COLORADO TOTAL HEALTH COST AND GEOGRAPHIC AREAS
2016 STUDY

PREPARED FOR THE COLORADO DEPARTMENT OF REGULATORY AGENCIES: DIVISION OF INSURANCE

BY LEWIS & ELLIS, INC. ACTUARIES & CONSULTANTS

July 28, 2016

Prepared by
Michael A Brown, FSA, MAAA, Vice President
Andrea Huckaba, ASA, CERA, MAAA, Assistant Vice President
Spencer Louden, Actuarial/Data Technician

Table of Contents

Table of Contents 2
Executive Summary 4
Section 1: Introduction and Purpose of Study 5
Section 2: Summary 5
Colorado Total Cost by Region 5
Exhibit 2.1: Total Cost Comparisons by Region 6
Exhibit 2.2: Total Cost Average Member Count 6
Exhibit 2.3 Cost per Service – Lowest to Highest 7
Current ACA Rating Regions: A National View. 8
Exhibit 2.4 Number of ACA Rating Regions per State (Individual) 8
Exhibit 2.5 Number of ACA Rating Regions per State (Small Group) 8
Carrier and Plan History for ACA compliant plans 9
Colorado Current Area Factors 9
Exhibit 2.6: 2017 Individual Area Factors by Carrier 10
Exhibit 2.7: 2017 Market Average Area Factor Comparison 11
Exhibit 2.8: Regional Cost Comparisons 11
One Rating Region: Considerations 12
Exhibit 2.9: Single Rating Region Scenarios 12
Exhibit 2.10: One rating region - possible rate impact scenarios not including trend 13
Regulatory considerations 14
Section 3: Geographic Rating Areas – General Information 15
Geographic Rating Areas – pre-ACA 15
Geographic Rating Areas under the ACA 15
Section 4: Area Factors, Plan Availability, Plan Type, and Premiums 16
Area Factor Analysis 17
Exhibit 4.1: 2017 Individual Area Factors, Member Weighted, by Rating Region 17
Exhibit 4.2: 2017 Small Group Area Factors, Member Weighted, by Rating Region 18
Exhibit 4.3: Carriers in each Area for the Individual Market 19
Exhibit 4.4: Individual Carriers On-Exchange, by Year 20
Exhibit 4.5: Individual Carriers off Exchange, by Year 21
Plan Type Movement 22
Exhibit 4.6: Number of Metallic Plans Available by Market and Year 22
Exhibit 4.7: Number of Individual Metallic Plans Offered by Year 22

Exhibit 4.8: Number of Small Group Metallic Plans Offered by Year 23
Exhibit 4.9: Individual ACA Plan Types, from Unified Rate Review Templates (URRTs) 24
Premium Changes 25
Exhibit 4.10: 40-Year Old Individual Bronze Premium, High and Low by Area by Year 25
Exhibit 4.11: 40-Year Old Individual Silver Premium, High and Low by Area by Year 25
Exhibit 4.12: Small Group Bronze Premium, High and Low by Area by Year 26
Exhibit 4.13: Small Group Silver Premium, High and Low by Area by Year 26
Exhibit 4.14: Overall Rate increases by Market and Year 27
Section 5: Total Cost 28
Exhibit 5.1: Annual Total Cost Comparison, Commercial Market 28
Exhibit 5.2: Comparison of Total Annual Costs to the Statewide Average 28
Exhibit 5.3: 2014 Map of Rating Region Cost and APCD Member Credibility 29
Exhibit 5.4: 2015 Map of Rating Region Cost and APCD Member Credibility 29
Exhibit 5.5: 2014 Map of County Cost and APCD Member Credibility 30
Exhibit 5.6: 2015 Map of County Cost and APCD Member Credibility 30
Exhibit 5.7: Breakdown of Annual Total Cost by Area, by Year and Provider Type 31
Exhibit 5.8: 2014 Inpatient Cost and Use by Area, Entire Commercial Population 32
Exhibit 5.9: 2014 Outpatient Cost and Use by Area, Entire Commercial Population 33
Exhibit 5.10: 2014 Professional Cost and Use by Area, Entire Commercial Population 34
Exhibit 5.11: 2014 Pharmacy Cost and Use by Area, Entire Commercial Population 35
Detailed Review of Cost Drivers- An Example 36
Appendix 1: Primary Data and Information Sources 38
Appendix 2: Claim Categorization and Units Methodology 38
High Level: Inpatient, Outpatient, Professional and Pharmacy 38
Benefit Detail Bucketing 38
Units Methodology 39

Executive Summary

Lewis & Ellis, Inc. (L&E) was contracted, through the State of Colorado Department of Regulatory Agencies: Division of Insurance (DOI) in the spring of 2016 to evaluate the appropriateness of the nine (9) geographic rating areas that are currently in effect for Affordable Care Act (ACA) plans. The scope of the study includes an evaluation of moving to one rating area for the entire state.

L&E recommends keeping the current rating regions but consider limiting the geographic factor by a rating band. Currently, carriers in the market have geographic factors that differ by as much as 62% when comparing the lowest factor to the highest (this can be described as a 1.62:1 band). A sample 1.4:1 band and its impact is illustrated in the body of this report. The key factors leading to this decision are:

1) Provides a balance between paying for actual cost of services (which benefits low cost areas) and sharing in statewide average cost (which benefits high cost areas);
2) Lessens the probability of plan choice and carrier choice diminishing as compared to a 1 region scenario;
3) Will most likely have a minor overall rate impact to state wide premiums and a reasonably low impact to the low cost regions;
4) The current rating regions fall within industry standards;
5) The current rating regions are actuarially justified.
6) There is minimal disruption for carriers administratively and competitively.

L&E does not recommend moving to one rating. The key factors leading to this decision are:

1) Carriers may drop out of the market. We have already seen a decrease in the number of carriers as they face the challenges of competing in the ACA compliant market. Some carriers may have to increase prices in low cost areas too much and cannot compete.
2) The market may continue to trend towards a complete HMO and/or narrow network market in order to compete on price and maintain lower rate increases. Customer choice may become limited.
3) Carriers may offer very similar products in different regions, but distinguish the products using the allowable network rating factor. This in effect, would be rating by region in a one region state.
4) The market may find other methods to offer insurance, such as self-insured plans, Trusts, or Multiple Employer Welfare Arrangements (MEWAs). These alternate methods could lead to higher morbidity levels in the ACA market.
5) Customers may begin to pay the same healthcare premiums for similar products regardless of healthcare cost in their regions. This would benefit customers in high cost regions and but negatively impact customers in low cost regions.
6) Some carriers may drop out of the higher cost regions. This would allow them to offer lower prices in the low cost regions due to having lower overall cost. This may lead to a disadvantage for carriers offering rates in all regions. This can also prompt very limited products in high cost regions.
7) Administrative cost will increase. Carrier implementation of major regulatory changes increases administrative cost and overall healthcare premiums.

Section 1: Introduction and Purpose of Study

Lewis & Ellis, Inc. (L&E) was contracted, through the State of Colorado Department of Regulatory Agencies: Division of Insurance (DOI) in the spring of 2016 to evaluate the appropriateness of the nine (9) geographic rating areas that are currently in effect for Affordable Care Act (ACA) plans. The scope of the study includes an evaluation of moving to one rating area for the entire state.

Additionally, L&E proposed to analyze regional costs, determine cost drivers, and examine the appropriateness of area rating factors currently in use by the insurance carriers. With this analysis, tools will be provided to the State for further review.

As the State continues to enhance their understanding of the healthcare environment, we hope this study will provide insights that can improve cost and access to healthcare for the people of Colorado.

Section 2: Summary

Colorado Total Cost by Region

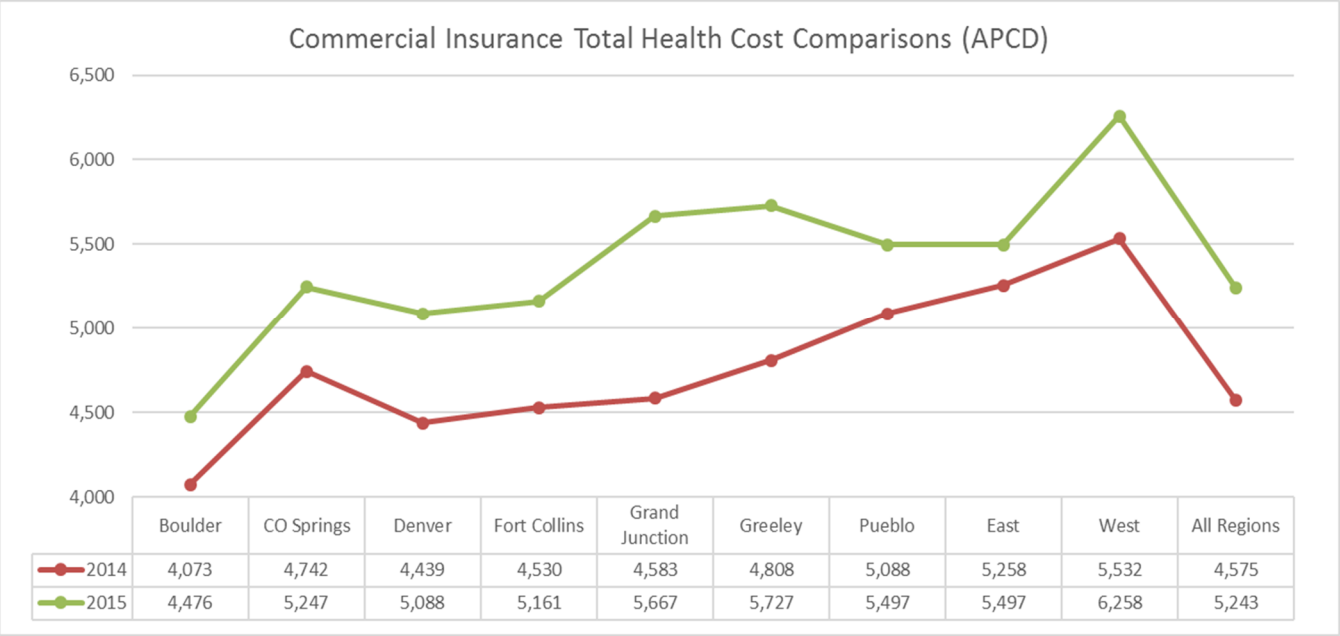
In this report, we will review total cost of health care for the commercially fully insured Coloradans. We review those with major medical and pharmacy benefits through individual or group insured plans. Total cost of care is the sum of payments made to health care providers by insurance companies plus the cost sharing paid by members in the form of deductibles, copayments and coinsurance. Total cost does not include insurance premiums. This review is limited to those on fully insured commercial plans, not including Medicare and Medicaid.

Much of our analysis was done using the Colorado All Payers Claims Database (APCD) administered by the Center for Improving Value in Health Care (CIVHC). APCD data includes most major medical insurance carriers including Aetna, Anthem, Cigna, Denver Health, Kaiser, Rocky Mountain Health Plans and United Healthcare.

As Exhibit 2.1 illustrates, there are variances in total cost by region ranging from a little over $4,000 per member per year (2014 PMPY) in Boulder to a little over $5,500 in the west region. This represents a differential of 36%. The differential was closer to 40% for 2015.

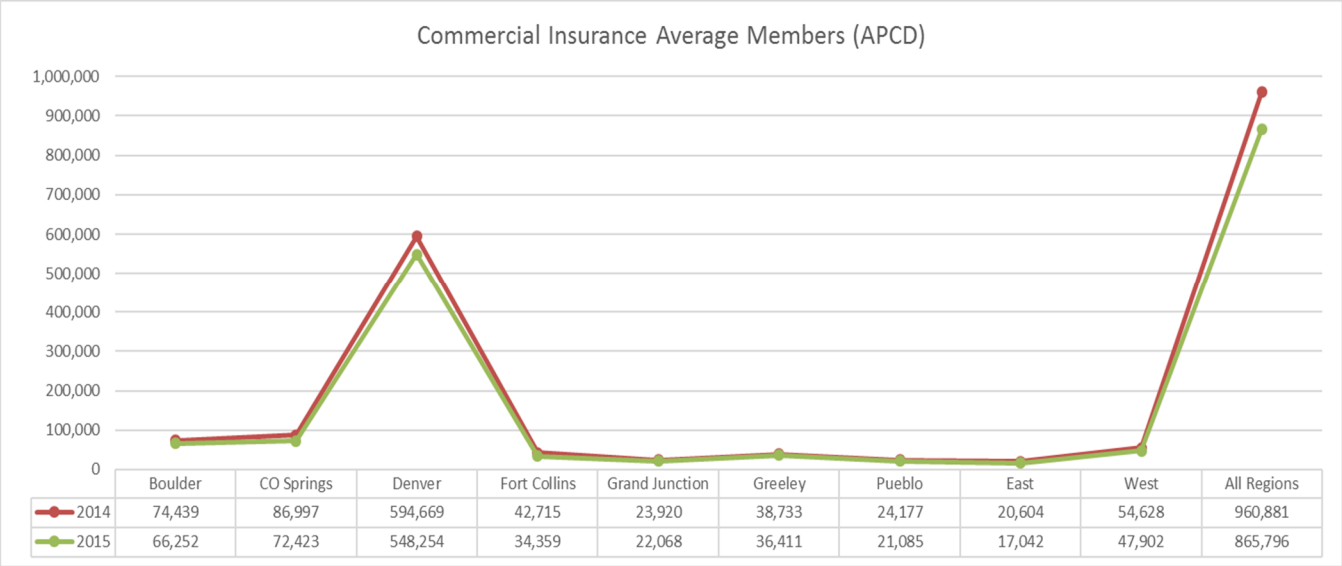
The number of members in a particular region is illustrated in Exhibit 2.2. When considering cost in a particular segment, it is important to consider the number of members in that segment. The term credibility is used to determine if a membership base is large enough to predict future expected cost. L&E finds 140,000 member months of data in an annual period (or an average of 140,000/12 = 11,667 members) in a region highly credible to determine ACA regional area splits. All regions, using 2014 commercial data, are credible using this metric (Exhibit 5.3). 2015 data is not yet fully credible as APCD data available at the time of this report is for service dates January through May with transaction dates through December 2015.

Exhibit 2.1: Total Cost Comparisons by Region



	Boulder	CO Springs	Denver	Fort Collins	Grand Junction	Greeley	Pueblo	East	West	All Regions
2014	4,073	4,742	4,439	4,530	4,583	4,808	5,088	5,258	5,532	4,575
2015	4,476	5,247	5,088	5,161	5,667	5,727	5,497	5,497	6,258	5,243

Exhibit 2.2: Total Cost Average Member Count



	Boulder	CO Springs	Denver	Fort Collins	Grand Junction	Greeley	Pueblo	East	West	All Regions
2014	74,439	86,997	594,669	42,715	23,920	38,733	24,177	20,604	54,628	960,881
2015	66,252	72,423	548,254	34,359	22,068	36,411	21,085	17,042	47,902	865,796

NOTE: Total cost is the annualized amount based on the year service was incurred. Total cost for 2015 is labeled as "Early estimate" as it only includes service dates January through May of 2015 (transaction dates through December 2015). Average members is the total months of eligibility in a year divided by the number of months in that year. For example, if there are 12,000 months of eligible coverage in one year, this translates to 1,000 members on average. If one person is present for only 6 months, they are counted in the average as ½ of a member. If this member has $1,000 in claims cost for 6 months, then their annualized cost is $2,000 per year. This logic follows how insurance is priced and is the actuarial standard. For regional breakouts by county see Exhibit 5.3.

Regional cost varies significantly when reviewed at the four levels of: Inpatient; Outpatient; Professional Services and Pharmacy. For example, 2014 outpatient total cost varies from $828 in Boulder to $2,022 in the West. Outpatient cost per service varies from $1,131 per visit in Grand Junction to $1,766 per visit in the West. Outpatient visits vary from a little over 542 visits per 1,000 members in Denver to a 1,307 per 1,000 members in Grand Junction. L&E developed a tool for the DOI referred to as the "Driver Finder" tool that allows further review of health care cost drivers. An example of output from this tool is illustrated in Section 5 and demonstrates that a primary driver of West outpatient cost is utilization of imaging and advance imaging services.

Exhibit 2.3 below illustrates the cost per service varies widely from region to region. We remind the reader that total cost is made up of the use of services and the cost of services, Table 2.3 focuses on the cost of services, sometimes referred to as unit cost. How units are defined and calculated can vary widely, for a description of how L&E defined and calculated units, see Appendix 3.

Exhibit 2.3 Cost per Service – Lowest to Highest

Inpatient Admits		Outpatient Visits		Professional Visits		Pharmacy Scripts	
Region	**Cost**	**Region**	**Cost**	**Region**	**Cost**	**Region**	**Cost**
CO. Springs	$17,247	Grand Junction	$1,131	Greeley	$416	Greeley	$78
Denver	$18,029	Boulder	$1,235	Denver	$439	Denver	$80
Boulder	$18,328	East	$1,487	Boulder	$450	Grand Junction	$83
Pueblo	$20,765	CO. Springs	$1,542	Fort Collins	$459	Fort Collins	$83
East	$20,989	Denver	$1,667	CO. Springs	$466	West	$86
Greeley	$22,246	Fort Collins	$1,668	Pueblo	$536	East	$87
Grand Junction	$22,980	Pueblo	$1,750	Grand Junction	$567	Pueblo	$88
Fort Collins	$23,165	Greeley	$1,760	East	$588	Boulder	$90
West	$23,653	West	$1,766	West	$630	CO. Springs	$96
Low/High Difference	$6,406		$636		$214		$18
Low/High % Difference	37%		56%		51%		23%

Important Note: The reader must be cautioned to consider that many components can lead to variation in cost between regions such as: severity of services; morbidity of members; age and gender of members; contractual arrangements with providers; type of providers available; degree of medical management; and membership credibility of segments analyzed. Some of these items could be studied at the public policy level given the data available while other items are proprietary to carriers.

