

# Commercial Health Care Cost and Utilization Trends From 2009–2015





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## Section 1: Cost and Utilization Acronyms

<b>ACA</b>	Affordable Care Act
<b>APK</b>	Hospital Admissions Per Thousand
<b>CCIO</b>	The Center for Consumer Information & Insurance Oversight
<b>CDC</b>	Centers for Disease Control & Prevention
<b>CMS</b>	Centers for Medicare & Medicaid Services
<b>CPI</b>	Consumer Price Index
<b>CPS</b>	Cost Per Service
<b>CPT</b>	Current Procedural Terminology
<b>DRG</b>	Diagnosis Related Group
<b>EHB</b>	Essential Health Benefits
<b>ER</b>	Emergency Room
<b>HCPCS</b>	Healthcare Common Procedure Coding System
<b>HCCI</b>	Health Care Cost Institute
<b>HMO</b>	Health Management Organization
<b>ICD-9</b>	International Classification of Diseases, ninth revision
<b>ICD-10</b>	International Classification of Diseases, tenth revision
<b>KWYH</b>	Keep What You Have Plans
<b>LOS</b>	Length of Stay
<b>NDC</b>	National Drug Code
<b>OTC</b>	Over the Counter Medications
<b>PMPM</b>	Per Member Per Month
<b>RX</b>	Pharmacy
<b>UPK</b>	Utilization Per Thousand

## Section 2: Executive Summary

Health care cost trends are a key ingredient that health care actuaries use in their practice. They can use these trends to identify areas of elevated health care inflation or other disruptions to the health care system. They can then leverage these to provide strategies of cost reduction and improved medical cost management. Health care cost trends often follow a regular pattern, particularly in conjunction with a relatively stable population and no major disruptions in provider contracting and plan designs, participating individuals or treatment protocols. Actuaries can use stable trends to help project future health care costs for rate setting purposes as well as budgeting. A reliable source of Health Care trends can be a very useful tool for health actuaries.

In collaboration with the Health Care Cost Institute (HCCI), the Society of Actuaries has put together a data extract for practicing health actuaries to be able to better understand historical trends and cost disruptors. These data within this extract contain commercial health care cost and utilization metrics broken out by various service categories and demographics. The data span from 2009–2015. Commercial policies include individual, small group and large group insured, and self-insured major medical policies. They exclude stoploss, Medicare Advantage, Medicare Supplement and supplemental policies.

This report also includes descriptions of the format and content of the data extract, along with some observations of key cost and utilization trend patterns from 2009–2015.

Some of the main insights of this analysis are as follows. The large and small group markets were relatively stable and have similar cost and utilization trend patterns. In these markets, cost per service is the main driver of trend. Also, trends for outpatient services billed by a facility were higher during the early part of the period, while pharmacy trends were higher at the tail end. Inpatient hospital and professional services trends were generally lower. Higher pharmacy trends began in 2014, and they were mainly associated with increased costs for the specialty pharmacy.

The individual market presented a very different trend development. This market experienced some dramatic changes in population and plan design, which coincided with the beginning of the Health Insurance Exchanges in 2014. This change resulted in significantly higher per member per month (PMPM) trends, largely driven by utilization increases. The types of services that saw the largest increases were related to newly required benefits that the Affordable Care Act (ACA) stipulated and more episodic care rather than wellness-type benefits or chronic disease maintenance. Many of this cohort's members were previously uninsured and may not have been able to pass underwriting requirements due to preexisting conditions. In addition, all plan designs had to start covering the Essential Health Benefits (EHBs). These factors resulted in an initial surge of pent-up demand in both previously uninsured populations and previously uncovered services, which resolved into new and different utilization patterns than had been previously observed.

The group coverages were also subject to the new EHB requirements. However, due to implementation challenges in the exchanges, many of the group plans—known as keep what you have (KWYH) plans—were allowed to temporarily continue as is without being subject to the EHB requirements. The continuation of the KWYH plans helped maintain the continuity of the observed trends in the small and large group markets by reducing their variations in health plan membership and benefit design.

