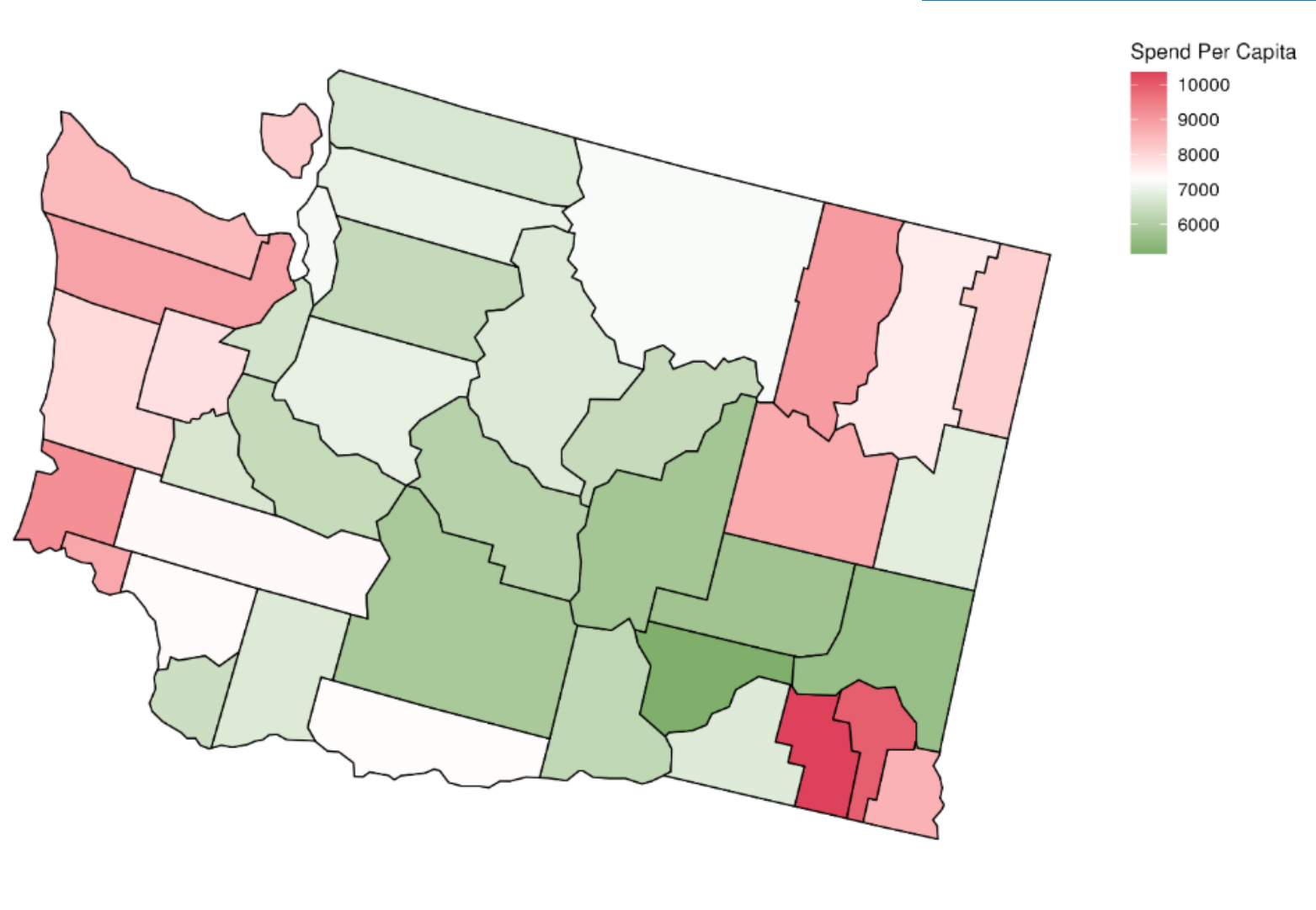
Health care spending in 2019
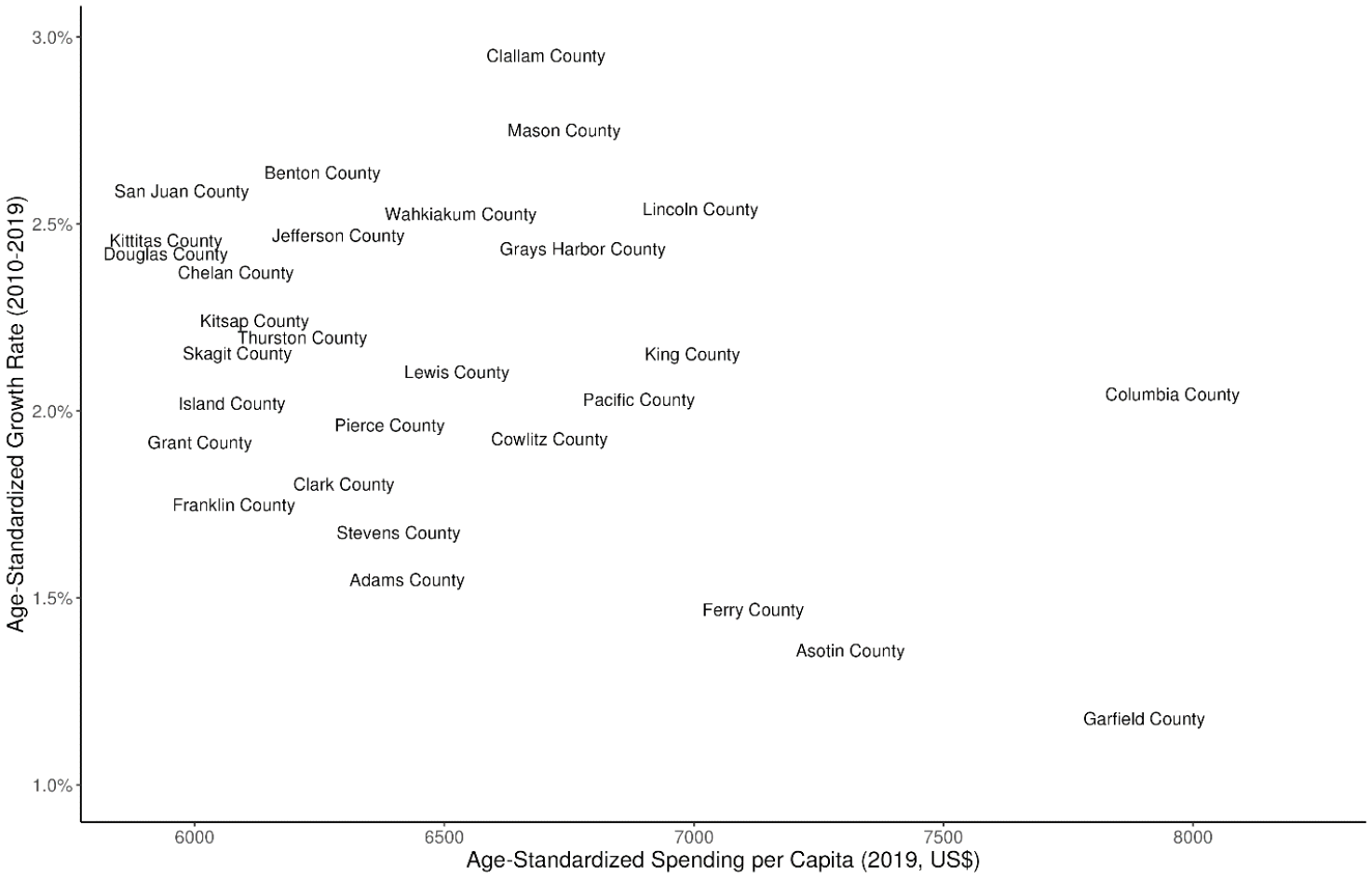
Health care spending in 2019
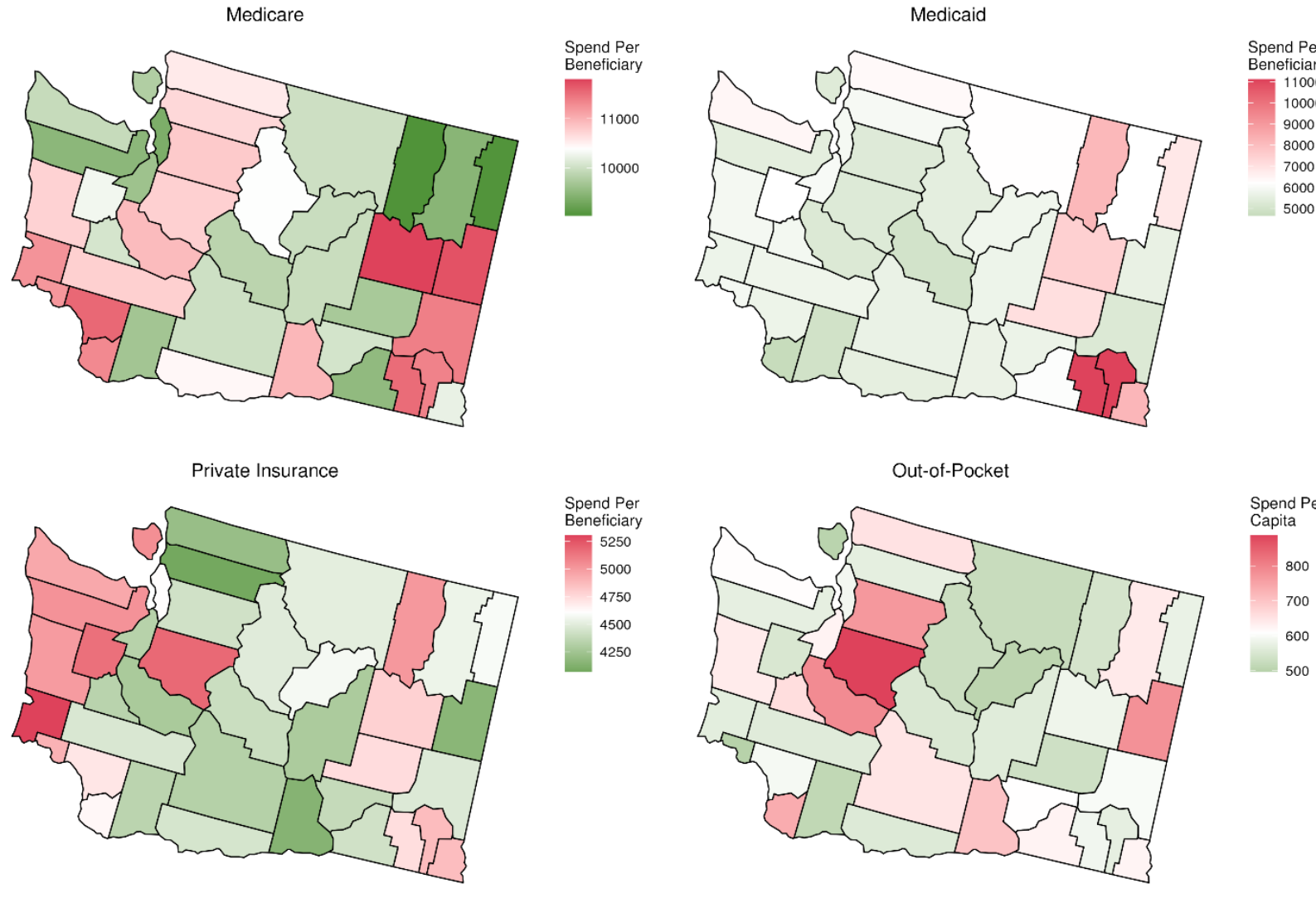
Health care spending in 2019 by county, relative to WA state
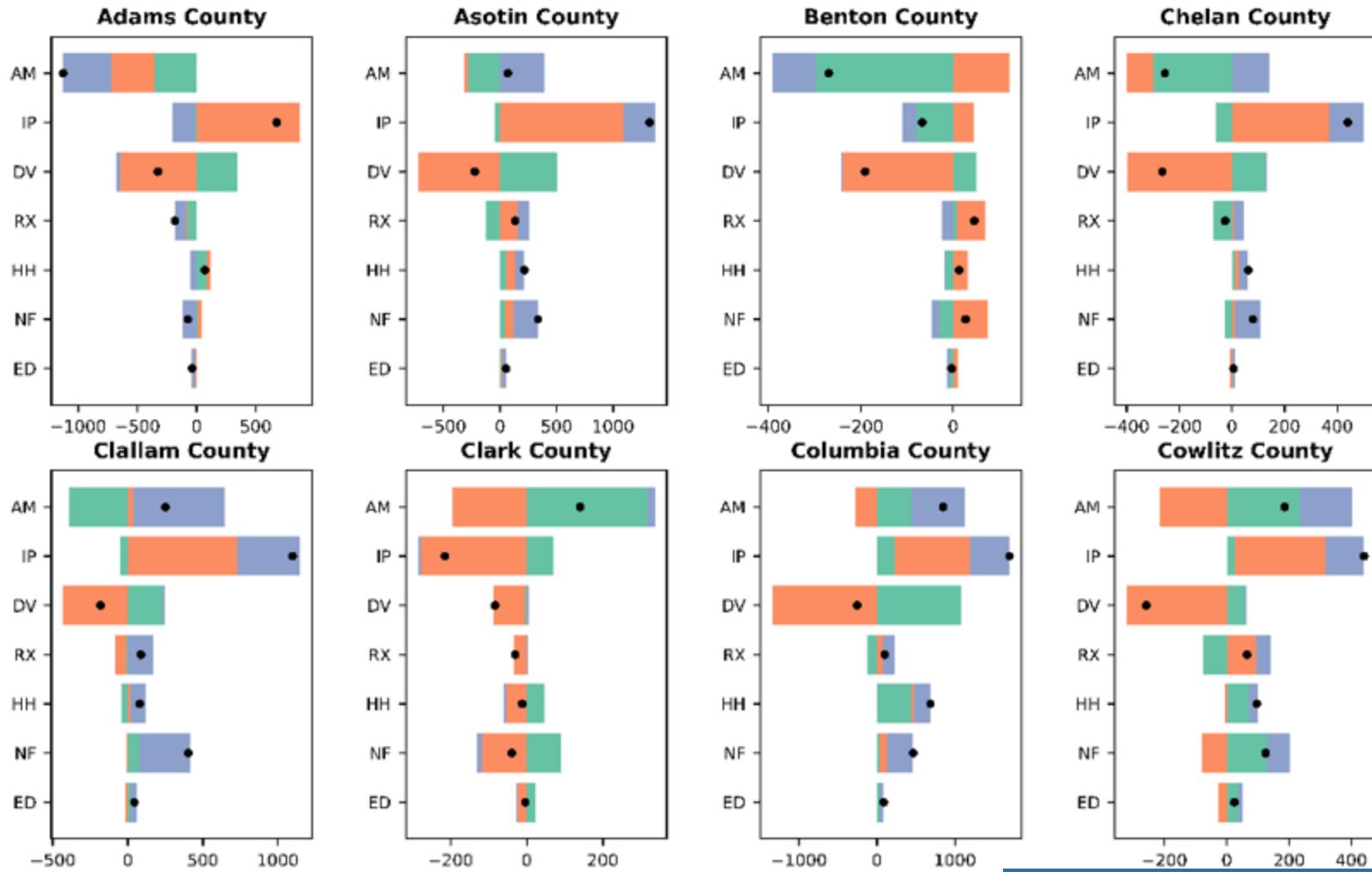
Objective of today's presentation to the Cost Board

1. *Evaluate the Draft Preliminary Disease Expenditure Report and identify ways it could be strengthened prior to finalization*

   ➢ How can these estimates be presented or fine-tuned to be clearer and more relevant to the work of Cost Board?

2. *Identify ways this research could be tailored to meet the goals and strategic objectives of the Cost Board*

   ➢ Ahead of the completion of the draft ASI report in October, how can these analyses be delivered to aid the Cost Board policy study efforts?

Next steps

1. *April – July* → Fully incorporate the WA APCD into the IHME disease expenditure project

2. *August – November* → Three agreed upon ASI analyses:
    *   Generate estimates of WA spending and utilization through 2022
    *   Standardize those estimates
    *   Decompose differences in spending across counties and time

Analytic Support Initiative Preliminary Disease Expenditures Report

Version 8.0
June 4, 2024

Contents

About the Analytic Support Initiative

The Analytic Support Initiative (ASI) is a collaborative effort between the Washington State Health Care Authority (HCA) and the Institute for Health Metrics and Evaluation (IHME), supported by a grant from the Peterson Center on Healthcare and Gates Ventures. The primary goal of the ASI is to address the unsustainable rise in health care spending by providing policymakers with timely, actionable data and research to enhance access to quality, affordable care for Washington residents.

The ASI benefits from combining the HCA's in-house expertise in health care spending, state data, and policy with IHME's analytic capabilities. This partnership builds on Washington's existing efforts to improve health care affordability and transparency through the Health Care Cost Transparency Board (Cost Board). The Cost Board, comprised of public and private purchasers and health care experts, aims to analyze total health care expenditures, identify drivers of cost growth, establish benchmark growth rates, and pinpoint providers and payers exceeding the benchmark.

The ASI's contributions are intended to complement several other data initiatives supporting the Cost Board. These include setting and measuring performance against the cost growth benchmark, the cost drivers analysis, the primary care spending analysis, hospital cost and profit analysis, and the overall consumer and affordability initiative. The value add of the ASI is its analysis of the Washington All-Payer Claims Database, ability to complete county-level analyses, and ability to tie underlying disease prevalence to spending estimates.

Figure 1: Data initiatives supporting the Washington Health Care Cost Transparency Board
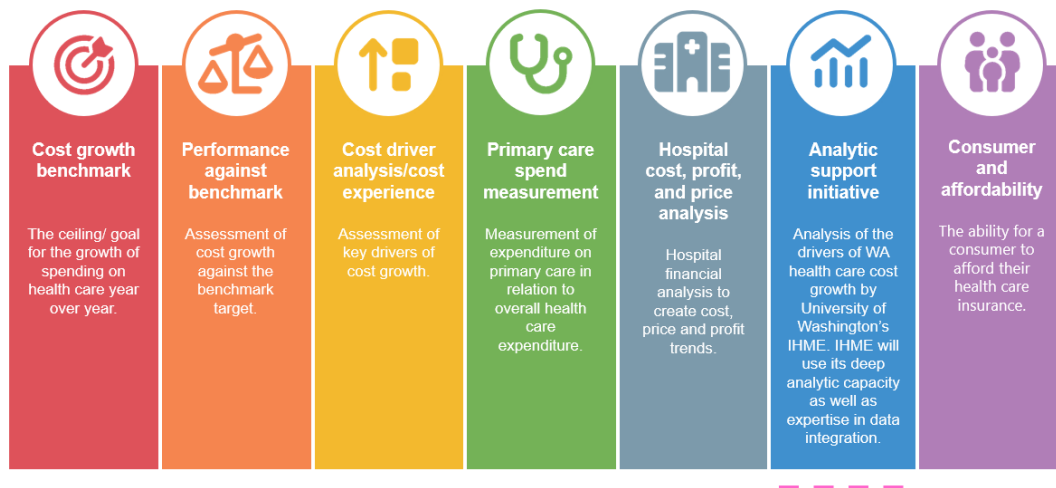
Figure source: The Washington Health Care Authority

About this report

This report is a product of the ASI for the Cost Board. It assesses health care spending with stratification by geography, health condition, and type of care at a granular level while controlling for key demographic and epidemiological trends. The analytics that support this report were developed from previous research conducted by the Institute for Health Metrics and Evaluation for the Disease Expenditure Project (DEX). These existing estimates are being leveraged to (a) provide information about health care spending to the Cost Board, and (b) to facilitate Cost Board discussion regarding the type of future analysis that the ASI can complete. The ASI will provide materials to the Cost Board in an iterative fashion.

This initial report was developed for, presented to, and edited based on feedback from ASI's key advisors and the Cost Board during the first half of 2024. An updated version of this report will be available to the Cost Board in late 2024. That report will be built from the Washington All-Payer Claims Database extending through at least 2022. Future analyses will address trends over time, quantify attributable drivers of health care spending, and explore factors associated with key drivers of spending growth.

Data Source and Methods

The IHME Disease Expenditure (DEX) Project generates estimates of health care spending and encounters for each US county for 2010-2019 stratified by age, sex, type of care, payer, and health condition. These estimates are generated using a four-step process. The first step entails collecting and harmonizing data from various sources, including 45 billion insurance claims billed to Medicare, Medicaid, and private insurance companies (including data from Health Care Cost Institute, Kythera, Fluent, and Marketscan). In Washington, 552 million claims and 33 million administrative records were used for 2010 through 2019 to inform these estimates. The DEX project also uses hospital administrative data, from the Healthcare Cost and Utilization Project, and survey data from the Medical Expenditure Panel Survey. The second step of the DEX project involves assigning each claim or encounter to one of 148 health conditions, while the third step focuses on adjusting for data imperfections, such as reallocating spending for comorbidities that increase costs. Additionally, a small area model is employed to estimate utilization and spending in geographic areas with limited input data. In the fourth step, the estimates are scaled to ensure internal consistency across county, state, and national levels, and alignment with official U.S. government estimates of health care spending.

Estimates produced for the DEX project include spending on seven types of care – ambulatory care, hospital inpatient care, retail-prescribed pharmaceutical, nursing facility care, home health care, emergency department care, and dental care – from four payers – private insurance, Medicare, Medicaid, and out-of-pocket spending. Spending on over-the-counter drugs, durable medical equipment, public health, and from Tri-care, Indian Health Services, and Veterans Affairs are excluded. These estimates include medical, dental, and prescribed pharmaceutical spending estimates. For prescribed retail pharmaceuticals, we track spending paid by the patient or third-party payers (i.e. insurance companies) prior to any rebates or discounts being provided. Finally, the disease-specific spending estimates highlighted in this report are spending that has been attributed to each health condition. It is not based merely on the primary diagnosis, but rather when a health condition is a secondary diagnosis but leads to excess spending on the primary diagnosis, that excess spending is attributed to the secondary diagnosis.

Unless otherwise indicated, all estimates in this report are extracted from the existing IHME DEX project database. The second report of the ASI will include additional Washington-specific data and custom analytics for the Cost Board.

In this report, all estimates are reported in nominal currency, meaning they are not adjusted for inflation. Age-standardization is conducted using direct age-standardization, relative to the 2019 national or Washington age-profile. Rates of change are all annualized, so they are comparable across different length time periods. Decomposition of variation or change across time was calculated using demographic decomposition methods based on Das Gupta (1993).

Executive Summary

This report provides an analysis of health care spending in Washington state from 2010-2019 based on the Institute for Health Metric and Evaluation's DEX Project. In 2019, the DEX project assessed $51.2 billion of health care spending in Washington, which amounted to $6,715 per person. (See Data Source and Methods section above regarding what is specifically included and excluded from this estimate.) This is 7% less than the DEX project's estimate of national spending per person, which is $7,201. Across the 50 states and the District of Columbia, Washington was the state with the 16th lowest spending per person. However, when age-standardized to account for the state's younger population, Washington's spending per person positioned it as the 18th lowest state. The findings outlined in the remainder of this report substantiate and build upon the results from other analytic efforts by the Health Care Cost Transparency Board.

- Between 2010 and 2019, total per person spending increased to $6,715
- The specific health conditions with the greatest increase in spending included oral disorders, type 2 diabetes, joint pain, skin and subcutaneous diseases, and lower back and neck pain
- Ambulatory care was the spending category with the greatest spending increase, growing by $7.0 billion between 2010 and 2019

The DEX project showed that ambulatory care, which includes all outpatient care regardless of whether it is provided in a hospital, clinic, or surgical or rehabilitation center, emerged as the dominant category, constituting 48% of the total spending, amounting to $24.6 billion. The report highlights the significant role of private insurance, contributing 46% of total spending, with the majority allocated to ambulatory and inpatient care. The DEX project estimated that out-of-pocket spending reached $5.7 billion in 2019, covering expenses like deductibles and co-pays.

The DEX project estimated that between 2010 and 2019, Washington had an overall spending increase of $17.1 billion, reaching $51.2 billion. Even after adjusting for population size increases, health care spending increased above and beyond the inflation rate. Ambulatory care witnessed the most substantial increase, fueled by population growth, an aging population, and higher spending per visit. Hospital inpatient care also saw significant growth, mainly attributed to increased spending per admission.

The report further delves into spending variations based on health conditions, with the DEX project identifying oral disorders[1], type 2 diabetes, joint pain, skin and subcutaneous diseases, and lower back and neck pain as the top five conditions with the highest attributable spending[2]. Notably, joint pain exhibited a substantially higher annualized growth rate compared to other top conditions.

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[1] This report includes medical spending on dental care as well as dental care spending (i.e. spending through dental insurance). The category of oral disorders includes treatment of dental carries, dental surgery, and orthodontia, among other categories associated with non-preventative dental treatments.

[2] Attributable spending is spending that has been attributed to a health condition. In this research we reallocate spending on a claim to the health condition determining the amount of spending. When a comorbidity (a co-occurring disease that isn't the primary diagnosis) exacerbates spending the excess spending is attributed to the comorbidity, not the primary diagnosis.

Furthermore, the analysis explores spending variations within Washington, showcasing significant disparities across counties. The DEX project showed that Columbia, Garfield, and Pacific counties exhibited the highest spending per person, while Franklin, Whitman, and Adams counties demonstrated the lowest. The report provides a detailed breakdown of spending differences, highlighting the drivers of spending changes and offering valuable insights into the dynamics of health care expenditures at both the state and county levels.

This report highlights the role prices play in driving increases in health care spending in Washington and supports the call for many of the policies being considered by the Washington Health Care Cost Transparency Board, including price growth caps and provider rate setting, restricting anti-competitive clauses in health care contracting, review of mergers and acquisitions, and limits on facility fees in some areas.

Background

One of the initial and explicitly legislated tasks of the Cost Board was to establish total health spending growth targets. These targets are meant to be a goal for individual payers and providers to aim for and in later years the Cost Board will hold payers and providers accountable for reaching these targets. The benchmark growth targets established by the Cost Board range from 3.2% to 2.8% (Figure 1). These are growth targets for total aggregate expenditure on health, including claims-based and non-claims-based expenditures.

Figure 1: Washington State benchmark growth targets

Year of Release	Includes Data from Specified Years	Data Included
Late 2023	2017 – 2019	State and market data only – the Board will not publicly report insurance payer or provider cost growth for this period
Late 2024	2020 – 2022	For large provider entities* and payers - with cost growth target of 3.2%
Late 2025	2022 – 2023	For large provider entities and payers – with cost growth target of 3.2%
Late 2026	2023 – 2024	For large provider entities and payers – with cost growth target of 3.0%
Late 2027	2024 – 2025	For large provider entities and payers – with cost growth target of 3.0%
Late 2028	2025 – 2026	For large provider entities and payers – with cost growth target of 2.8%

Source: Washington Health Care Authority

In late 2023, the Washington Health Care Authority provided a first report against these state benchmarks. The report showed that the total health care spending in Washington increased by 7.2% from 2017 to 2018, and 5.8% from 2018 to 2019. The reports also showed that when measured in terms of per member per year, growth was slowest for Medicare spending (2.9% per year in 2019), higher for private insurance (4.0%), and highest for Medicaid (11.9% in 2019), reflecting legislative investments in that program.

Findings from the DEX project, outlined in the remainder of this report, substantiate, and build upon the findings from HCA's report. Using different data sources and measuring slightly different quantities (the DEX project includes nursing facility care and out-of-pocket spending), the DEX project comes to many of the same conclusions but provides increased granularity by also assessing spending by age, health condition, and county.