The APCD population by region currently has credible member count in each region (see Section 5, Exhibit 5.3 for more details). Credibility by county is significantly lower than credibility by region, therefore a further split of current regions could introduce non-credible regions. Section 5 provides highlights of the cost variations between region and counties.

Current ACA Rating Regions: A National View.

Most states are using a number of regions in line with the number of Metropolitan Statistical Areas (MSA). States using one region in the individual market have an average population of 2.1 million (1.0 million in the small group market, New Jersey is the only state which uses differing individual and small group areas). The number of rating regions increases with population and MSA count. Colorado has a population of roughly 5.5 million in 2015. Currently, along with 18 other states, Colorado falls in the 6-10 rating region category in the individual market. Exhibit 2.4 and 2.5 illustrates that Colorado is in line with national averages. Section 3 of this report provides more detail on geographic rating region considerations.

Exhibit 2.4 Number of ACA Rating Regions per State (Individual)

Number of Rating Regions[1]	Number of States (Including DC)[1]	Average Number of Regions per State	Average Number of MSAs per State[2]	Average Population of States, 2015[3]
1 Rating Region	7	1.0	2.4	2,145,818
2-5 Rating Regions	12	4.1	4.3	2,438,537
6-10 Rating Regions	18	7.7	8.2	5,734,640
11-15 Rating Regions	4	12.3	12.0	6,986,524
16 + Rating Regions	10	25.6	17.4	14,596,603
All States	51	9.8	8.6	6,302,330
Colorado falls in the 6-10 segment (9 regions, population of 5.5 Million, 7 MSAs)				

1) CMS, www.cms.gov/cciio/programs-and-initiatives/health-insurance-market-reforms/state-gra.html
2) Derived from US Census Bureau, www.census.gov/population/metro/
3) US Census Bureau, www.census.gov/popest/data/state/totals/2015/index.html

Exhibit 2.5 Number of ACA Rating Regions per State (Small Group)

Number of Rating Regions[1]	Number of States (Including DC)[1]	Average Number of Regions per State	Average Number of MSAs per State[2]	Average Population of States, 2015[3]
1 Rating Region	6	1.0	1.7	1,010,452
2-5 Rating Regions	12	4.1	4.3	2,438,537
6-10 Rating Regions	19	7.6	8.2	5,904,291
11-15 Rating Regions	4	12.3	12.0	6,986,524
16 + Rating Regions	10	25.6	17.4	14,596,603
All States	51	9.9	8.6	6,302,330
Colorado falls in the 6-10 segment (9 regions, population of 5.5 Million, 7 MSAs)				

In general, states use a number of rating regions that equal the count of MSAs or higher. The predominant reasons are due to:

1. Provider charges and contractually-based unit cost differentials between regions.
2. Utilization differences between areas. This may be driven by type of providers available in that region, regional practice patterns or by population age, gender and morbidity. The author would argue that the intent of the ACA would be to remove age, gender and morbidity from the geographic factor determination. Gender and rating on health morbidity is no longer allowed in ACA rating factors while age (and family composition) is accounted for separately in a factor outside of geographic factors.
3. A higher rating region count allows for more flexibility and competitive pricing.

A few states have mandates that were in place prior to ACA, and remain in place. These mandates disallow regional rating or introduce a rating limit band (for example, 1.5:1, that is the highest rating factor cannot be 1.5 times more than the lowest rating factor).

Currently, there is not much regulation on how rating areas are determined, other than what is noted above. However, ACA guidance requires that if the number of regions is greater than the count of MSAs + 1, then the regions;

1. are actuarially justified;
2. are not unfairly discriminatory;
3. reflect significant differences in health care unit costs;
4. lead to stability in rates over time;
5. apply uniformly to all issuers in a market;
6. and are based on the geographic boundaries of counties, three-digit zip codes, or metropolitan statistical areas and non-metropolitan statistical areas.
7. Must be approved by the Secretary of the Department of Health and Human Services

In our opinion, the current rating regions satisfy these requirements.

Carrier and Plan History for ACA compliant plans

Section 4 contains information about the changes in the individual and small group market in Colorado since the key date of 1/1/2014 when the ACA exchange was implemented. Key items are noted here:

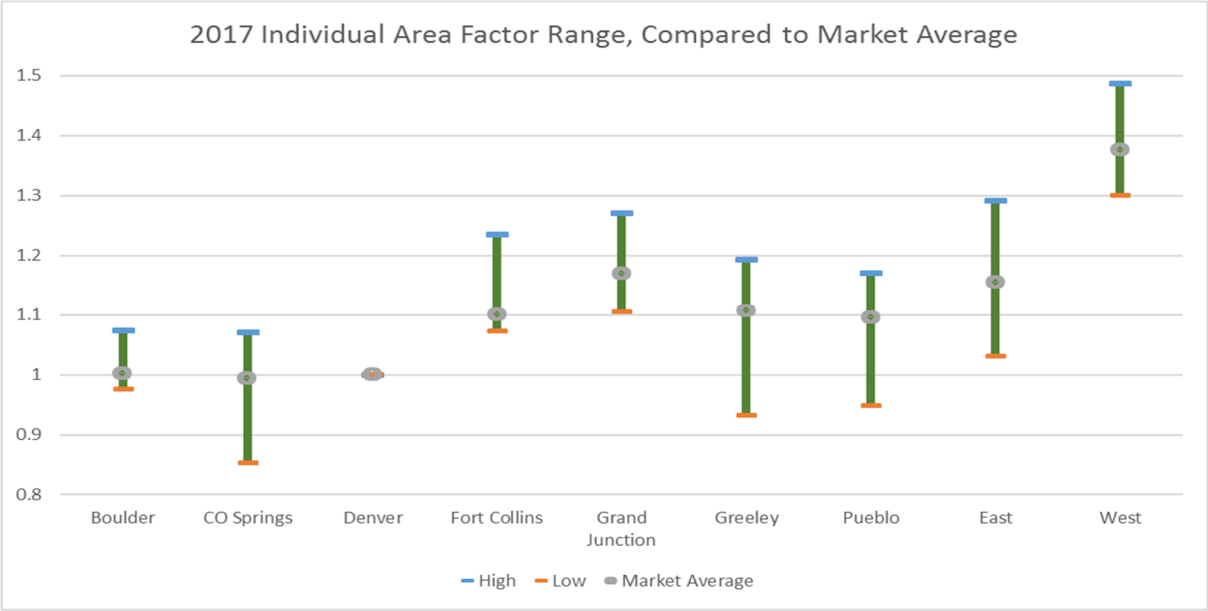
1. The options available in the individual market are shrinking.
   - The number of carriers in the market dropped from 17 in 2015 to 10 in 2017.
   - Fewer carriers are offering PPO plans, which is leading to significant membership migration to HMO and EPO plans. PPO membership in the individual market is projected to go from 45% in 2015 to 5% in 2017. The expected 2017 individual membership is 76% HMO and 19% EPO.
   - The number of plans offered on and off the exchange in 2017 is decreasing from 2016.
2. There are significantly more small group plans offered off the exchange, a little more than 500, which is roughly four times the plans offered on the exchange.

Colorado Current Area Factors

Currently, in the individual market, there are a total of 10 insurance carriers offering ACA compliant plans. The area factors used in the 9 Colorado regions vary significantly as illustrated in Exhibit 2.6. These area factors are adjusted relative to how a carrier's factor relates to their Denver factor. These relative area factors differ by as much as 61.5% from a carrier's lowest factor relative to their highest. In general, carrier area factors are: lower in Boulder, Colorado Springs and Denver; Higher in Fort Collins, Greeley and Pueblo; and Highest in the Grand Junction, East and West. The number of carriers offering coverage ranges from 6 carriers in Pueblo and Grand Junction to 10 carriers in Denver.

Currently, in the small group market, there are a total of 13 insurance carriers offering ACA compliant plans. Similar to the individual market, the area factors used in the 9 Colorado regions vary significantly (Exhibit 4.2 in Section 4 has more detail). These area factors are adjusted relative to how a carrier's factor relates to their Denver factor. These relative area factors range from 0.84 in Grand Junction (Rocky Mountain HMO) to 1.44 in the West (United Healthcare). In general, carriers' area factors are: lower in Boulder, Colorado Springs, Denver and Pueblo; Higher in Fort Collins, Grand Junction, Greeley and the East; and Highest in the West. The number of carriers offering coverage ranges from 10 in Pueblo to 13 in 3 regions.

Exhibit 2.6: 2017 Individual Area Factors by Carrier



NOTE: Market average is based on a weighted average of projected membership based on 2017 rate filings.

We calculated an expected market average area factor using expected membership from 2017 rate filings. These are illustrated in Exhibit 2.7 for individual and small group insurance. The factors line up closely between the two segments of insurance. We would expect this to happen as: unit costs differentials may be similar due to similar provider contract structure between individual and small group; and often carriers do not have a credible individual block to base area factors on and may use the same base as used in small group determination.

Exhibit 2.7: 2017 Market Average Area Factor Comparison

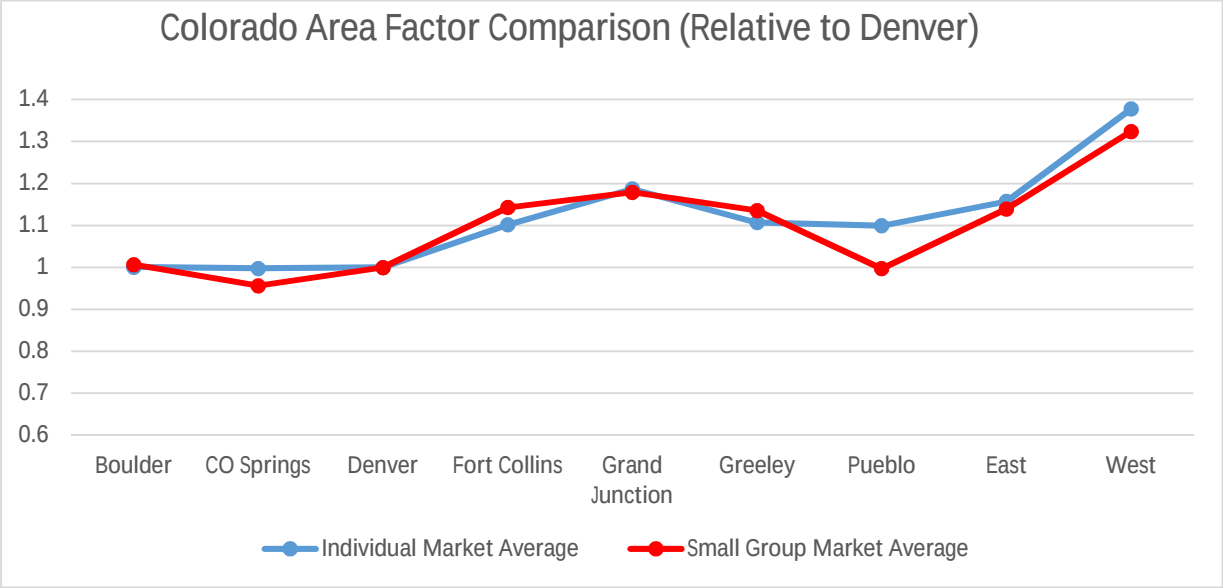


Exhibit 2.8: Regional Cost Comparisons

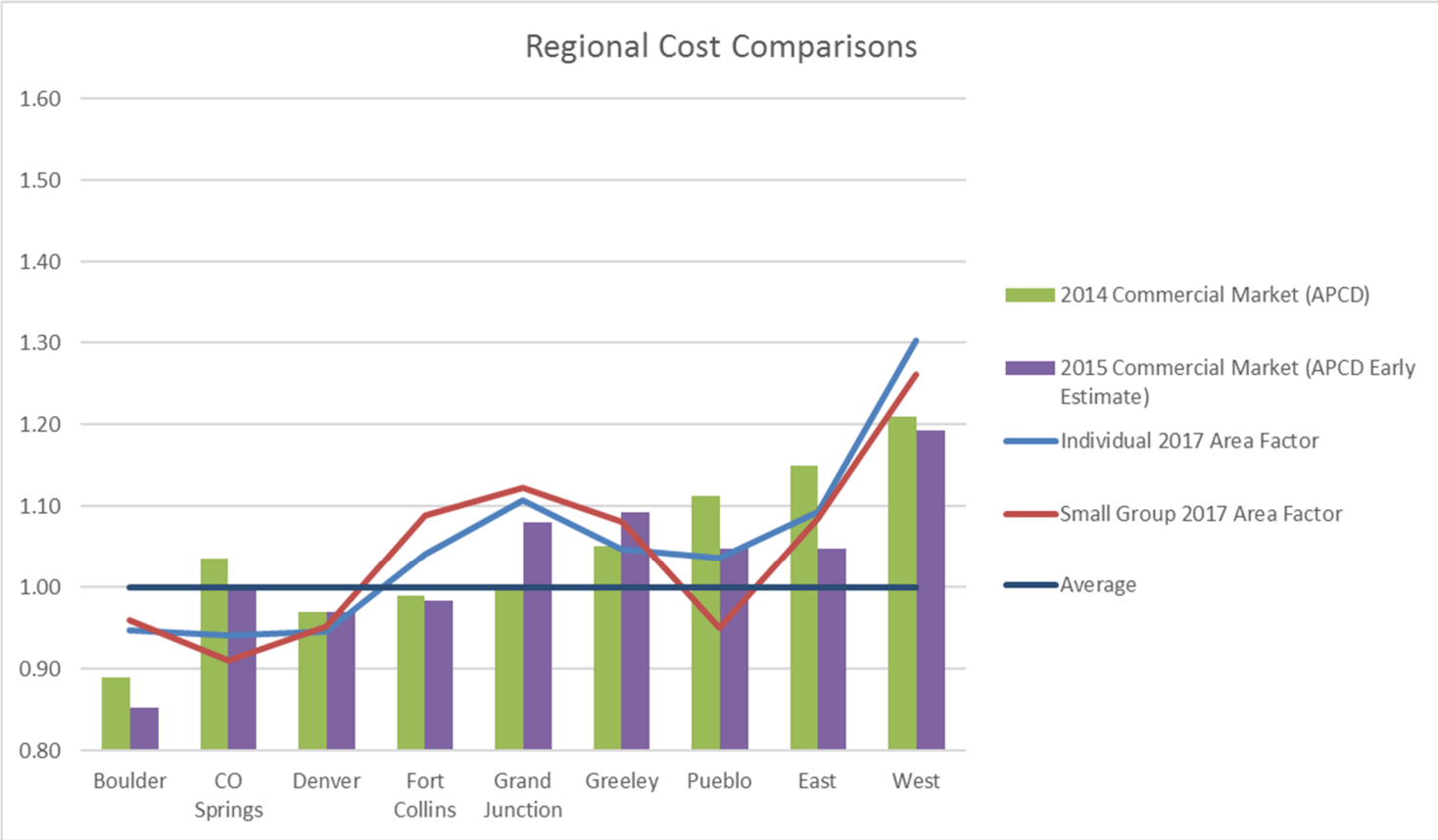


Exhibit 2.8 reviews the cost in a particular region relative to the segments reviewed in this section. That is, 2017 individual and small group market average area factors; 2014 commercial experience; 2015 commercial experience. Key takeaways from Exhibit 2.6 are:

1. Boulder and Denver cost is below average in all areas.
2. Grand Junction, Greeley, East and West cost is above average in all areas.
3. Colorado Springs cost is below average in recent estimates (2015 and 2017).
4. Pueblo cost is higher than average in most segments and in all credible segments that include individual insurance.

The reader should be cautioned that the APCD experience may not be the same as the experience used by carriers in the individual and small group markets for determining geographic factors. One key item worth noting is that the APCD includes individual, small group and large group business for all product types (HMO, PPO, EPO, etc.). Some carriers may use different segmentations of the population to base geographic factors when appropriate. We do however, note that there are similarities between the two as noted above.

One Rating Region: Considerations

The Department requested that we consider what the impact may be if Colorado moved into one rating region. This section conjectures some possible outcomes if this change were to occur. The actual outcome is not known. However, this section gives some reasonable possibilities that should be considered by stakeholders. Exhibit 2.9 illustrates some examples of various scenarios reviewed.

Exhibit 2.9: Single Rating Region Scenarios

Scenario Number and Description
Scenario 1) Individual, Area Factor, Simple: Impact based on how to impact 2017 area factor so that area factor is set to state average (all area factors are equal). No carrier or member movement implied.
Scenario 2) Individual with population movement, low: Scenario 1 with 5% decrease in Boulder, Colorado Springs and Denver enrollment. 5% increase in Grand Junction and East, 10% increase in West.
Scenario 3) Individual with population movement, high with admin increase: Scenario 1 with 10% decrease in Boulder, Colorado Springs and Denver enrollment. 10% increase in Grand Junction and East, 20% increase in West. 1% increase in admin.
Scenario 4) Individual, half of carriers use Network rating to split areas, admin increase: Scenario 1 with 2.5% decrease in Boulder, Colorado Springs and Denver enrollment. 2.5% increase in Grand Junction and East, 5% increase in West. 1% increase in admin. Half of carriers use Network factor to rate by region
Scenario 5) Individual - Use multiple regions with Rating Band: Allow rating regions but with 1.4 :1 band limit, 5% increase in West. 0.5% increase in admin.
Scenario 6) Individual 2017 - Top Carrier: Similar to Scenario 1, but with top carrier that sells in every region
Scenario 7) Individual 2017 - Top Carrier - With Population Movement: Scenario 6 with 5% decrease in Boulder and Denver, 10% decrease Colorado Springs 20% increase in Grand Junction and East, 10% increase in West.
Scenario 8) 2014 Commercial Market (APCD): Impact based on how to impact 2014 commercial experience (small group, large group, individual, all products (PPO, EPO, HMO, etc.) would need to be adjusted so claims charge by area is equal and revenue neutral
Scenario 9) 2015 Commercial Market (APCD): Impact based on how to impact 2015 commercial experience (small group, large group, individual, all products (PPO, EPO, HMO, etc.) would need to be adjusted so claims charge by area is equal and revenue neutral

NOTE: Rating is a complex determination for insurance companies and we do not assume rating is this simplistic, however, the chart does illustrate some directionally correct impacts that would most likely occur. Example calculation: Scenario 1 Boulder individual 2017 area factor = 0.936 compared to average 1.000. Boulder factor would need to be increased by 6.8% to bring it to the average (1.068 X 0.936 = 1.000).