While this report has provided some insights into the commercial health care environment, the intent is to stimulate actuaries to examine the data on their own and come to their own conclusions about health care cost and utilization trends in the areas of greatest interest to them.

## Section 3: Background and Scope

Over the past several decades, health care costs in the United States have outpaced the rate of inflation. Health care cost claims can fluctuate due to changes in population, treatment protocols, provider reimbursement, plan benefit design, innovation and government regulations, among other things. This report has two main purposes: One is to evaluate medical cost and utilization inflation by service categories for recent time periods from a large representative data set to help identify opportunities for mitigation and to track the effects of other external trend drivers. The other is to educate members in the specifics of the data set that was used so that those members can do their own trend analyses to assist in actuarial work that represents their own interests and perspectives.

### 3.1 Description of Report Output

The primary data source the authors used for this study is the HCCI commercial data. The HCCI data include commercial membership, utilization and claims data for various years. The data and timeline the authors chose for this study were from 2009–2015. The authors developed numerous data elements from the HCCI data. These elements were chosen to help populate the different fields that are included in the cuts of data that are being made available to the members. The result of this study is a data extract table published to the SOA and HCCI websites. The data extract includes minimum aggregations by calendar year, market segment, age bracket, gender, pharmacy coverage and state. In addition, there are other aggregations that roll up some of the fields mentioned above. It is also worth noting that the state breakouts only exist for rolled-up age brackets. Appendix A includes a data dictionary for the extract that defines the fields utilized and provides descriptions and possible values of those fields. Appendix B provides breakouts of all three levels of service category along with the way in which utilization is measured for each second-level breakout.

### 3.2 General Overview of Data

The data extract consists of several different types of elements. These data elements include descriptive data elements, aggregated raw amounts, and calculated amounts.

The first type of data element is related to member demographics. This includes age ranges, gender, market segment, service year and state mapping. In addition to those member categories, there is also an aggregated member demographic flag. These are all descriptive data elements used to differentiate the types of populations.

The second type of data element is a category of service descriptor. The initial service category field differentiates service categories between inpatient hospital, outpatient hospital, rehabilitation services, professional services and pharmacy. Each of these service category types has two levels of subcategories that are divided up into different fields. These data elements help to distinguish situs of care.

The third type of data element is membership exposure. This includes unique patients, distinct patients and overall member months. Member months are an aggregated raw data element that are used extensively in some of the calculated fields. Unique and distinct patients are utilized for less common measurements of usage rates.

The fourth type of data element is related to claims dollar amounts. This includes allowed amounts, paid amounts and cost sharing by category. Those elements help determine responsibility for claims payment as well as some plan design characteristics.

The fifth type of data element is related to claims utilization amounts. For each service category, the method of counting utilization values is different to reflect the nature of the billing and the care. For inpatient hospital services, the authors used admissions and counts of days. For outpatient hospital and professional services, they used service units, procedures and visits/encounters. For pharmacy services, they used dosage units, days of supply and prescriptions.

The sixth type of data element consists of calculated data fields. These data fields include utilization per thousand (UPK), cost per service (CPS), and claims cost PMPMs. UPK is calculated by dividing the sum of units of service by member months and multiplying by 12,000. The units field identifies the unit that is being used to calculate UPK and CPS. For inpatient hospital, the standard unit is days. However, the database also includes admits per thousand (APK) and length of stay (LOS). For pharmacy claims, the starting unit is prescriptions, but the database also calculates DPK or prescription days per thousand. It is possible to calculate the cost per dosage unit from the data provided here. The cost per service (CPS) field represents allowed claims divided by units. The various claims cost PMPMs are equal to appropriate total claims amounts divided by member months.

All the above fields are included in the data, which can then be analyzed longitudinally for different data characteristics to examine year-over-year trends and the impacts of systemic disruptions, such as the influx of Health Insurance Exchange member experience in 2014.