Health care spending in Washington state in 2019

In 2019, the DEX project estimated $51.2 billion was spent on health across seven types of care -- hospital inpatient care, ambulatory care, emergency department care, pharmaceuticals, nursing facility care, home care, and dental care – in Washington.[3] This was $6,715 per person. During the same year, the DEX project estimated that national spending on the same types of care was $7,201 per person on the same types of care. Across the 50 states and the District of Columbia, Washington was 16th least and less than California,

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[3] Excluded from this analysis is spending on durable medical equipment, over-the-counter drugs, R&D and other investments, and spending on public health.

Oregon, and Montana. Washington has a relatively young population. Since spending increases with age, a fairer state comparison uses age-standardized spending per person. Age-standardized spending reports what spending in the state would be if Washington had the same age profile as the US as whole. Once age-standardized, Washington has the 18th lowest spending amount across the US (Figure 2).

Figure 2: Health care spending per person, 2019
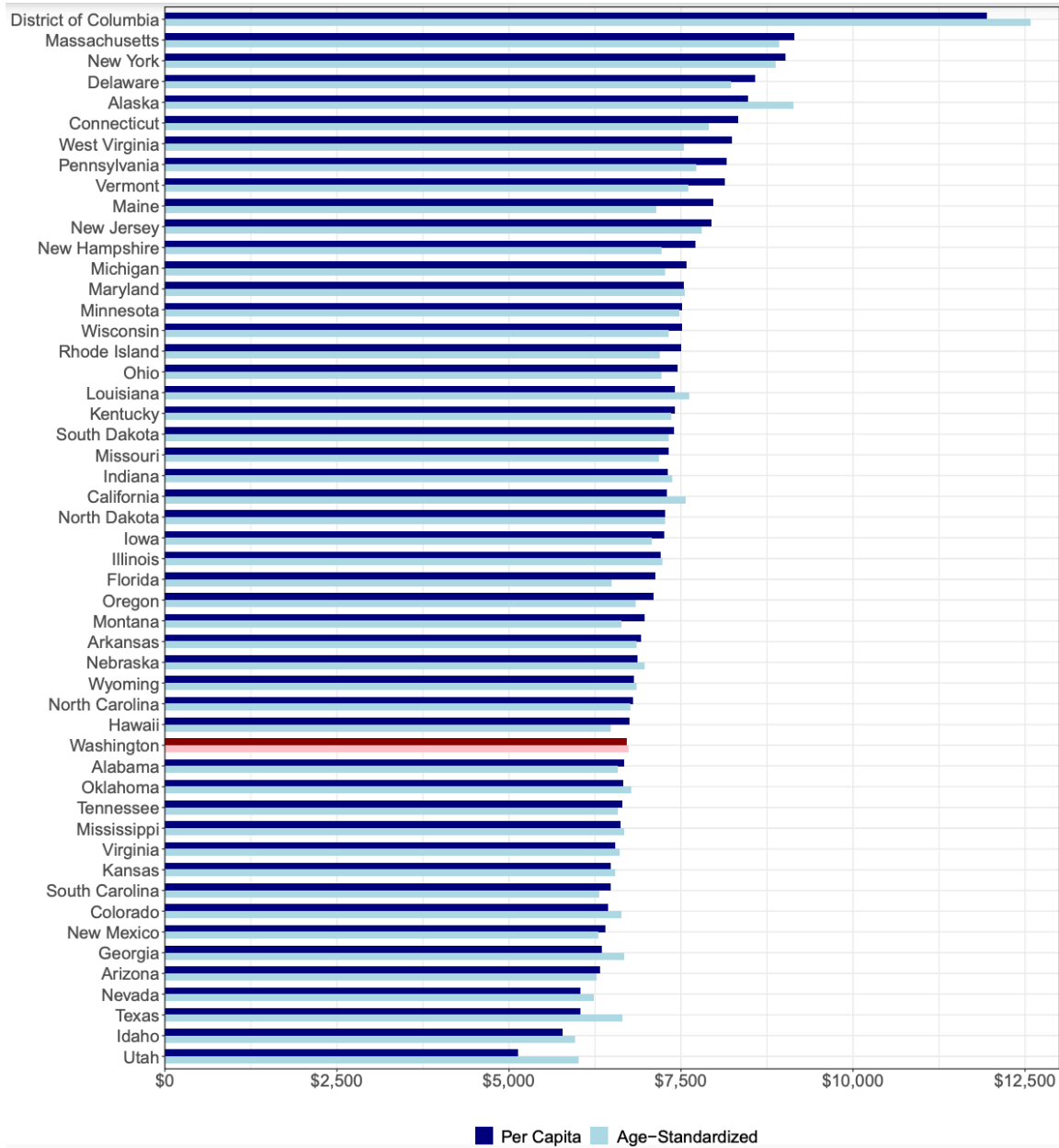
Source: The DEX Project

As it is in all US States, health care spending is greater for individuals as they age, with the DEX project showing that spending per person in Washington state reached $23,115 per year for males 85 and older and $21,809 for females 85 years and older (Figure 3). At the oldest age group, the most spending is on nursing facility care and ambulatory care, with a great amount of spending on hospital inpatient care as

well. Despite spending going up with age, there is more spending in Washington on 60- to 64-year-olds than any other age group. While there are fewer people in the oldest age groups, it is also true that there is a dramatic shift in spending at 65 from spending on private insurance, which tends to have higher prices, to Medicare, which has lower prices.

Figure 3: Health care spending and spending per person by age, 2019
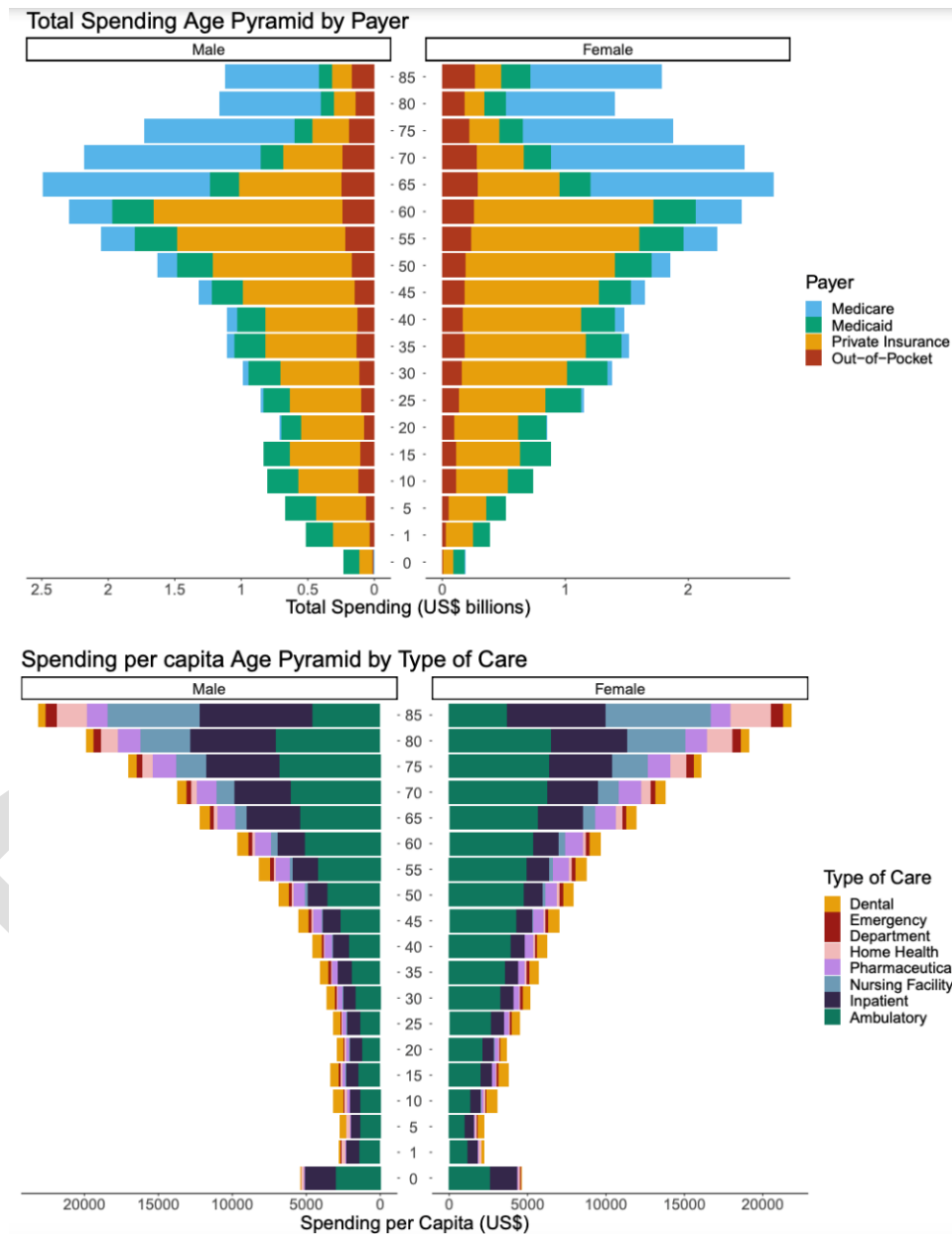
Source: The DEX Project

Across the seven types of care analyzed, the DEX project reports that more was spent on ambulatory care than any other type of care -- $24.6 billion in 2019. This is 48% of the spending considered in this study. The type of care with the second most spending was hospital inpatient care, which has $11.5 billion or 22% of the total. The DEX project shows that more than $4 billion was spent on both prescribed retail

pharmaceutical[4] and on dental care. $3.2 billion was spent on nursing facility care, while less than $2 billion was spent on emergency department care and home health care (Figure 4). Across the payers included in the DEX project,[5] nearly half of the spending was from private insurance companies -- $23.6 billion or 46%. Most of this spending was on ambulatory care (56%) and inpatient care (21%). $13.5 billion or 26% of the spending was from Medicare, with the most spending on ambulatory care, but a relatively large share on hospital inpatient care as well.

The DEX project tracked $8.4 billion in Medicaid spending, which was 16% of the total. Like Medicare, ambulatory care was the type of care with the most spending, but relative to private insurance, a great deal was spent on hospital inpatient care, and relative to all other payers, a large share of spending was on nursing facility care. Finally, $5.7 billion was spent out-of-pocket. This includes spending on deductibles and co-pays, and by those without insurance. While more out-of-pocket spending was on ambulatory care than any other type of care, there were relatively large amounts of spending on dental care and nursing facility care.

While the payer category with the most spending in Washington was private insurance, Medicare spending per beneficiary was much larger in all types of care than for any other payer category (Figure 5).[6] Medicare spending was $10,498 per beneficiary, while Medicaid spending was $5,319 per beneficiary and private insurance spending per beneficiary was only $4,659.

Figure 4: Total spending by payer and type of care, 2019

Payer	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Dental	Nursing Facility	Emergency Department	Home Health
All Payers	$51.2b	$24.6b	$11.5b	$4.4b	$4.4b	$3.2b	$1.3b	$1.8b
Medicare	$13.5b	$5.7b	$3.9b	$1.8b	$0b	$0.8b	$0.5b	$0.8b
Medicaid	$8.4b	$3.6b	$2.2b	$0.6b	$0.4b	$0.7b	$0.1b	$0.7b
Private Insurance	$23.6b	$13.1b	$5b	$1.9b	$2b	$0.6b	$0.6b	$0.3b
Out-of-Pocket	$5.7b	$2.3b	$0.4b	$0.1b	$1.9b	$1b	$0.1b	$0.1b

Source: The DEX Project

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[4] Prescribed pharmaceuticals administered in a facility such as a hospital or clinic are included in other types of care, such as hospital inpatient care and ambulatory care, respectively. They reflect what was paid for the drugs and do not include pharmaceutical rebates or discounts.
[5] Spending from Veterans Affairs, Tri-care, and Indian Health Services were omitted because of insufficient data.
[6] While Figure 3 reports Medicare, Medicaid, and private insurance per beneficiary, out-of-pocket spending is reported in per person terms.

Figure 5: Spending per beneficiary by payer and type of care, 2019 -- Medicare, Medicaid, and private insurance per beneficiary, out-of-pocket spending is reported in per person terms.

Payer	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Dental	Nursing Facility	Emergency Department	Home Health
All Payers (per capita)	$6715	$3229	$1503	$575	$572	$421	$174	$242
Medicare (per beneficiary)	$10498	$4482	$3039	$2034	$30	$655	$395	$593
Medicaid (per beneficiary)	$5319	$2276	$1402	$378	$271	$452	$73	$466
Private Insurance (per beneficiary)	$4659	$2590	$981	$376	$404	$128	$123	$57
Out-of-Pocket (per capita)	$745	$296	$48	$8	$243	$131	$11	$7

Type of Care

Source: The DEX Project

Changes in health care spending in Washington state; 2010-2019

The DEX project estimated that from 2010 to 2019, spending steadily increased with overall growth of $17.1 billion, from $34.1 billion in spending to $51.2 billion (Figure 6). During this time, private insurance spending decreased from 49% of the total to 46%, and Medicare spending increased from 23% to 26% and Medicaid spending increased from 14% to 16%. Spending on all types of care increased (Figure 7).

Figure 6: Total spending in Washington by payer, 2010-2019
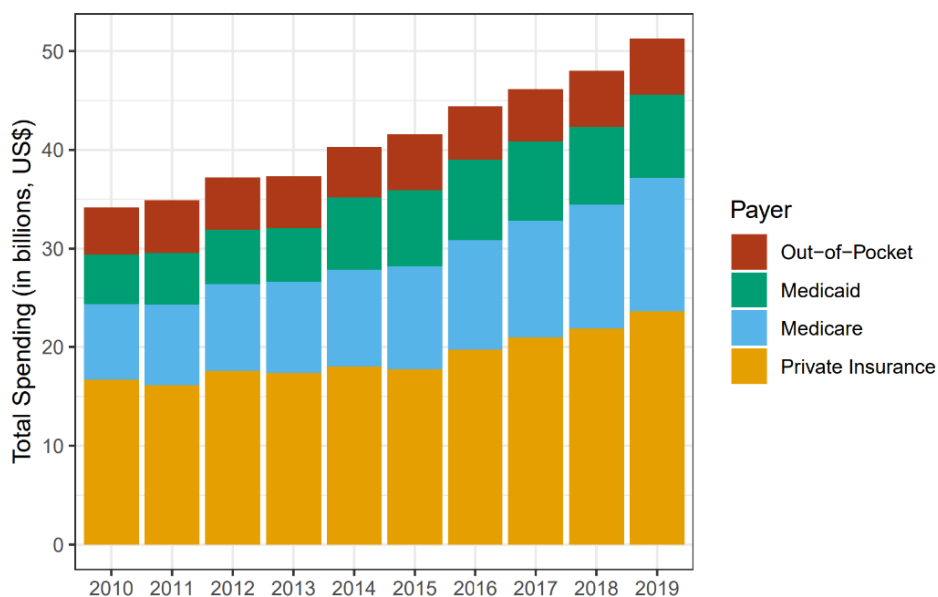
Source: The DEX Project

Figure 7: Total spending in Washington by type of care, 2010-2019
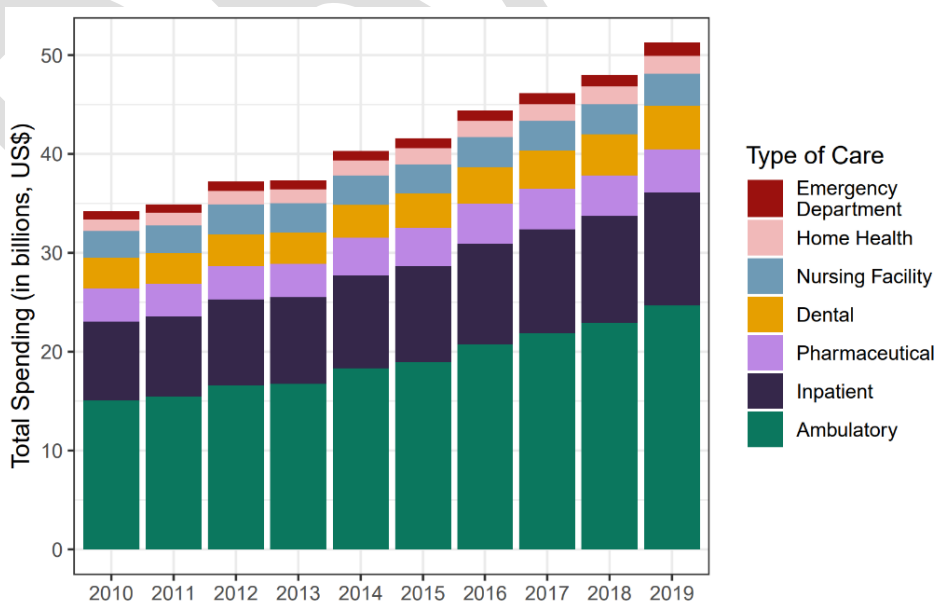
Source: The DEX Project

The DEX project estimated spending in Washington increased between 2010 and 2019 at an annualized rate of 4.1% (Figure 8). During this same period, the US increased at an annualized rate of 3.9%. Of the 50 states and the District of Columbia, Washington had the twenty-first largest growth rate.

Figure 8: Comparison of raw and age-standardized growth rates of per person spending
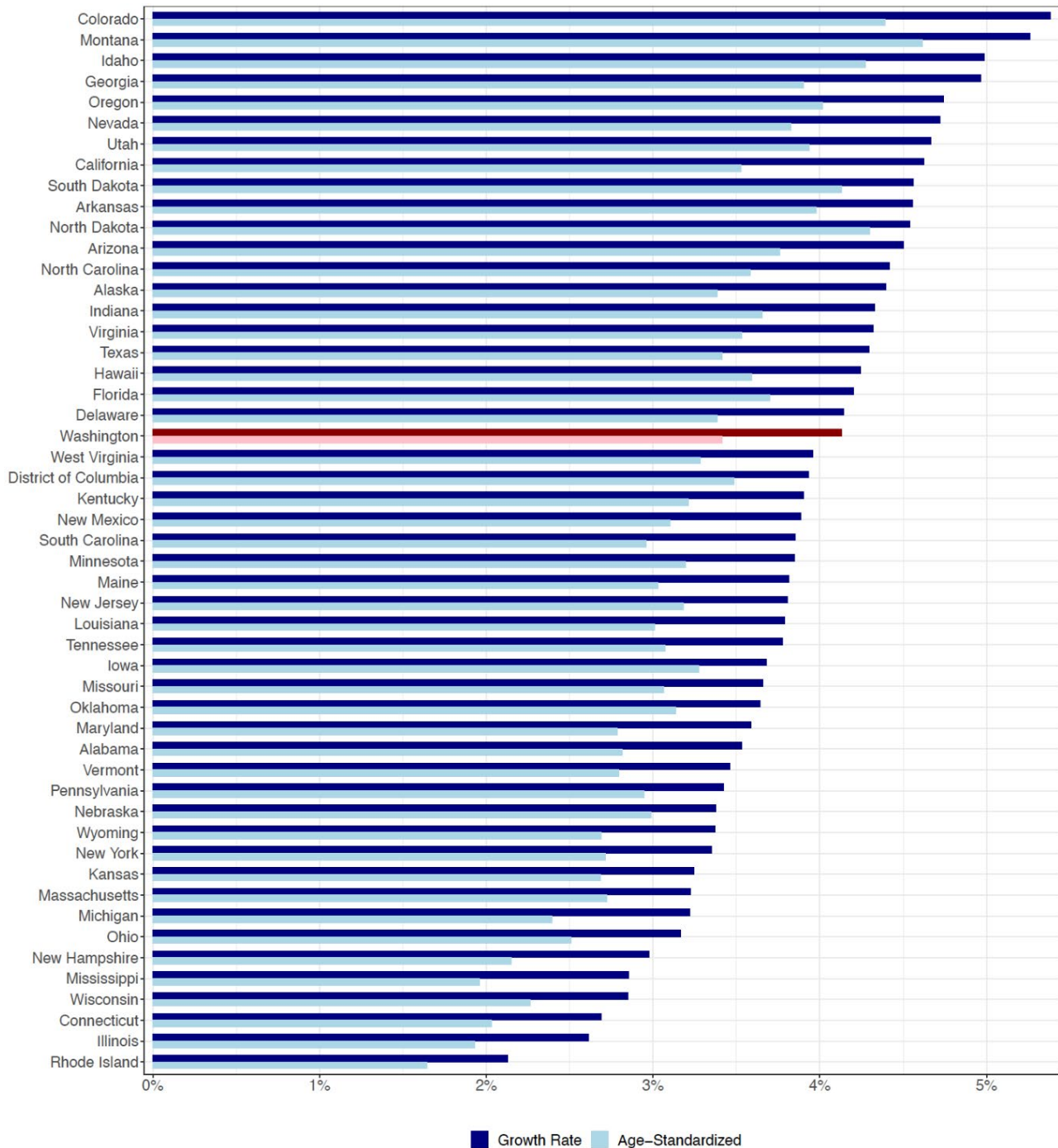
Source: The DEX Project

The $17.1 billion increase in spending in Washington between 2010 and 2019 can be broken apart to assess which underlying factors led to more spending (Figure 9). The DEX project shows that the type of care that had the greatest increase was ambulatory care, which increased $9.6 billion in annual spending. This increase was driven by three factors – growing population (pink), aging population (blue), and higher ambulatory care spending per visit (green). Higher spending per visit suggests that the price of care or intensity of care (or both) increased throughout this time. Interestingly, there were fewer ambulatory care visits per person in 2019 than in 2010, leading to a reduction in ambulatory care spending (orange). The DEX project also shows that hospital inpatient care also increased a great deal – $3.5 billion increase in annual spending between 2010 and 2019. This increase was also driven partly by a larger and older population, but to a greater extent was driven by higher spending per admission. Admission per prevalent case decreased between 2010 and 2019 leading to a $2.54 billion decrease in spending, but that decrease was more than made up for by the $4.10 billion spending increase attributed to the increase in price and intensity of care. Across all types of care except emergency department spending, prices and intensity of care went up, while utilization of services went up only in dental care and emergency department care, and marginally in ambulatory care.

Figure 9: Drivers of spending change for Washington State, 2010-2019
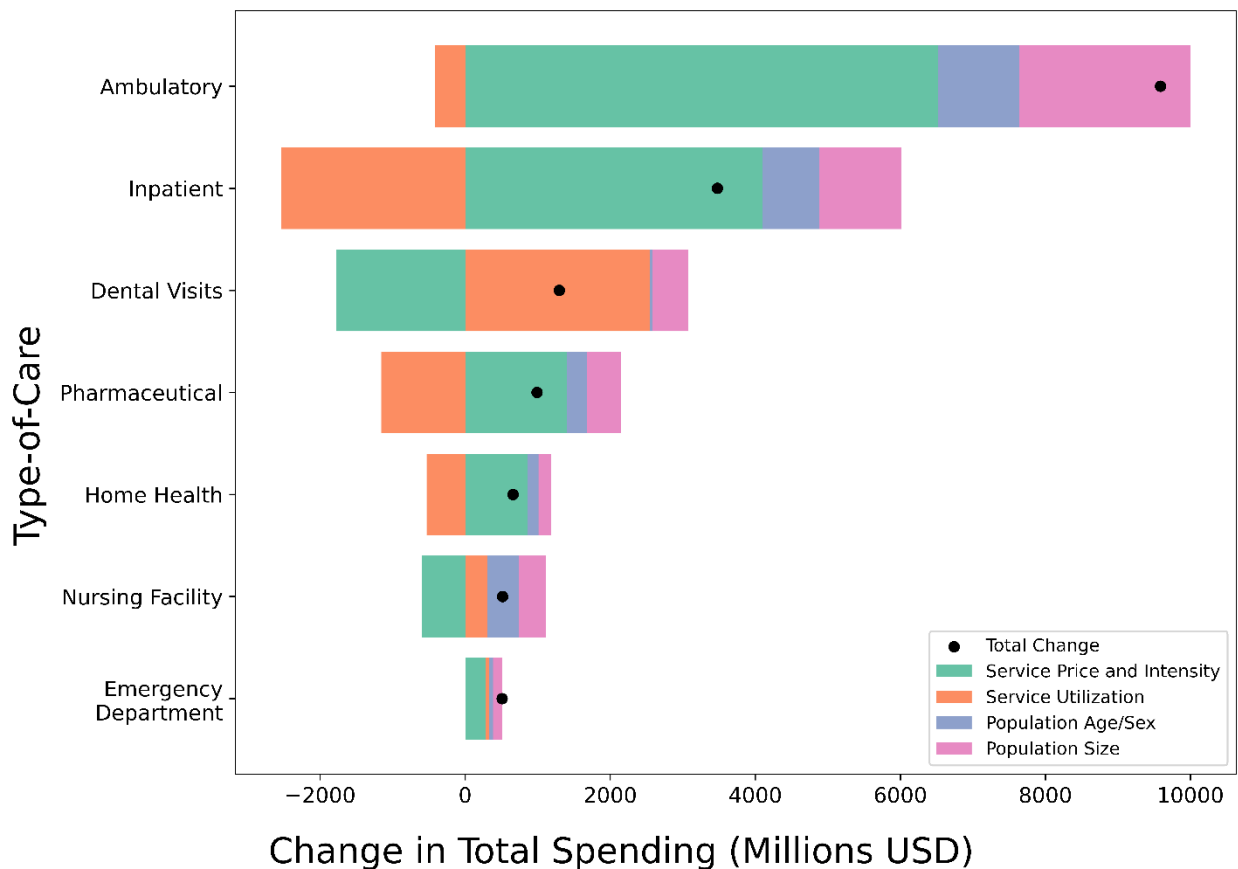
Source: The DEX Project

Figure 10: Drivers of spending change for each payer in Washington, 2010 to 2019
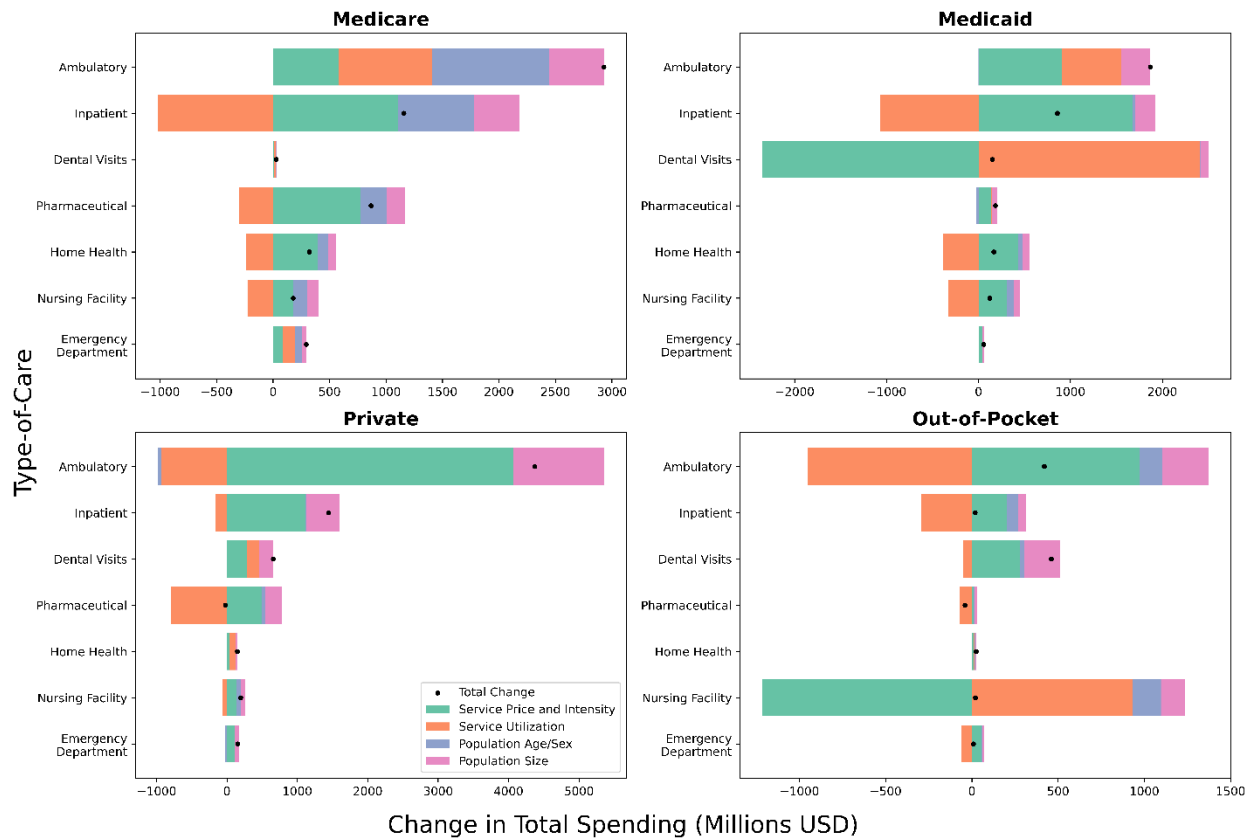
Source: The DEX Project

When broken down by payer, it is clear that changes in utilization were generally offset by changes in price and intensity of care. For most payer and types of care (all except Medicare ambulatory care, Medicaid ambulatory and dental care, private insurance spending on dental care, and out-of-pocket spending on nursing facility care), there were reductions in utilization (after adjusting for age and sex of the population). The aging population influenced Medicare spending but did not have much of an effect on the other payers. Increases in price and intensity of care had an especially large effect on ambulatory and inpatient care (Figure 10).