Exhibit 2.10 illustrates what would happen to rates if regions change from 9 to 1 for the above scenarios, given all other factors remain constant unless otherwise noted (Exception, Scenario 5 keeps current rating regions but limits the rating band to 1.4:1, or a 40% differential). It shows the potential increase or decrease in each area. This does not include healthcare trend, which on average can been an additional 6%-12%. Shaded region present the more likely scenarios.

Exhibit 2.10: One rating region - possible rate impact scenarios not including trend

Scenario	Boulder	Colorado Springs	Denver	Fort Collins	Grand Junction	Greeley	Pueblo	East	West	Net
1) Individual, Area Factor, Simple	6.8%	7.8%	7.1%	-2.7%	-5.8%	-3.3%	-2.2%	-7.3%	-22.3%	0.0%
2) Individual with population movement, low	8.1%	9.0%	8.3%	-1.6%	-4.7%	-2.2%	-1.0%	-6.2%	-21.3%	0.6%
3) Individual with population movement, high with admin increase	10.5%	11.4%	10.7%	0.6%	-2.6%	0.0%	1.2%	-4.1%	-19.6%	2.2%
4) Individual, half of carriers use Network rating to split areas, admin increase	4.9%	5.4%	5.0%	0.1%	-1.5%	-0.2%	0.3%	-2.3%	-9.9%	1.3%
5) Individual - Use multiple regions with Rating Band	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	-5.2%	0.5%
6) Individual 2017 - Top Carrier	10.0%	15.2%	7.4%	-0.6%	-15.5%	-0.6%	7.2%	-6.9%	-27.8%	0.0%
7) Individual 2017 - Top Carrier - With Population Movement	11.4%	16.7%	8.7%	0.7%	-14.4%	0.7%	8.6%	-5.7%	-26.9%	1.3%
8) 2014 Commercial Market (APCD)	12.3%	-3.5%	3.1%	1.0%	-0.2%	-4.8%	-10.1%	-13.0%	-17.3%	0.0%
9) 2015 Commercial Market (APCD)	17.2%	-0.1%	3.1%	1.6%	-7.5%	-8.5%	-4.6%	-4.6%	-16.2%	0.0%

Exhibit 2.10 illustrates that:

1. Boulder, Colorado Springs and Denver may have a significant rate impact in most scenarios, excluding the rate banding scenario 5
2. In the most likely scenarios (shaded), Fort Collins, Grand Junction, Pueblo and the East would have impacts in the approximate range of -2.6% to 1.3%. However, note that the market wide impact can be much different compared to a particular carrier. For example, scenario 1 and scenario 6 illustrate that the impact could be much different for the top carrier compared to the market average
3. The East has a negative rate impact -4% or lower in many scenarios
4. The West would have the largest negative impact ranging from -10% to -28%

If the move to one region occurs, we would expect that carriers would find other ways to avoid the extreme cases noted above. We also would expect some major changes in the market. We speculate on some of the possibilities below.

1. Carriers may drop out of the market. We have already seen a decrease in the number of carriers as they face the challenges of competing in the ACA compliant market. Some carriers may have to increase prices in low cost areas too much and cannot compete.
2. The market may continue to trend towards a complete HMO and/or narrow network market in order to compete on price and maintain lower rate increases. Customer choice may become limited.
3. Carriers may offer very similar products in different regions, but distinguish the products using the allowable network rating factor. This in effect, would be rating by region in a one region state.
4. The market may find other methods to offer insurance, such as self-insured plans, Trusts, or Multiple Employer Welfare Arrangements (MEWAs). These alternate methods could lead to higher morbidity levels in the ACA market.
5. Customers may begin to pay the same healthcare premiums for similar products regardless of healthcare cost in their regions. This will benefit customers in high cost regions and negatively impact customers in low cost regions. Due to extreme variances in cost by region, customers may demand more price transparency.
6. Some carriers may drop out of the higher cost regions. This would allow them to offer lower prices in the low cost regions due to having lower overall cost. This may lead to a disadvantage for carriers offering rates in all regions. This can also prompt very limited products in high cost regions.
7. Administrative cost will increase. Carrier implementation of major regulatory changes increases administrative cost and overall healthcare premiums.

Regulatory considerations

Continue with the current 9 rating regions:

1. Consider introducing a geographic rating factor band. This would allow a compromise between regional rating and no regional rating and would have a minor disruption impact.
2. Make no changes. This would offer the least disruption, lowest administrative burden and most likely provide more competition and choices in each region.
3. Explore the possibility of subsidizing those who are underinsured. Underinsured would need to be defined such as “15% of income is used to pay for health care premiums and out of pocket expenses such as deductibles, copays and coinsurance”. Expected administrative and claims cost and determination of how to pay for it will require astute work.
4. Continue to promote healthcare understanding so stakeholders can continue to understand what is driving healthcare cost in general and regionally, and can join efforts to solve the healthcare cost crisis.

Shift to one rating region:

1. Consider rules regarding carrier participation. There is potential for many carriers to leave the market in total or in high cost regions.

2. Consider rules regarding geographic rating that may occur in using the network factor allowable by the ACA. If no rules are applied, then geographic rating may occur in any case.
3. Continue to promote healthcare understanding so stakeholders can continue to understand what is driving healthcare cost in general and regionally, and can join efforts to solve the healthcare cost crisis.

Section 3: Geographic Rating Areas – General Information

Geographic Rating Areas – pre-ACA

Prior to the Affordable Care Act (ACA), insurance carriers in Colorado (and many other states) were able to develop their own geographic rating areas (and rating factors) in the individual market. The small group market was mandated at 7 MSAs + 2 non MSAs. These regions are typically developed by analyzing: unit cost structures (depends on provider contracts); utilization patterns; and credible membership base in defined regions. The Colorado DOI provided a sampling of four 2013, pre-ACA rate filings for major insurance companies. These four separate product filings had, 4, 4, 9 and 12 rating regions respectively. It should be noted that one of the carriers using 4 regions offered coverage in less than half of the Colorado counties containing 6 MSAs. Two of the filings are split by Metropolitan Statistical Areas (MSA) plus two or more non-MSA regions. One of the filings combined 6 MSAs into four geographic areas. All L&E health actuaries based in the Kansas City Office have prior experience working for a health insurance company prior to ACA implementation and note that in the 6 states in which we performed services, rating regions were determined by MSAs + 1 or more non-MSA regions. In our experience, and based on our understanding of the health insurance industry in general, it was common to determine rating regions using MSA as a guide due predominantly to:

- Unit cost differentials between areas. Cost for services can vary dramatically between different providers. Often, these costs by provider can vary in tandem by MSA. If unit cost varies dramatically within a given region, a carrier may offer limited network products to include low cost providers.
- Differences in utilization. Utilization of services may be driven by practice patterns, provider availability, age or health status in a given region. Once again, these patterns can vary in tandem by MSA.
- Splitting by region allows for more competitive pricing as the number of regions increases. As the number of regions increases (or changes), then the administrative cost of increasing/(changing) regions may outweigh the benefit of making the change.

In general, prior to ACA, geographic rating restrictions did not exist in most states and insurance carriers determined regions and factors based on the ideas noted in the preceding paragraph.

However, it should also be noted that some area factor regulation existed prior to the ACA. For example, some states limited the differential between the lowest and highest area factor. Maine limited the factor as 1.5:1, in other words the highest area factor could be at most 1.5 times the lowest area factor. In this case, if the lowest area factor was 0.75, the highest area factor could be at most 1.5 X 0.75 = 1.125. As another example, some states (New Jersey Individual and Delaware for example) and the District of Columbia did not allow area rating (one rating region). Other states like Florida and South Carolina allowed rating regions at the county level (67 and 46 regions respectively).

Geographic Rating Areas under the ACA

Under the ACA (in particular Code of Federal Regulations (CFR) Title 45 Part 147, https://www.gpo.gov/fdsys/pkg/CFR-2015-title45-vol1/pdf/CFR-2015-title45-vol1-sec147-102.pdf), a state has the option to establish rating areas that must be based on counties, three-digit zip codes or metropolitan statistical areas (MSA) and non-MSA areas. The number of regions are not to exceed the number of MSAs plus 1 for that state. If a

state does not establish its areas, then the default rating areas will be the distinct MSAs plus one Non-MSA for all other areas (MSA + 1). As stated in section 2, the state has the option to expand to more regions than the total of MSA + 1 as long as the regions:

- are actuarially justified;
- are not unfairly discriminatory;
- reflect significant differences in health care unit costs;
- lead to stability in rates over time;
- apply uniformly to all issuers in a market;
- and are based on the geographic boundaries of counties, three-digit zip codes, or metropolitan statistical areas and non-metropolitan statistical areas.

In general, the only two major changes post ACA are:

- Regions apply uniformly to all carriers (before carrier had option to define based on their own experience).
- Must be actuarially justified if more regions compared to the total of MSA + 1 is used. In Colorado, there are 7-MSAs, therefore if more than 8 regions are used (7 MSA + 1), then the regions must be justified.

Exhibit 2.3 Illustrates the current landscape by state regarding ACA geographic regions. Key items to note are:

- The average number of rating regions per state is 9.8.
- The number of rating regions increases as the population increases (as expected).
- The number of rating regions increase as the number of MSA regions increases (as expected).
- Colorado is “close to” the national average state with respect to number of rating regions, MSAs and population.

The Commonwealth Fund issued brief from December 2014, **Implementing the Affordable Care Act: State Approaches to Premium Rate Reforms in the Individual Health Insurance Market**. Some key items noted in that brief are relevant and restated and/or paraphrased here:

- Some states may have chosen to minimize disruption by implementing no changes from pre-ACA rating to post ACA rating. For example, Florida and South Carolina have continued to keep regions refined at the county level.
- In general, however, regulators from states that perceived substantial geographic variation in the cost of care expressed caution about adopting relatively few rating areas, fearing that such limitations might lead to sharp increases in premiums for many residents.
- For geographic rating, desire to prevent rate shock frequently led states to maximize carriers’ flexibility to adjust rates across regions. Thus, most states established rating areas that corresponded to pre-reform rating patterns or that equaled the maximum number of areas allowed under federal regulations. In a number of states, this market segmentation revealed significant differences in premiums from one rating area to the next.
- Washington sought to strike a balance between rating flexibility and risk-sharing by limiting the geographic adjustment to 15%.

Section 4: Area Factors, Plan Availability, Plan Type, and Premiums

In this section we explore current and historical elements of the commercial market, including area factors, carrier movement, premium, and type of plans available. This section serves as background information when examining costs and the impact of moving to one rating region.

Area Factor Analysis

Exhibit 4.1: 2017 Individual Area Factors, Member Weighted, by Rating Region

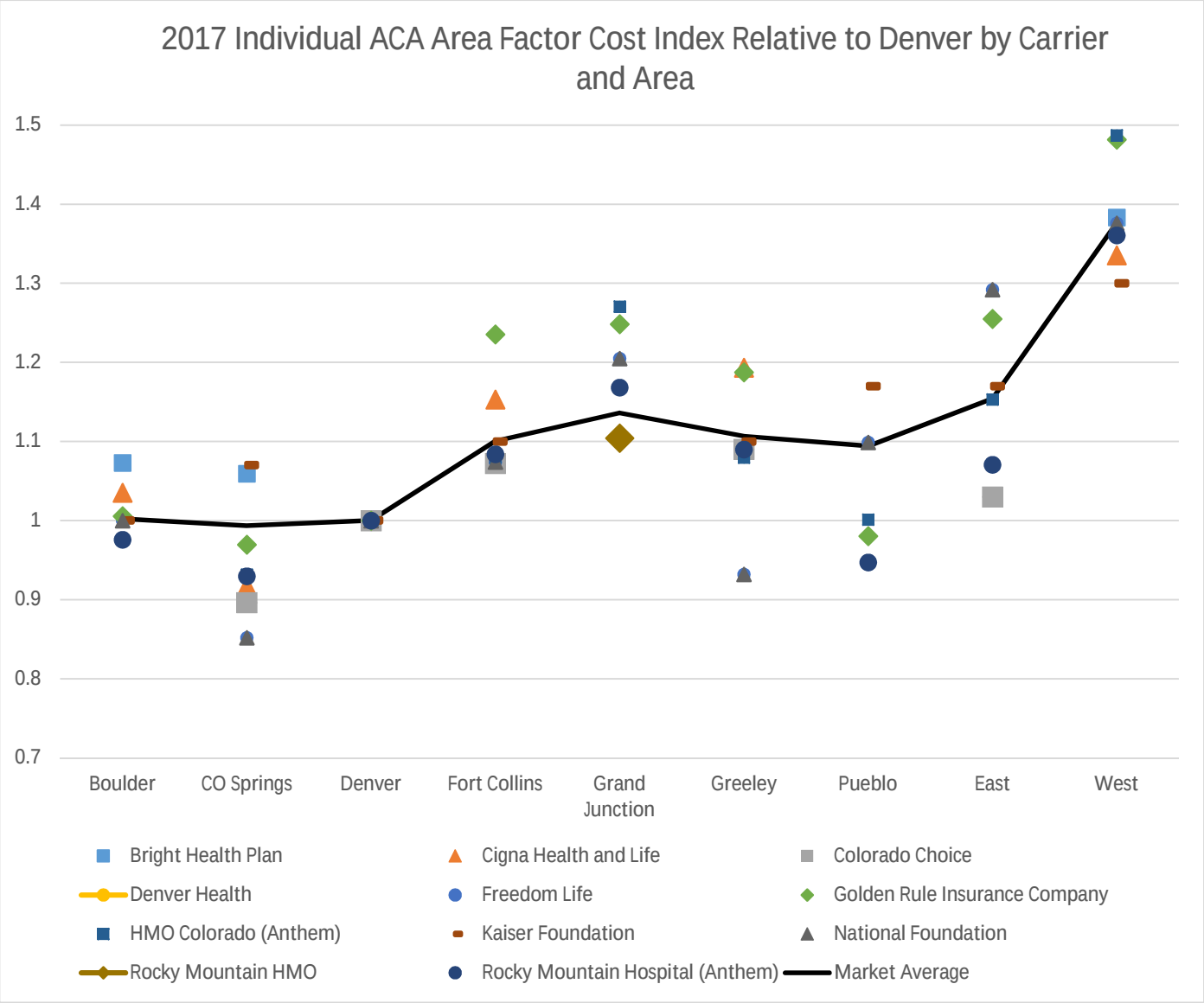
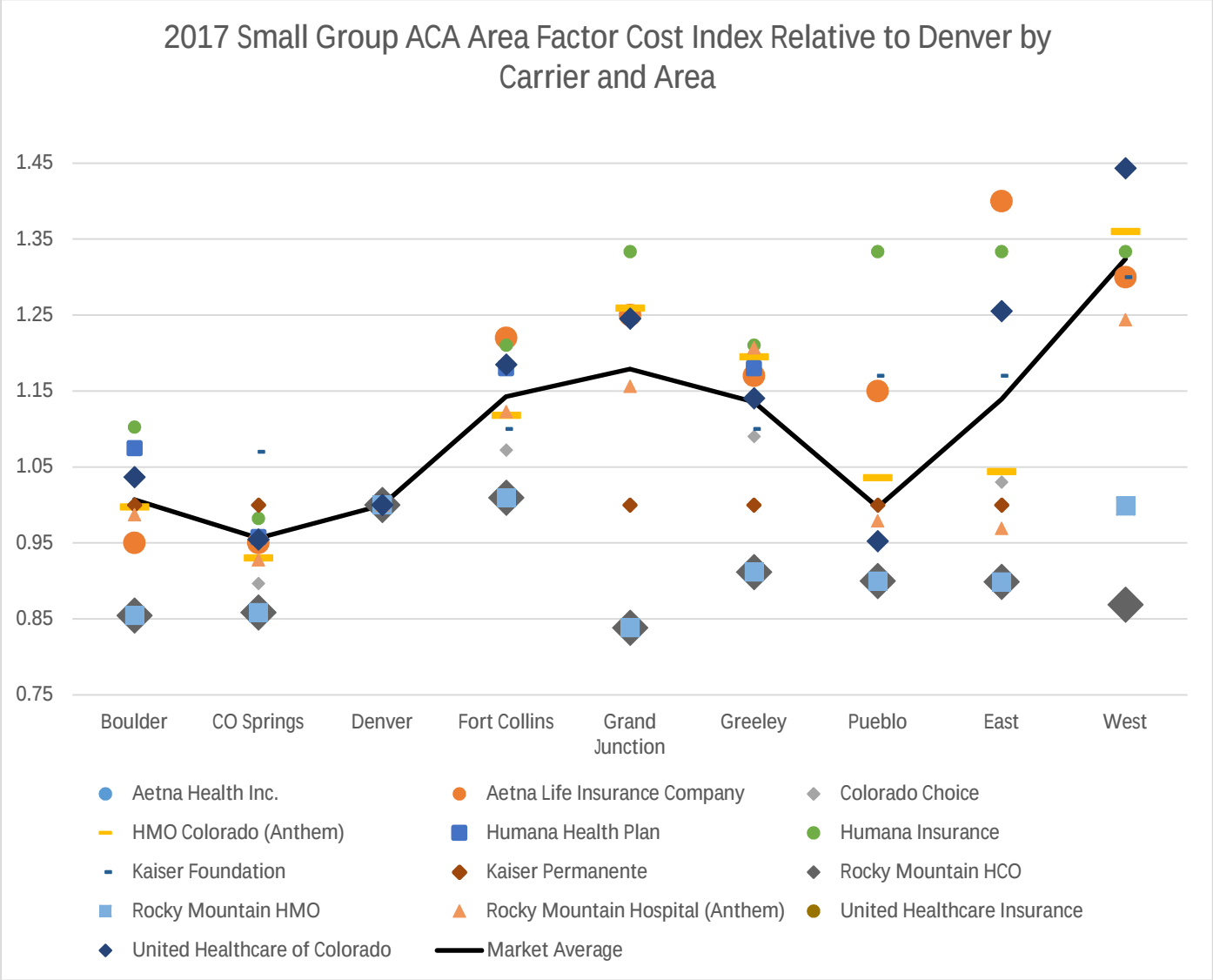


Exhibit 4.1 shows the area factors used by each carrier in the 2017 individual market, relative to Denver area rating factors. The market-wide area factor for each rating region is represented by the thick black line. This value was calculated using a member-weighted average of each carrier's individual factors. These, and the small group factors in Exhibit 4.2, were provided along with rate filings by the division of insurance (S2-CO DOI). Review of the area factors exhibit similar relative patterns from region to region with wide variation within most regions.