## Section 4: Data Selection and Methodology

The following is a description of how the data for this report were selected.

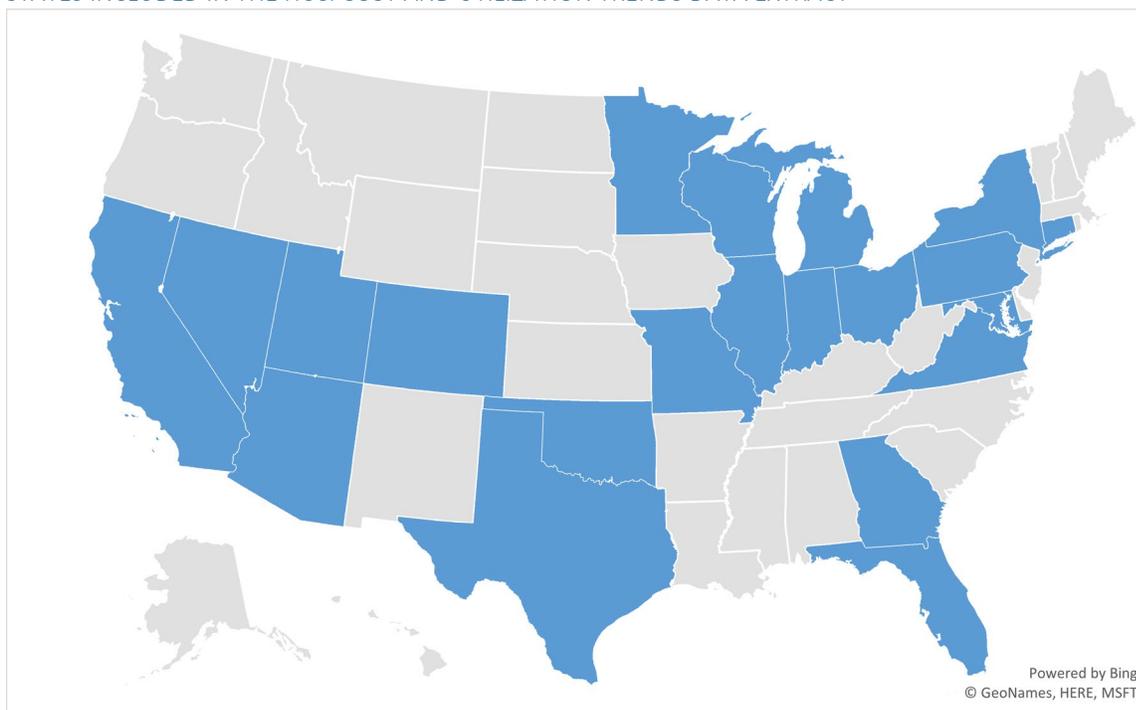
### 4.1 Data Setup

The measurements and observations in this report are based on a claims database that HCCI made available. The database contains claims from 2009–2015 for the commercial individual and large and small group markets. Detailed information on the source of this dataset can be found on HCCI’s website at [www.healthcostinstitute.org](http://www.healthcostinstitute.org).

The data was limited to a subset of 21 states that include Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Maryland, Michigan, Minnesota, Missouri, Nevada, New York, Ohio, Oklahoma, Pennsylvania, Texas, Utah, Virginia and Wisconsin. The excluded states were removed for two reasons. First, if the membership was not high enough to represent the state’s population for the individual or small or large group markets, then the state was removed. We used a threshold of 15% such that if the data contained more than 15% of a state’s market population, then the data were considered representative. Second, if any one health plan contained more than 75% of a state’s individual or small or large group populations, then the state was removed. The source of comparison was the Center for Consumer Information & Insurance Oversight (CCIIO) 2013 Medical Loss Ratio Data and System Resources.<sup>1</sup>

A state must satisfy both criteria for each of the three markets to be included. Satisfying each market makes it possible to compare lines of business on a one-to-one basis when aggregated across multiple states. The authors made exceptions for the population criteria on a few cases. California, New York, Virginia and Wisconsin did not satisfy the individual and small group markets but were included because they had a high number of large group members. The distribution of states is shown in Figure 1.