Health care spending by health condition in Washington

Of the 148 health conditions analyzed in the DEX project, oral disorders ($3.05 billion); type 2 diabetes ($2.18 billion); skin and subcutaneous diseases, which includes all dermatology ($1.53 billion); joint pain ($2.74 billion); and lower back and neck pain ($1.68 billion) had the largest amounts in total spending in 2019 (Table 1). Oral disorders, which includes dental carries, oral surgery, and orthodontia, were mostly paid for out-of-pocket (55.8%) and by private insurance (40.1%). On the other hand, type 2 diabetes, which had nearly 54% of the spending on patients older than 65 years old was mostly paid for by Medicare (36.9%). Skin and subcutaneous disorders had 51.6% of the spending focused on ambulatory care with 48.3% of the spending coming from private insurance.

Table 1: Estimated health care spending in 2019 for the 47 most expensive health conditions of the 144 health conditions analyzed

Cause	Total Spending (billions)	Growth Rate	Age-Standardized Growth Rate	Under 20	Over 65	Inpatient	Ambulatory	Pharmaceutical	Nursing Facility	Medicare	Medicaid	Private Insurance	Out-of-Pocket
Oral disorders	$3.05	3.1%	3.0%	17.0%	18.4%	0.7%	1.9%	0.1%	0.0%	1.2%	2.9%	40.1%	55.8%
Joint pain	$2.74	5.3%	4.7%	8.8%	29.6%	9.1%	78.2%	6.7%	2.7%	22.7%	8.9%	58.7%	9.7%
Diabetes mellitus type 2	$2.18	4.3%	2.9%	0.1%	53.6%	9.6%	42.1%	23.0%	18.7%	36.9%	14.2%	36.9%	12.0%
Lower back and neck pain	$1.68	2.0%	1.6%	1.9%	34.2%	16.6%	75.5%	1.3%	2.0%	25.8%	7.1%	56.7%	10.5%
Skin and subcutaneous diseases	$1.53	3.8%	3.3%	12.5%	32.0%	16.9%	51.6%	23.7%	1.8%	27.4%	16.8%	48.3%	7.4%
Urinary tract disorders	$1.51	3.2%	2.2%	6.7%	48.7%	18.4%	60.9%	5.0%	5.8%	35.5%	16.9%	38.8%	8.7%
Ischemic heart disease	$1.48	2.6%	1.1%	0.1%	65.5%	45.8%	34.1%	3.4%	9.1%	43.9%	10.4%	37.6%	8.2%
Well dental	$1.40	4.8%	4.8%	28.5%	13.2%	0.0%	0.0%	0.0%	0.0%	0.8%	25.9%	62.0%	11.3%
Heart Failure	$1.30	6.5%	4.7%	0.3%	80.8%	49.6%	7.0%	0.8%	34.7%	54.2%	14.2%	15.8%	15.9%
Anxiety disorders	$1.25	9.1%	9.1%	26.0%	9.3%	7.2%	78.1%	4.1%	5.4%	8.2%	33.4%	49.7%	8.7%
Gynecological diseases	$1.21	3.2%	3.5%	4.0%	7.1%	3.7%	91.2%	2.9%	0.0%	6.5%	10.1%	73.3%	10.1%
Benign and in situ neoplasms	$1.09	3.5%	2.8%	3.7%	34.6%	9.1%	86.1%	4.0%	0.2%	25.6%	4.8%	59.6%	10.0%
Alzheimer's disease and other dementias	$1.01	2.1%	1.1%	0.0%	94.6%	12.8%	6.6%	0.9%	69.1%	39.8%	24.5%	8.5%	27.2%
Acute renal failure	$0.98	5.4%	4.0%	0.9%	46.3%	34.3%	61.5%	1.2%	0.8%	40.9%	32.4%	21.6%	5.1%
Upper digestive system diseases	$0.95	2.3%	1.4%	6.3%	45.3%	26.7%	46.2%	3.6%	15.6%	32.9%	17.5%	38.9%	10.7%
Osteoarthritis	$0.94	4.5%	3.1%	0.0%	60.8%	44.4%	39.3%	1.4%	10.1%	34.0%	6.4%	49.7%	10.0%
Endocrine, metabolic, blood, and immune disorders	$0.93	3.3%	2.5%	10.8%	43.2%	22.1%	32.1%	22.8%	16.4%	29.6%	16.4%	45.1%	8.9%
Breast cancer	$0.93	6.4%	5.6%	0.0%	32.3%	2.2%	89.2%	7.9%	0.3%	26.8%	5.9%	62.7%	4.6%
Depressive disorders	$0.91	5.1%	4.9%	21.6%	15.7%	25.8%	57.7%	7.3%	2.9%	14.7%	30.1%	49.0%	6.1%
Falls	$0.90	4.4%	3.6%	9.7%	55.7%	36.4%	31.4%	0.1%	16.4%	33.2%	10.7%	43.1%	13.0%
Lower respiratory infections	$0.75	3.4%	2.9%	24.6%	38.6%	68.1%	21.5%	2.1%	2.0%	31.2%	20.8%	42.7%	5.2%
Blindness and vision loss	$0.74	4.2%	2.4%	4.5%	71.0%	2.2%	92.0%	2.7%	1.4%	52.2%	7.4%	30.1%	10.4%
Well person	$0.74	4.8%	4.8%	34.1%	16.0%	0.0%	97.6%	0.0%	0.0%	12.6%	15.6%	68.1%	3.7%
Congenital birth defects	$0.72	2.9%	3.6%	81.8%	3.2%	40.4%	45.9%	1.4%	0.7%	3.7%	34.3%	56.3%	5.7%
Stroke	$0.72	4.0%	2.5%	1.6%	61.9%	54.8%	19.0%	0.8%	14.6%	35.9%	18.7%	36.6%	8.8%
Colon and rectum cancer	$0.68	7.7%	7.1%	0.2%	30.2%	10.0%	86.8%	1.0%	0.7%	21.0%	5.7%	67.9%	5.4%
Septicemia	$0.67	8.4%	7.2%	4.4%	50.6%	93.1%	1.5%	0.1%	2.2%	28.9%	20.0%	45.7%	5.4%
Atrial fibrillation and flutter	$0.66	4.7%	3.4%	0.0%	77.9%	26.1%	36.0%	22.1%	6.7%	57.0%	6.9%	29.3%	6.8%
Chronic kidney disease	$0.59	3.7%	2.1%	1.4%	68.9%	22.7%	59.9%	2.2%	1.3%	56.5%	19.9%	17.7%	5.9%
Other unintentional injuries	$0.53	2.5%	2.5%	24.0%	16.8%	20.4%	65.9%	2.0%	1.0%	13.4%	14.7%	62.3%	9.6%
Inflammatory bowel disease	$0.53	7.1%	7.0%	15.2%	16.1%	13.3%	55.8%	22.3%	0.5%	14.7%	9.4%	71.3%	4.6%
Treatment of hypertension	$0.51	-0.1%	-1.3%	1.0%	58.7%	0.3%	48.5%	27.2%	1.3%	48.9%	14.3%	29.5%	7.2%
Transport injuries	$0.50	3.3%	3.6%	17.6%	10.7%	56.0%	29.9%	0.0%	3.1%	6.9%	10.1%	77.1%	5.8%
Tracheal, bronchus, and lung cancer	$0.48	9.2%	7.3%	0.1%	57.0%	14.8%	76.6%	6.0%	1.2%	47.6%	6.2%	42.5%	3.7%
Asthma	$0.46	4.2%	4.0%	27.5%	22.8%	19.1%	48.6%	26.4%	0.2%	22.1%	20.1%	51.5%	6.3%
Upper respiratory infections	$0.46	1.0%	1.3%	42.7%	8.4%	2.6%	89.6%	3.2%	0.1%	6.8%	23.7%	57.6%	12.0%
Other neurological disorders	$0.44	4.1%	3.2%	4.8%	43.6%	29.7%	42.6%	15.6%	2.7%	41.1%	13.8%	39.4%	5.8%
Multiple sclerosis	$0.44	5.7%	5.6%	0.3%	17.7%	2.3%	40.2%	50.7%	3.3%	34.6%	7.4%	55.0%	3.0%
Opioid use disorders	$0.41	11.7%	11.9%	1.6%	7.9%	11.4%	74.9%	8.2%	0.7%	10.4%	70.2%	17.0%	2.3%
Chronic obstructive pulmonary disease	$0.40	3.2%	1.4%	0.4%	70.6%	32.6%	23.5%	22.4%	3.4%	57.0%	19.8%	18.1%	5.1%
Other chronic respiratory diseases	$0.40	2.9%	2.6%	14.7%	22.6%	6.8%	62.1%	11.8%	1.7%	17.0%	14.8%	55.8%	12.5%
Headache disorders	$0.34	2.4%	2.5%	9.6%	17.8%	8.4%	63.2%	6.7%	4.6%	18.4%	13.8%	57.7%	10.1%
Idiopathic epilepsy	$0.33	4.7%	4.5%	34.8%	22.1%	46.6%	18.5%	10.9%	16.2%	20.8%	28.3%	43.3%	7.6%
Pregnancy and postpartum care	$0.32	3.3%	2.9%	6.6%	0.0%	48.3%	44.9%	1.2%	0.0%	0.2%	36.9%	55.0%	7.9%
Schizophrenia	$0.32	7.4%	7.5%	3.1%	8.7%	38.4%	21.2%	16.3%	13.0%	20.8%	66.6%	11.5%	1.2%
Leukemia	$0.31	5.4%	4.8%	22.7%	36.8%	37.5%	33.2%	27.9%	0.3%	32.6%	7.8%	57.0%	2.6%
Rheumatoid arthritis	$0.31	5.6%	4.7%	1.6%	43.9%	2.5%	45.2%	48.9%	1.5%	40.5%	9.1%	47.0%	3.4%
Prostate cancer	$0.30	4.7%	2.7%	0.0%	72.9%	7.7%	70.7%	20.5%	0.4%	53.9%	2.3%	38.1%	5.7%
Multiple myeloma	$0.30	8.9%	7.0%	0.0%	58.6%	5.4%	59.5%	34.5%	0.2%	48.6%	2.9%	46.3%	2.1%
Cirrhosis and other chronic liver diseases	$0.29	5.6%	5.0%	3.3%	29.1%	47.2%	39.6%	4.1%	1.8%	26.1%	20.2%	48.0%	5.7%

Source: The DEX Project

Among the most expensive health conditions, the DEX project shows that joint pain stands out as having a larger annualized growth rate (5%), without adjusting for inflation. Type 2 diabetes, skin and subcutaneous diseases, oral disorders, and urinary tract disorders had annualized spending increase between 3% and 4.5% per year (Figure 11).

Figure 11: Growth Rates of the five highest spending health conditions in Washington, 2010-2019
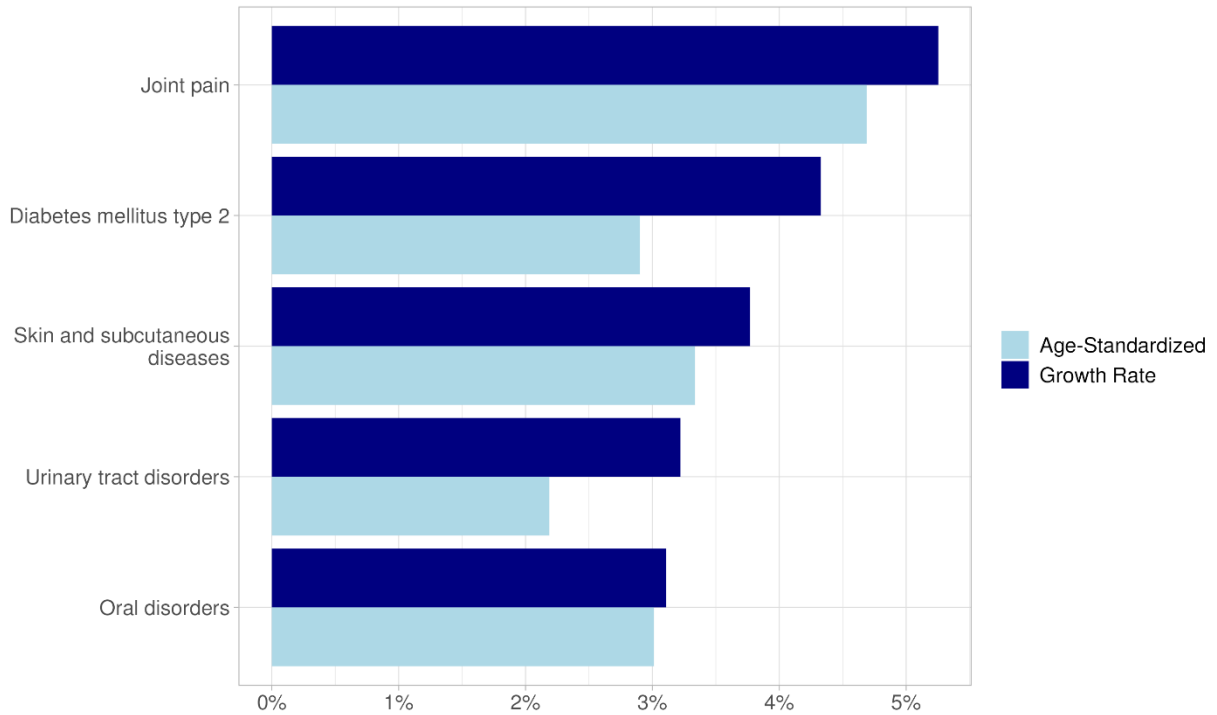
Source: The DEX Project

Between 2010 and 2019, anxiety disorders, heart failure, joint pain, type 2 diabetes, and oral disorders, were the health conditions with the largest increases in annual spending (Figure 12).

Figure 12: Growth rate of the five health conditions with the largest absolute growth since 2010
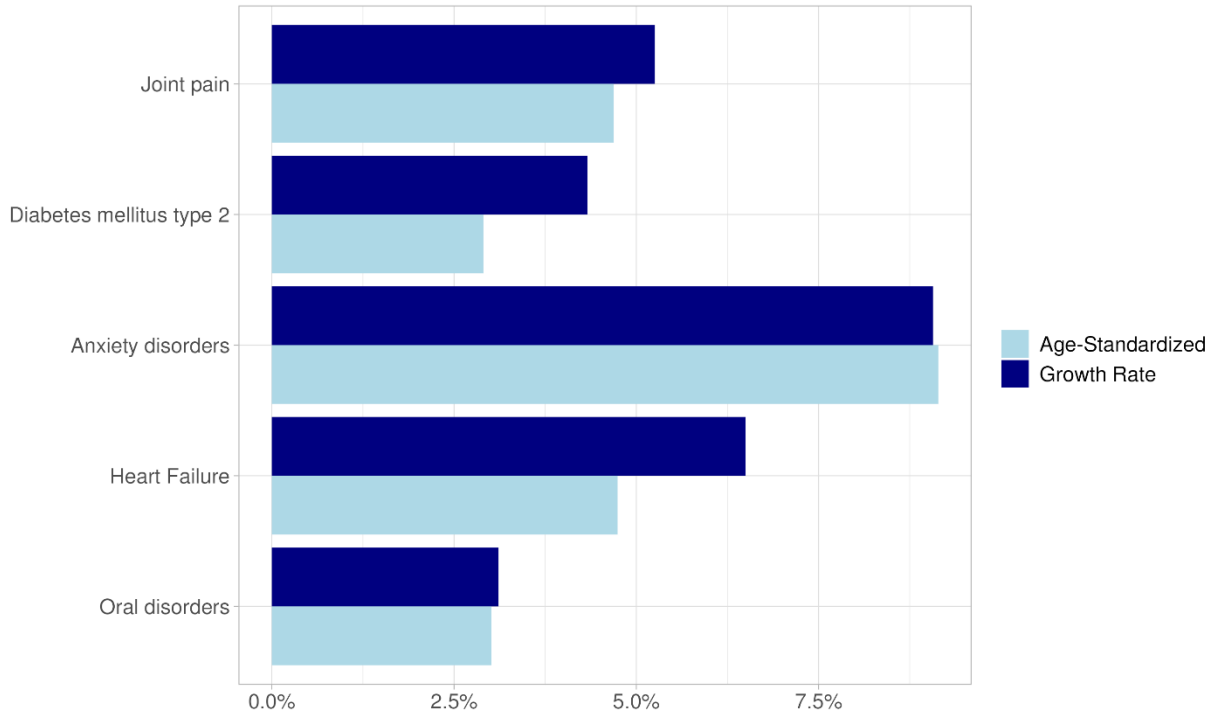
Source: The DEX Project

According to the DEX project, spending on joint pain, the health condition that increased the most between 2010 and 2019, increased especially for home health, ambulatory, and emergency department care (Figure 13). Even in 2010 so much spending was on joint pain that increases in only these types of care led to sizable increase in total spending. In absolute terms, most of the spending growth on joint pain was in ambulatory, and most of the spending increase in ambulatory care for joint pain could be attributed to increases in utilization (Figure 16).

Figure 13: Age-standardized growth rate of spend per beneficiary for joint pain, 2019

	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Nursing Facility	Emergency Department	Home Health
All Payers (per capita)	3.4%	4%	0.8%	2%	-0.9%	4.4%	6.6%
Medicare (per beneficiary)	4.1%	4.6%	1%	3.8%	1%	6.6%	8.5%
Medicaid (per beneficiary)	1.8%	3.1%	0.5%	2.3%	-3.9%	3.3%	2.7%
Private Insurance (per beneficiary)	3.1%	3.8%	0.1%	-0.2%	-0.2%	2.3%	5.8%
Out-of-Pocket (per capita)	1.1%	1.5%	-4.5%	-5.6%	-0.5%	-1.1%	4.8%
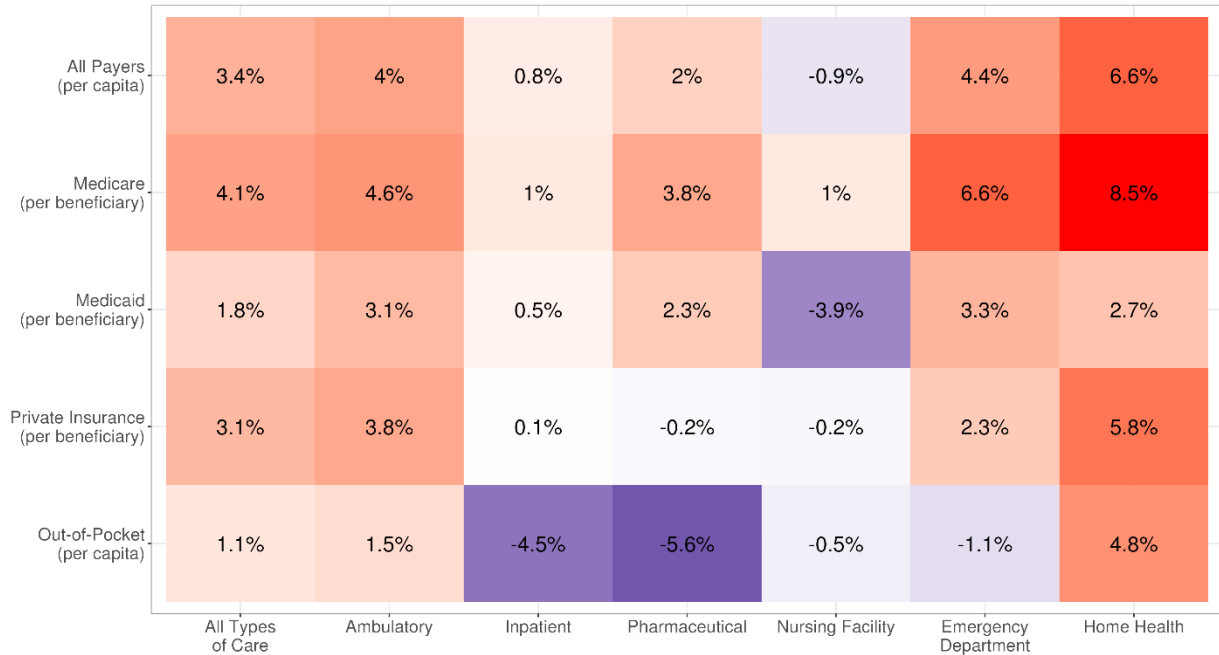
Source: The DEX Project

According to the DEX project, spending on type 2 diabetes had an absolute growth of $753 million from 2010 to 2019. Private insurance payers for inpatient care saw the highest increase at 2.9% per beneficiary while Medicaid payers had the highest decrease in home health care spending at 7.2%. Across all types of care, we see a decrease in service utilization and a growth population size (Figure 16).

Figure 14: Age-standardized growth rate of spend per beneficiary for diabetes type 2, 2019

	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Nursing Facility	Emergency Department	Home Health
All Payers (per capita)	1.7%	3.9%	1.3%	2.5%	-1.5%	4.6%	-3.1%
Medicare (per beneficiary)	2.5%	4.3%	-1%	3.5%	-0.8%	5.2%	-1.1%
Medicaid (per beneficiary)	-0.5%	3.9%	0.2%	0.4%	-2.5%	-3.8%	-7.2%
Private Insurance (per beneficiary)	2.9%	3.7%	7.7%	-0.1%	5.1%	6.5%	3.4%
Out-of-Pocket (per capita)	-2.1%	2%	-3.3%	-4.2%	-3.8%	-0.3%	-4%
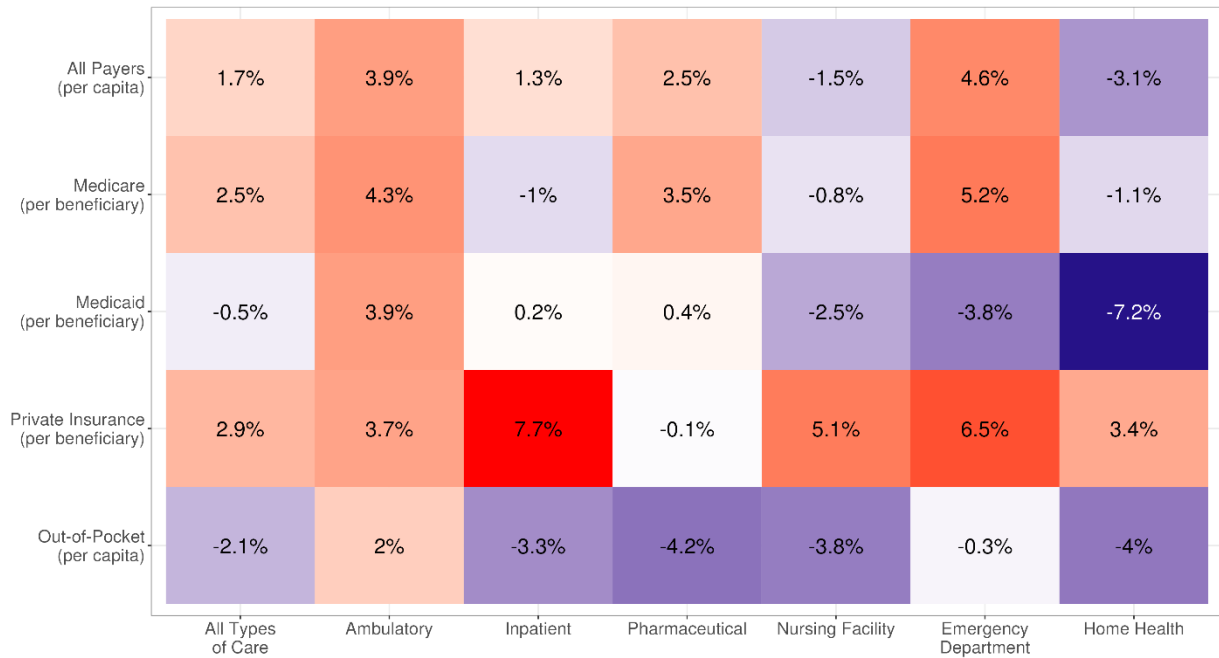
Source: The DEX Project

According to the DEX project, spending on oral disorders, increased especially for dental care at 20.8% with Medicare as the payer with the largest increase across all types of care at 13.3% (Figure 15). During this period, spending on nursing facility care for oral disorders decreased across all payers. In absolute terms, most of the spending growth on oral disorders was in dental care. In the cases of both dental care and anxiety disorders, the vast majority of spending increases could be attributed to increases in utilization (Figure 17).