Exhibit 4.2: 2017 Small Group Area Factors, Member Weighted, by Rating Region



There are many similarities between the small group area factors in Exhibit 4.2 and Individual area factors in Exhibit 4.1. The overall shape of the curve is similar, and many of the factors are in the same range of values. There are some key variations between the two exhibits:

- In the small group market, the market-wide Pueblo area factor is much lower than in the individual market. Colorado Springs is also lower.
- Exhibit 4.2 shows wider variation in the East and West regions.
- In general, the small group factors are more varied within a region than the individual factors. This may reflect more intense competition in the individual market, or simply more varied experience between carriers for the small group block.

Carrier Movement

Exhibit 4.3: Carriers in each Area for the Individual Market

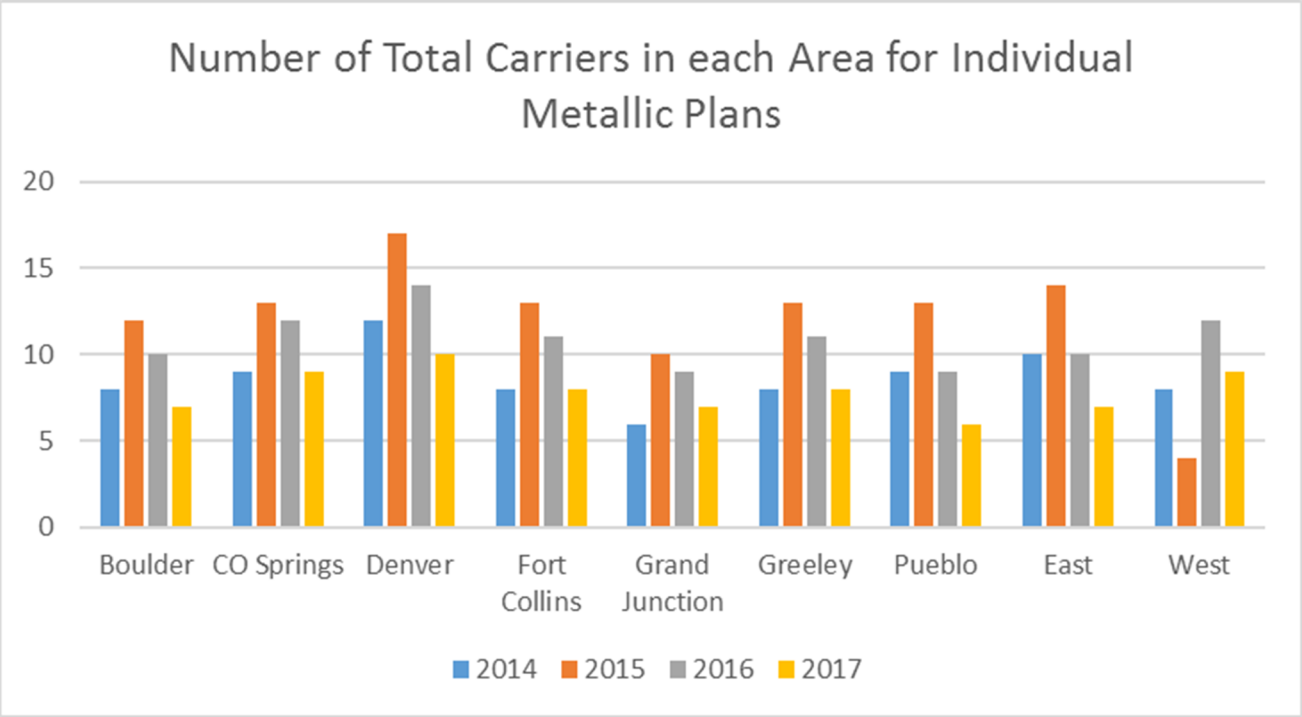


Exhibit 4.3 counts the number of carriers offering at least one individual metallic plan, On- or Off-Exchange, in each area. This data is based on the "Medical Individual Premiums" report for each year on the Colorado's DORA website (S3-CO DOI).

It is interesting to note the movement of carriers in and out of each area. The Denver area consistently has the most carriers offering plans. In 2015, most areas had the greatest number of carriers in the four-year time frame. The number of carriers was almost universally reduced in 2016, and reduced again in 2017. We see this pattern again in Exhibits 4.4 and 4.5 where some carriers exited the market after 2015.

Exhibit 4.4: Individual Carriers On-Exchange, by Year

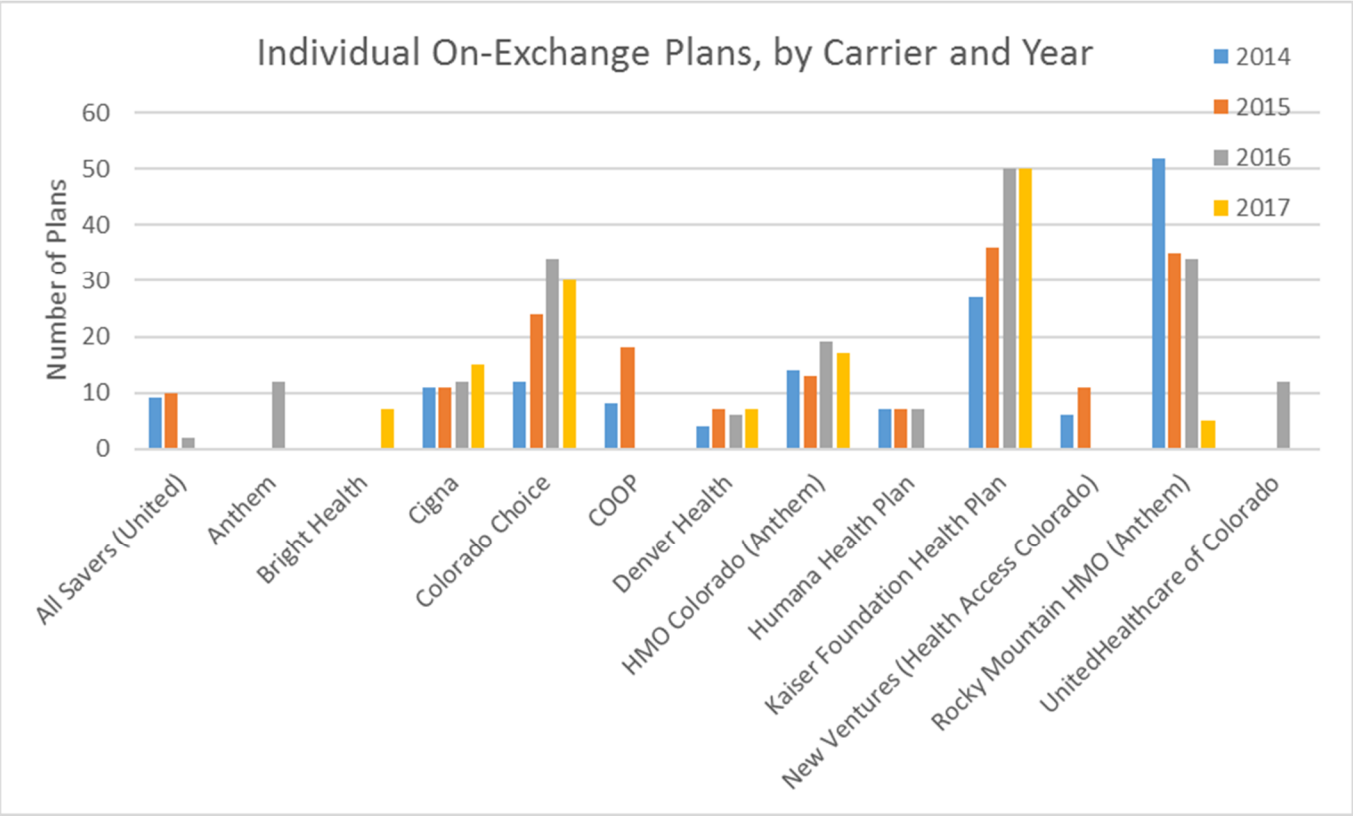


Exhibit 4.4 shows the number of On-Exchange plans available in the individual market, by carrier, by year. This data is based on the "Number of Medical Carriers and Plans" report for each year on the Colorado's DORA website (S3-CO DOI).

The graph shows a few main players that have been fairly consistent for all years, and many more carriers who have recently joined the market, or have exited the market after one or two years of participation.

Exhibit 4.5: Individual Carriers off Exchange, by Year

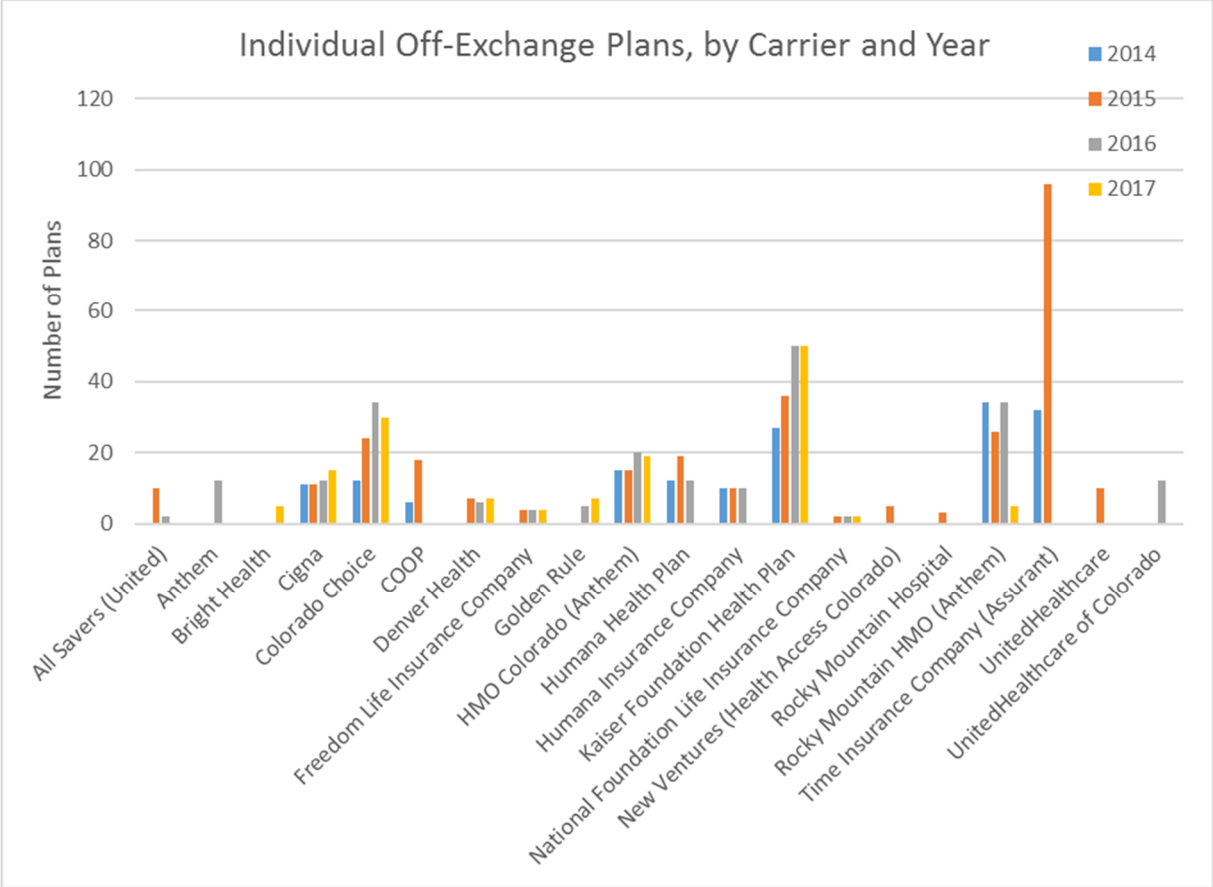


Exhibit 4.5 shows Off-Exchange plans available in the individual market from 2014 to 2017. This data is based on the "Number of Medical Carriers and Plans" report for each year on the Colorado's DORA website (S3-CO DOI).

As with the on-exchange plans, there are a few carriers that were present for all years; most carriers seem to be moving in and/or exiting the market after only a few years. There are many more carriers willing to participate in the off-exchange market, which may indicate that some differences exist. Further research could determine if significant differences exist in cost and enrollment of on- and off-exchange plans.

A few points to summarize carrier movement:

- Historical carrier counts indicate that carrier participation is in flux. However, there is generally good coverage of all rating areas in the state.
- The vast majority of carriers offer only a few plans; Only 4 carriers offer over 10 plans in 2017, for both on- and off-exchanges.
- More carriers are choosing to participate in off-exchange markets.

Plan Type Movement

Exhibit 4.6: Number of Metallic Plans Available by Market and Year

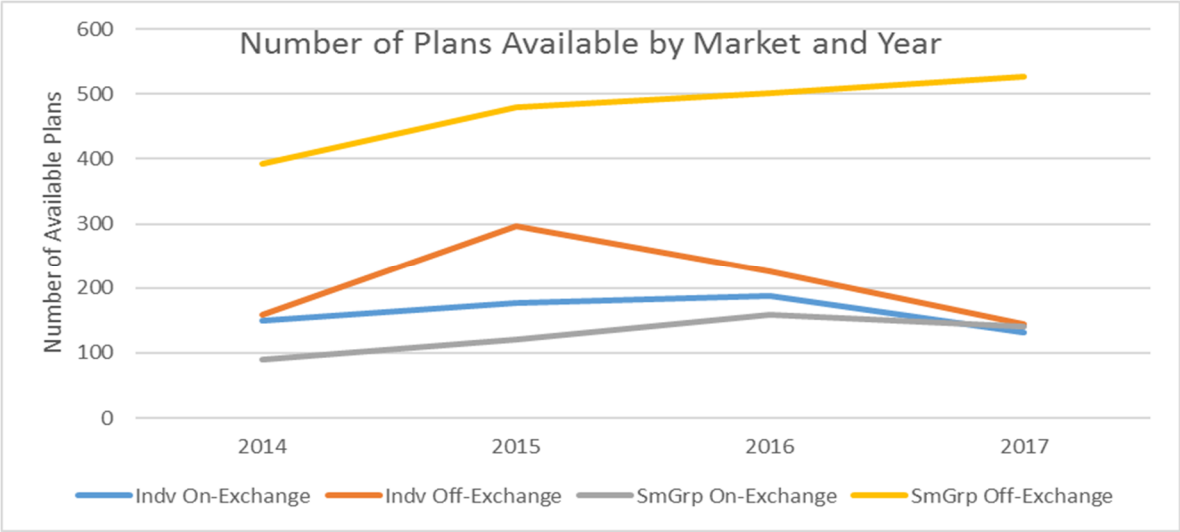


Exhibit 4.6 shows the number of available plans by market by year. (S3-CO DOI). The graph shows that the number of plans offered has declined in 2017, except for the small group Off-Exchange plans. This is consistent with the decline in number of carriers we saw in Exhibit 4.3.

Comparing the markets shown above, there are four times the number of small group Off-Exchange plans as small group On-Exchange plans. Also, there are fewer On-Exchange plans for both individual and small group.