**Figure 1**  
STATES INCLUDED IN THE HCCI COST AND UTILIZATION TRENDS DATA EXTRACT



## 4.2 Data Restrictions

It is important to note that certain exhibits in this report may contain service categories that display a zero-value allowed cost, \$0.00 allowed PMPM. Special attention should be taken in these circumstances, because these cases may not be true zero-dollar services. To comply with minimum necessary standards, any category with fewer than a certain number of individuals cannot be shown independently. Therefore, if a service category did not achieve the minimum necessary threshold, it was zeroed out. The units and dollars for that service were then grouped into the respective “other” service line. For example, inpatient surgical circulatory would default to “other surgical,” outpatient would default to “other outpatient,” and so forth. Inpatient maternity, rehabilitation and subacute care all default to “other medical.” Also, since the data were principally analyzed and developed with data prior to ICD10, the last three months of 2015 could not be grouped with the diagnosis grouper used for the rest of the models.

If a comparison needs to be made between costs and a zero value is present, it is up to the user to realize that the cost may have been grouped elsewhere. The zero-value logic only applies to that exhibit’s level of detail. For example, assume an exhibit filters by state, gender and market, and further assume that a zero value is present on outpatient dialysis. The costs of outpatient dialysis for this exhibit will be embedded into outpatient other. However, if another exhibit only filters by state and outpatient dialysis is no longer a zero value, then all of the outpatient dialysis costs lie within dialysis and none are grouped into other.

Beyond the available filters, membership was split into two populations. One set for those with a prescription benefit and another set for those without a prescription benefit. For the cost of prescription on any exhibit, the population count and claims cost for the calculations are limited to only those members with a prescription benefit. The reasoning here is straightforward. However, for the cost of medical care, there are three possibilities for the type of data shown: Medical data may consist of members with both a prescription benefit and without; medical data may consist of only members with a prescription benefit; the most unlikely case, medical data may consist of only members without a prescription benefit. (Most exhibits in this report fall into the first category, but whichever the case, a label is placed on the exhibit denoted as “MedRX.” A value of MedRX equal to “both” represents category one, “yes” represents category two, and “no” represents category three.)

The benefit of category 1 is that it utilizes the largest amount of available claims data and population counts for the medical services. The exhibits display calculated averages, so the appeal of category one is to use the most amount of data possible. The benefit of category 2 is that it utilizes a one-to-one membership count between the medical and prescription measurements. There is value in knowing that the underlying population between medical and prescription are the same exact members. For the sake of simplicity, the report extract will only include members with pharmacy coverage, which represents the vast majority of the total.

## 4.3 Data Categorization

The facility claims within the database were originally separated into inpatient and outpatient tables. The methodology assumes that this initial setup is accurate within reason but also goes further to use the type of bill (TOB) to explicitly distinguish inpatient from outpatient claims. More specifically, the left two digits of the TOB were used so that grouping claim lines together would be simpler without dealing with adjustments and interim claims of the xx4, xx5, xx7 and so forth varieties. Claim lines with a blank bill type were filled in by using the lowest bill type found anywhere on the claim. If a claim still had a blank bill type, then the type of claim was defaulted to the residing table type—inpatient or outpatient. The presence of a revenue code, with respect to blank bill types, would help distinguish the difference between a facility and professional claim. Additionally, in a particular inpatient circumstance, if a blank bill type contained a provider specialty that included extended care facilities or hospice, then that claim was considered a rehabilitation and subacute care inpatient service.