Figure 15: Age-standardized growth rate of spend per beneficiary for oral disorders, 2019

	All Types of Care	Ambulatory	Inpatient	Pharmaceutical	Dental	Nursing Facility	Emergency Department	Home Health
All Payers (per capita)	1.8%	1.1%	5.9%	0.8%	1.8%	-4.3%	1.2%	3.3%
Medicare (per beneficiary)	13.3%	4.3%	1.3%	3.4%	20.8%	-10%	4.4%	1.4%
Medicaid (per beneficiary)	-8.2%	2.6%	2.7%	1.5%	-9.9%	5%	-4.4%	3.2%
Private Insurance (per beneficiary)	2.3%	-1%	6.2%	-3.2%	2.3%	-1.6%	1.1%	5.6%
Out-of-Pocket (per capita)	1.6%	0.3%	0.3%	-6%	1.6%	-7.7%	-5.5%	5.2%
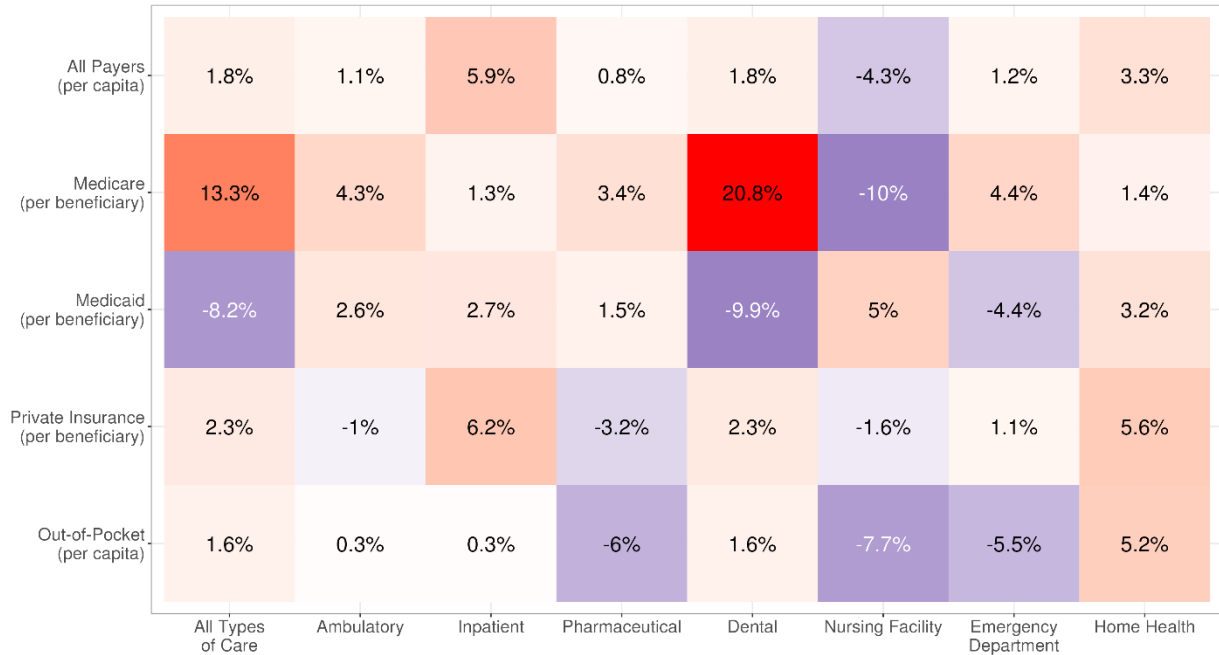
Source: *The DEX Project*

According to the DEX project, spending on anxiety disorders had an absolute growth of $725 million from 2010 to 2019. Private insurance payers for home health care saw the highest increase at 12.4% per beneficiary while out-of-pocket payers had the highest decrease in pharmaceutical spending at 7.6%. Across all types of care, we see a decrease in service utilization and a growth population size (Figure 16).

Figure 16: Age-standardized growth rate of spend per beneficiary for anxiety disorders, 2019
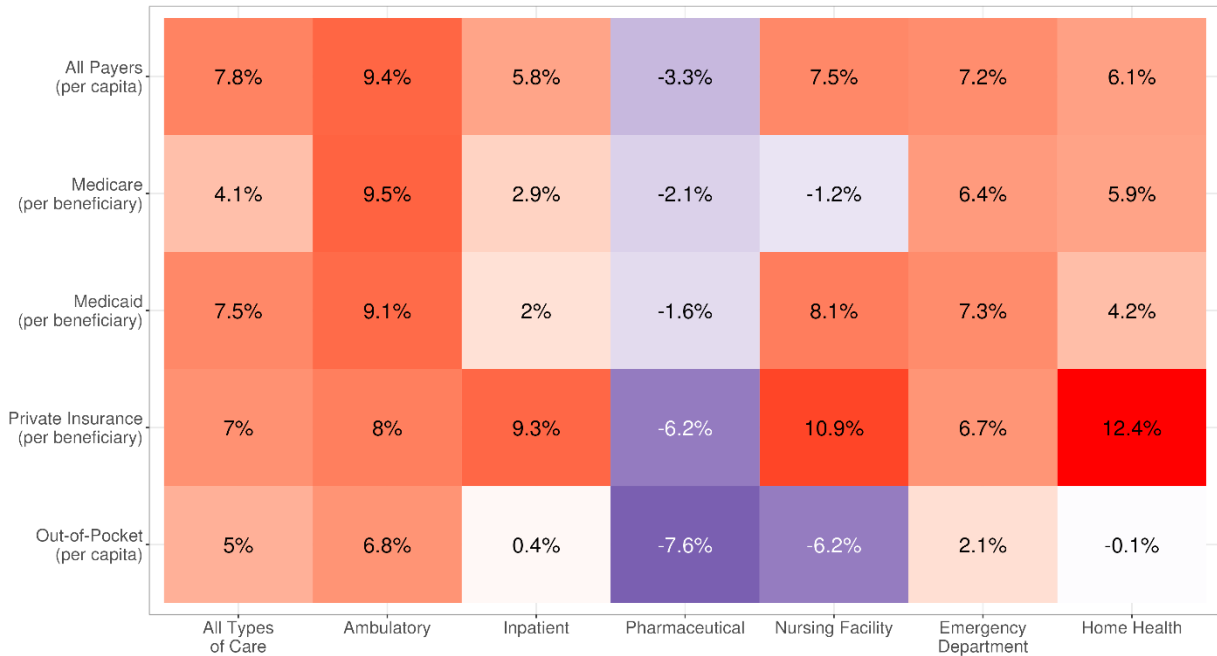
Source: The DEX Project

Figure 17: Drivers of spending change for three health conditions with largest growth, 2010 - 2019
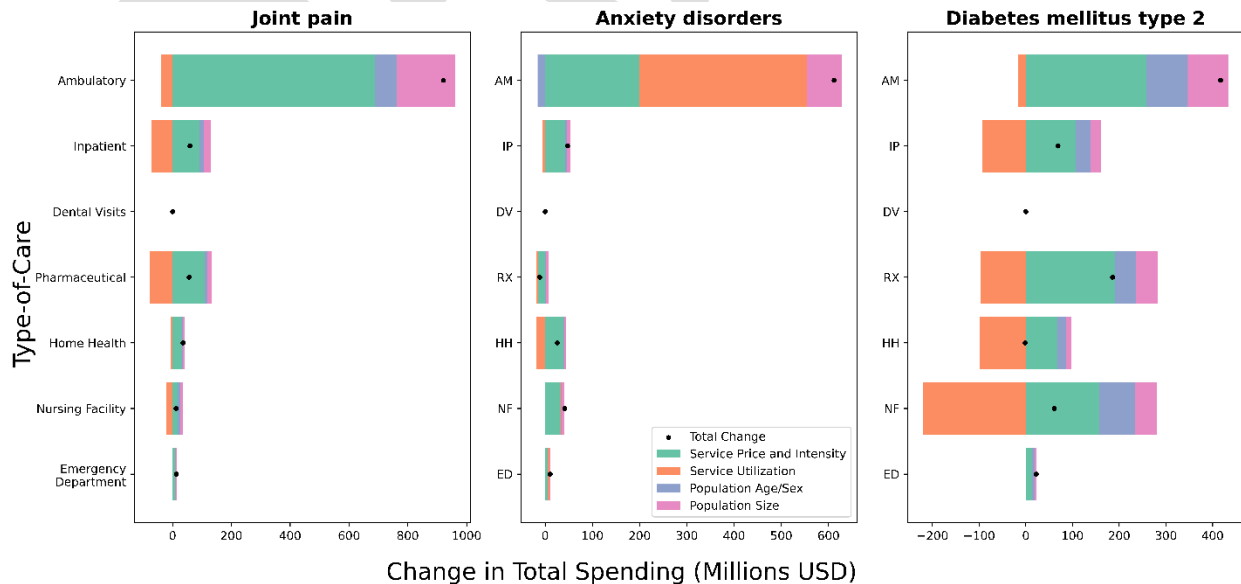
Source: The DEX Project

Health care spending variation within Washington

The DEX project shows that health care spending varies dramatically throughout Washington state. In 2019 the counties with the largest spending per person were Columbia County, Garfield County, and Pacific County, with $10,355, $9,964, and $9,214 health spending per person. On the other hand, Franklin County, Whitman County, and Adams County were the counties with the smallest spending per person with $5,159, $5,581, and $5,709 of health spending respectively.

Figure 18: Health care spending per person in Washington by county, 2019
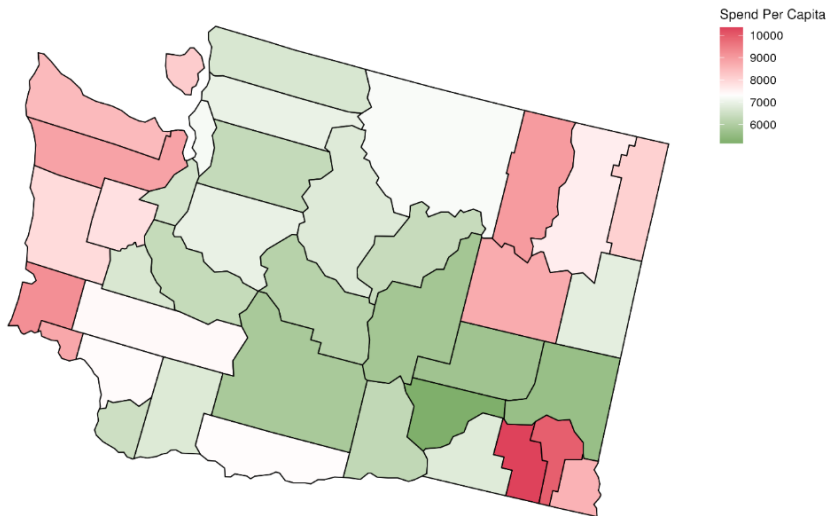
Source: The DEX Project

Figure 19: Health spending per person versus growth rate by county, 2010 to 2019
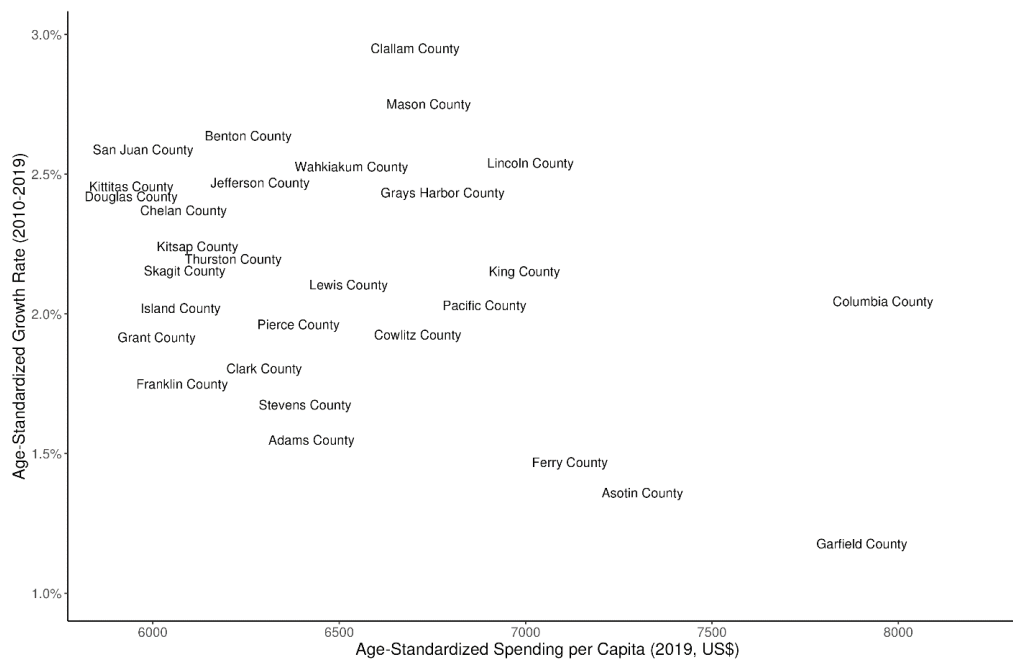
Source: The DEX Project

When age-standardized, Douglas, San Juan, and Kittitas County had the lowest spending per capita, with Columbia and Garfield County having the highest spending per capita. Clallam county had the largest growth rate in 2019 yet still does not surpass Garfield County – which experienced a near 1% growth rate of age-standardized spending (Figure 18).

The DEX project showed that spending varied dramatically for each payer category (Figure 19) and for each type of care (Figure 20). These differences are explained in Figure 21 which breaks apart the difference in each county's spending per person relative to the all-Washington mean. Figure 22 highlights the drivers of higher spending in each county between 2010 and 2019.

Figure 20: Age-Standardized Spending per Beneficiary by Payer
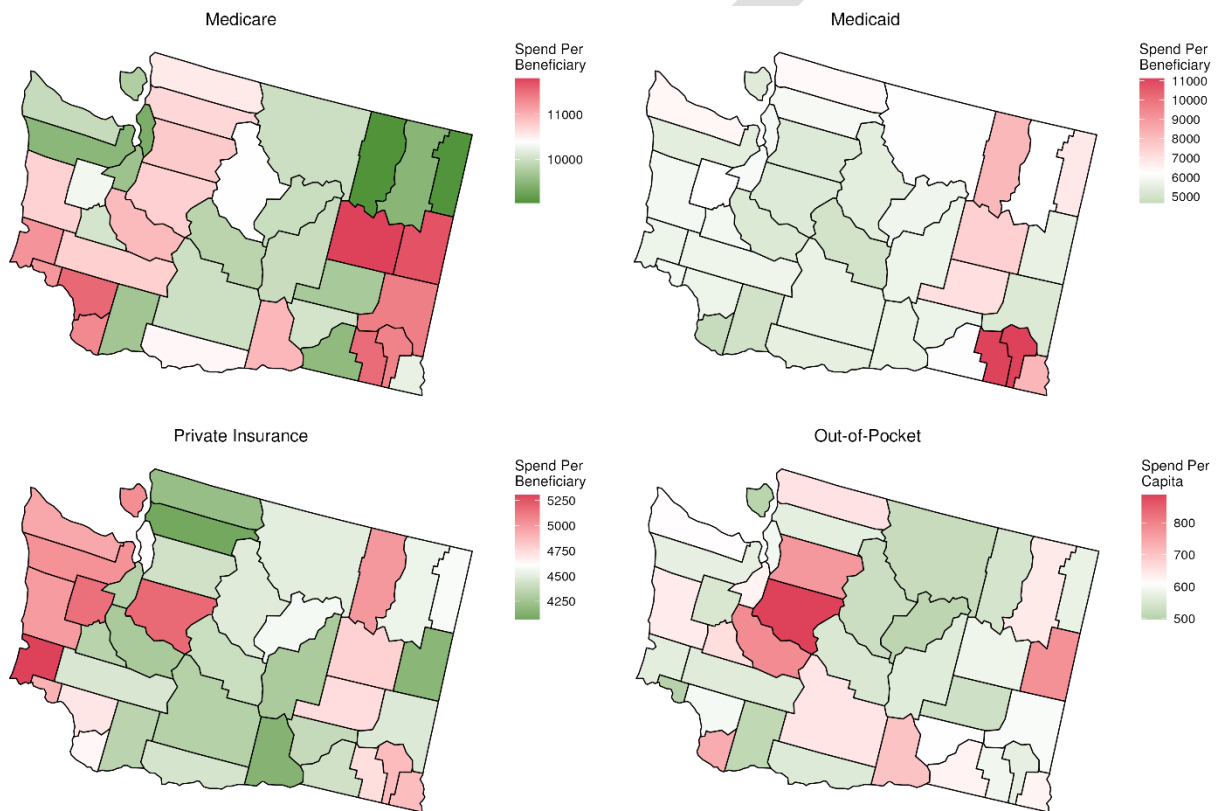
Source: The DEX Project

Figure 21: Age-Standardized Spending per Person by Type of Care
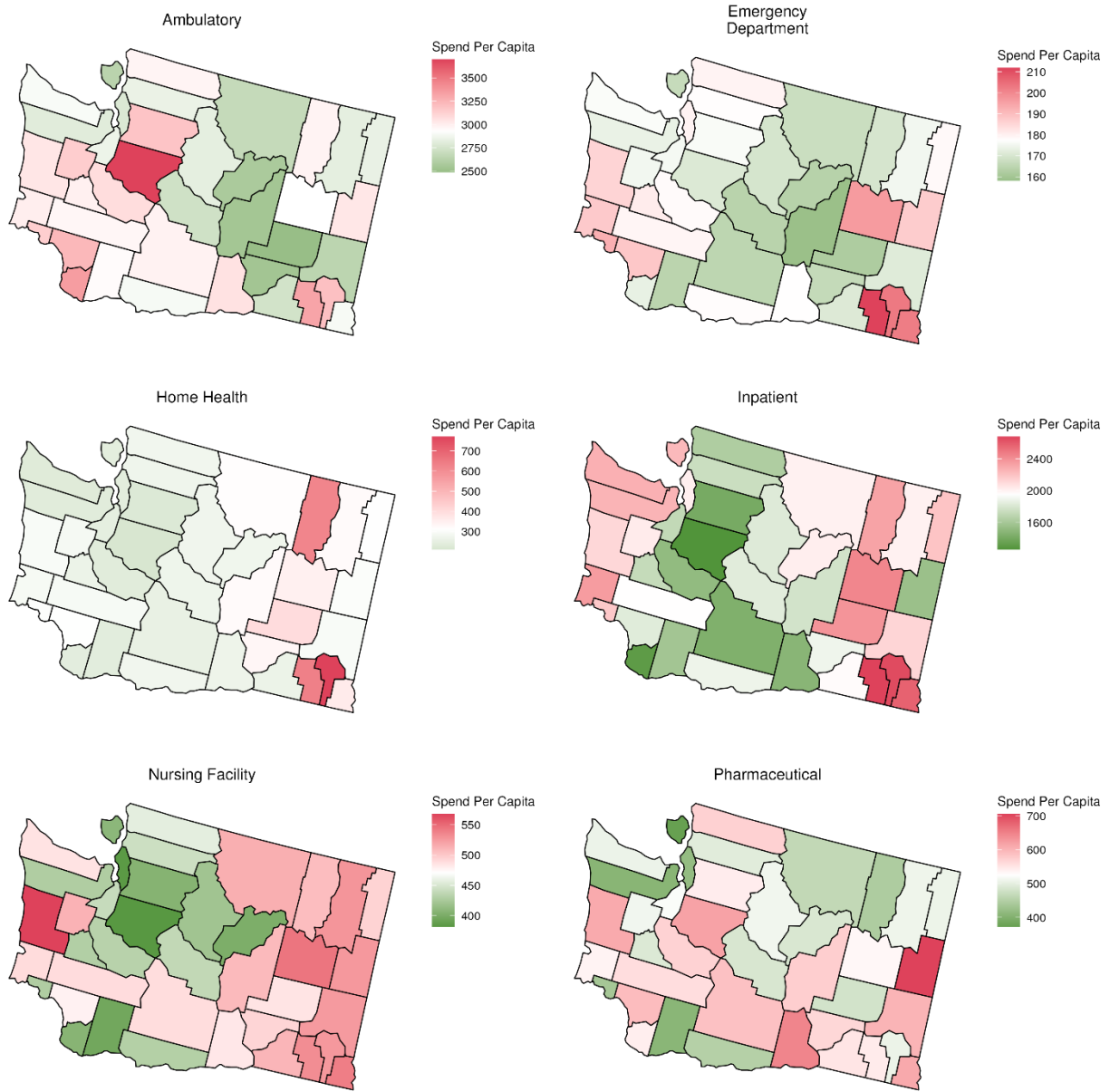
Source: The DEX Project

Figure 22: Drivers of Spending per Person Change for Washington State Counties Compared to Overall State Spending per Person, 2019

Type-of-Care

Change in Spending per Capita (USD)

Change in Spending per Capita (USD)
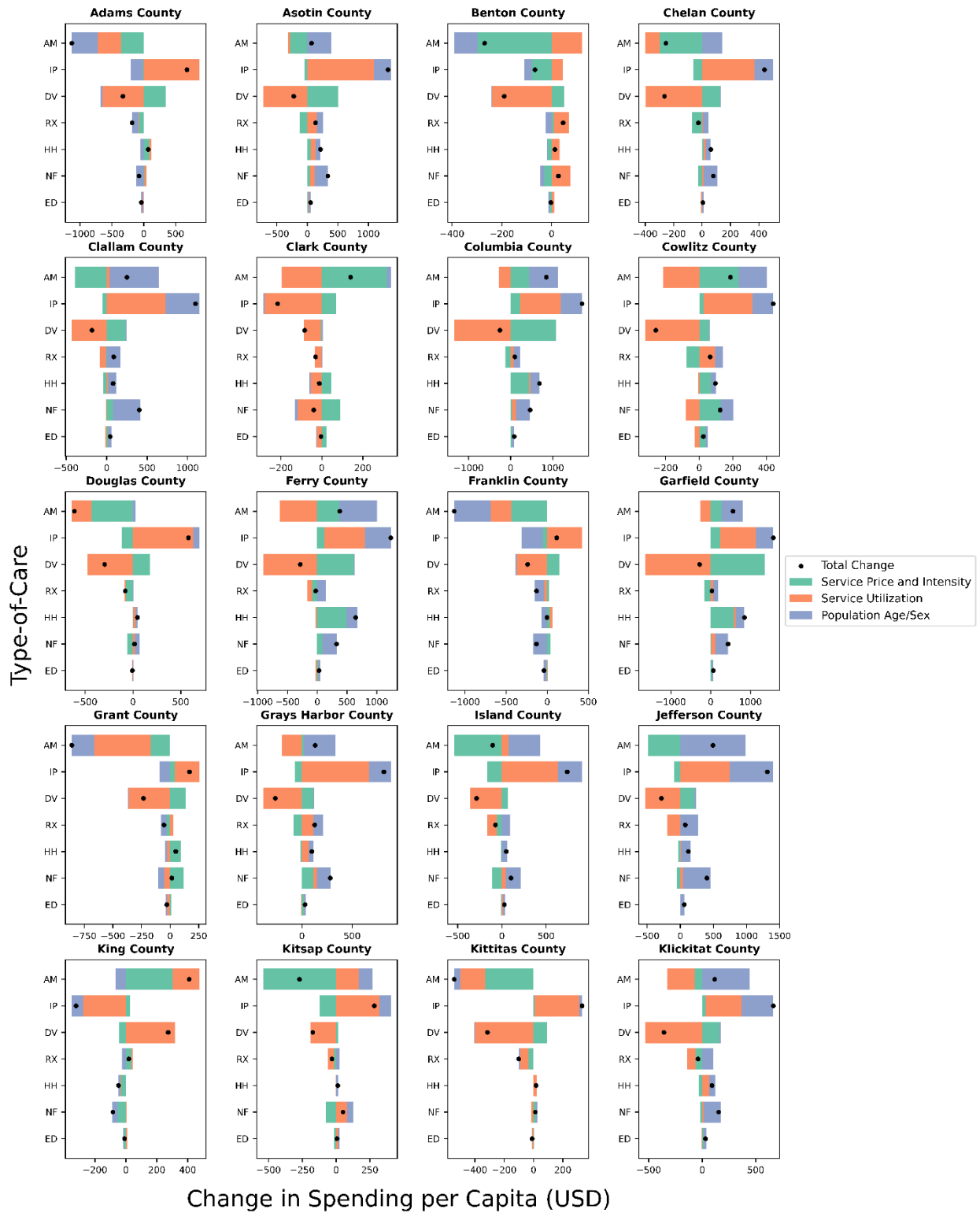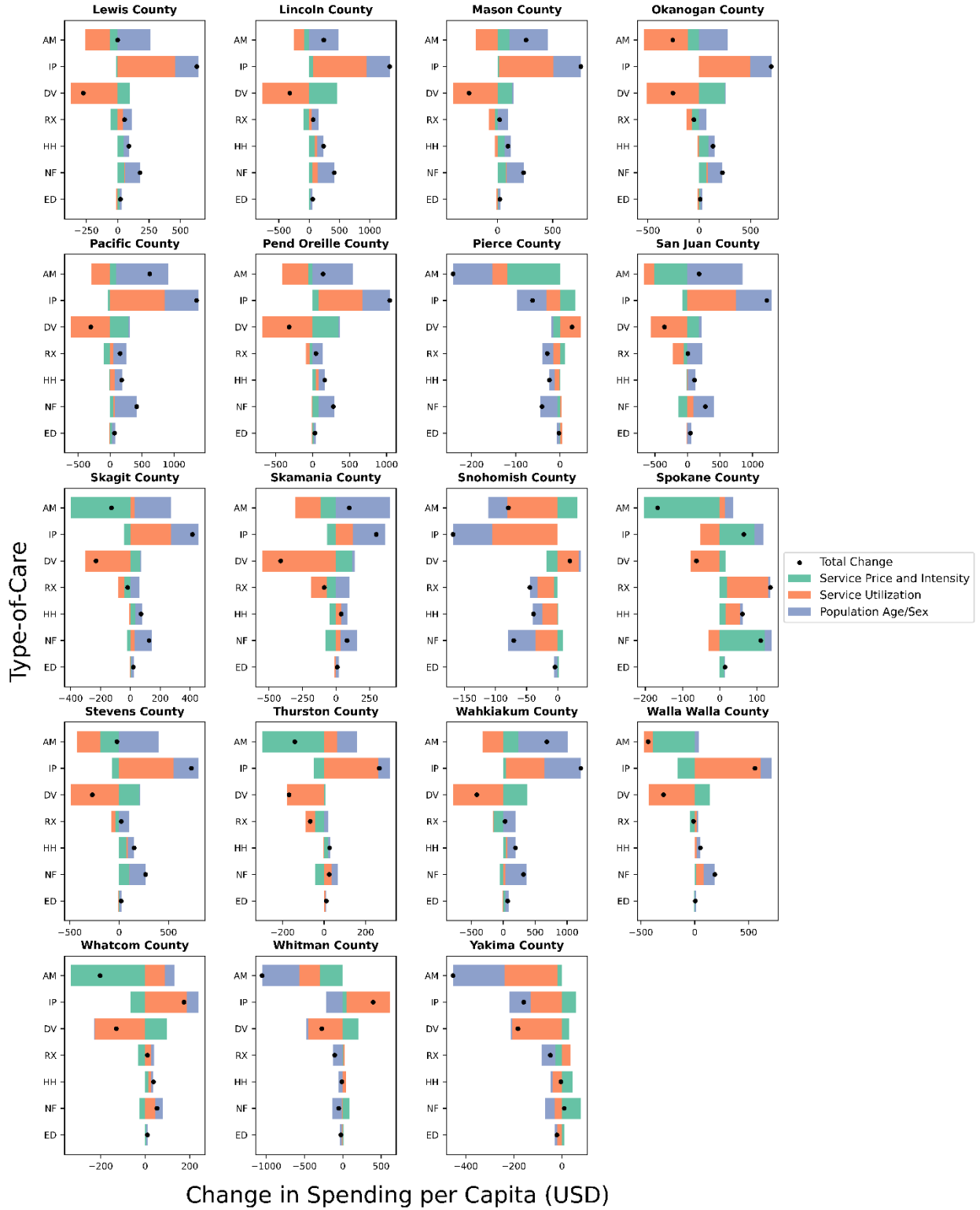
Source: The DEX Project