Exhibit 4.7: Number of Individual Metallic Plans Offered by Year

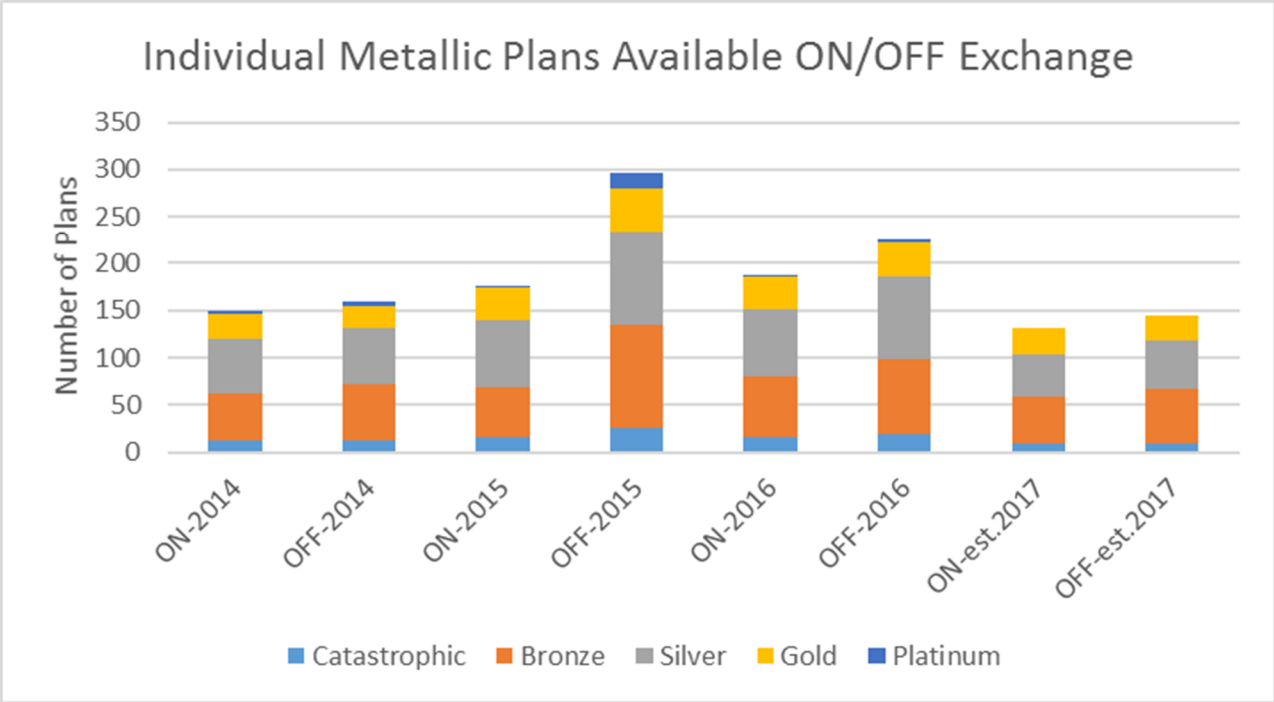


Exhibit 4.7 (S3-CO DOI) shows the breakout of individual metallic plans by year and On- or Off-Exchange. We can observe several things from this graph:

- By 2017, Platinum plans have disappeared from the individual market
- The number of off-exchange plans available peaked in 2015, and has declined ever since. The biggest cuts appear to have been made to platinum and bronze plans.
- 2017 shows the lowest number of overall plans, compared to all other years.

Exhibit 4.8: Number of Small Group Metallic Plans Offered by Year

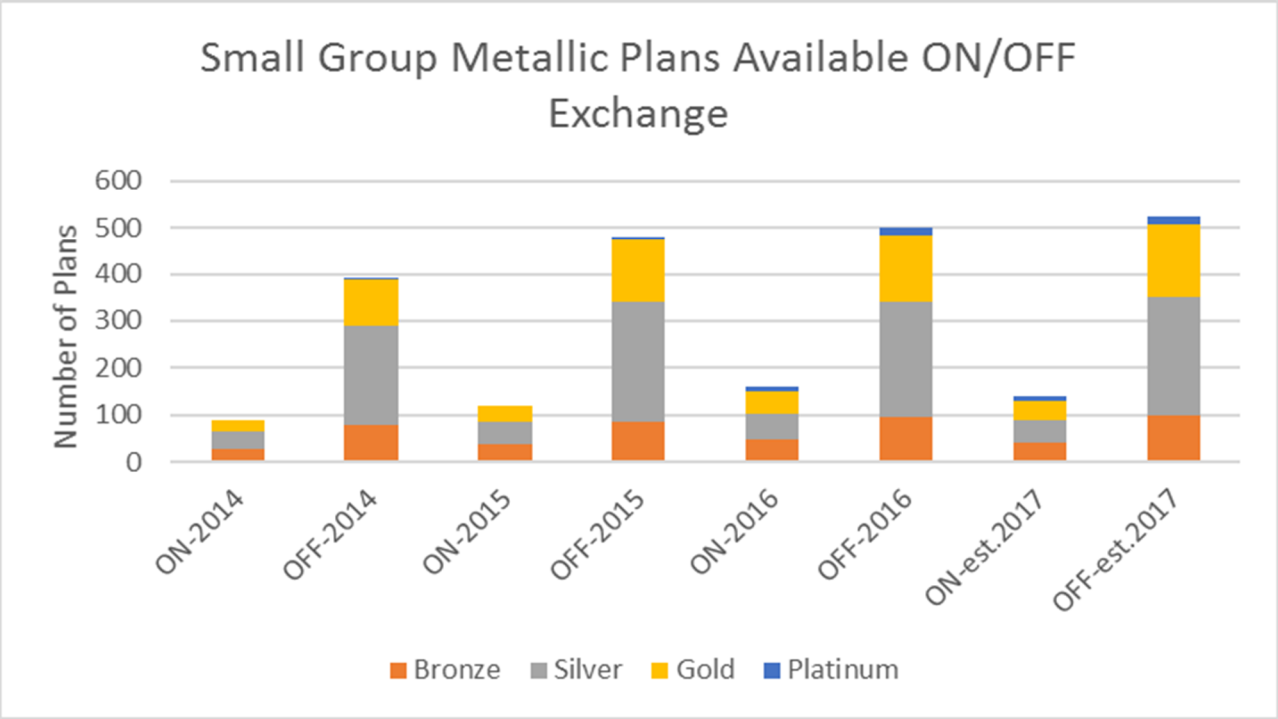
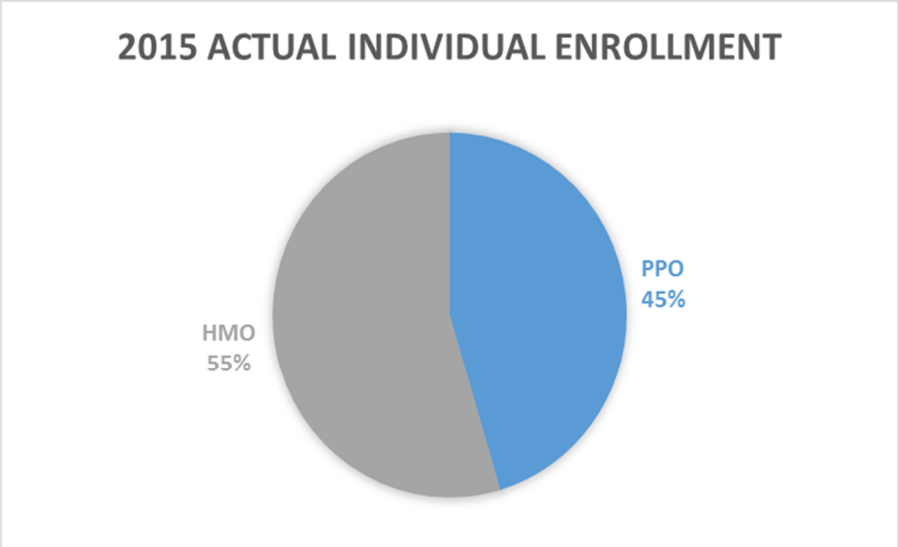


Exhibit 4.8 (S3-CO DOI) shows the breakout of small group metallic plans by year and On- or Off-Exchange. From the above, we can make the following observations:

- The off-exchange plans are roughly four times the number of on-exchange plans.
- Platinum plans have emerged in the small group market, and increased in number in 2016.
- In 2017, the number of on-exchange small group plans are roughly equivalent to the number of individual plans on-exchange (See Exhibit 4.7). In the past, there have always been more plans on the individual exchange, but those plans are declining while small group plans are increasing.

Exhibit 4.9: Individual ACA Plan Types, from Unified Rate Review Templates (URRTs)



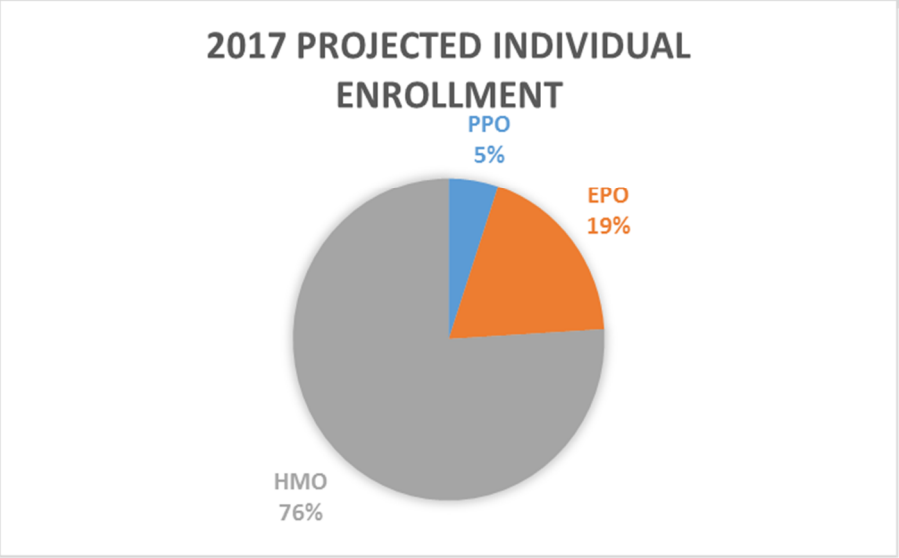


Exhibit 4.9 shows the shift in plan types between actual 2015 experience, and carrier projected enrollment, based on the carrier's filed URRTs (S2-CO DOI). The 2017 projection includes adjustments for more recent information that Anthem will not offer PPOs in the individual market. It was assumed that these members would remain with Anthem on an HMO plan.

Based on these charts, we can see a huge shift in enrollment from a 55% / 45% split between HMOs and PPOs to an HMO-dominated market. This is a result of fewer carriers offering PPOs and the relative price difference, which will drive cost-conscious consumers to less expensive HMO plans. These graphs represent the carriers' projections, and may not represent actual enrollment in 2017.

Premium Changes

Exhibit 4.10: 40-Year Old Individual Bronze Premium, High and Low by Area by Year

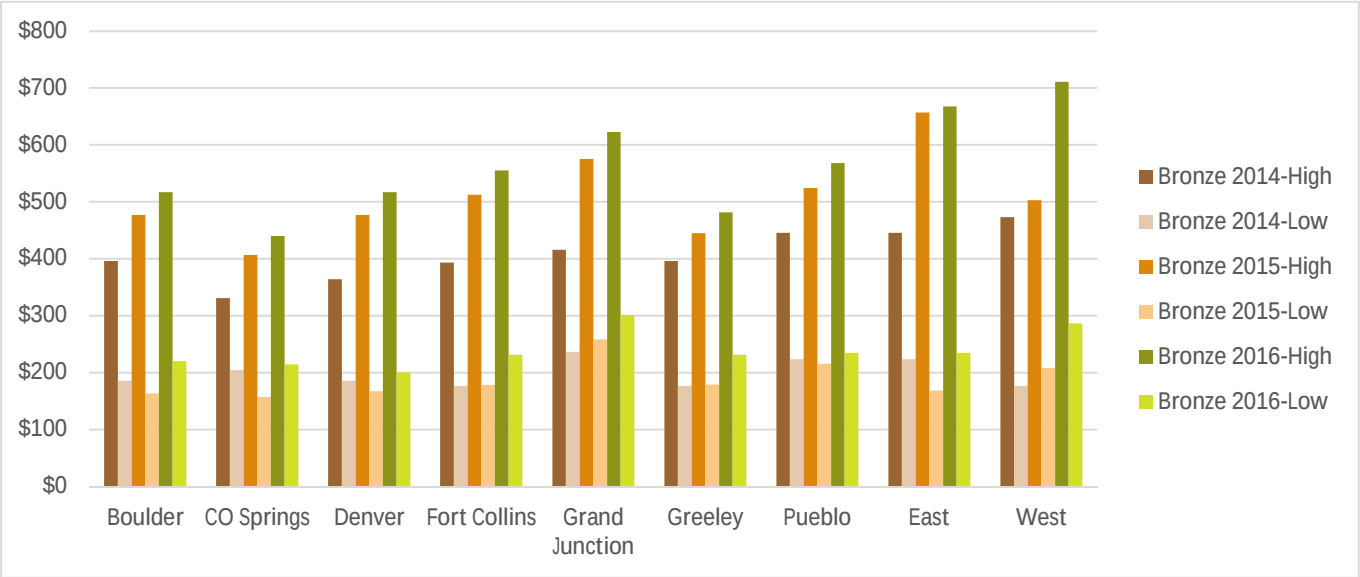
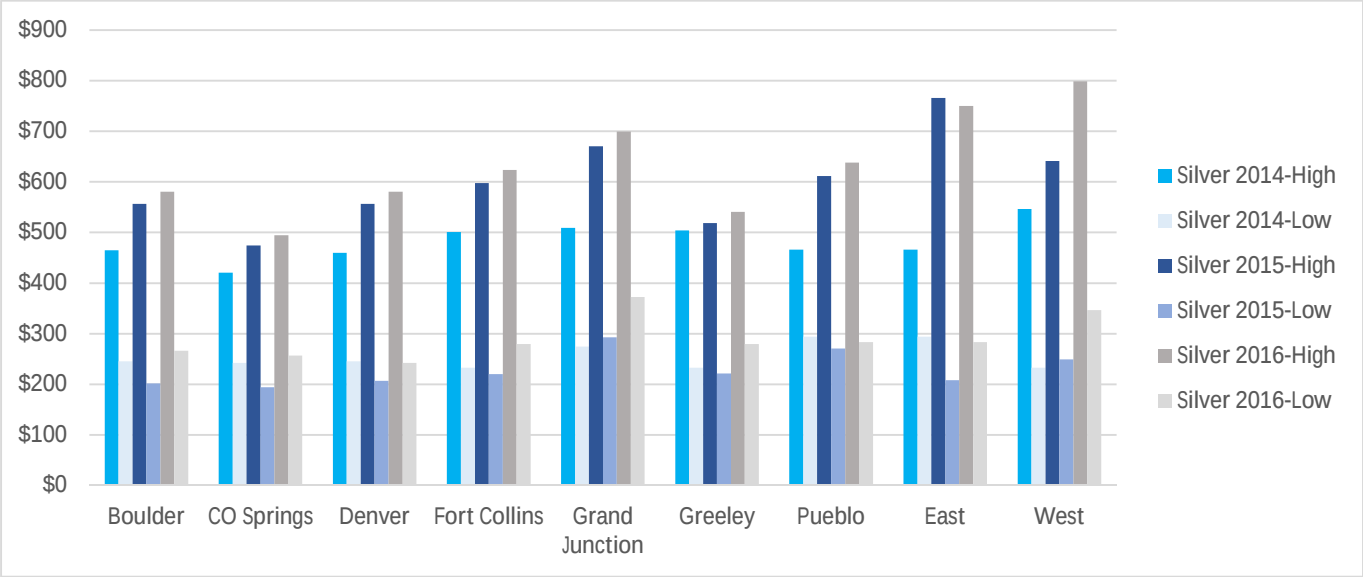


Exhibit 4.11: 40-Year Old Individual Silver Premium, High and Low by Area by Year



Exhibits 4.10 and 4.11, represent high and low premiums for a 40-year-old individual purchasing a metallic plan on or off the exchange. The darker shaded bars represent the highest cost plan in the area; lighter shaded bars represent the lowest cost plans in the area. The values you see above show a range of costs in each area and the changes are not always indicative of the average rate increases we see in Exhibit 4.14. Nevertheless, this information is useful to compare a range of premiums between areas and determine whether competition is driving the rates.

These exhibits indicate a pattern of increasing premiums by year across all areas for high premiums in both silver and bronze plans. This pattern is less pronounced when looking at the lowest rate premiums. There is also a less marked difference between areas when comparing the low-price premiums. Most of the low-priced premiums represent HMO

plans, plans with narrow networks, and/or more efficient carriers. Most of the high priced premiums are PPO and POS plans with broader networks.

The lower-cost plans will be more subject to competitive pressures, and therefore less likely to experience high rate hikes. The plan instead will change benefits, reduce network size or increase medical management to keep those costs competitive.