Within inpatient, the authors used a two-step process to delineate the service categories. First, they used the DRG code to differentiate a medical and a surgical admit. Second, they used a custom crosswalk to map the diagnosis 1

(ICD9) code to a detailed service category. The reasoning behind the two-step approach is that groupers, as listed on any claims data, may not always be optimal for actuarial analysis. Cases in the data with the DRG were found to support this statement. Therefore, in the absence of a DRG grouper, the two-step process allowed more control on how the data were categorized so that the authors could follow the process from start to finish. It also allowed the use of multiple data points so that the DRG was not neglected altogether, nor would the DRG be the sole source of categorization.

It is understood that the DRGs are based in part by the diagnosis codes. It is also understood that the two-step process does not fully utilize the other diagnosis codes. In such cases, it can be argued that the cause of admit may be underrepresented with the two-step process. In response, it is assumed that the diagnosis 1 code captures at least the primary reason for care and is sufficient for this report's purposes.

Claims lines with blank DRGs were filled in with the lowest DRG found anywhere on the claim. If a claim still contained a blank DRG, then a default code was added such that the claim would be grouped into "other medical."

If an individual aged 55–64 and 65-plus had a maternity claim, then such claims were grouped into the "other" category rather than maternity. The low number of high-aged births made it difficult to satisfy the minimum necessary standard. Moving these claims into a larger category solved that issue. The Centers for Disease Control and Prevention (CDC) indicates that there were approximately 675 births for mothers over the age of 50 in the United States in 2013. Moving these claims, whether they were actual or not, would have little impact on the overall dataset. In addition, the authors moved any maternity claim for a male over the age bracket of 0–18 into the "other" category. Male claims can be present in maternity if it were for the baby's claim, but the reasons for a male maternity over this age range are either unlikely and/or erroneous.

Outpatient claims were categorized using a custom crosswalk on the Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) codes, consolidating all years from 2008 to 2015. Emergency room claims were categorized using revenue codes in addition to CPTs and HCPCSs. Values for surgery and emergency rooms were calculated on a per-visit basis such that all claims for a date of service were included in the visit. The exceptions were laboratory, pathology, and radiology claims, which were not included in the visit for surgical claims. It was our opinion that a diagnostic test would not occur on the day of surgery and be reliably related to that surgery. For example, it is possible that during a particular procedure, an unrelated tumor could be found, which would then be sent to the lab for diagnosis. In this event, the lab claim would be unrelated to the surgery. On the other hand, for emergency room visits, the diagnostic tests would almost always be related to the visit.

Professional claims were categorized using the same custom crosswalk on CPT and HCPCS codes. No visit logic was applied to professional claims. In the case of services whose codes were missing or not valid or were not included in the crosswalks, the default was the most general category for the model—for example, other professional. The authors categorized pharmacy claims using a custom crosswalk based on the Wolters Kluwer manual for National Drug Codes (NDC).

#### **4.4 Data Summation**

Allowed costs were summed by claim identification on a line-by-line basis to aggregate as much as possible any claim adjustments and late charges. The units were added together in a similar fashion with one exception. If the allowed cost was positive and the units negative, then the authors flipped the units to match the allowable so that positive allowed cost matched with positive units and vice versa. Claim lines with a zero-allowable amount had units forced to zero. Doing so helped to prevent overcounting denied and reversed lines where the units remained nonzero. Additionally, the cost per service would be more representative of fee-for-service costs if utilization was limited to only those lines with nonzero allowable.

Admit days were based on admit and discharge dates with one additional step. If the admit had a same-day discharge or the room and board units were within one day of the length of stay, then the authors revised the length of stay to use the unit counts on the room and board revenue codes instead of the admit and discharge dates.

The authors calculated the statistics PMPM and utilization per 1,000 using the membership associated with the particular model. The numerator consisted of a summary measure, and the denominator consisted of the actual member months. They treated partial month coverage as whole month coverage.

All cells in every model were tested for size. Any model that had a cell that was too small was reformatted to roll the detail up to the next highest level. For example, if surgical admits for a model cell were too low, the model would combine the categories medical, surgical, other and maternity together and only display total admits.