Figure 23: Drivers of spending change for Washington state counties, 2010-2019
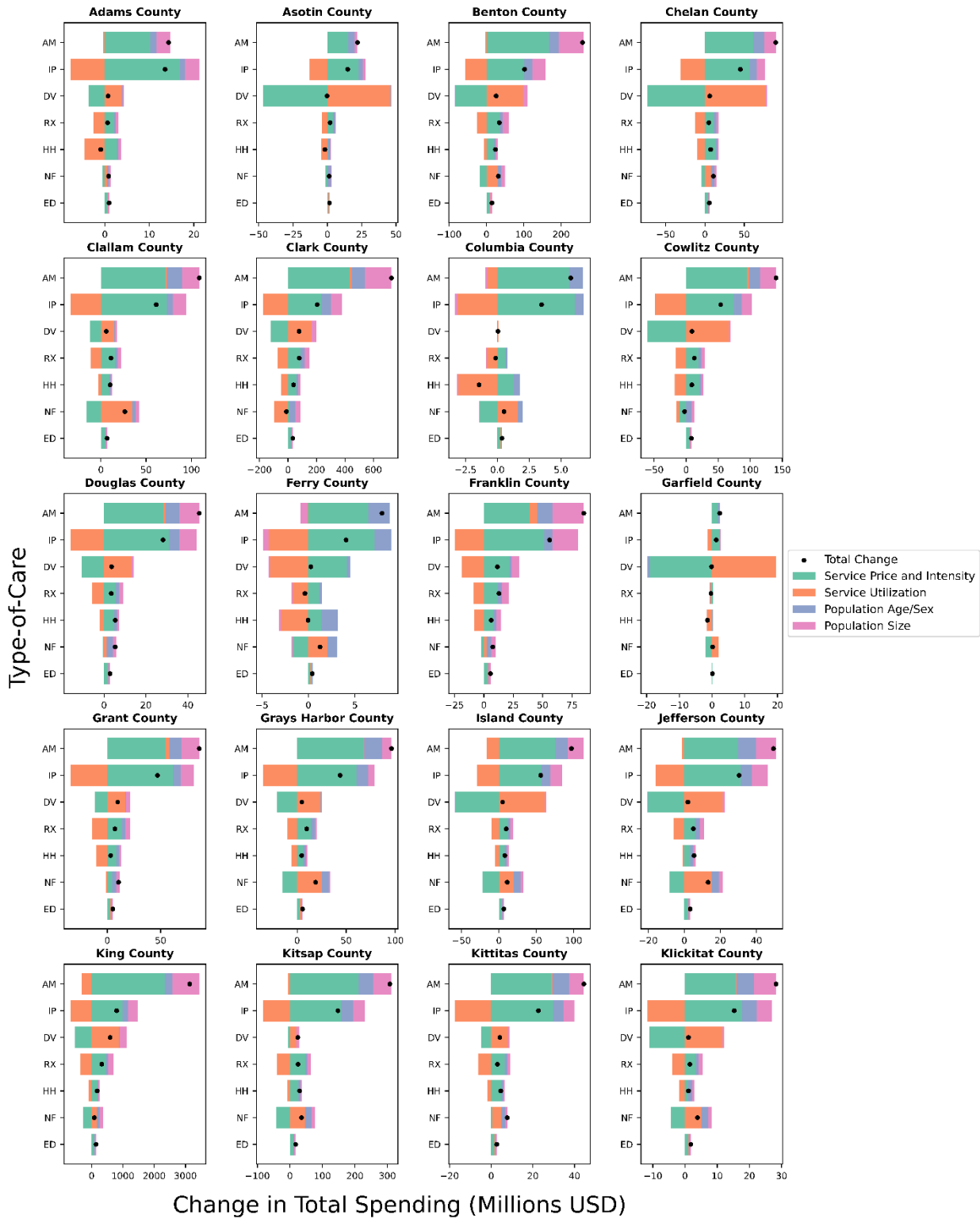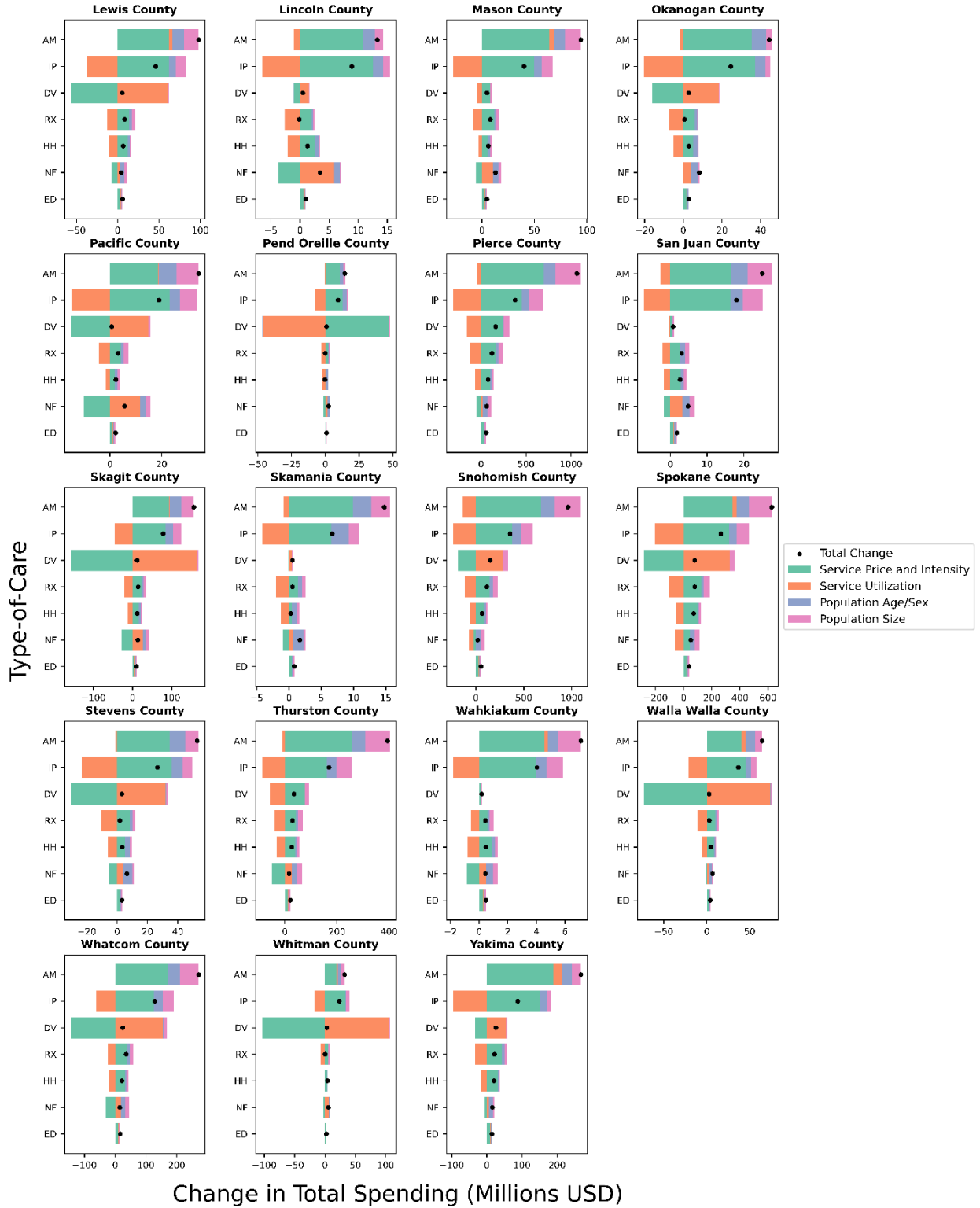
Source: The DEX Project

Connecting these findings to the Health Care Cost Transparency Board's key priorities

This initial report and the initial Analytic Strategy for the ASI, approved on December 7, 2023, align well with the efforts of Health Care Cost Transparency Board (the Board) to control the growth of health care costs in Washington. At the Board retreat held on February 9, 2024, members discussed and were polled on what policies would be the focus for further discussion in 2024. The following four strategies received the strongest interest.

1. Price growth caps and provider rate setting
2. Limiting facility fees
3. Restricting anti-competitive clauses in health care contracting
4. Review of mergers & acquisition, private equity, and health care facility closures

Capping price growth is a method to curtail health care spending increases far in excess of inflation and wage growth, relying on oversight and enforcement mechanisms to incentivize cost savings. Along similar lines, provider rate setting is a more direct method to control spending setting payment levels of services across providers. This approach lowers the administrative burden for providers and carriers by eliminating the need for negotiations and streamlining claims processing. Together, these concepts have garnered the strongest interest from the Board.

Critically, by providing granular estimates of spending, this project offers insights into how these specific policies could be leveraged to contain the spiraling growth of health care costs. Figure 9 highlights acutely that the primary reason for spending increases over time in the state, other than increases in the population size and age, are related to increases in price and intensity of care. Increases in price and intensity led to increases in spending across all types of care except emergency department care. In ambulatory care and inpatient care, increases in price and intensity led to an increase in annual spending of $6.4 and $1.9 billion between 2010 and 2019.

Looking ahead to 2024, the impacts of the policies of most interest to the Board will be examined by a broad set of analytic efforts. The data products produced by the ASI project will take a more comprehensive examination of pricing by incorporating data from the HCA's All Payer Claims Database. Building on the solid foundation of IHME's nationally focused DEX project, the successor ASI analysis will generate valuable insights with a report and data products specific to Washington. The baseline analysis will generate state- and county-level health care spending estimates across 148 health conditions and four payer categories. These estimates will also be adjusted by leveraging demographic and disease prevalence data, examining drivers by county and examining specific extraordinary spending when identified. An interactive dashboard will leverage the estimates produced in the ASI analysis to highlight the impact of policies of most interest to the Board. Together, the report and dashboard will offer in-depth examination of spending across markets, equipping the Board with needed information to evaluate policies which could curb the growth of health care spending in Washington.

Tab 5

Update on Provider Reporting & Methodologies

Joint Meeting of the Health Care Cost Transparency Board's Advisory Committee on Data Issues and Advisory Committee Health Care Stakeholders
June 12, 2024

Washington State
Health Care Authority

Outline

- Update on Provider Reporting
- Methodologies Used for Provider Reporting
- Feedback collection

Washington State
Health Care Authority

Update on Provider Reporting

- Conducted Provider Reporting Webinar on June 06
  - ▶ Provider Reporting Template (shared with the Data Committee in Jan 24)
  - ▶ Provider performance vs. benchmark growth (start with 2022 data)

Washington State
Health Care Authority

Provider performance vs. benchmark growth (start with 2022 data)

▶ Compare confidence interval of the growth of adjusted total medical expense PMPM to the benchmark growth

Benchmark growth

Calendar Year	Benchmark value
2022	3.2%
2023	3.2%
2024	3.0%
2025	3.0%
2026	2.8%

Adjusted total medical expense per member per month (PMPM)
Age-Sex Risk adjusted truncated claims PMPM
+
Unadjusted non-claims PMPM

Confidence interval
Need pooled variance to calculate this

Washington State
Health Care Authority

Methodologies used to calculate:

> Truncating Claims Spending

> Age-Sex Risk Adjusting Truncated Claims Spending per member per month (PMPM)

> Pooling Standard Deviation/Variances

> Confidence Interval of Cost Growth of Adjusted Total Medical Expense PMPM

Washington State
Health Care Authority

Method: Truncating Claims Spending

▶ Spending above a certain threshold is not included.

▶ Threshold was set such that total amount of per member spending above threshold is ~5% of overall market spending (based on 2019 data)

Market	Truncation Level	% of Health Expenditures Removed w/ Truncation	% of Members Exceeding Threshold
Commercial	$200,000	5.02%	0.12%
Medicaid (MC)	$125,000	5.47%	0.12%
Medicare (Adv)	$125,000	4.85%	0.64%

Source: Onpoint

▶ Truncation is applied on a per-member basis.

▶ More details and example is in the Technical Manual.

Washington State
Health Care Authority

Method: Age-sex risk adjusting truncated claims spending PMPM

▷ Adjustment is based on age and sex

▷ Detailed documentation in:

  ▶ Age-Sex risk adjustment, pooled variance, and confidence interval of cost-growth calculation for provider reporting.pdf

▷ Sample Calculation in:

  ▶ Steps and Example of Calculation Methods.xlsx

▷ Adjustment is based on:

  ▶ Age and Sex Risk Factors Weight of each age-sex combination
  ▶ Population weight of each age-sex combination.

Washington State
Health Care Authority

Method: Age-sex risk adjusting truncated claims spending PMPM

- ▶ "Age and Sex Risk Factors Weights"
  - ➤ PMPM in an age − sex band / overall PMPM of insurance category
  - ➤ Fixed at baseline year when calculating the cost growth – does not influence growth

- ▶ Population weight of each age-sex combination
  - ➤ If there are more members in age-sex bands with higher PMPM → growth is adjusted downwards
  - ➤ If there are more members in age-sex bands with lower PMPM → growth is adjusted upwards
  - ➤ What would cost growth look like if risk profile is similar with that of overall insurance category?

Washington State
Health Care Authority

Method: Pooling variance

- For each provider in each market, standard deviation of truncated claims PMPM is different across carriers
- Need to pool these to get a single variance
- Input to calculating the confidence interval of the growth rate
- See demonstration of steps and example in Excel file

Washington State
Health Care Authority

Method: Calculating the confidence interval of the growth rate of adjusted TME PMPM

- See demonstration of steps and example in Excel file
- Summary:

This confidence interval is compared to benchmark

	Risk Adjusted Truncated Claims Spending PMPM	Non Claims PMPM	Adjusted TME PMPM	Pooled Variance	Confidence Interval		
					Lower Bound	Point Estimate	Upper bound
Provider A							
2021	24.67	5.46	30.13	21.68			
2022	24.82	5.82	30.64	11.07	0.3%	1.7%	3.0%
Provider B							
2021	26.65	4.80	31.45	6.67			
2022	25.15	3.99	29.13	20.69	-8.3%	-7.4%	-6.4%

Washington State
Health Care Authority

Feedback Collection

We welcome any feedback on the methods as well as its documentation:

▶ Age-Sex Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation.pdf

▶ Steps and Example of Calculation Methods.xlsx

Please email: hcacostboarddata@hca.wa.gov or before June 26, 2024

Washington State
Health Care Authority

Q&A

Washington State
Health Care Authority

Table 8. Provider Name - Growth rate of Unadjusted and Adjusted TME PMPM by Market

Market	Unadjusted Truncated Claims Expense PMPM		Effective Risk Score		Risk Adjusted Total Truncated Claims Expense PMPM [a]		Total Non- Claims Expense PMPM		TME PMPM Risk Adjusted		TME PMPM Unadjusted		Pooled Variance [a]		2019 Gr of TME PMPM Risk Adjusted [a]			2019 Gr of TME PMPM Unadjusted		
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	Lower Bound	Point Est.	Upper Bound	Lower Bound	Point Est.	Upper Bound
Medicare																				
Medicaid																				
Commercial																				

Notes:

a/ Please see "Demographic Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation for Provider Reporting" document [linked to URL once published].

Provider Report on Respective Health Care Cost Growth Trends, 2017-2019

Provider First-Look at Reporting for the Cost Growth Benchmark
In 2020, Washington State established the Health Care Cost Transparency Board ("Board") under the Health Care Authority (HCA) in House Bill (HB) 2457. In 2022, the Board set the health care cost growth benchmark for 2020-2026 based on a detailed review of Washington's economic data. The spending growth benchmark serves as a starting point from which to align health care spending to ensure that spending growth does not increase at a faster rate than the economy, state revenue, or wages. It represents a common goal for payers, carriers, purchasers, regulators, and consumers to improve health care affordability. As such, the benchmark will be compared to the actual cost growth or performance of provider organizations, carriers and payers.

The Board conducted the first data call in 2022 to gather claims and non-claims cost data from carriers and their respective providers for 2017-2019. This workbook provides providers a first-look at their 2017-2019 aggregated claims and non-claims data from carriers' submitted data. As a reminder, we anticipate that this provider data and results will have similiar trends, but they will not be identical to other provider reports created by carriers or generated internally by the providers due to differences in the population, included costs, and services.

Since there is no growth benchmark set for 2017-2019, this year's provider report will not be compared to a benchmark and will not be publicly reported. The 2017-2019 data will serve as a historical baseline of post-2019 performance. Performance against the benchmark will start with 2022 data which will be collected from the 2024 data call.

Contents of this report
The Table of Contents is under Tab 2 (TOC). Table 1 provides a summary of the growth rate of the risk-adjusted truncated claims expenses per member per month (PMPM) for the provider by market group. The provider will be able to see how provider's own growth rate compares to the overall growth rate in each market and the statewide overall total medical expense PMPM growth rate. Benchmark cost growth is not included for 2017-2019. Starting with data for 2022 that will be collected as a part of the 2020-2022 data, the benchmark cost growth will be added so that providers can compare vis-a-vis the benchmark rate. Table 2 to 8 provides details on the provider's member months, claims and non-claims expenses and other variables by insurance category, carrier and/or market.

Please carefully review the tabs and check that the reasonableness/accuracy of the data.

Provider population size requirements
Only provider organizations with sufficient patient volume (large providers) will receive this report. To determine sufficient patient volume, we developed an initial list of approximately 50 large provider entities for which benchmark performance could potentially be reported. This initial list was created from several sources including Washington Health Alliance's Community Checkup report, the Washington Association for Community Health's list of Community Health Centers, the Health Resources & Services Administration's Health Center Program Uniform Data System Data, and the Washington State Department of Health's 2019 Year End Hospital reports. Next, carriers were surveyed to gather data on each of their providers' total cost of care contracts and the number of covered lives associated with those contracts. Using this survey data, we further updated the initial list to only include provider organizations who could potentially accumulate 10,000 covered lives across all carriers. During the 2022 data call, we asked carriers to provide data on providers which were included in this preliminary list of providers. After carriers submitted the data (in response to the Board data call), we aggregated the number of covered lives of each provider across all carriers. Provider organizations with at least 10,000 unique covered lives (based on the submitted data) are considered to have sufficient patient volume for benchmark performance to be accurately and reliably measured.

Data sources
All data for cost growth target reporting are carrier-reported.

Questions
Should you have any questions on this workbook, please contact us at hcacostboarddata@hca.wa.gov. Should you have any questions on the underlying individual carrier data, please contact the appropriate carrier and copy us at hcacostboarddata@hca.wa.gov on your communications.

Acronyms:

PMPM - Per Member Per Month
FFS = Fee-for-service
HCA = Washington State Health Care Authority
MCO = Managed care organization
THCE = Total health care expenditures
TME = Total medical expense
TOC = Table of contents

Table of Contents

Table 1. Provider Name - Performance Overview: Growth Rate of Adjusted Total Medical Expense PMPM by Year and Market [a/ b/ c/ d/]

| Year and Market | Y-O-Y Growth | | | | |
| | Provider | | | | |
	Point Estimate	Lower Bound	Upper Bound	All Providers	Overall
2019: Commercial	3.3%	2.0%	4.6%	3.9%	
2019: Medicaid	0.4%	-0.6%	1.4%	3.0%	
2019: Medicare	5.5%	4.5%	6.5%	4.5%	3.7%

Notes:

a/Numbers are not actual data and are just placed in the template for demonstration purposes. The graphs, while it will contain the same elements, may use a different style in the actual report.

b/Starting with 2022 data, the benchmark cost growth will be included.

c/Please see "Demographic Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation for Provider Reporting" document [linked to URL once published].

d/ The adjustment done in "Adjusted TME PMPM" pertains to risk-adjustment and truncation on claims spending PMPM. Risk adjustment (on the truncated claims expense PMPM component of the adjusted total medical expense PMPM) only covers age and sex risks. The "non-claims spending PMPM" component of the "Adjusted total medical expense" is not adjusted.

2019: Risk-adjusted Total Truncated Claims Expense PMPM Growth, Point Estimate and 95% Confidence Interval

	2019: Commercial	2019: Medicaid	2019: Medicare
Point Estimate	3.3%	0.4%	5.5%
Lower Bound	2.0%	-0.6%	4.5%
Upper Bound	4.6%	1.4%	6.5%
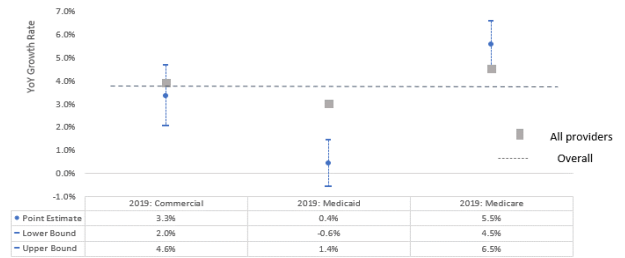
Table 2. Provider Name - Member Months by Insurance Category

Insurance Category	Member Months			YOY % Change	
	2017	2018	2019	2018	2019
Medicare Expenses for Non-Dual Eligible Members					
Medicaid Expenses for Non-Dual Eligible Members					
Commercial: Full Claims					
Commercial: Partial Claims					
Medicare Expenses for Medicare/Medicaid Dual Eligible					
Medicaid Expenses for Medicare/Medicaid Dual Eligible					
All Insurance Categories					

Table 3. Provider Name - Member Months by Insurance Category and Carrier

Insurance Category	Carrier	Member Months			YOY % Change	
		2017	2018	2019	2018	2019
Medicare Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicaid Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company D					
Commercial: Full Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Commercial: Partial Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicare Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medica Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					

Table 4. Provider Name - Claims Expenses PMPM by Insurance Category and Carrier

Insurance Category	Carrier	Claims Expenses PMPM			YOY % Change	
		2017	2018	2019	2018	2019
Medicare Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicaid Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company D					
Commercial: Full Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Commercial: Partial Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicare Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medica Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					

Table 5. Provider Name - Non-Claims Expenses PMPM by Insurance Category and Carrier

Insurance Category	Carrier	Non-Claims Expenses PMPM			YOY % Change	
		2017	2018	2019	2018	2019
Medicare Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicaid Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company D					
Commercial: Full Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Commercial: Partial Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicare Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medica Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					

Table 6. Provider Name - Total Medical Expenses (TME) PMPM by Insurance Category and Carrier

Insurance Category	Carrier	TME PMPM			YOY % Change	
		2017	2018	2019	2018	2019
Medicare Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicaid Expenses for Non-Dual Eligible Members						
	Insurance Company A					
	Insurance Company B					
	Insurance Company D					
Commercial: Full Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Commercial: Partial Claims						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medicare Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					
Medica Expenses for Medicare/Medicaid Dual Eligible						
	Insurance Company A					
	Insurance Company B					
	Insurance Company C					

Table 7. Provider Name - Total Medical Expenses (TME) PMPM by Insurance Category and Service Category

Insurance Category	Service Category	TME PMPM 2017	TME PMPM 2018	TME PMPM 2019	YOY % Change 2018	YOY % Change 2019
Medicare Expenses for Non-Dual Eligible Members	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					
Medicaid Expenses for Non-Dual Eligible Members	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					
Commercial: Full Claims	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					
Commercial: Partial Claims	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					
Medicare Expenses for Medicare/Medicaid Dual Eligible	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					
Medica Expenses for Medicare/Medicaid Dual Eligible	**Claims expenses PMPM**					
	Claims: Hospital Inpatient					
	Claims: Hospital Outpatient					
	Claims: Primary Care Provider					
	Claims: Specialty Provider					
	Claims: Other Provider					
	Claims: Long Term Care					
	Claims: Retail Rx					
	Claims: Other					
	Non-Claims expenses PMPM					
	Non-Claims: Capitation PMPM					
	Non-Claims: Performance Incentive PMPM					
	Non-Claims: Recovery PMPM					
	TME PMPM					

Washington's Health Care Cost Growth Benchmark Program

Demographic risk adjustment, pooled variance, and confidence interval of cost-growth calculation for provider reporting

June 6, 2024

Version History

Version Number	Release Date	Description of Changes
1.0	June 6, 2024	Presented to Provider Reporting Webinar

Table of Contents

Overview

To measure provider performance against the health care cost growth benchmark, we compare the year-on-year growth rate of each provider's adjusted total medical expense (TME) per member per month (PMPM) in each market and reporting year relative to the set benchmark. The adjusted TME PMPM is the sum of risk-adjusted truncated claims PMPM and unadjusted non-claims PMPM.

Box 1. Sample Provider Performance Comparison to the Benchmark

Growth of Provider Y's 2022 Adjusted Total Medical Expense (TME) PMPM, Point Estimate and 95% Confidence Interval

Benchmark Growth: 3.2%

All providers

	2019: Commercial	2019: Medicaid	2019: Medicare
● Point Estimate	3.3%	0.4%	5.5%
— Lower Bound	2.0%	-0.6%	4.5%
— Upper Bound	4.6%	1.4%	6.5%

- Commercial market: Provider Y's performance is indeterminant relative to the benchmark cost growth.
- Medicaid market: Provider Y's performance is lower than the benchmark cost growth.
- Medicare market: Provider Y's performance exceeds than the benchmark cost growth.

To make the comparison, the point estimate and the 95% confidence interval of the growth rate of adjusted TME PMPM will be calculated. Providers exceed the benchmark if the lower bound of the provider's cost growth rate exceeds the benchmark. Performance is said to be indeterminant if the confidence interval contains the benchmark growth. Providers did not exceed the benchmark growth if the upper bound of the provider's growth rate is lower than the benchmark (See Box 1).

To be able to measure performance, the following needs to be done:
1) Calculate the risk-adjusted truncated claims PMPM which is needed to calculate (3). Section A provides the steps on how to do this.
2) Calculate the pooled standard deviation which is needed to calculate (3). Section B provides the steps on how to do this.
3) Calculate the point estimate and the 95% confidence interval of the growth rate of TME PMPM. Section C provides the steps on how to do this.

A **supplemental excel file** provides sample data and calculation for all three sections.

A. Steps in calculating the demographic risk-adjusted truncated claims PMPM[1]

Carriers submit truncated claims and member months by age-sex band, provider, insurance category code and reporting year. The goal is to calculate each provider's risk-adjusted truncated claims PMPM for each market and reporting year. The risk adjustment will account for demographic risk, specifically age and sex risks.

The steps in calculating provider *i*'s risk-adjusted truncated claims PMPM for each market and reporting year are:

1. For each provider in each market and reporting year:
   a) Calculate $MM_{i,m,t}$ which is the total member months for provider *i* in market *m* and year *t*.[2] (See **Appendix A** for Original Insurance Category Code, Modified Insurance Category Code and Market Code Crosswalk. Unlike the original insurance category code, the modified insurance category groups "Commercial: Full Claims" and "Commercial: Partial Claims" into one category.)
2. For each provider in each modified insurance category groups and reporting year:
   a) Calculate $MM_{i,ic,t}$ which is the total member months for provider *i* in modified insurance category code *ic* in year *t*.
   b) Calculate $TC_{i,ic,t}^{unadj}$ which is the total truncated claims spending for provider *i* in modified insurance category code *ic* in year *t*.[3]
   c) Calculate the $TCP_{i,ic,t}^{unadj}$ which is the truncated claims spending PMPM for provider *i* in modified insurance category code *ic* in year *t*. The formula is:
   $$TCP_{i,ic,t}^{unadj} = TC_{i,ic,t}^{unadj} \Big/ MM_{i,ic,t}$$
   d) Calculate $PDW_{i,ic,t}$ which is the population distribution weight of provider *i* in modified insurance category code *ic* and year *t* relative to provider *i*'s overall *m* market size at year *t*. The formula is:
   $$PDW_{i,ic,t} = MM_{i,ic,t} \Big/ MMi_{i,m,t}$$

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[1] The risk-adjustment methodology is similar to what has been used by other states in their cost growth benchmark programs, including Rhode Island and Connecticut.