Exhibit 4.12: Small Group Bronze Premium, High and Low by Area by Year

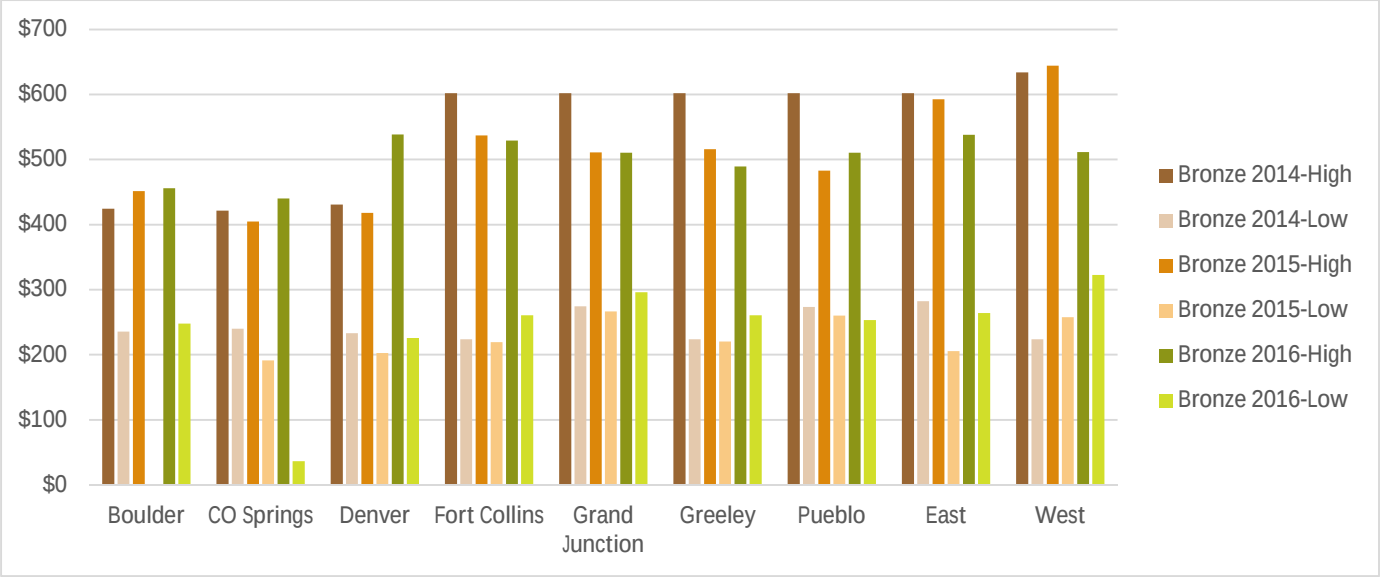
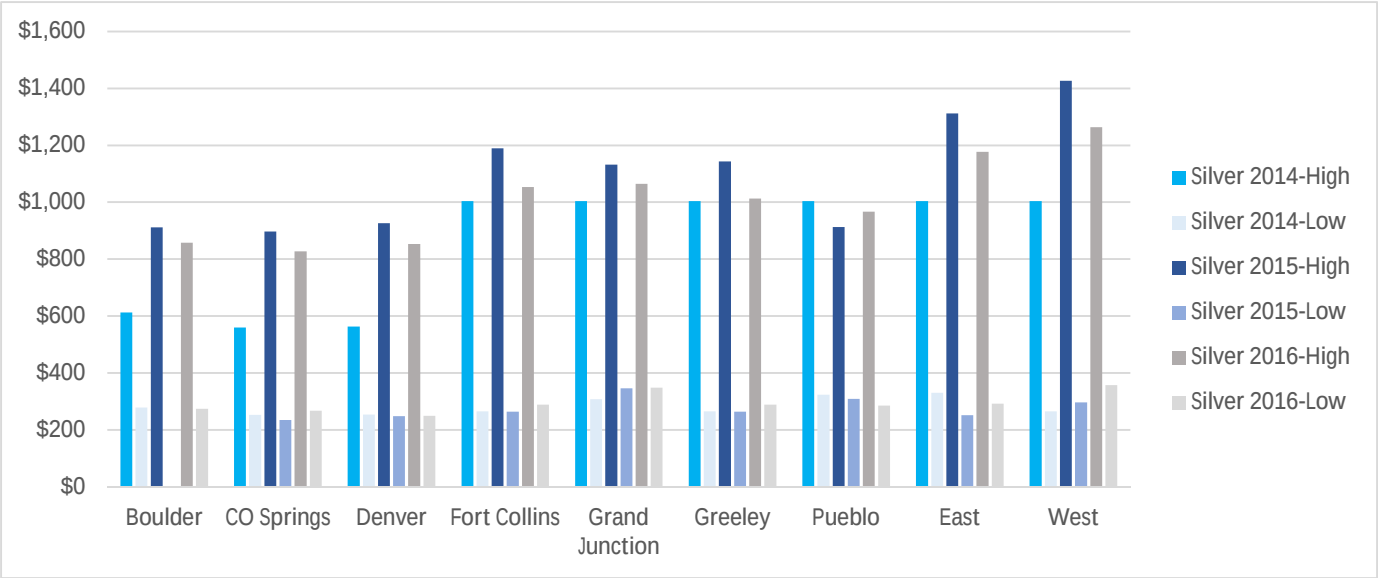


Exhibit 4.13: Small Group Silver Premium, High and Low by Area by Year



The above exhibits represent high and low premiums for a small group employee purchasing a metallic plan. The darker shaded bars represent the highest cost plan in the area; lighter shaded bars represent the lowest cost plans in the area.

Exhibits 4.12 and 4.13 tell a different story for small group plans than we saw for individuals in 4.10 and 4.11. High Bronze plans, in most cases, are experiencing a flat to decreasing rate environment. High Silver plans appear to have seen a rate spike in 2015 across all areas, only to be lowered again in 2016. Again, the difference between highest and lowest silver premium represents differences between carrier costs, medical management and the impact of narrow networks. The highest costs are associated with a small group indemnity plan present in the marketplace. The lower costs, again, seem to experience less rate change. This may be due to competitive pressures, as stated above.

Exhibit 4.14: Overall Rate increases by Market and Year

	Individual		Small Group	
Rating Area Description	2015	2016	2015	2016
Rating Area 1 (Boulder)	0.4%	5.8%	2.6%	2.5%
Rating Area 2 (Colo. Springs)	-0.2%	10.0%	1.3%	5.8%
Rating Area 3 (Denver)	0.8%	6.2%	2.8%	3.1%
Rating Area 4 (Fort Collins)	5.3%	10.0%	3.2%	4.6%
Rating Area 5 (Gr. Junction)	-3.6%	9.4%	-0.4%	3.8%
Rating Area 6 (Greeley)	4.6%	9.1%	3.3%	2.8%
Rating Area 7 (Pueblo)	-4.9%	6.2%	0.3%	2.1%
Rating Area 8 (East)	5.0%	9.0%	5.7%	3.7%
Rating Area 9 (West)	-7.4%	25.8%	1.1%	-0.8%

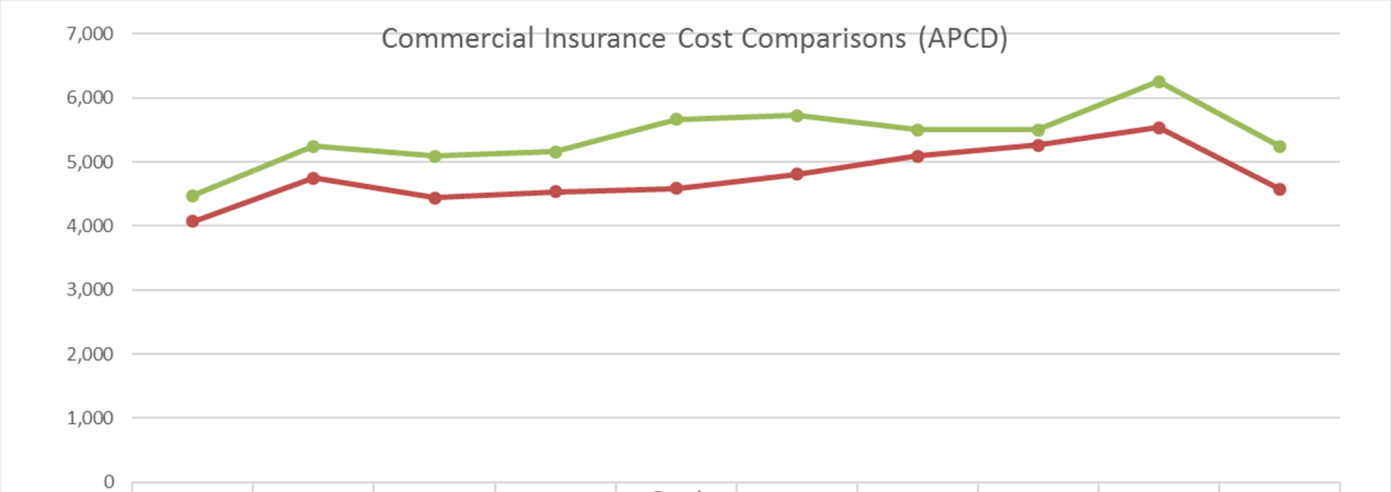
Exhibit 4.14 provides the overall rate increase for the rating area and market (S3-CO DOI). This does not always line up with the high/low values we see in exhibits 4.10 through 4.13 because these are weighted average increases across all plans and metal levels, whereas the graphs represent one age group (40-year-olds) and only two specific metal levels (silver and bronze).

Based on the above graphs and a review of requested rate increases for 2017, we can expect premium to continue rising for most areas. Some key highlights to note:

- Small group rates are increasing at a lower rate than individual rates. This could be due to lower selection issues, lower enrollment, or rates that are already adequate for that market.
- Individual rates seem to be increasing much more quickly for PPO plans with wide networks, which makes the range of potential premiums wider as time goes on. This wide range of potential premiums is mostly based on network size, medical management and carrier efficiency.
- It is possible that competition is keeping the lower premiums low. Alternately, narrow networks and medical management in the form of HMOs may be keeping rates low.

Section 5: Total Cost

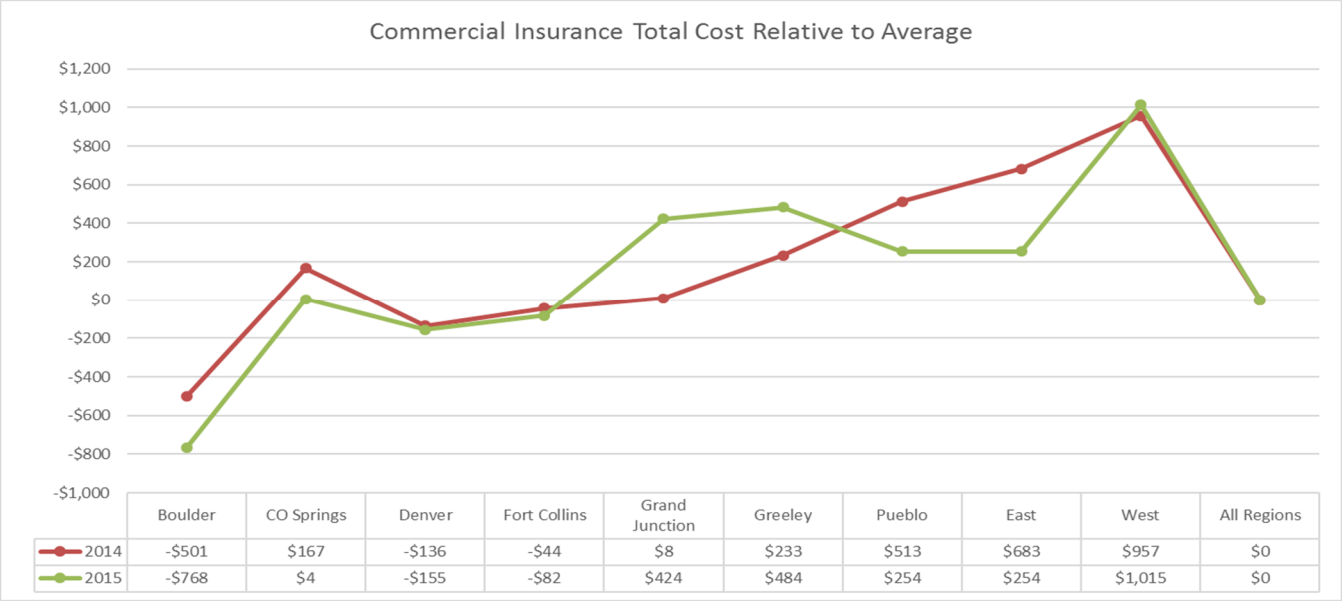
Exhibit 5.1: Annual Total Cost Comparison, Commercial Market



	Boulder	CO Springs	Denver	Fort Collins	Grand Junction	Greeley	Pueblo	East	West	All Regions
2014	4,073	4,742	4,439	4,530	4,583	4,808	5,088	5,258	5,532	4,575
2015	4,476	5,247	5,088	5,161	5,667	5,727	5,497	5,497	6,258	5,243

Exhibit 5.1 shows the annual total cost per member by metallic plans and by the whole commercial population, based on APCD data.

Exhibit 5.2: Comparison of Total Annual Costs to the Statewide Average



	Boulder	CO Springs	Denver	Fort Collins	Grand Junction	Greeley	Pueblo	East	West	All Regions
2014	-$501	$167	-$136	-$44	$8	$233	$513	$683	$957	$0
2015	-$768	$4	-$155	-$82	$424	$484	$254	$254	$1,015	$0

Exhibit 5.2 is similar to 5.1, but it shows total cost as it relates to the statewide average total cost. For example, the Denver rating region appears to be 2-3% less in total cost than the overall statewide average. You can also observe variations in cost by year. In the Boulder rating region, for example, 2015 was less expensive, relative to the average, for the entire commercial population than in 2014.

Exhibit 5.3: 2014 Map of Rating Region Cost and APCD Member Credibility

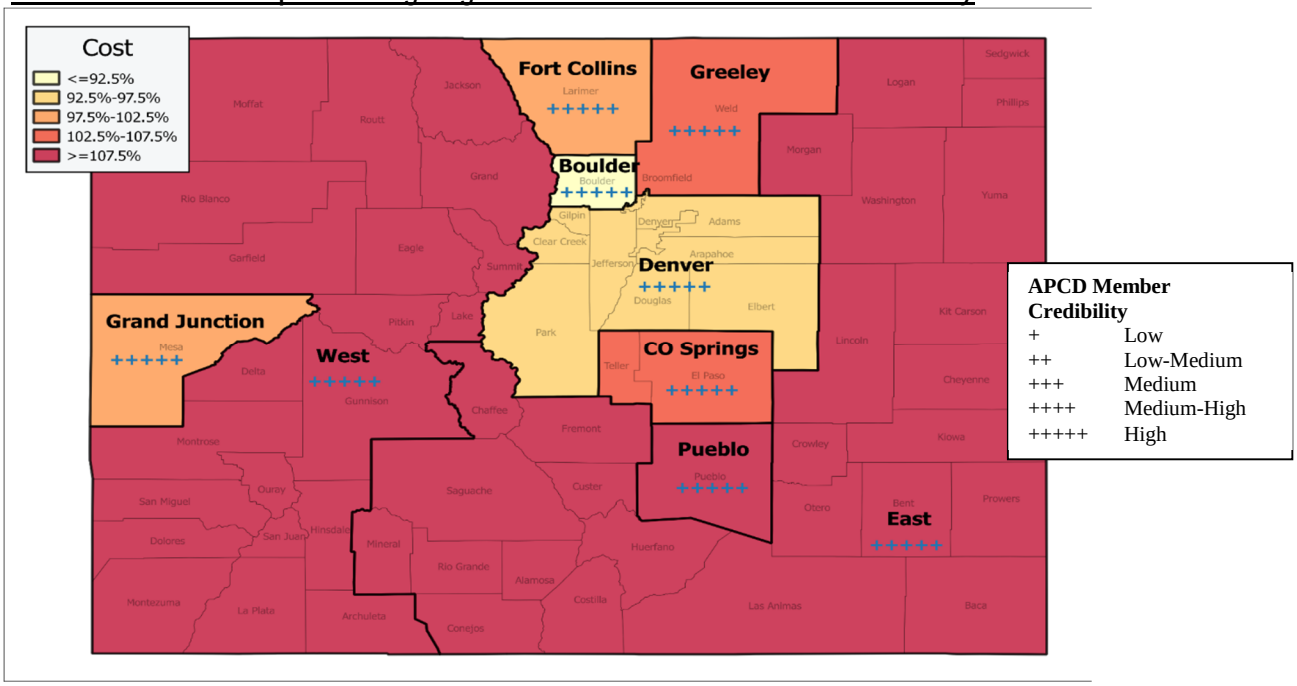


Exhibit 5.3 shows the cost of each area, relative to the statewide average cost in 2014. For example, Denver area has costs between 97.5% and 102.5% of the total statewide average. The graph also indicates whether the APCD membership is credible in that area. This same map is produced with 2015 data in Exhibit 5.4.

Exhibit 5.4: 2015 Map of Rating Region Cost and APCD Member Credibility

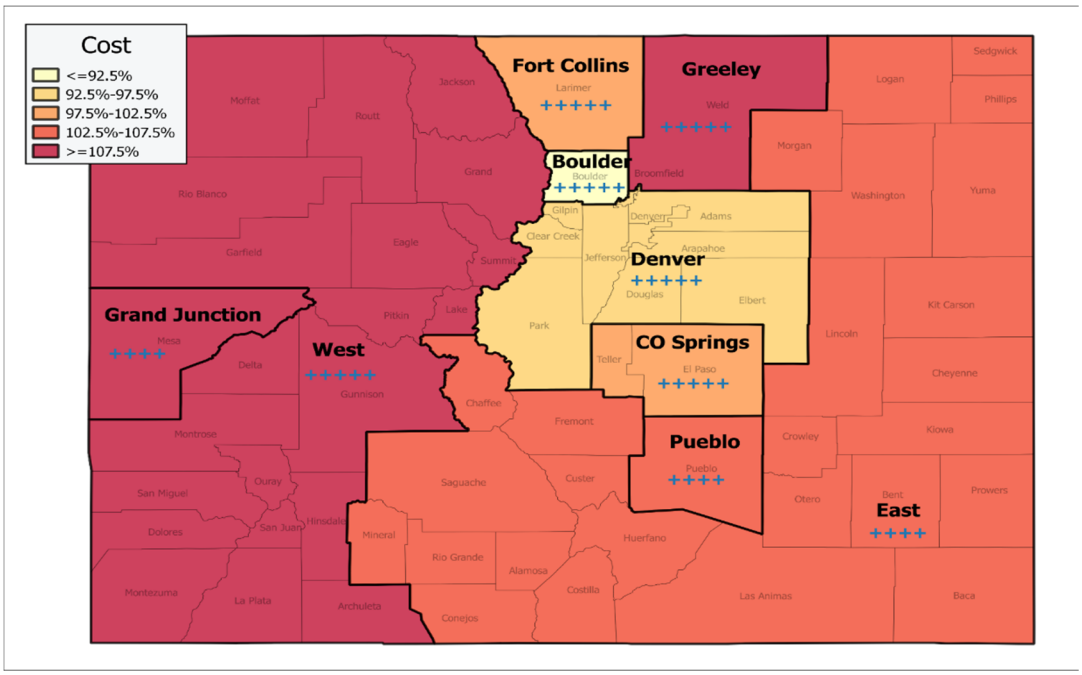


Exhibit 5.4 shows some differences in cost for 2015, as compared to 2014 costs in Exhibit 5.3 above. It is important to reiterate that the APCD data only contains 5 months of 2015, which is why we have only included these maps for comparison purposes. There are some areas, (West, Denver, Boulder and Fort Collins) that have remained consistent in relative total cost from 2014 to 2015.

Exhibit 5.5: 2014 Map of County Cost and APCD Member Credibility

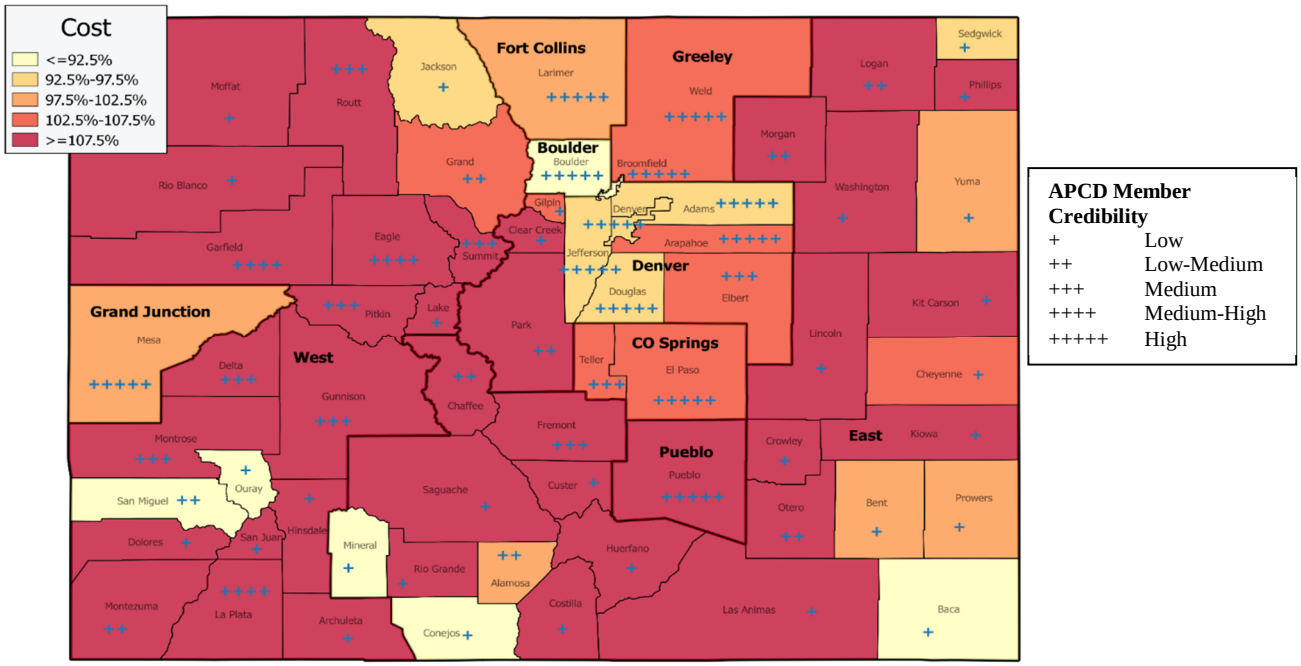
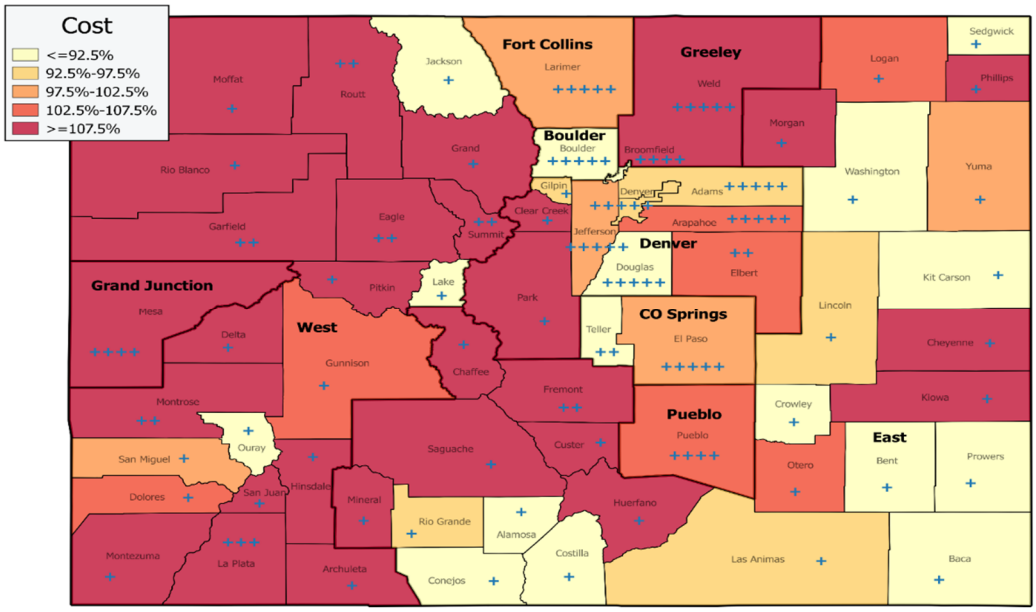


Exhibit 5.5 is a more detailed look at costs by county, relative to the statewide average cost, for 2014. We can identify how homogeneous a rating region is when viewing the county costs (and member credibility) that make up that particular region. For example, the map shows very similar costs for Teller and El Paso counties, which make up the Colorado Springs rating region. This same map is produced with 2015 data in Exhibit 5.6.

Exhibit 5.6: 2015 Map of County Cost and APCD Member Credibility



Again, Exhibit 5.6 shows a more detailed look at rating area costs, by county in 2015. Be aware that many counties have low member credibility, and may be highly variable from year to year.

Below, Exhibit 5.7 shows total annual cost by area for 2014 and 2015. This cost has been broken down into Inpatient, Outpatient, Professional and Pharmacy claims costs. We can observe the differences in cost for each area, as it compares to the statewide average total costs. A further investigation into cost difference details is provided at the end of section 5.

Exhibit 5.7: Breakdown of Annual Total Cost by Area, by Year and Provider Type

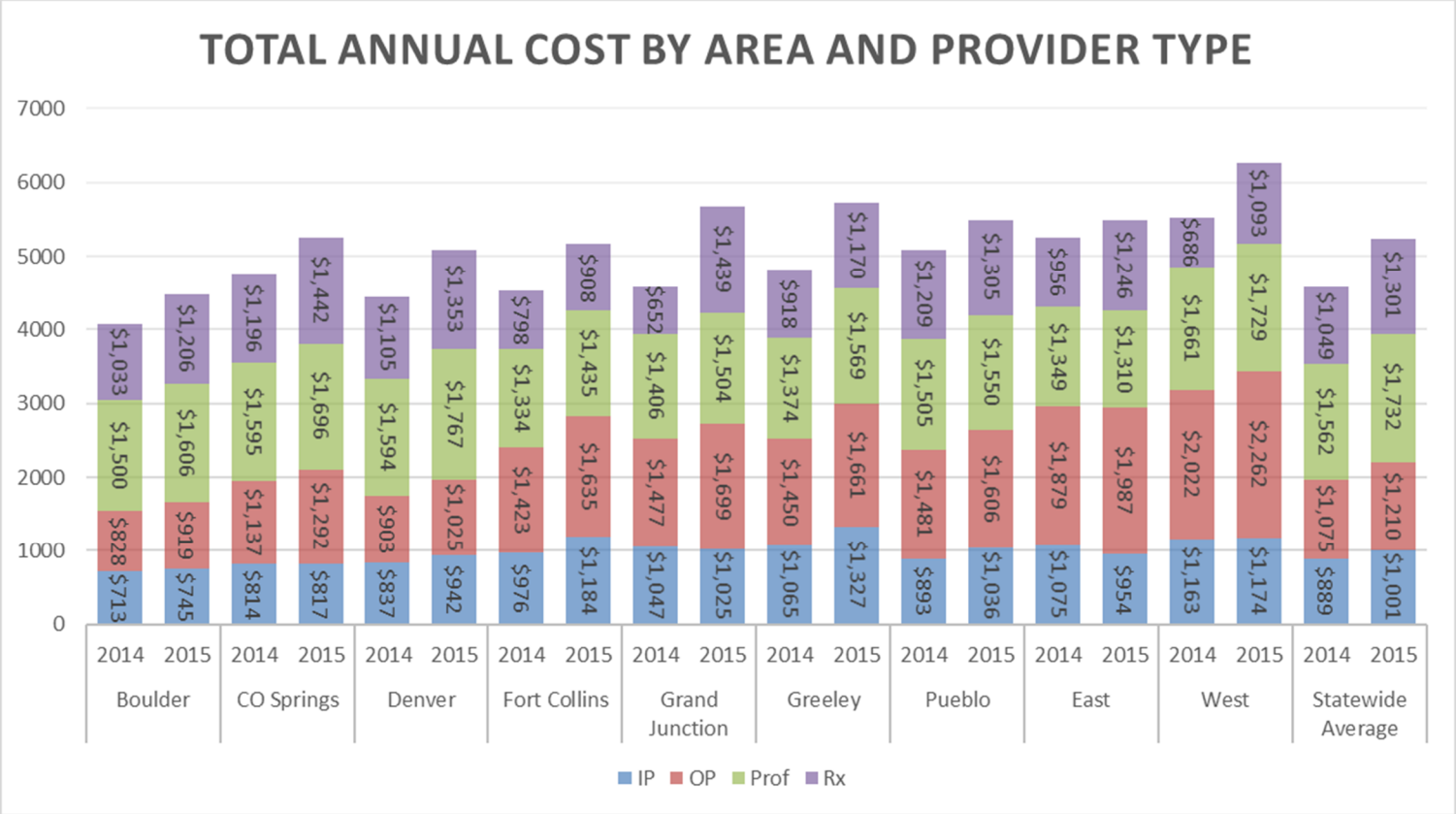
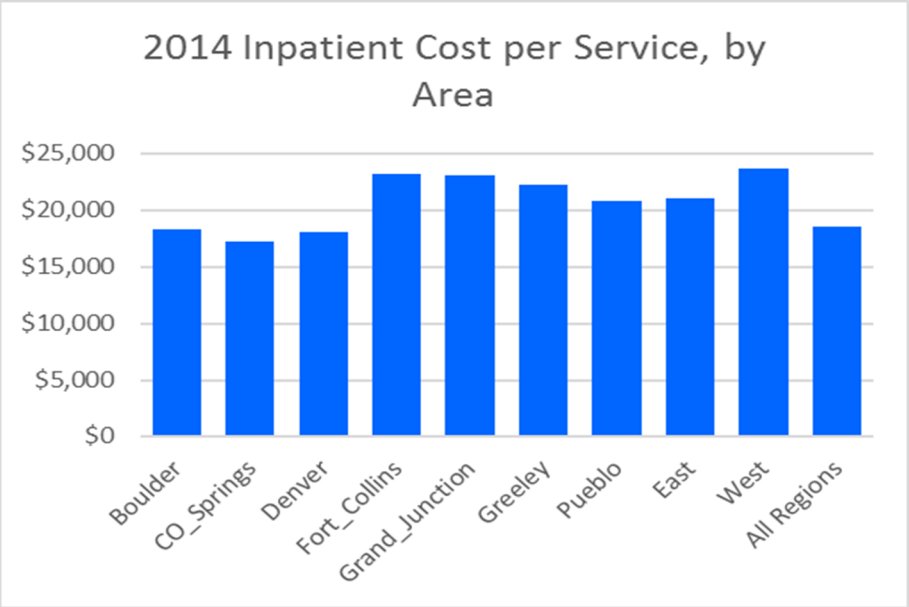
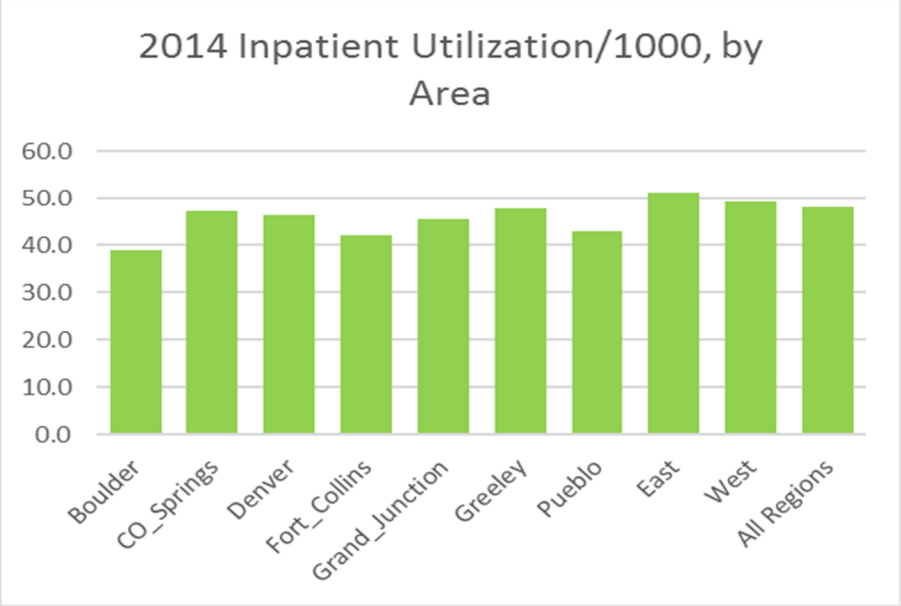


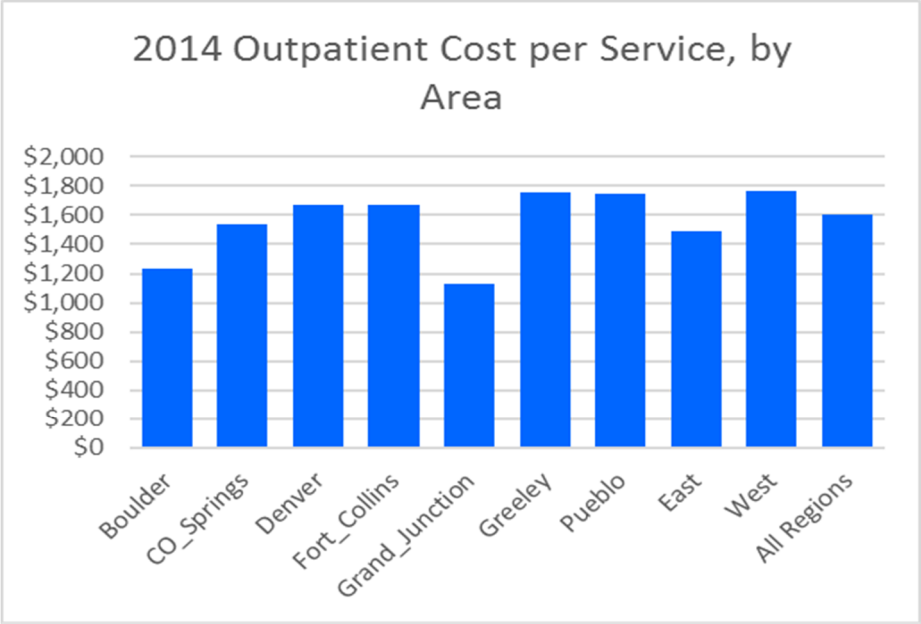
Exhibit 5.8: 2014 Inpatient Cost and Use by Area, Entire Commercial Population

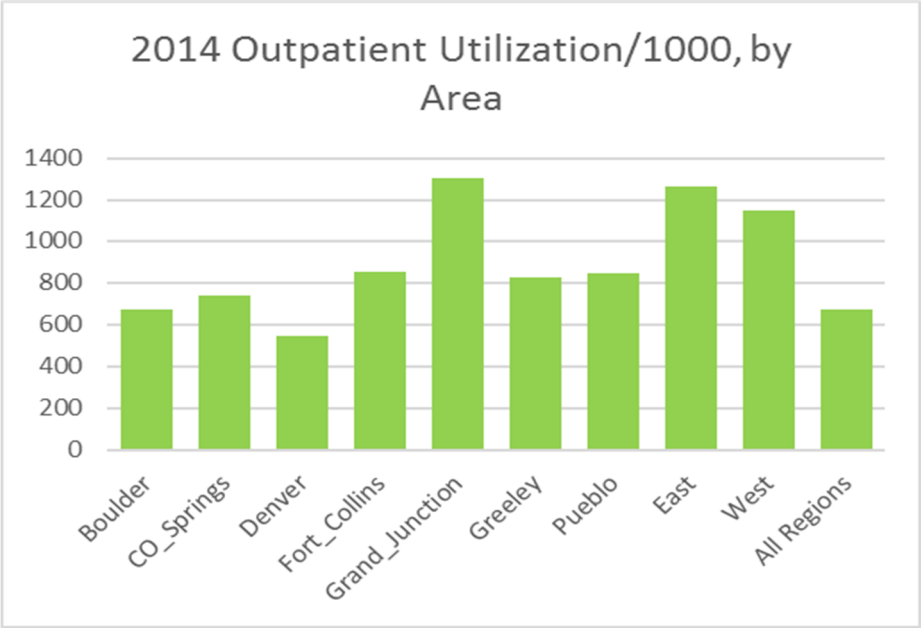




Exhibits 5.8 through 5.11 provide a detailed split out of Costs and Use by area. Each graph provides the commercial population value.

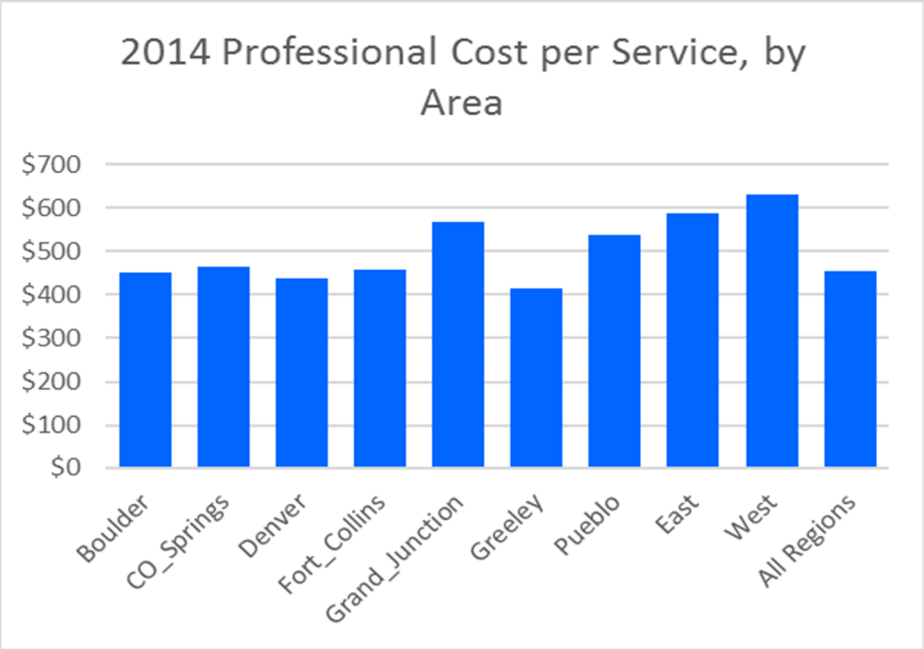
Exhibit 5.9: 2014 Outpatient Cost and Use by Area, Entire Commercial Population





In the above, Exhibit 5.9, we see that outpatient utilization and cost per service seem to be more variable than inpatient. The variations in cost per service can be due to severity of the service, large claims, area cost of living differences and negotiated rates, narrow network impacts, and numerous other factors. For detail on how to investigate some of these cost variations, see the detailed investigation example at the end of this section.