[2] To aggregate by market, the modified insurance categories are grouped by market. The crosswalk is in Appendix A. To get the total member months for the commercial market, member months from "Federal Employee Health Benefits: Partial Claims" are excluded since these member months are accounted for in "Federal Employee Health Benefits: Full Claims". This prevents double-counting.

[3] The superscript "*unadj*" indicates that the number is coming from the raw data and is not adjusted for demographic risk (i.e., age and sex risk).

3. For each modified insurance category code and reporting year:

   a) Calculate $MM_{ic,t}$ which is the total member months for modified insurance category code *ic* in year *t*.

   b) Calculate $TC_{ic,t}^{unadj}$ which is the total truncated claims spending for modified insurance category code *ic* in year *t*.

   c) Calculate $TCP_{ic,t}^{unadj}$ which is the truncated claims spending PMPM for modified insurance category code *ic* in year *t*. Specifically, the formula is:

   $$TCP_{ic,t}^{unadj} = TC_{ic,t}^{unadj} \Big/ MM_{ic,t}$$

4. For each age-sex band in each modified insurance category code (ICC) and reporting year:

   a) Calculate $MM_{ab,ic,t}$ which is the total member months for age-sex band *ab* in modified insurance category code *ic* and year *t*.

   b) Calculate $TC_{ab,ic,t}^{unadj}$ which is the total truncated claims spending for age-sex band *ab* in modified insurance category code *ic* and year *t*.

   c) Calculate $TCP_{ab,ic,t}^{unadj}$ which is the truncated claims spending PMPM for age-sex band *ab* in modified insurance category code *ic* and year *t*. The formula is:

   $$TCP_{ab,ic,t}^{unadj} = TC_{ab,ic,t}^{unadj} \Big/ MM_{ab,ic,t}$$

   d) Calculate the $ASFW_{ab,ic,t}$ *which is the* age/sex factor weight for age-sex band *ab* in modified insurance category code *ic* and year *t*. The formula is:

   $$ASFW_{ab,ic,t} = TCP_{ab,ic,t}^{unadj} \Big/ TCP_{ic,t}^{unadj}$$

5. For each age-sex band in each provider, modified insurance category code, and reporting year:

   a) Calculate $MM_{ab,i,ic,t}$ which is the total member months for age-sex band *ab* in provider *i*, modified insurance category code *ic,* and year *t*.

   b) Calculate $PDW_{ab,i,ic,t}$ which is the population distribution weight of age-sex band *ab* in provider *i*, modified insurance category code *ic,* and year *t* relative to provider i's overall population size in insurance category *ic*. The formula is:

   $$PDW_{ab,i,ic,t} = MM_{ab,i,ic,t} \Big/ MMi_{i,ic,t}$$

   c) Calculate the $ASRC_{ab,i,ic,t}^{prev}$ which is the age-sex risk score based on t-1 or the previous year's age/sex factor weight for age-sex band *ab* in provider *i*, modified insurance category code *ic,* and year *t* using the following formula[4]:

   $$ASRC_{ab,i,ic,t}^{prev} = ASFW_{ab,ic,t-1} * PDW_{i,ab,ic,t}$$

---

[4] The superscript *"prev"* for any variable indicates that the variable is based on the previous year's age/sex factor weight(s). If the subscript is *t* then the superscript *"prev"* should refer to *t-1*. If the subscript is *t-2* then the superscript *"prev"* should refer to *t-3*.

Similarly, the subscript *"current"* for any variable indicates that the variable on based on the current year's age/sex factor weight(s). "current" means the age-sex factor weights is based on the same year as the subscript t. If the subscript is t then the superscript should refer to t. If the subscript is t-1 then the superscript should refer to t-1.

The superscript *"prev"* indicates that the variable is based on the previous year's age/sex factor weight(s). If the subscript is *t* then the superscript *"prev"* should refer to *t-1*. If the subscript is *t-2* then the superscript *"prev"* should refer to *t-3*.

d) Calculate the $ASRC_{ab,i,ic,t}^{current}$ which is the age-sex risk score based on the current year's age/sex factor weight for age-sex band *ab* in provider *i*, modified insurance category code *ic,* and year *t* using the following formula:

$$ASRC_{ab,i,ic,t}^{current} = ASFW_{ab,ic,t} * PDW_{i,ab,ic,t}$$

The superscript *"current"* indicates that the variable is based on the current year's age/sex factor weight(s). "current" means the age-sex factor weights is based on the same year as the subscript. If the subscript is *t* then the superscript should refer to *t*. If the subscript is *t-1* then the superscript should refer to *t-1*.

6. For each provider, modified insurance category code and reporting year:

a) Using previous year's age/sex factor weights:

   i. Calculate the $RS_{i,ic,t}^{prev}$ which is the overall risk score for provider *i* in modified insurance category code *ic* and year *t* by summing all the age-sex risk score across all age-sex bands of provider *i* in modified insurance category code *ic* and year *t*. Specifically, the formula is:

$$RS_{i,ic,t}^{prev} = \sum_{ab} ASRC_{ab,i,ic,t}^{prev}$$

   ii. Calculate the $TCP_{i,ic,t}^{RA,prev}$ which is the age-sex risk-adjusted truncated claims spending PMPM for provider *i* in modified insurance category code *ic* in year *t*.

$$TCP_{i,ic,t}^{RA,prev} = TC_{i,ic,t}^{unadj} \Big/ RS_{i,ic,t}^{prev}$$

   iii. Calculate the $TCP_{i,ic,t}^{RA,W,prev}$ which is the population-weighted, risk-adjusted truncated claims spending. This is the product of $TCP_{i,ic,t}^{RA,previous}$ and $PDW_{i,ic,t}$. Specifically:

$$TCP_{i,ic,t}^{RA,W,prev} = TCP_{i,ic,t}^{RA,prev} * PDW_{i,ic,t}$$

b) Using current year's age/sex factor weights:

   i. Calculate the $RS_{i,ic,t}^{current}$ which is the overall risk score for provider *i* in modified insurance category code *ic* and year *t* by summing all the age-sex risk score across all age-sex bands of provider *i* in modified insurance category code *ic* and year *t*. Specifically, the formula is:

$$RS_{i,ic,t}^{current} = \sum_{ab} ASRC_{ab,i,ic,t}^{current}$$

   ii. Calculate the $TCP_{i,ic,t}^{RA,prev}$ which is the age-sex risk-adjusted truncated claims spending PMPM for provider *i* in modified insurance category code *ic* in year *t*.

$$TCP_{i,ic,t}^{RA,current} = TC_{i,ic,t}^{unadj} \bigg/ RS_{i,ic,t}^{current}$$

  iii. Calculate the $TCP_{i,ic,t}^{RA,W,current}$ which is the population-weighted, risk-adjusted truncated claims spending. This is the product of $TCP_{i,ic,t}^{RA,current}$ and $PDW_{i,ic,t}$. Specifically:

$$TCP_{i,ic,t}^{RA,W,current} = TCP_{i,ic,t}^{RA,current} * PDW_{i,ic,t}$$

We will need the $TCP_{i,ic,t}^{RA,W,prev}$ to aggregate the $TCP_{i,ic,t}^{RA,prev}$ by market. We will also need the $TCP_{i,ic,t}^{RA,W,current}$ to aggregate the $TCP_{i,ic,t}^{RA,current}$ by market. Aggregation by market is necessary as provider performance comparison is by market and reporting year.

7. For each provider, market, and reporting year:

  a) Using previous year's age/sex factor weights, calculate $TCP_{i,m,t}^{RA,prev}$ which is the age-sex risk-adjusted truncated claims spending PMPM for provider *i* in market *m* and year *t*. This is the sum of all $TCP_{i,ic,t}^{RA,W,prev}$ across all modified insurance categories under market *m* for provider *i* in year *t.* The formula is:

$$TCP_{i,m,t}^{RA,prev} = \sum_{ic} TCP_{i,ic,t}^{RA,W,prev}$$

  b) Using current year's age/sex factor weights, calculate $TCP_{i,m,t}^{RA,current}$ which is the age-sex risk-adjusted truncated claims spending PMPM for provider *i* in market *m* and year *t*. This is the sum of all $TCP_{i,ic,t}^{RA,W,current}$ across all modified insurance categories under market *m* for provider *i* in year *t.* The formula is:

$$TCP_{i,m,t}^{RA,current} = \sum_{ic} TCP_{i,ic,t}^{RA,W,current}$$

$TCP_{i,m,t}^{RA,prev}$ and $TCP_{i,m,t}^{RA,current}$ will be used such that when calculating the confidence interval of the growth rate of the risk-adjusted TME PMPM of the current year, the age-sex factor weights used will be the same for the current year and the baseline (i.e., no change in age -sex factor weights across the two years) but the population weights may vary across the two years. For example when calculating the confidence interval of the growth rate of TME PMPM in 2022, the risk adjusted truncated claims PMPM (a component of the TME PMPM) in the current year (2022) will be $TCP_{i,m,t}^{RA,prev} = TCP_{i,m,2022}^{RA,2021}$ and the risk adjusted truncated claims PMPM in the baseline year (2021) will use $TCP_{i,m,2021}^{RA,2021}$. Note that the superscript is 2021 for both current and baseline years which indicates that the age-sex factor weights are based on 2021 weights.

B. Steps in calculating a provider's pooled standard deviation from various carriers

Carriers submit the standard deviation of per-member truncated claims spending by provider, carrier, market, and reporting year. Let $\sigma_{i,c,m,t}$ be the submitted standard deviation for provider i in carrier c and market m at year t.

The goal is to calculate for all providers in each market and reporting year the $V_{i,m,t}^{pool}$ which is the pooled variance for provider i in market m at year t. The pooled variance will be used to calculate the confidence interval of the growth rate of each provider's adjusted TME PMPM in each market and reporting year.

The steps in calculating provider i's pooled variance for each market and reporting year are:

1. For each provider in each market and reporting year:
   a) Calculate $MM_{i,c,m,t}$ which is the total member months for provider i in carrier c and market m at year t.
2. For each provider in each carrier, market, and reporting year:
   a) Calculate $TC_{i,c,m,t}^{unadj}$ which is the total truncated claims for provider i in carrier c and market m at year t.
   b) Calculate $TCP_{i,c,m,t}^{unadj}$ which is the total unadjusted truncated claims PMPM for provider i in carrier c and market m at year t. The formula is:
   $$TCP_{i,c,m,t}^{unadj} = TC_{i,c,m,t}^{unadj}/MM_{i,c,m,t}$$
   c) Get the $\sigma_{i,c,m,t}$ which is the standard deviation of provider i in market m, carrier c, at year t. This information is submitted by carriers.
3. Calculate the $V_{i,m,t}^{pool}$ which is the pooled variance for provider i in market m at year t.[5] The formula is:

$$V_{i,m,t}^{pool} = \left(\frac{\sum_{c_1}^{c_J} MM_{i,c_j,m,t}\ \sigma_{i,c_j,m,t}^2}{MM_{i,m,t}}\right) + \frac{MM_{i,c1,m,t}\ MM_{i,c2,m,t}\left(TCP_{i,c1,m,t}^{unadj} - TCP_{i,c2,m,t}^{unadj}\right)^2}{MM_{i,m,t}^2} + \text{other terms}$$

---

[5] In the 2022 data call that collected 2017–2019 data, some carriers submitted two separate standard deviations for some providers in the commercial market: $\sigma_{i,c,non\_fep\_com,t}$ which is provider i's standard deviation for the commercial non-FEP market and $\sigma_{i,c,fep\_com,t}$ which is the standard deviation for the commercial FEP market. To get the standard deviation of provider i in carrier c for overall commercial market at year t, $\sigma_{i,c,m=com,t}$, we used the following formula:

$$\sigma_{i,c,com,t} = \left(\left(MM_{i,c,non\_fep\_com,t}\Big/MM_{i,c,com,t}\right)^2 \sigma_{i,c,non\_fep\_com,t}^2 + \left(MM_{i,c,fep\_com,t}\Big/MM_{i,c,com,t}\right)^2 \sigma_{i,c,fep\_com,t}^2 \right.$$
$$\left. + \frac{MM_{i,c,non\_fep\_com,t}\ MM_{i,c,fep\_com,t}\left(TCP_{i,c,non\_fep\_com,t}^{unadj} - TCP_{i,c,fep\_com,t}^{unadj}\right)^2}{MM_{i,c,com,t}^2} \right)^{1/2}$$

where

$MM_{i,c,non\_fep\_com,t}\Big/MM_{i,c,com,t}$ is share of non-FEP commercial member months to overall member months in the commercial market for provider i in carrier c at reporting year t

$MM_{i,c,non\_fep\_com,t}\Big/MM_{i,c,com,t}$ is the share of FEP commercial member months to overall member months in the commercial market for provider i in carrier c at reporting year t

$TCP_{i,c,non\_fep\_com,t}^{unadj}$ is the unadjusted truncated claims spending PMPM for provider i in carrier c in the non-FEP commercial market

$TCP_{i,c,fep\_com,t}^{unadj}$ is the unadjusted truncated claims spending PMPM for provider i in carrier c in the FEP commercial market

This method is analogous to the formula in Example 2.

where $j = 1 \ldots J$, with J as the total number of carriers that contract business with provider i and each term in 'other terms' contain the difference of truncated claims PMPM of provider i in each of the other unique two-carrier combinations, each weighted by $\dfrac{\text{MM}_{i,c_j,m,t}\,\text{MM}_{i,c_k,m,t}}{\text{MM}_{i,m,t}{}^2}$ where $j \neq k$.

The following examples may help clarify the 'other terms' in the formula.

Example 1: Provider i contracts business with two carriers (i.e. carriers c1 and c2). The specific formula would be:

$$V_{i,m,t}^{pool} = \left(\frac{\text{MM}_{i,c_1,m,t}\ \sigma_{i,c_1,m,t}{}^2}{\text{MM}_{i,m,t}} + \frac{\text{MM}_{i,c_2,m,t}\ \sigma_{i,c_2,m,t}{}^2}{\text{MM}_{i,m,t}} \right) + \frac{\text{MM}_{i,m,t}\,\text{MM}_{i,c_2,m,t}\left(\text{TCP}_{i,c_1,m,t}^{unadj} - \text{TCP}_{i,c_2,m,t}^{unadj}\right)^2}{\text{MM}_{i,m,t}{}^2}$$

Example 2: Provider i contracts business with three carriers (i.e. carriers c1, c2, and c3). The specific formula would be:

$$\begin{aligned}
V_{i,m,t}^{pool} = {} & \left(\frac{\text{MM}_{i,c_1,m,t}\ \sigma_{i,c_1,m,t}{}^2}{\text{MM}_{i,m,t}} + \frac{\text{MM}_{i,c_2,m,t}\ \sigma_{i,c_2,m,t}{}^2}{\text{MM}_{i,m,t}} + \frac{\text{MM}_{i,c_3,m,t}\ \sigma_{i,c_3,m,t}{}^2}{\text{MM}_{i,m,t}} \right) \\[6pt]
& + \frac{\text{MM}_{i,c_1,m,t}\,\text{MM}_{i,c_2,m,t}\left(\text{TCP}_{i,c_1,m,t}^{unadj} - \text{TCP}_{i,c_2,m,t}^{unadj}\right)^2}{\text{MM}_{i,m,t}{}^2} \\[6pt]
& + \frac{\text{MM}_{i,c_1,m,t}\,\text{MM}_{i,c_3,m,t}\left(\text{TCP}_{i,c_1,m,t}^{unadj} - \text{TCP}_{i,c_3,m,t}^{unadj}\right)^2}{\text{MM}_{i,m,t}{}^2} \\[6pt]
& + \frac{\text{MM}_{i,c_2,m,t}\,\text{MM}_{i,c_3,m,t}\left(\text{TCP}_{i,c_2,m,t}^{unadj} - \text{TCP}_{i,c_3,m,t}^{unadj}\right)^2}{\text{MM}_{i,m,t}{}^2}
\end{aligned}$$

C. Steps in calculating the confidence interval of the growth rate of adjusted TME PMPM

The steps in calculating provider i's adjusted TME PMPM year-on-year growth rate (point estimate and confidence interval) in each market and reporting year are:

1. For each provider in each market, and year:

    a) Calculate $TCP_{i,m,t}^{RA,prev}$ which is the risk-adjusted truncated claims spending PMPM (based on t-1's age-sex factor weights) for provider i in market m and year t. (See Section A of this document)

    b) Calculate $TCP_{i,m,t-1}^{RA,current}$ which is the risk-adjusted truncated claims spending PMPM (based on year t-1's age-sex factor weights) for provider i in market m and year t-1. (See Section A of this document)

    c) Calculate $MM_{i,m,t}$ which is the total member months for provider i in market m and year t.

    d) Calculate $NC_{i,m,t}^{unadj}$ which is the total non-claims for provider i in market m at year t.

    e) Calculate $NCP_{i,m,t}^{unadj}$ which is the total non-claims claims PMPM for provider i in market m at year t. The formula is:

    $$NCP_{i,m,t}^{unadj} = NC_{i,m,t}^{unadj}/MM_{i,m,t}$$

    f) Calculate $TMEP_{i,m,t}^{adj}$ which is the adjusted TME PMPM for provider i in market m and year t. This is based on age-sex factor weights that are based on t-1 data. The formula is:

    $$TMEP_{i,m,t}^{adj} = TCP_{i,m,t}^{RA,prev} + NCP_{i,m,t}^{unadj}$$

    g) Calculate $TMEP_{i,m,t-1}^{adj}$ which is the adjusted TME PMPM for provider i in market m and year t-1. This is based on age-sex factor weights that are based on t-1 data The formula is:

    $$TMEP_{i,m,t-1}^{adj} = TCP_{i,m,t-1}^{RA,current} + NCP_{i,m,t-1}^{unadj}$$

    h) Calculate $V_{i,m,t}^{pool}$ which is the pooled variance of the unadjusted truncated claims PMPM for provider i in market m and year t. (see Section B).

    i) Calculate $Gr\_TMEP_{i,m,t}^{adj,CI}$ which is the 95% confidence interval of the year-on-year growth rate of the adjusted TME PMPM for provider i in market m and year t. The formula[6] is:

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[6] This assumes that the standard deviations across carriers in each market and reporting year are different for each of the provider. For theoretical explanation on statistical testing of growth rates, please see **Oregon State's statistical testing documentation and its references**.

$$\text{Gr\_TMEP}_{i,m,t}^{adj,CI} =$$

$$\left(\left(\frac{\text{TMEP}_{i,m,t-1}^{adj}\text{TMEP}_{i,m,t}^{adj}\pm\sqrt{\text{TMEP}_{i,m,t-1}^{adj}{}^2\text{TMEP}_{i,m,t}^{adj}{}^2-\left(\text{TMEP}_{i,m,t-1}^{adj}{}^2-1.64^2\frac{V_{i,m,t-1}^{pool}}{\text{MM}_{i,m,t-1}}\right)\left(\text{TMEP}_{i,m,t}^{adj}{}^2-1.64^2\frac{V_{i,m,t}^{pool}}{\text{MM}_{i,m,t}}\right)}}{\left(\text{TMEP}_{i,m,t-1}^{adj}{}^2-1.64^2\frac{V_{i,m,t-1}^{pool}}{\text{MM}_{i,m,t-1}}\right)}\right)-1\right)*100$$

j) Calculate $\text{Gr\_TMEP}_{i,m,t}^{adj,pt}$ which is the point estimate of year-on-year growth rate of TMEP for provider *i* in market *m* and year *t*. The formula is:

$$\text{Gr\_TMEP}_{i,m,t}^{adj,pt} = \left(\left(\text{TMEP}_{i,m,t}^{adj}\Big/\text{TMEP}_{i,m,t-1}^{adj}\right)-1\right)*100$$

Appendix A. Original Insurance Category Code, Modified Insurance Category Code, and Market Code crosswalk

Original Insurance Category Code	Original Insurance Category Description	Modified Insurance Category Code	Modified Insurance Category Description	Market Code	Market
1	Medicare Expenses for Non-Dual Eligible Members	1	Medicare Expenses for Non-Dual Eligible Members	1	Medicare
2	Medicaid Expenses for Non-Dual Eligible Members	2	Medicaid Expenses for Non-Dual Eligible Members	2	Medicaid
3	Commercial: Full Claims	3	Commercial	3	Commercial
4	Commercial: Partial Claims	3	Commercial	3	Commercial
5	Medicare Expenses for Medicare/Medicaid Dual Eligible	5	Medicare Expenses for Medicare/Medicaid Dual Eligible	1	Medicare
6	Medicaid Expenses for Medicare/Medicaid Dual Eligible	6	Medicaid Expenses for Medicare/Medicaid Dual Eligible	2	Medicaid
7	Federal Employee Health Benefits: Full Claims	3	Commercial	3	Commercial
8	Federal Employee Health Benefits: Partial Claims	3	Commercial	3	Commercial

Washington State Health Care Authority

This file provides the steps and sample calculation of:

1) Age-sex risk-adjusted truncated claims PMPM: This variable is needed to calculated the (confidence interval of the growth rate of) adjusted total medical expense (TME) Per Member Per Month (PMPM).

2) Pooled variance: This variable is also needed to calculated the confidence interval of the growth rate of adjusted TME PMPM.

3) Confidence interval of the growth rate of adjusted TME PMPM.

This excel file supplements the "Age-Sex Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation for Provider Reporting" document [provide link to website once published] which provides more detailed information on the steps needed to calculated the variables above.

Contents of each tab

Tab	Contents
"Inputs" Tab	Table 1. Sample Data on Member Months, Truncated Claims, Truncated Claims PMPM, Non-Claims and Total Medical Expense by year, Provider, Modified Insurance Category Code (ICC), Market, Age Band and Sex
	Table 2. Sample Data on Member Months, Truncated Claims, Truncated Claims Spending PMPM, Non-Claims Spending, Non Claims Spending PMPM and Total Medical Expense (TME) PMPM by Year, Market, and Provider
	Table 3. Sample Data on Member Months, Truncated Claims, Truncated Claims Spending PMPM and Standard Deviation of Per Member Truncated Claims Spending by Year, Provider, Market, and Carrier
"Risk Adj" Tab	Provides steps in calculating age-sex risk-adjusted truncated claims PMPM
	Using sample data from Table 1 of the "Inputs" tab, the "Risk Adj" tab provides an example on how each of the steps were followed in calculating age-sex risk-adjusted truncated claims PMPM.
"Pooled Variance" Tab	Provides steps in calculating Pooled Variance based on standard deviation data. This is needed to calculate the confidence interval of the growth rate of the adjusted total medical expense PMPM (age-sex risk-adjusted truncated claims spending PMPM + non-claims spending PMPM)
	Using sample data from Table 3 of "Inputs" tab, the "Pooled Variance" tab provides an example on how each of the steps were followed in calculating the Pooled Variance of each provider in each year and market.
"Confidence Interval" Tab	Provides steps in calculating the confidence interval of the growth rate of the adjusted total medical expense PMPM (age-sex risk-adjusted truncated claims spending PMPM + non-claims spending PMPM)
	Using the risk-adjusted truncated claims PMPM calculated in the "Risk Adj" tab, table 2 of the "inputs tab", and the pooled variance calculated in the "Pooled Variance" Tab, the "Confidence Interval" tab provides an example on how to calculate the confidence interval of the growth rate of the adjusted total medical expense PMPM (risk adjusted truncated claims spending PMPM + non-claims spending PMPM)
"Acronyms" Tab	Provides Acronyms and Description

Notes:

1. When there is no note on whether it is (risk) adjusted or not, the variable refers to the unadjusted data.
2. Risk adjustment (on the truncated claims expense PMPM component of the adjusted total medical expense PMPM) only covers age and sex risks.
3. The adjustment done in "Adjusted TME PMPM" pertains to age-sex risk-adjustment and truncation on claims spending PMPM. The "non-claims spending PMPM" component of the "Adjusted total medical expense" is not adjusted.