Exhibit 5.10: 2014 Professional Cost and Use by Area, Entire Commercial Population



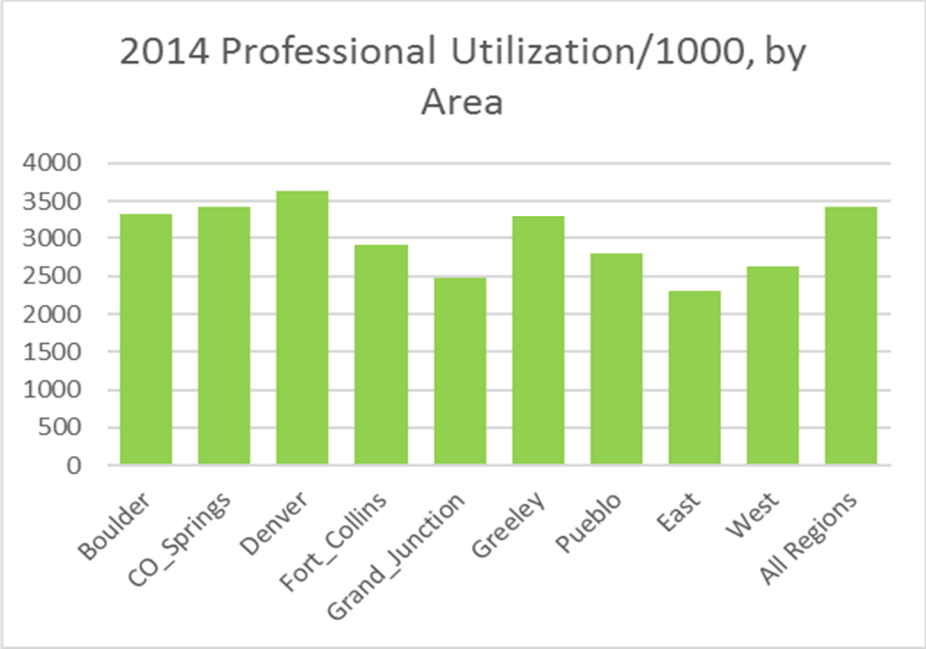
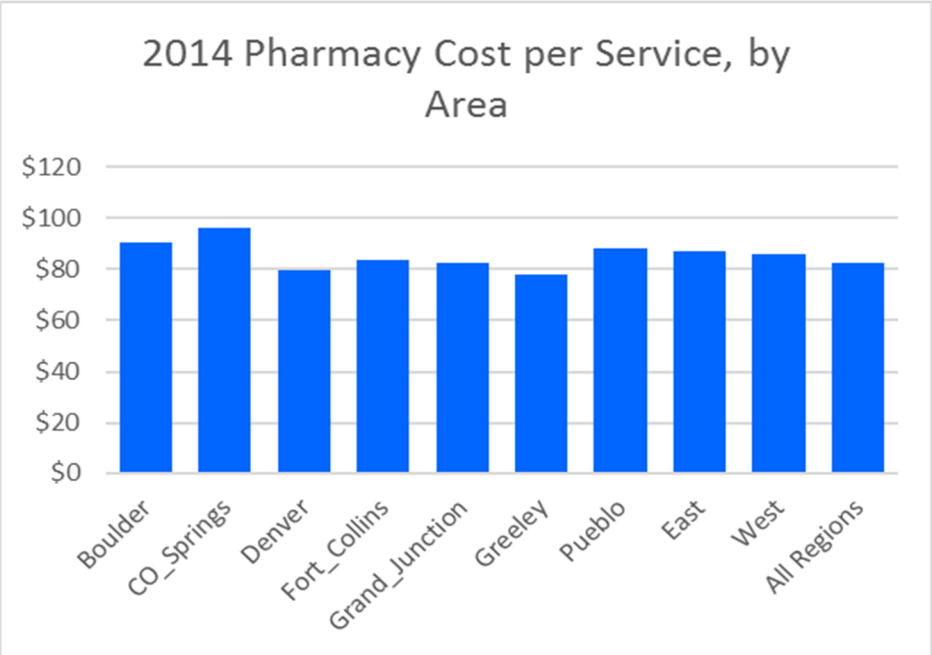


Exhibit 5.10 shows similar utilization patterns to what we have seen in Exhibits 5.8 and 5.9. Costs per service are higher Grand Junction, East and West.

Exhibit 5.11: 2014 Pharmacy Cost and Use by Area, Entire Commercial Population



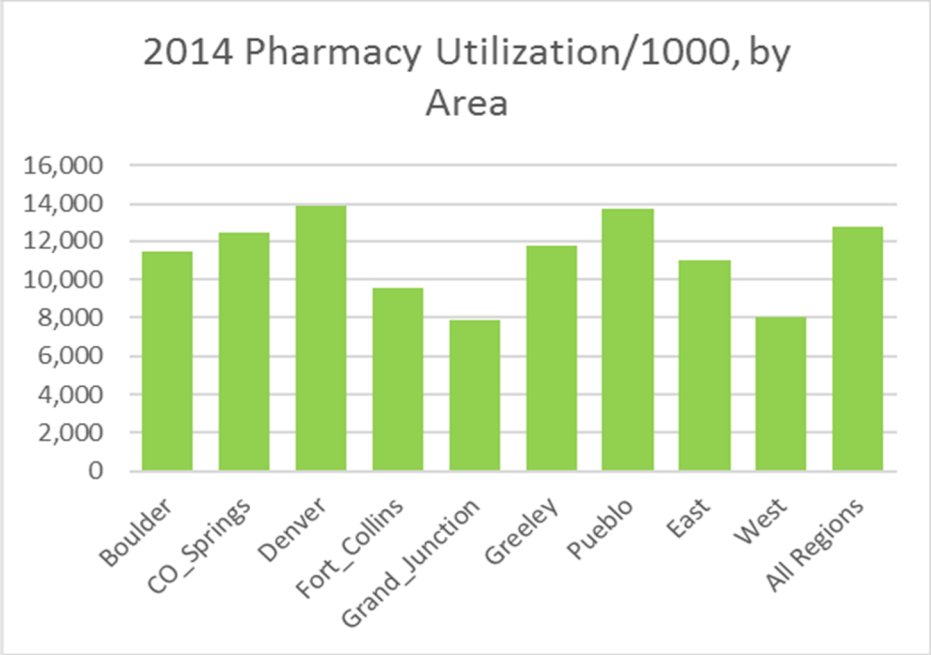


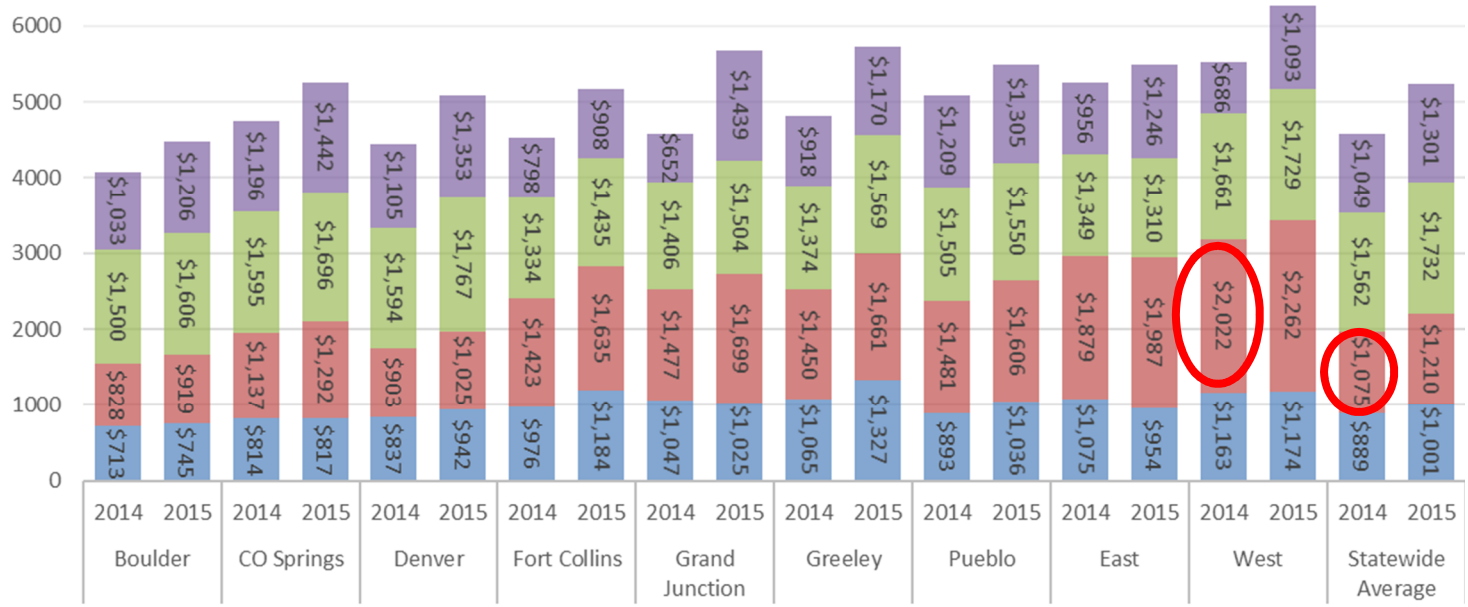
Exhibit 5.11 shows Pharmacy costs and use for 2014.

For a detailed investigation into cost drivers in a particular region, the next section provides an example of how to use the “Driver Finder” tool.

Detailed Review of Cost Drivers- An Example

When viewing the cost exhibits in this section, the results may raise more questions about the underlying detail. In this section, we will demonstrate a deeper dive into cost drivers for a particular area.

In Exhibit 5.7, we notice that the West rating region has an outpatient per member per year cost of $2,022, which is almost twice the statewide average of $1,075. We would like to investigate to see what is driving this higher cost.



In the "Driver Finder" tool, we want to look at Rating Area 9- West compared to the whole state for 2014 Outpatient services.

We see the following in that tool:

		2014					
		Total Cost per Member per Year		Units per 1,000 Members per Year		Cost per Unit	
		All Regions	Region Rating Area 9	All Regions	Region Rating Area 9	All Regions	Region Rating Area 9
OP	Emergency Room	$326	$306	149.7	134.1	$2,179	$2,284
OP	Outpatient Surgery	$409	$852	96.7	124.7	$4,226	$6,834
OP	Observation	$15	$32	6.9	11.4	$2,155	$2,792
OP	Advanced Imaging	$47	$185	20.6	65.3	$2,302	$2,833
OP	Imaging	$87	$203	129.4	278.0	$676	$731
OP	Lab/Pathology	$66	$195	115.0	371.2	$573	$526
OP	Therapy (PT/OT/ST)	$19	$49	43.5	67.6	$443	$718
OP	DME/Prosthetics/Supplies (OP)	$2	$3	0.8	1.3	$2,274	$2,001
OP	Mental Health Outpatient	$5	$3	6.7	1.5	$746	$1,651
OP	Other Outpatient	$98	$194	99.9	89.4	$985	$2,174
OP Total	Total	$1,075	$2,022	669.2	1,144.6	$1,606	$1,766

First we will look at Total cost per member per year, and see if any large differences exist between All and West for each category. In other words, what is driving the cost difference?

		2014	
		Total Cost per Member per Year	
		All Regions	Region Rating Area 9
OP	Emergency Room	$326	$306
OP	Outpatient Surgery	$409	$852
OP	Observation	$15	$32
OP	Advanced Imaging	$47	$185
OP	Imaging	$87	$203
OP	Lab/Pathology	$66	$195
OP	Therapy (PT/OT/ST)	$19	$49
OP	DME/Prosthetics/Supplies (OP)	$2	$3
OP	Mental Health Outpatient	$5	$3
OP	Other Outpatient	$98	$194
OP Total	Total	$1,075	$2,022

We identify Outpatient Surgery, Advance Imaging, Imaging, Lab/Pathology and Other Outpatient as categories with large differences for further review.

Some of the other categories also have large differences, but are relatively small dollar amounts so we choose not to investigate.

Next, we look at the Units per 1000 members and the Unit Cost to determine if high costs in those categories are being driven by high use or high prices.

		Units per 1,000 Members per Year		Cost per Unit	
		All Regions	Region Rating Area 9	All Regions	Region Rating Area 9
OP	Outpatient Surgery	96.7	124.7	$4,226	$6,834
OP	Advanced Imaging	20.6	65.3	$2,302	$2,833
OP	Imaging	129.4	278.0	$676	$731
OP	Lab/Pathology	115.0	371.2	$573	$526
OP	Other Outpatient	99.9	89.4	$985	$2,174
OP Total	Total	669.2	1,144.6	$1,606	$1,766

It appears that Advanced Imaging, Imaging and Lab/Pathology are being driven by high use in the West region. The Cost per unit isn't much different than the statewide average, but Units per 1000 is 217%, 115% and 223% greater than the statewide average, respectively. This difference may be due to the nature of services provided in this area, the equipment available to these providers, or the demand for these services is higher in the West.

Outpatient Surgery and Other Outpatient do not have significantly higher utilization (Other Outpatient actually has lower utilization) compared to the statewide average. They do have higher costs per unit. West area Outpatient Surgery cost is $6,834 per service, while the statewide average is $4,226 per service, a 62% higher cost. Other Outpatient costs are 121% higher. These costs are negotiated between the providers and the carriers, and may represent an overall difference in payment levels or differences in medical case severity.

Further review of specific providers and carriers may identify more detail about where the high costs originate. Nevertheless, the above tool is useful for providing some detail about area factors, rate increase drivers and overall costs. The tool can also provide detail at a county level, but with the understanding that many counties do not have sufficiently credible data. (See Exhibits 5.5 and 5.6).

Appendix 1: Primary Data and Information Sources

Source 1 (S1-APCD): Colorado All Payers Claims Data Base (APCD) administered by the Center for Improving Value in Health Care (CIVHC), www.civhc.org/All-Payer-Claims-Database/APCD-History.aspx/

Source 2 (S2-CO DOI): Colorado Division of Insurance, 2017 Rate Fillings

Source 3 (S3-CO DOI): Colorado Division of Insurance, Online Reports, https://www.colorado.gov/pacific/dora/node/100241

Secondary sources are noted throughout the report.

Appendix 2: Claim Categorization and Units Methodology

High Level: Inpatient, Outpatient, Professional and Pharmacy

Benefit Detail Bucketing

Inpatient, outpatient, professional, and pharmacy claims where broken down into 26 benefit detail categories. Inpatient claims were split into 4 categories using the MS-DRG descriptions from CMS version 27 table. A hierarchy was used to force a claim into only a single category in the cases were a claim had multiple MS-DRG codes.

Hierarchy	Category
1	Delivery/Newborn
2	Inpatient Surgery
3	Mental Health Inpatient
4	Inpatient Medical

Outpatient claims were split into 10 categories, using a mixture of revenue codes, procedure code, (Current Procedural Terminology (CPT) codes) and Health Care Financing Administration Common Procedure Coding System (HCPCS)), and Berenson-Eggers Type of Service (BETOS). A hierarchy was used to identify claims into a single category in the cases when a claim had multiple categories.

Hierarchy	Category	Coding Used
1	Emergency Room	Revenue/ Procedure
2	Outpatient Surgery	Revenue/ Procedure
3	Observation	Revenue/ Procedure
4	Advanced Imaging	BETOS
5	Imaging	BETOS
6	Lab/Pathology	Revenue/ Procedure
7	Therapy (PT/OT/ST)	Revenue/ Procedure
8	DME/Prosthetics/Supplies (OP)	BETOS
9	Mental Health Outpatient	Revenue/ Procedure
10	Other Outpatient	All Others

Professional claims were split into 9 categories, using a mixture of procedure codes, place of service codes, and BETOS. A hierarchy was used to identify a claim into a single category in cases where a claim satisfied multiple categories.

Hierarchy	Category	Coding Used
1	Ambulance - Air	Procedure
2	Ambulance - Land	Procedure
3	Mental Health Professional	Procedure OR Place of Service
4	DME/Prosthetics/Supplies (P)	BETOS
5	Facility Surgical Visit	Procedure AND Place of Service
6	Office Surgical Visit	Procedure AND Place of Service
7	Facility Visit	Place of Service
8	Office Visit	Place of Service
9	Other Professional	All Others

Pharmacy claims were split into 3 categories, specialty, brand, or generic. An internal L&E specialty drug list was used to define specialty category along with marking any National Drug Codes (NDC) where the cost per 30 days was greater than $1,000. Non-specialty drugs were than further identified between brand and generic using the Generic_Ind field provided by CIVHC.

Units Methodology

For units, medical claims were combined such that all claims assigned to the same member composite ID, and admitted on the same date to the same service provider with the same high level categorization were counted as a single unit. Units for pharmacy claims were counted such that each script filled was counted as a single unit.