Table 1. Member Months, Truncated Claims, Truncated Claims PMPM, Non-Claims and Total Medical Expense by year, Provider, Insurance Category, Market Code, Age Band and Sex

Year	Provider	Modified Insurance Category Code (ICC)	Market	Age band	Sex	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM	Non-Claims Spending	TME
2020	Provider A	2	Medicaid	0-1	Female	15	375	25	84	459
2020	Provider A	2	Medicaid	2-18	Female	17	323	19	124	447
2020	Provider A	2	Medicaid	19-39	Female	18	486	27	55	541
2020	Provider A	2	Medicaid	40-54	Female	17	323	19	115	438
2020	Provider A	2	Medicaid	55-64	Female	15	420	28	54	474
2020	Provider A	2	Medicaid	65-74	Female	20	540	27	75	615
2020	Provider A	2	Medicaid	75-84	Female	20	660	33	147	807
2020	Provider A	2	Medicaid	85+	Female	19	475	25	141	616
2020	Provider A	2	Medicaid	0-1	Male	15	208	14	102	310
2020	Provider A	2	Medicaid	2-18	Male	18	253	14	113	366
2020	Provider A	2	Medicaid	19-39	Male	15	188	13	117	305
2020	Provider A	2	Medicaid	40-54	Male	17	191	11	61	252
2020	Provider A	2	Medicaid	55-64	Male	20	600	30	79	679
2020	Provider A	2	Medicaid	65-74	Male	18	612	34	51	663
2020	Provider A	2	Medicaid	75-84	Male	19	551	29	134	685
2020	Provider A	2	Medicaid	85+	Male	18	450	25	87	537
2020	Provider A	6	Medicaid	0-1	Female	15	360	24	100	460
2020	Provider A	6	Medicaid	2-18	Female	19	304	16	102	406
2020	Provider A	6	Medicaid	19-39	Female	16	528	33	76	604
2020	Provider A	6	Medicaid	40-54	Female	17	255	15	106	361
2020	Provider A	6	Medicaid	55-64	Female	20	500	25	126	626
2020	Provider A	6	Medicaid	65-74	Female	15	405	27	127	532
2020	Provider A	6	Medicaid	75-84	Female	17	425	25	99	524
2020	Provider A	6	Medicaid	85+	Female	17	476	28	54	530
2020	Provider A	6	Medicaid	0-1	Male	17	532	31	141	673
2020	Provider A	6	Medicaid	2-18	Male	20	535	27	51	586
2020	Provider A	6	Medicaid	19-39	Male	15	378	25	111	489
2020	Provider A	6	Medicaid	40-54	Male	15	156	10	67	223
2020	Provider A	6	Medicaid	55-64	Male	17	561	33	144	705
2020	Provider A	6	Medicaid	65-74	Male	17	510	30	102	612
2020	Provider A	6	Medicaid	75-84	Male	19	665	35	81	746
2020	Provider A	6	Medicaid	85+	Male	17	476	28	52	528
2020	Provider B	2	Medicaid	0-1	Female	18	432	24	135	567
2020	Provider B	2	Medicaid	2-18	Female	18	342	19	85	427
2020	Provider B	2	Medicaid	19-39	Female	26	702	27	121	823
2020	Provider B	2	Medicaid	40-54	Female	19	475	25	96	571
2020	Provider B	2	Medicaid	55-64	Female	25	825	33	149	974
2020	Provider B	2	Medicaid	65-74	Female	28	700	25	105	805
2020	Provider B	2	Medicaid	75-84	Female	29	957	33	146	1,103
2020	Provider B	2	Medicaid	85+	Female	29	783	27	133	916
2020	Provider B	2	Medicaid	0-1	Male	20	480	24	76	556
2020	Provider B	2	Medicaid	2-18	Male	20	300	15	125	425
2020	Provider B	2	Medicaid	19-39	Male	16	400	25	64	464
2020	Provider B	2	Medicaid	40-54	Male	20	460	23	54	514
2020	Provider B	2	Medicaid	55-64	Male	28	924	33	132	1,056
2020	Provider B	2	Medicaid	65-74	Male	29	1,015	35	85	1,100
2020	Provider B	2	Medicaid	75-84	Male	28	840	30	52	892
2020	Provider B	2	Medicaid	85+	Male	30	1,020	34	67	1,087
2020	Provider B	6	Medicaid	0-1	Female	16	272	17	146	418
2020	Provider B	6	Medicaid	2-18	Female	18	324	18	148	472
2020	Provider B	6	Medicaid	19-39	Female	26	702	27	88	790
2020	Provider B	6	Medicaid	40-54	Female	15	330	22	111	441
2020	Provider B	6	Medicaid	55-64	Female	25	675	27	102	777
2020	Provider B	6	Medicaid	65-74	Female	30	870	29	74	944
2020	Provider B	6	Medicaid	75-84	Female	28	812	29	92	904
2020	Provider B	6	Medicaid	85+	Female	26	676	26	62	738
2020	Provider B	6	Medicaid	0-1	Male	19	475	25	115	590
2020	Provider B	6	Medicaid	2-18	Male	17	425	25	119	544
2020	Provider B	6	Medicaid	19-39	Male	19	399	21	94	493
2020	Provider B	6	Medicaid	40-54	Male	15	315	21	92	407
2020	Provider B	6	Medicaid	55-64	Male	26	754	29	126	880
2020	Provider B	6	Medicaid	65-74	Male	28	868	31	51	919
2020	Provider B	6	Medicaid	75-84	Male	30	1,050	35	91	1,141
2020	Provider B	6	Medicaid	85+	Male	30	840	28	74	914
2021	Provider A	2	Medicaid	0-1	Female	17	255	15	77	332
2021	Provider A	2	Medicaid	2-18	Female	18	270	15	92	362
2021	Provider A	2	Medicaid	19-39	Female	20	520	26	62	582
2021	Provider A	2	Medicaid	40-54	Female	17	357	21	100	457
2021	Provider A	2	Medicaid	55-64	Female	15	480	32	80	560
2021	Provider A	2	Medicaid	65-74	Female	17	578	34	99	677
2021	Provider A	2	Medicaid	75-84	Female	18	450	25	112	562
2021	Provider A	2	Medicaid	85+	Female	19	475	25	120	595
2021	Provider A	2	Medicaid	0-1	Male	16	312	19	92	404
2021	Provider A	2	Medicaid	2-18	Male	19	159	8	71	230
2021	Provider A	2	Medicaid	19-39	Male	16	320	20	126	446
2021	Provider A	2	Medicaid	40-54	Male	19	346	18	77	423
2021	Provider A	2	Medicaid	55-64	Male	19	475	25	127	602
2021	Provider A	2	Medicaid	65-74	Male	15	435	29	60	495
2021	Provider A	2	Medicaid	75-84	Male	18	468	26	53	521
2021	Provider A	2	Medicaid	85+	Male	17	544	32	82	626
2021	Provider A	6	Medicaid	0-1	Female	16	384	24	144	528
2021	Provider A	6	Medicaid	2-18	Female	16	352	22	58	410
2021	Provider A	6	Medicaid	19-39	Female	17	544	32	91	635
2021	Provider A	6	Medicaid	40-54	Female	15	285	19	64	349
2021	Provider A	6	Medicaid	55-64	Female	16	496	31	81	577
2021	Provider A	6	Medicaid	65-74	Female	15	510	34	125	635
2021	Provider A	6	Medicaid	75-84	Female	15	450	30	97	547
2021	Provider A	6	Medicaid	85+	Female	19	570	30	95	665
2021	Provider A	6	Medicaid	0-1	Male	15	272	18	118	390
2021	Provider A	6	Medicaid	2-18	Male	20	239	12	145	384
2021	Provider A	6	Medicaid	19-39	Male	15	113	8	120	233
2021	Provider A	6	Medicaid	40-54	Male	17	357	21	50	407
2021	Provider A	6	Medicaid	55-64	Male	19	551	29	71	622
2021	Provider A	6	Medicaid	65-74	Male	16	544	34	97	641
2021	Provider A	6	Medicaid	75-84	Male	20	500	25	101	601
2021	Provider A	6	Medicaid	85+	Male	18	576	32	113	689
2021	Provider B	2	Medicaid	0-1	Female	15	360	24	69	429
2021	Provider B	2	Medicaid	2-18	Female	15	345	23	135	480
2021	Provider B	2	Medicaid	19-39	Female	26	650	25	148	798
2021	Provider B	2	Medicaid	40-54	Female	20	400	20	61	461
2021	Provider B	2	Medicaid	55-64	Female	26	858	33	130	988
2021	Provider B	2	Medicaid	65-74	Female	28	756	27	95	851
2021	Provider B	2	Medicaid	75-84	Female	30	960	32	145	1,105
2021	Provider B	2	Medicaid	85+	Female	25	875	35	138	1,013
2021	Provider B	2	Medicaid	0-1	Male	17	357	21	139	496
2021	Provider B	2	Medicaid	2-18	Male	18	288	16	143	431
2021	Provider B	2	Medicaid	19-39	Male	18	360	20	112	472
2021	Provider B	2	Medicaid	40-54	Male	15	330	22	51	381
2021	Provider B	2	Medicaid	55-64	Male	26	910	35	113	1,023
2021	Provider B	2	Medicaid	65-74	Male	26	832	32	67	899
2021	Provider B	2	Medicaid	75-84	Male	29	754	26	110	864
2021	Provider B	2	Medicaid	85+	Male	25	875	35	131	1,006
2021	Provider B	6	Medicaid	0-1	Female	17	289	17	145	434
2021	Provider B	6	Medicaid	2-18	Female	15	225	15	127	352
2021	Provider B	6	Medicaid	19-39	Female	25	775	31	122	897
2021	Provider B	6	Medicaid	40-54	Female	19	380	20	111	491
2021	Provider B	6	Medicaid	55-64	Female	25	875	35	116	991
2021	Provider B	6	Medicaid	65-74	Female	25	750	30	78	828
2021	Provider B	6	Medicaid	75-84	Female	30	990	33	142	1,132
2021	Provider B	6	Medicaid	85+	Female	27	756	28	99	855
2021	Provider B	6	Medicaid	0-1	Male	17	272	16	86	358
2021	Provider B	6	Medicaid	2-18	Male	18	306	17	92	398
2021	Provider B	6	Medicaid	19-39	Male	18	450	25	93	543
2021	Provider B	6	Medicaid	40-54	Male	19	399	21	89	488
2021	Provider B	6	Medicaid	55-64	Male	26	780	30	60	840
2021	Provider B	6	Medicaid	65-74	Male	27	756	28	67	823
2021	Provider B	6	Medicaid	75-84	Male	25	825	33	116	941

Table 2. Member Months, Truncated Claims, Truncated Claims Spending PMPM, Non-Claims Spending, Non Claims Spending PMPM and Total Medical Expense (TME) PMPM by Year, Provider and Market

	Market	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM	Non-Claims Spending	Non-Claims Spending PMPM	TME PMPM
Provider A							
2020	Medicaid	554	13,722	25	3,078	5.6	30
2021	Medicaid	549	13,188	24	3,000	5.5	29
2022	Medicaid	561	13,479	24	3,263	5.8	30
Provider B							
2020	Medicaid	751	20,442	27	3,210	4.3	31
2021	Medicaid	718	19,518	27	3,446	4.8	32
2022	Medicaid	750	19,260	26	2,991	4.0	30

Table 3. Member Months, Truncated Claims, Truncated Claims Spending PMPM and Standard Deviation of Per Member Truncated Claims Spending by Year, Provider, Market, and Carrier

	Market	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM	Standard Deviation
Provider A in Carrier 1					
2020	Medicaid	332	8,645	26.01	3.00
2021	Medicaid	357	8,968	25.13	5.00
2022	Medicaid	331	8,357	25.25	2.00
Provider A in Carrier 2					
2020	Medicaid	222	5,077	22.91	5.00
2021	Medicaid	192	4,220	21.96	3.00
2022	Medicaid	230	5,122	22.27	4.00
Provider B in Carrier 1					
2020	Medicaid	413	10,425	25.24	2.00
2021	Medicaid	381	9,759	25.65	2.00
2022	Medicaid	390	9,052	23.21	2.00
Provider B in Carrier 2					
2020	Medicaid	338	10,017	29.64	2.00
2021	Medicaid	337	9,759	28.92	2.00
2022	Medicaid	360	10,208	28.36	5.00

2021	Provider B	6	Medicaid	85+	Male	26	780	30	116	896
2022	Provider A	2	Medicaid	0-1	Female	18	378	21	116	494
2022	Provider A	2	Medicaid	2-18	Female	19	304	16	140	444
2022	Provider A	2	Medicaid	19-39	Female	20	600	30	81	681
2022	Provider A	2	Medicaid	40-54	Female	20	340	17	79	419
2022	Provider A	2	Medicaid	55-64	Female	18	486	27	70	556
2022	Provider A	2	Medicaid	65-74	Female	15	480	32	78	558
2022	Provider A	2	Medicaid	75-84	Female	17	459	27	127	586
2022	Provider A	2	Medicaid	85+	Female	15	450	30	50	500
2022	Provider A	2	Medicaid	0-1	Male	19	356	19	139	495
2022	Provider A	2	Medicaid	2-18	Male	19	193	10	103	296
2022	Provider A	2	Medicaid	19-39	Male	20	543	27	135	678
2022	Provider A	2	Medicaid	40-54	Male	18	381	21	109	490
2022	Provider A	2	Medicaid	55-64	Male	15	420	28	138	558
2022	Provider A	2	Medicaid	65-74	Male	19	532	28	92	624
2022	Provider A	2	Medicaid	75-84	Male	15	480	32	137	617
2022	Provider A	2	Medicaid	85+	Male	20	640	32	76	716
2022	Provider A	6	Medicaid	0-1	Female	18	432	24	125	557
2022	Provider A	6	Medicaid	2-18	Female	15	360	24	80	440
2022	Provider A	6	Medicaid	19-39	Female	20	600	30	102	702
2022	Provider A	6	Medicaid	40-54	Female	20	340	17	94	434
2022	Provider A	6	Medicaid	55-64	Female	15	510	34	60	570
2022	Provider A	6	Medicaid	65-74	Female	17	459	27	70	529
2022	Provider A	6	Medicaid	75-84	Female	17	544	32	117	661
2022	Provider A	6	Medicaid	85+	Female	19	513	27	125	638
2022	Provider A	6	Medicaid	0-1	Male	20	129	6	133	262
2022	Provider A	6	Medicaid	2-18	Male	17	172	10	128	300
2022	Provider A	6	Medicaid	19-39	Male	15	129	9	75	204
2022	Provider A	6	Medicaid	40-54	Male	16	367	23	81	448
2022	Provider A	6	Medicaid	55-64	Male	16	480	30	101	581
2022	Provider A	6	Medicaid	65-74	Male	15	375	25	79	454
2022	Provider A	6	Medicaid	75-84	Male	18	594	33	111	705
2022	Provider A	6	Medicaid	85+	Male	16	432	27	112	544
2022	Provider B	2	Medicaid	0-1	Female	17	425	25	53	478
2022	Provider B	2	Medicaid	2-18	Female	18	288	16	73	361
2022	Provider B	2	Medicaid	19-39	Female	29	725	25	100	825
2022	Provider B	2	Medicaid	40-54	Female	19	437	23	81	518
2022	Provider B	2	Medicaid	55-64	Female	25	675	27	150	825
2022	Provider B	2	Medicaid	65-74	Female	26	754	29	123	877
2022	Provider B	2	Medicaid	75-84	Female	30	840	28	109	949
2022	Provider B	2	Medicaid	85+	Female	30	990	33	71	1,061
2022	Provider B	2	Medicaid	0-1	Male	17	323	19	65	388
2022	Provider B	2	Medicaid	2-18	Male	18	342	19	149	491
2022	Provider B	2	Medicaid	19-39	Male	18	288	16	53	341
2022	Provider B	2	Medicaid	40-54	Male	17	306	18	71	377
2022	Provider B	2	Medicaid	55-64	Male	26	832	32	63	895
2022	Provider B	2	Medicaid	65-74	Male	30	810	27	108	918
2022	Provider B	2	Medicaid	75-84	Male	28	924	33	88	1,012
2022	Provider B	2	Medicaid	85+	Male	26	754	29	146	900
2022	Provider B	6	Medicaid	0-1	Female	16	256	16	56	312
2022	Provider B	6	Medicaid	2-18	Female	19	437	23	94	531
2022	Provider B	6	Medicaid	19-39	Female	28	700	25	113	813
2022	Provider B	6	Medicaid	40-54	Female	19	361	19	59	420
2022	Provider B	6	Medicaid	55-64	Female	26	650	25	108	758
2022	Provider B	6	Medicaid	65-74	Female	26	754	29	96	850
2022	Provider B	6	Medicaid	75-84	Female	28	980	35	131	1,111
2022	Provider B	6	Medicaid	85+	Female	28	980	35	92	1,072
2022	Provider B	6	Medicaid	0-1	Male	19	304	16	91	395
2022	Provider B	6	Medicaid	2-18	Male	17	425	25	101	526
2022	Provider B	6	Medicaid	19-39	Male	16	320	20	72	392
2022	Provider B	6	Medicaid	40-54	Male	20	380	19	87	467
2022	Provider B	6	Medicaid	55-64	Male	30	870	29	107	977
2022	Provider B	6	Medicaid	65-74	Male	26	650	25	65	715
2022	Provider B	6	Medicaid	75-84	Male	30	780	26	136	916
2022	Provider B	6	Medicaid	85+	Male	28	700	25	80	780

Steps in calculating Age/Sex Risk-Adjusted Truncated Claims PMPM

Given: Carrier submissions provide data on member months and truncated claims spending by carrier, provider, insurance category code, year, sex and age bands. Suppose submission data is summarized in Table 1 and Table 2 of the 'Input' tab. Table 1 contains data on member months, truncated claims, non-claims spending, and total medical expense by year, provider, insurance category, market, age band and sex while Table 2 contains data by provider, year and market. For simplicity, there are only 2 insurance categories, 1 market, 2 providers and 3 years(2020-2022) in the data. Please find below the steps in calculating age-sex risk-adjusted truncated claims PMPM.

The notes in cells highlighted in green pertain to step and the cells in blue pertain to the the variable calculated in the step. The list of steps is consistent to the steps listed in the "Age-Sex Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation for Provider Reporting" document [*provide link to website once published*]. The "Market" field can be excluded in steps 1-6 as in the documentation since one can use the crosswalk to group ICCs into markets.

1 a. For each provider in each market and reporting year, calculate the member months (See Table 2).

			1a
Year	Provider	Market	Member Months
2020	Provider A	Medicaid	554
2021	Provider A	Medicaid	549
2022	Provider A	Medicaid	561
2020	Provider B	Medicaid	751
2021	Provider B	Medicaid	718
2022	Provider B	Medicaid	750

2 For each provider in each modified insurance category, market, and reporting year, calculate the following:
a. Total member months
b. Total truncated claims spending
c. Truncated claims spending PMPM
d. Population distribution weight relative to overall market's member months (i.e., 2a/1a)

				2a	2b	2c	from 1a	2d
Row Labels	ICC	Year	Market	Member Months	Truncated Claims Spending PMPM	Truncated Claims Spending	Member months for market	Population distribution weight
Provider A	2	2020	Medicaid	281	6656	24	554	0.51
Provider A	2	2021	Medicaid	280	6444	23	549	0.51
Provider A	2	2022	Medicaid	287	7043	25	561	0.51
Provider A	6	2020	Medicaid	273	7066	26	554	0.49
Provider A	6	2021	Medicaid	269	6745	25	549	0.49
Provider A	6	2022	Medicaid	274	6436	23	561	0.49
Provider B	2	2020	Medicaid	383	10655	28	751	0.51
Provider B	2	2021	Medicaid	359	9910	28	718	0.50
Provider B	2	2022	Medicaid	374	9713	26	750	0.50
Provider B	6	2020	Medicaid	368	9787	27	751	0.49
Provider B	6	2021	Medicaid	359	9608	27	718	0.50
Provider B	6	2022	Medicaid	376	9547	25	750	0.50

3 For each modified insurance category code, market, and reporting year, calculate the following:
a. Total member months
b. Total truncated claims spending
c. Truncated claims spending PMPM

			3a	3b	3c
ICC	Market	Year	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM
2	Medicaid	2020	664	17311	26.07
2	Medicaid	2021	639	16354	25.59
2	Medicaid	2022	661	16756	25.35
6	Medicaid	2020	641	16853	26.29
6	Medicaid	2021	628	16353	26.04
6	Medicaid	2022	650	15983	24.59

4 For each age-sex band in each modified insurance category code and reporting year, calculate the following:
a. Total member months
b. Total truncated claims spending
c. Truncated claims spending PMPM
d. Age-sex factor weight which is the truncated claims PMPM in the age-sex band in each ICC and year relative to overall modified insurance category's truncated claims spending PMPM for the same year (i.e., PMPM in age band and sex divided by PMPM of overall modified ICC). An age-sex factor weight of 0.94 in the first row of the table means that the truncated claims spending PMPM of female members aged 0-1 is 6% lower than the overall PMPM of all members in insurance category 2.

4					4a	4b	4c	from 3c	4d
ICC	Market	Year	Sex	Age Band	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM	Truncated Claims Spending PMPM for Overall ICC	Age-Sex Factor Weights
2	Medicaid	2020	Female	0-1	33	807	24.45	26.07	0.94
2	Medicaid	2020	Female	19-39	44	1188	27.00	26.07	1.04
2	Medicaid	2020	Female	2-18	35	665	19.00	26.07	0.73
2	Medicaid	2020	Female	40-54	36	798	22.17	26.07	0.85
2	Medicaid	2020	Female	55-64	40	1245	31.13	26.07	1.19
2	Medicaid	2020	Female	65-74	48	1240	25.83	26.07	0.99
2	Medicaid	2020	Female	75-84	49	1617	33.00	26.07	1.27
2	Medicaid	2020	Female	85+	48	1258	26.21	26.07	1.01
2	Medicaid	2020	Male	0-1	35	688	19.67	26.07	0.75
2	Medicaid	2020	Male	19-39	31	588	18.98	26.07	0.73
2	Medicaid	2020	Male	2-18	38	553	14.55	26.07	0.56
2	Medicaid	2020	Male	40-54	37	651	17.61	26.07	0.68
2	Medicaid	2020	Male	55-64	48	1524	31.75	26.07	1.22
2	Medicaid	2020	Male	65-74	47	1627	34.62	26.07	1.33
2	Medicaid	2020	Male	75-84	47	1391	29.60	26.07	1.14
2	Medicaid	2020	Male	85+	48	1470	30.63	26.07	1.17
2	Medicaid	2021	Female	0-1	32	615	19.22	25.59	0.75
2	Medicaid	2021	Female	19-39	46	1170	25.43	25.59	0.99
2	Medicaid	2021	Female	2-18	33	615	18.64	25.59	0.73
2	Medicaid	2021	Female	40-54	37	757	20.46	25.59	0.80
2	Medicaid	2021	Female	55-64	41	1338	32.63	25.59	1.28
2	Medicaid	2021	Female	65-74	45	1334	29.64	25.59	1.16
2	Medicaid	2021	Female	75-84	48	1410	29.38	25.59	1.15

2	Medicaid	2021	Female	85+	44	1350	30.68	25.59	1.20
2	Medicaid	2021	Male	0-1	33	669	20.26	25.59	0.79
2	Medicaid	2021	Male	19-39	34	680	20.00	25.59	0.78
2	Medicaid	2021	Male	2-18	37	447	12.07	25.59	0.47
2	Medicaid	2021	Male	40-54	34	676	19.89	25.59	0.78
2	Medicaid	2021	Male	55-64	45	1385	30.78	25.59	1.20
2	Medicaid	2021	Male	65-74	41	1267	30.90	25.59	1.21
2	Medicaid	2021	Male	75-84	47	1222	26.00	25.59	1.02
2	Medicaid	2021	Male	85+	42	1419	33.79	25.59	1.32
6	Medicaid	2020	Female	0-1	31	632	20.39	26.29	0.78
6	Medicaid	2020	Female	19-39	42	1230	29.29	26.29	1.11
6	Medicaid	2020	Female	2-18	37	628	16.97	26.29	0.65
6	Medicaid	2020	Female	40-54	32	585	18.28	26.29	0.70
6	Medicaid	2020	Female	55-64	45	1175	26.11	26.29	0.99
6	Medicaid	2020	Female	65-74	45	1275	28.33	26.29	1.08
6	Medicaid	2020	Female	75-84	45	1237	27.49	26.29	1.05
6	Medicaid	2020	Female	85+	43	1152	26.79	26.29	1.02
6	Medicaid	2020	Male	0-1	36	1007	27.96	26.29	1.06
6	Medicaid	2020	Male	19-39	34	777	22.84	26.29	0.87
6	Medicaid	2020	Male	2-18	37	960	25.96	26.29	0.99
6	Medicaid	2020	Male	40-54	30	471	15.70	26.29	0.60
6	Medicaid	2020	Male	55-64	43	1315	30.58	26.29	1.16
6	Medicaid	2020	Male	65-74	45	1378	30.62	26.29	1.16
6	Medicaid	2020	Male	75-84	49	1715	35.00	26.29	1.33
6	Medicaid	2020	Male	85+	47	1316	28.00	26.29	1.07
6	Medicaid	2021	Female	0-1	33	673	20.39	26.04	0.78
6	Medicaid	2021	Female	19-39	42	1319	31.40	26.04	1.21
6	Medicaid	2021	Female	2-18	31	577	18.61	26.04	0.71
6	Medicaid	2021	Female	40-54	34	665	19.56	26.04	0.75
6	Medicaid	2021	Female	55-64	41	1371	33.44	26.04	1.28
6	Medicaid	2021	Female	65-74	40	1260	31.50	26.04	1.21
6	Medicaid	2021	Female	75-84	45	1440	32.00	26.04	1.23
6	Medicaid	2021	Female	85+	46	1326	28.83	26.04	1.11
6	Medicaid	2021	Male	0-1	32	544	17.01	26.04	0.65
6	Medicaid	2021	Male	19-39	33	563	17.07	26.04	0.66
6	Medicaid	2021	Male	2-18	38	545	14.35	26.04	0.55
6	Medicaid	2021	Male	40-54	36	756	21.01	26.04	0.81
6	Medicaid	2021	Male	55-64	45	1331	29.58	26.04	1.14
6	Medicaid	2021	Male	65-74	43	1300	30.23	26.04	1.16
6	Medicaid	2021	Male	75-84	45	1325	29.44	26.04	1.13
6	Medicaid	2021	Male	85+	44	1356	30.82	26.04	1.18
2	Medicaid	2022	Female	0-1	35	803	22.94	25.35	0.91
2	Medicaid	2022	Female	19-39	49	1325	27.04	25.35	1.07
2	Medicaid	2022	Female	2-18	37	592	16.00	25.35	0.63
2	Medicaid	2022	Female	40-54	39	777	19.92	25.35	0.79
2	Medicaid	2022	Female	55-64	43	1161	27.00	25.35	1.07
2	Medicaid	2022	Female	65-74	41	1234	30.10	25.35	1.19
2	Medicaid	2022	Female	75-84	47	1299	27.64	25.35	1.09
2	Medicaid	2022	Female	85+	45	1440	32.00	25.35	1.26
2	Medicaid	2022	Male	0-1	36	679	18.87	25.35	0.74
2	Medicaid	2022	Male	19-39	38	831	21.87	25.35	0.86
2	Medicaid	2022	Male	2-18	37	535	14.47	25.35	0.57
2	Medicaid	2022	Male	40-54	35	687	19.63	25.35	0.77
2	Medicaid	2022	Male	55-64	41	1252	30.54	25.35	1.20
2	Medicaid	2022	Male	65-74	49	1342	27.39	25.35	1.08
2	Medicaid	2022	Male	75-84	43	1404	32.65	25.35	1.29
2	Medicaid	2022	Male	85+	46	1394	30.30	25.35	1.20
6	Medicaid	2022	Female	0-1	34	688	20.24	24.59	0.82
6	Medicaid	2022	Female	19-39	48	1300	27.08	24.59	1.10
6	Medicaid	2022	Female	2-18	34	797	23.44	24.59	0.95
6	Medicaid	2022	Female	40-54	39	701	17.97	24.59	0.73
6	Medicaid	2022	Female	55-64	41	1160	28.29	24.59	1.15
6	Medicaid	2022	Female	65-74	43	1213	28.21	24.59	1.15
6	Medicaid	2022	Female	75-84	45	1524	33.87	24.59	1.38
6	Medicaid	2022	Female	85+	47	1493	31.77	24.59	1.29
6	Medicaid	2022	Male	0-1	39	433	11.09	24.59	0.45
6	Medicaid	2022	Male	19-39	31	449	14.48	24.59	0.59
6	Medicaid	2022	Male	2-18	34	597	17.56	24.59	0.71
6	Medicaid	2022	Male	40-54	36	747	20.76	24.59	0.84
6	Medicaid	2022	Male	55-64	46	1350	29.35	24.59	1.19
6	Medicaid	2022	Male	65-74	41	1025	25.00	24.59	1.02
6	Medicaid	2022	Male	75-84	48	1374	28.63	24.59	1.16
6	Medicaid	2022	Male	85+	44	1132	25.73	24.59	1.05

5 For each age band in each sex, provider, modified insurance category code, market, and reporting year, calculate the following:

   a. Member Months

   b. Population distribution weight relative to overall insurance category code's member months

   c. Age-sex risk score by multiplying 5b by the Age Sex Factor of the previous year.

   d. Age-sex risk score by multiplying 5b by the Age Sex Factor of the current year.

   Note: 2020 data is now ommitted since it is not possible to calculate the Age-Sex Factor Weights in 2019 (previous year) with the sample data being limited to 2020-2022.

						5a	from 2a	5b	from 4d	5c	from 4d	5d
Year	Large Provider Entity Code	ICC	Market	Age band	Sex	MMs	Total Member Months for each provider in each ICC	Population distribution weight of age-sex band in provider and ic	Age-sex factor weights in the previous year	Age-sex risk score based on age-sex factor weights in the previous year	Age-sex factor weights in the current year	Age-sex risk score based on age-sex factor weights in the current year
2021	Provider A	2	Medicaid	0-1	Female	17	280	0.06	0.94	0.06	0.75	0.05
2021	Provider A	2	Medicaid	2-18	Female	18	280	0.06	0.73	0.05	0.73	0.05
2021	Provider A	2	Medicaid	19-39	Female	20	280	0.07	1.04	0.07	0.99	0.07
2021	Provider A	2	Medicaid	40-54	Female	17	280	0.06	0.85	0.05	0.80	0.05
2021	Provider A	2	Medicaid	55-64	Female	15	280	0.05	1.19	0.06	1.28	0.07
2021	Provider A	2	Medicaid	65-74	Female	17	280	0.06	0.99	0.06	1.16	0.07
2021	Provider A	2	Medicaid	75-84	Female	18	280	0.06	1.27	0.08	1.15	0.07
2021	Provider A	2	Medicaid	85+	Female	19	280	0.07	1.01	0.07	1.20	0.08
2021	Provider A	2	Medicaid	0-1	Male	16	280	0.06	0.75	0.04	0.79	0.05
2021	Provider A	2	Medicaid	2-18	Male	19	280	0.07	0.56	0.04	0.47	0.03
2021	Provider A	2	Medicaid	19-39	Male	16	280	0.06	0.73	0.04	0.78	0.04

2021	Provider A	2	Medicaid	40-54	Male	19	280	0.07	0.68	0.05	0.78	0.05
2021	Provider A	2	Medicaid	55-64	Male	19	280	0.07	1.22	0.08	1.20	0.08
2021	Provider A	2	Medicaid	65-74	Male	15	280	0.05	1.33	0.07	1.21	0.06
2021	Provider A	2	Medicaid	75-84	Male	18	280	0.06	1.14	0.07	1.02	0.07
2021	Provider A	2	Medicaid	85+	Male	17	280	0.06	1.17	0.07	1.32	0.08
2021	Provider A	6	Medicaid	0-1	Female	16	269	0.06	0.78	0.05	0.78	0.05
2021	Provider A	6	Medicaid	2-18	Female	16	269	0.06	0.65	0.04	0.71	0.04
2021	Provider A	6	Medicaid	19-39	Female	17	269	0.06	1.11	0.07	1.21	0.08
2021	Provider A	6	Medicaid	40-54	Female	15	269	0.06	0.70	0.04	0.75	0.04
2021	Provider A	6	Medicaid	55-64	Female	16	269	0.06	0.99	0.06	1.28	0.08
2021	Provider A	6	Medicaid	65-74	Female	15	269	0.06	1.08	0.06	1.21	0.07
2021	Provider A	6	Medicaid	75-84	Female	15	269	0.06	1.05	0.06	1.23	0.07
2021	Provider A	6	Medicaid	85+	Female	19	269	0.07	1.02	0.07	1.11	0.08
2021	Provider A	6	Medicaid	0-1	Male	15	269	0.06	1.06	0.06	0.65	0.04
2021	Provider A	6	Medicaid	2-18	Male	20	269	0.07	0.99	0.07	0.55	0.04
2021	Provider A	6	Medicaid	19-39	Male	15	269	0.06	0.87	0.05	0.66	0.04
2021	Provider A	6	Medicaid	40-54	Male	17	269	0.06	0.60	0.04	0.81	0.05
2021	Provider A	6	Medicaid	55-64	Male	19	269	0.07	1.16	0.08	1.14	0.08
2021	Provider A	6	Medicaid	65-74	Male	16	269	0.06	1.16	0.07	1.16	0.07
2021	Provider A	6	Medicaid	75-84	Male	20	269	0.07	1.33	0.10	1.13	0.08
2021	Provider A	6	Medicaid	85+	Male	18	269	0.07	1.07	0.07	1.18	0.08
2021	Provider B	2	Medicaid	0-1	Female	15	359	0.04	0.94	0.04	0.75	0.03
2021	Provider B	2	Medicaid	2-18	Female	15	359	0.04	0.73	0.03	0.73	0.03
2021	Provider B	2	Medicaid	19-39	Female	26	359	0.07	1.04	0.08	0.99	0.07
2021	Provider B	2	Medicaid	40-54	Female	20	359	0.06	0.85	0.05	0.80	0.04
2021	Provider B	2	Medicaid	55-64	Female	26	359	0.07	1.19	0.09	1.28	0.09
2021	Provider B	2	Medicaid	65-74	Female	28	359	0.08	0.99	0.08	1.16	0.09
2021	Provider B	2	Medicaid	75-84	Female	30	359	0.08	1.27	0.11	1.15	0.10
2021	Provider B	2	Medicaid	85+	Female	25	359	0.07	1.01	0.07	1.20	0.08
2021	Provider B	2	Medicaid	0-1	Male	17	359	0.05	0.75	0.04	0.79	0.04
2021	Provider B	2	Medicaid	2-18	Male	18	359	0.05	0.56	0.03	0.47	0.02
2021	Provider B	2	Medicaid	19-39	Male	18	359	0.05	0.73	0.04	0.78	0.04
2021	Provider B	2	Medicaid	40-54	Male	15	359	0.04	0.68	0.03	0.78	0.03
2021	Provider B	2	Medicaid	55-64	Male	26	359	0.07	1.22	0.09	1.20	0.09
2021	Provider B	2	Medicaid	65-74	Male	26	359	0.07	1.33	0.10	1.21	0.09
2021	Provider B	2	Medicaid	75-84	Male	29	359	0.08	1.14	0.09	1.02	0.08
2021	Provider B	2	Medicaid	85+	Male	25	359	0.07	1.17	0.08	1.32	0.09
2021	Provider B	6	Medicaid	0-1	Female	17	359	0.05	0.78	0.04	0.78	0.04
2021	Provider B	6	Medicaid	2-18	Female	15	359	0.04	0.65	0.03	0.71	0.03
2021	Provider B	6	Medicaid	19-39	Female	25	359	0.07	1.11	0.08	1.21	0.08
2021	Provider B	6	Medicaid	40-54	Female	19	359	0.05	0.70	0.04	0.75	0.04
2021	Provider B	6	Medicaid	55-64	Female	25	359	0.07	0.99	0.07	1.28	0.09
2021	Provider B	6	Medicaid	65-74	Female	25	359	0.07	1.08	0.08	1.21	0.08
2021	Provider B	6	Medicaid	75-84	Female	30	359	0.08	1.05	0.09	1.23	0.10
2021	Provider B	6	Medicaid	85+	Female	27	359	0.08	1.02	0.08	1.11	0.08
2021	Provider B	6	Medicaid	0-1	Male	17	359	0.05	1.06	0.05	0.65	0.03
2021	Provider B	6	Medicaid	2-18	Male	18	359	0.05	0.99	0.05	0.55	0.03
2021	Provider B	6	Medicaid	19-39	Male	18	359	0.05	0.87	0.04	0.66	0.03
2021	Provider B	6	Medicaid	40-54	Male	19	359	0.05	0.60	0.03	0.81	0.04
2021	Provider B	6	Medicaid	55-64	Male	26	359	0.07	1.16	0.08	1.14	0.08
2021	Provider B	6	Medicaid	65-74	Male	27	359	0.08	1.16	0.09	1.16	0.08
2021	Provider B	6	Medicaid	75-84	Male	25	359	0.07	1.33	0.09	1.13	0.08
2021	Provider B	6	Medicaid	85+	Male	26	359	0.07	1.07	0.08	1.18	0.09
2022	Provider A	2	Medicaid	0-1	Female	18	287	0.06	0.75	0.05	0.91	0.06
2022	Provider A	2	Medicaid	2-18	Female	19	287	0.07	0.73	0.05	0.63	0.04
2022	Provider A	2	Medicaid	19-39	Female	20	287	0.07	0.99	0.07	1.07	0.07
2022	Provider A	2	Medicaid	40-54	Female	20	287	0.07	0.80	0.06	0.79	0.05
2022	Provider A	2	Medicaid	55-64	Female	18	287	0.06	1.28	0.08	1.07	0.07
2022	Provider A	2	Medicaid	65-74	Female	15	287	0.05	1.16	0.06	1.19	0.06
2022	Provider A	2	Medicaid	75-84	Female	17	287	0.06	1.15	0.07	1.09	0.06
2022	Provider A	2	Medicaid	85+	Female	15	287	0.05	1.20	0.06	1.26	0.07
2022	Provider A	2	Medicaid	0-1	Male	19	287	0.07	0.79	0.05	0.74	0.05
2022	Provider A	2	Medicaid	2-18	Male	19	287	0.07	0.47	0.03	0.57	0.04
2022	Provider A	2	Medicaid	19-39	Male	20	287	0.07	0.78	0.05	0.86	0.06
2022	Provider A	2	Medicaid	40-54	Male	18	287	0.06	0.78	0.05	0.77	0.05
2022	Provider A	2	Medicaid	55-64	Male	15	287	0.05	1.20	0.06	1.20	0.06
2022	Provider A	2	Medicaid	65-74	Male	19	287	0.07	1.21	0.08	1.08	0.07
2022	Provider A	2	Medicaid	75-84	Male	15	287	0.05	1.02	0.05	1.29	0.07
2022	Provider A	2	Medicaid	85+	Male	20	287	0.07	1.32	0.09	1.20	0.08
2022	Provider A	6	Medicaid	0-1	Female	18	274	0.07	0.78	0.05	0.82	0.05
2022	Provider A	6	Medicaid	2-18	Female	15	274	0.05	0.71	0.04	0.95	0.05
2022	Provider A	6	Medicaid	19-39	Female	20	274	0.07	1.21	0.09	1.10	0.08
2022	Provider A	6	Medicaid	40-54	Female	20	274	0.07	0.75	0.05	0.73	0.05
2022	Provider A	6	Medicaid	55-64	Female	15	274	0.05	1.28	0.07	1.15	0.06
2022	Provider A	6	Medicaid	65-74	Female	17	274	0.06	1.21	0.08	1.15	0.07
2022	Provider A	6	Medicaid	75-84	Female	17	274	0.06	1.23	0.08	1.38	0.09
2022	Provider A	6	Medicaid	85+	Female	19	274	0.07	1.11	0.08	1.29	0.09
2022	Provider A	6	Medicaid	0-1	Male	20	274	0.07	0.65	0.05	0.45	0.03
2022	Provider A	6	Medicaid	2-18	Male	17	274	0.06	0.55	0.03	0.71	0.04
2022	Provider A	6	Medicaid	19-39	Male	15	274	0.05	0.66	0.04	0.59	0.03
2022	Provider A	6	Medicaid	40-54	Male	16	274	0.06	0.81	0.05	0.84	0.05
2022	Provider A	6	Medicaid	55-64	Male	16	274	0.06	1.14	0.07	1.19	0.07
2022	Provider A	6	Medicaid	65-74	Male	15	274	0.05	1.16	0.06	1.02	0.06
2022	Provider A	6	Medicaid	75-84	Male	18	274	0.07	1.13	0.07	1.16	0.08
2022	Provider A	6	Medicaid	85+	Male	16	274	0.06	1.18	0.07	1.05	0.06
2022	Provider B	2	Medicaid	0-1	Female	17	374	0.05	0.75	0.03	0.91	0.04
2022	Provider B	2	Medicaid	2-18	Female	18	374	0.05	0.73	0.04	0.63	0.03
2022	Provider B	2	Medicaid	19-39	Female	29	374	0.08	0.99	0.08	1.07	0.08
2022	Provider B	2	Medicaid	40-54	Female	19	374	0.05	0.80	0.04	0.79	0.04
2022	Provider B	2	Medicaid	55-64	Female	25	374	0.07	1.28	0.09	1.07	0.07
2022	Provider B	2	Medicaid	65-74	Female	26	374	0.07	1.16	0.08	1.19	0.08
2022	Provider B	2	Medicaid	75-84	Female	30	374	0.08	1.15	0.09	1.09	0.09
2022	Provider B	2	Medicaid	85+	Female	30	374	0.08	1.20	0.10	1.26	0.10
2022	Provider B	2	Medicaid	0-1	Male	17	374	0.05	0.79	0.04	0.74	0.03
2022	Provider B	2	Medicaid	2-18	Male	18	374	0.05	0.47	0.02	0.57	0.03
2022	Provider B	2	Medicaid	19-39	Male	18	374	0.05	0.78	0.04	0.86	0.04
2022	Provider B	2	Medicaid	40-54	Male	17	374	0.05	0.78	0.04	0.77	0.04

Year	Provider	ICC	Market	Age Band	Sex							
2022	Provider B	2	Medicaid	55-64	Male	26	374	0.07	1.20	0.08	1.20	0.08
2022	Provider B	2	Medicaid	65-74	Male	30	374	0.08	1.21	0.10	1.08	0.09
2022	Provider B	2	Medicaid	75-84	Male	28	374	0.07	1.02	0.08	1.29	0.10
2022	Provider B	2	Medicaid	85+	Male	26	374	0.07	1.32	0.09	1.20	0.08
2022	Provider B	6	Medicaid	0-1	Female	16	376	0.04	0.78	0.03	0.82	0.04
2022	Provider B	6	Medicaid	2-18	Female	19	376	0.05	0.71	0.04	0.95	0.05
2022	Provider B	6	Medicaid	19-39	Female	28	376	0.07	1.21	0.09	1.10	0.08
2022	Provider B	6	Medicaid	40-54	Female	19	376	0.05	0.75	0.04	0.73	0.04
2022	Provider B	6	Medicaid	55-64	Female	26	376	0.07	1.28	0.09	1.15	0.08
2022	Provider B	6	Medicaid	65-74	Female	26	376	0.07	1.21	0.08	1.15	0.08
2022	Provider B	6	Medicaid	75-84	Female	28	376	0.07	1.23	0.09	1.38	0.10
2022	Provider B	6	Medicaid	85+	Female	28	376	0.07	1.11	0.08	1.29	0.10
2022	Provider B	6	Medicaid	0-1	Male	19	376	0.05	0.65	0.03	0.45	0.02
2022	Provider B	6	Medicaid	2-18	Male	17	376	0.05	0.55	0.02	0.71	0.03
2022	Provider B	6	Medicaid	19-39	Male	16	376	0.04	0.66	0.03	0.59	0.03
2022	Provider B	6	Medicaid	40-54	Male	20	376	0.05	0.81	0.04	0.84	0.04
2022	Provider B	6	Medicaid	55-64	Male	30	376	0.08	1.14	0.09	1.19	0.10
2022	Provider B	6	Medicaid	65-74	Male	26	376	0.07	1.16	0.08	1.02	0.07
2022	Provider B	6	Medicaid	75-84	Male	30	376	0.08	1.13	0.09	1.16	0.09
2022	Provider B	6	Medicaid	85+	Male	28	376	0.07	1.18	0.09	1.05	0.08

6 For each provider, market, modified insurance category code and reporting year (and using the table generated in step 2 above), calculate the following:
   a. Using previous year's age-sex factor weights:
   i. Overall risk score by summing all the age-sex risk score across all age bands and sex codes (calculated in step 5c) within each ICC and year.
   ii. Age-sex risk-adjusted truncated claims spending by dividing unadjusted truncated claims PMPM by Overall Risk Score
   iii. Population-weighted, age-sex risk-adjusted truncated claims spending by multiplying age-sex risk-adjusted truncated claims spending PMPM by the population distribution weight.
   b. Using current year's age-sex factor weights:
   i. Overall risk score by summing all the age-sex risk score across all age bands and sex codes (calculated in step 5c) within each ICC and year.
   ii. Age-sex risk-adjusted truncated claims spending by dividing unadjusted truncated claims PMPM by Overall Risk Score
   iii. Population-weighted, age-sex risk-adjusted truncated claims spending by multiplying age-sex risk-adjusted truncated claims spending PMPM by the population distribution weight.

				from 2a	from 2b	from 2c	from 1a	2d	6ai.	6aii.	6aiii.	6bi.	6bii.	6biii.
Provider	ICC	Market	Year	Member Months	Truncated Claims Spending	Truncated Claims Spending PMPM	Member months for overall market	Population distribution weight	Overall risk score based age-sex factor weights in the previous year	Age-sex risk-adjusted truncated claims spending PMPM based on age-sex factor weights in the previous year	Population-weighted, risk-adjusted truncated claims spending based on age-sex factor weights in the previous year	Overall risk score based age-sex factor weights in the current year	Age-sex risk-adjusted truncated claims spending PMPM based on age-sex factor weights in the current year	Population-weighted, age-sex risk-adjusted truncated claims spending based on age-sex factor weights in the current year
Provider A	2	Medicaid	2021	280	6444	23.01	549	0.51	0.97	23.73	12.11	0.97	23.67	12.07
Provider A	2	Medicaid	2022	287	7043	24.54	561	0.51	0.97	25.40	12.99	0.97	25.35	12.97
Provider A	6	Medicaid	2021	269	6745	25.07	549	0.49	0.98	25.49	12.49	0.98	25.71	12.60
Provider A	6	Medicaid	2022	274	6436	23.49	561	0.49	0.97	24.22	11.83	0.97	24.19	11.82
Provider B	2	Medicaid	2021	359	9910	27.60	718	0.50	1.02	27.12	13.56	1.02	27.02	13.51
Provider B	2	Medicaid	2022	374	9713	25.97	750	0.50	1.02	25.44	12.69	1.02	25.35	12.64
Provider B	6	Medicaid	2021	359	9608	26.76	718	0.50	1.00	26.68	13.34	1.02	26.28	13.14
Provider B	6	Medicaid	2022	376	9547	25.39	750	0.50	1.02	24.85	12.46	1.02	24.86	12.47

7 For each provider, market, and reporting year, calculate the ff:
   a. Age-sex risk-adjusted truncated claims spending by summing the population-weighted, age-sex risk-adjusted truncated claims spending calculated in step 6aiii (based on previous year's age-sex factor weights).
   b. Age-sex risk-adjusted truncated claims spending by summing the population-weighted, age-sex risk-adjusted truncated claims spending calculated in step 6biii (based on current year's age-sex factor weights).

		7a	7b
	Market	Age-sex risk-adjusted truncated claims spending PMPM based on age sex factor weights in the previous year	Age-sex risk-adjusted truncated claims spending PMPM based on age sex factor weights in the current year
Provider A			
2020	Medicaid	...	...
2021	Medicaid	22.56	24.67
2022	Medicaid	24.82	24.79
Provider B			
2020	Medicaid	...	...
2021	Medicaid	24.95	26.65
2022	Medicaid	25.15	25.10

Summary for 2022

	Age-Sex Risk-Adjusted Truncated Claims PMPM			Unadjusted Truncated Claims PMPM				Effective Overall Risk Score		
Market	2022	Baseline: 2021	2022 Growth Rate	2022	Baseline: 2021	2022 Growth Rate	Diff in Growth (percentage points)	2022	Baseline: 2021	Change
Provider A	24.82	24.67	0.6%	24.03	24.02	0.02%	0.6	0.968	0.974	-0.006
Provider B	25.15	26.65	-5.6%	25.68	27.18	-5.53%	-0.1	1.021	1.020	0.001

Notes:
1. The cells highlighted in orange are based on the same 2021 age-sex factor weights. This is designed as such so that any change in overall risk score from baseline to current year is not due to the age-sex factor weights but due to change in population distribution across age-sex bands.

2. An overall risk score of less than 1 indicates that members are relatively concentrated in age-sex bands that have lower PMPMs. The upward adjustment in PMPM shows what the PMPM would be like if risk is similar to the general population. If patient demographics (i.e., age-sex mix) remain constant over time, risk adjustment will not impact cost growth. If member mix becomes more concentrated in age-sex bands that have lower PMPMs, the cost growth will be impacted positively. If member mix becomes more concentrated in age-sex bands that have higher PMPMs, the cost growth will be impacted negatively.

Steps in calculating Pooled Variance for each provider in each year and market

__Given__: Carrier submissions provide data on member months, truncated claims, truncated claims spending PMPM and standard deviation of per member truncated claims spending by provider, carrier, market and year. Suppose we have this data summarized in Table 3 of the 'Input' tab. For simplicity, there are only 2 providers, 2 carriers, 1 market, and 3 years(2020-2022) in this sample. Please find below the steps in pooling the standard deviations and deriving the pooled variance for each provider across carriers in each year and market.

1 a. For each provider in each market and reporting year, calculate the member months. This is already calculated in Table 2 in the "Inputs" Tab.

		1a
	Market	**Member Months**
Provider A		
2020	Medicaid	554
2021	Medicaid	549
2022	Medicaid	561
Provider B		
2020	Medicaid	751
2021	Medicaid	718
2022	Medicaid	750

2 For each provider in each carrier, market, and reporting year, calculate/get the following from Table 2 in "Inputs" tab:

a. Member Months
b. Unadjusted Truncated Claims Spending
c. Unadjusted Truncated Claims Spending PMPM
d. Standard Deviation as submitted by carriers

	2a	2b	2c	2d
	Member Months	**Truncated Claims Spending**	**Truncated Claims Spending PMPM**	**Standard Deviation**
Provider A in Carrier 1				
2020	332	8,645	26.01	3.00
2021	357	8,968	25.13	5.00
2022	331	8,357	25.25	2.00
Provider A in Carrier 2				
2020	222	5,077	22.91	5.00
2021	192	4,220	21.96	3.00
2022	230	5,122	22.27	4.00
Provider B in Carrier 1				
2020	413	10,425	25.24	2.00
2021	381	9,759	25.65	2.00
2022	390	9,052	23.21	2.00
Provider B in Carrier 2				
2020	338	10,017	29.64	2.00
2021	337	9,759	28.92	2.00
2022	360	10,208	28.36	5.00

3 For each provider in each market and reporting year, calculate the pooled variance. The general formula is in the "Age-Sex Risk Adjustment, Pooled Variance, & Confidence Interval of Cost Growth Calculation for Provider Reporting" document [provide link to website once published].

For the data at hand, we have J=2 (i.e., 2 carriers) and hence the specific formula is:

$$V_{i,m,t}^{pool} = \left(\frac{MM_{i,c_1,m,t}\ \sigma_{i,c_1,m,t}^{2}}{MM_{i,m,t}} + \frac{MM_{i,c_2,m,t}\ \sigma_{i,c_2,m,t}^{2}}{MM_{i,m,t}} \right) + \frac{MM_{i,m,t}\ MM_{i,c_2,m,t}\left(TCP_{i,c_1,m,t}^{unadj} - TCP_{i,c_2,m,t}^{unadj}\right)^{2}}{MM_{i,m,t}^{2}}$$

First Term   Second Term

where

$MM_{i,c_1,m,t}$ is the member months for provider i in carrier 1, market m, and year t

$\sigma_{i,c_1,m,t}$ is the standard deviation for provider i in carrier 1, market m, and year t

$MM_{i,c_2,m,t}$ is the member months for provider i in carrier 2, market m, and year t

$\sigma_{i,c_2,m,t}$ is the standard deviation for provider i in carrier 2, market m, and year t

$TCP_{i,c_1,m,t}^{unadj}$ is the unadjusted truncated claims spending PMPM for provider i in carrier 1, market m, and year t

$TCP_{i,c_2,m,t}^{unadj}$ is the unadjusted truncated claims spending PMPM for provider i in carrier 2, market m, and year t

	First term	Second Term	Pooled Variance	Pooled Standard Deviation
Provider A				
2020	15.40	2.30	17.70	3.9
2021	19.40	2.28	21.68	4.4
2022	8.92	2.15	11.07	3.0
Provider B				
2020	4.00	4.79	8.79	2.0
2021	4.00	2.67	6.67	2.0
2022	14.08	6.61	20.69	3.8

Steps in calculating the Confidence Interval of the growth rate of adjusted TME PMPM for each provider in each year and market

Given the calculated risk-adjusted truncated claims PMPM , the non-claims spending PMPM (as submitted by carriers) and the calculated pooled variance by provider,market and year, the confidence interval of the growth rate of the adjusted TME PMPM can be calculated. Suppose we have the calculated risk-adjusted truncated claims PMPM in the "Risk-Adj" tab, the pooled variance in the "Pooled Variance" tab and the non-claims PMPM summarized in Table 2 of the 'Inputs' tab. (For simplicity, there are only 2 providers, 1 market, and 3 years(2020-2022) in this sample). Please find below the steps in pooling the variance for each provider across carriers in each year and market. In this example, we will only calculate one year (i.e., 2022) of growth.

1 For each provider in each market, and year, calculate/get the following:
  a. Risk-adjusted truncated claims spending PMPM for year t-1 (based on current year's age-sex factor weights; from "Risk-Adj" tab)
  b. Risk-adjusted truncated claims spending PMPM for year t (based on previous year's age-sex factor weights; from "Risk-Adj" tab)
  c. Member months from table 2 of "Inputs" tab
  d. Non Claims Spending from table 2 of "Inputs" tab
  e. Non Claims Spending PMPM from table 2 of "Inputs" tab
  f. Adjusted Total Medical Expense(TME) PMPM which is the sum of Risk-adjusted truncated claims spending PMPM and Non Claims Spending PMPM at year t. Risk-adjusted truncated claims spending PMPM is based on age-sex factor weights from t-1 data.
  g. Adjusted Total Medical Expense(TME) PMPM which is the sum of Risk-adjusted truncated claims spending PMPM and Non Claims Spending PMPM at year t-1. Risk-adjusted truncated claims spending PMPM is based on age-sex factor weights from t-1 data.
  h. Pooled Variance from the "Pooled Variance" tab
  i. Confidence intervalof the growth rate of the adjusted TME PMPM using the following formula:

$$\left(\left(\frac{TMEP^{adj}_{i,m,t-1}TMEP^{adj}_{i,m,t}\pm\sqrt{TMEP^{adj\,2}_{i,m,t-1}TMEP^{adj\,2}_{i,m,t}-\left(TMEP^{adj\,2}_{i,m,t-1}-1.64^2\frac{V^{pool}_{i,m,t-1}}{MM_{i,m,t-1}}\right)\left(TMEP^{adj\,2}_{i,m,t}-1.64^2\frac{V^{pool}_{i,m,t}}{MM_{i,m,t}}\right)}}{\left(TMEP^{adj\,2}_{i,m,t-1}-1.64^2\frac{V^{pool}_{i,m,t-1}}{MM_{i,m,t-1}}\right)}\right)-1\right)*100$$

where

$TMEP^{adj}_{i,m,t-1}$ is the Adjusted Total Medical Expense (TME) PMPM of provider i in market m for the prior year, t-1

$TMEP^{adj}_{i,m,t}$ is the Adjusted Total Medical Expense (TME) PMPM of provider i in market m for the current year t

$V^{pool}_{i,m,t-1}$ is the pooled variance provider i in market m for the prior year, t-1

$V^{pool}_{i,m,t}$ is the pooled variance provider i in market m for the current year t/

  j. Point estimate of the growth rate of the adjusted TME PMPM using the following formula

$$\left(\left(TMEP^{adj}_{i,m,t}\Big/TMEP^{adj}_{i,m,t-1}\right)-1\right)*100$$

Source Tabs	from "Risk-Adj" tab	from table 2 of "Inputs" tab			1f (for 2022) and 1g	from "Pooled Variance" tab	1i (for lower and upper bound) and 1j			Compare to:	
Steps	1a (for 2021) and 1b (for 2022)	1c	1d	1e	(for 2021)	1h	(point estimate)			from table 2 of "Inputs" tab	
							Confidence Interval				
	Risk Adjusted Truncated Claims Spending PMPM	Member Months	Non Claims	Non Claims PMPM	Adjusted TME PMPM	Pooled Variance	Lower Bound	Point Estimate	Upper bound	Unadjusted TME PMPM	Growth Rate of Unadj TME PMPM
Provider A											
2020	...	554	3,078	5.6	...	17.70					
2021	24.67	549	3,000	5.5	30.13	21.68				29.49	
2022	24.82	561	3,263	5.8	30.64	11.07	0.3%	1.7%	3.0%	29.84	1.2%
Provider B											
2020	...	751	3,210	4.3	....	8.79					
2021	26.65	718	3,446	4.8	31.45	6.67				31.98	
2022	25.15	750	2,991	4.0	29.13	20.69	-8.3%	-7.4%	-6.4%	29.67	-7.2%

Acronyms	Description
TME	Total Medical Expense
PMPM	Per Member Per Month
ICC	Insurance Category Code

Tab 6

Public Comment