#### **4.5 Data Selected**

The final data extract was pared down to exclude certain combinations. The authors excluded combined data results for the large group, small group, and individual marketplaces due to the potential of distortion caused by significant membership mix changes observed in the individual market. In addition, they only included the experience of members with pharmacy coverage in the data extract. They did this to avoid any potential distortion related to the experience of nonpharmacy plan members on trends.

## Section 5: Summarization of Results From the HCCI Extract

The claims trend PMPMs reflect the impact of inflationary factors that cause medical expenses to increase over time—often at rates greater than CPI inflation. The authors examined claims and utilization patterns for commercial large group, small group and individual plan categories by calendar year, various demographic categories and service categories. Service categories were broken out into inpatient hospital, outpatient hospital, professional services and retail pharmacy. They also examined membership patterns to see whether the population was relatively stable as a necessary validation for any observed trend patterns.

### 5.1 Membership Trends

To be able to credibly use claims and utilization data, the underlying membership requires a reasonable level of stability. Any large changes in membership are likely to cause shifts in the underlying claims pattern. Figure 2 shows a summary of membership distribution by market type.

**Figure 2**

MEMBER MONTHS BY MARKET TYPE



Based on the membership patterns, the large group market had some larger drops in the early years followed by a more stable pattern later on. These are attributable to changes in the data of the contributors rather than a reflection of relative volume between different markets. Individual coverages saw some significant increases in 2014 and 2015 due to the onset of the Health Insurance Exchanges. The small group was the most stable, although there were some declines. Figure 3 shows year-over-year membership change by market to further illustrate the relative stability of each membership block.

Based on what this figure shows, the small and large groups appear to be the most stable blocks. Despite these changes, though, if the type of membership were relatively stable, then that would help to mitigate the changes in membership volume.

**Figure 3**  
ANNUAL MEMBERSHIP PERCENT CHANGE BY MARKET

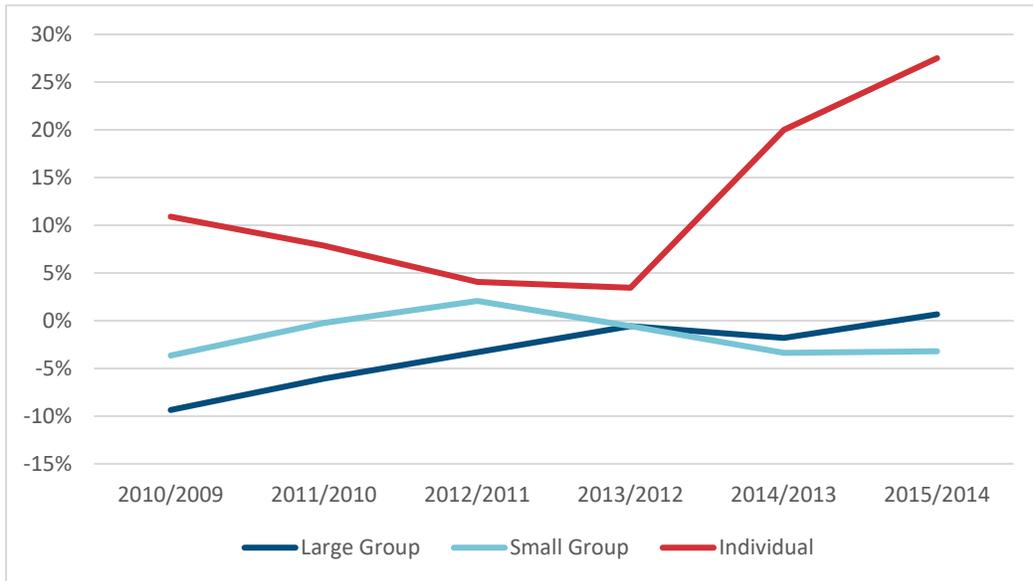
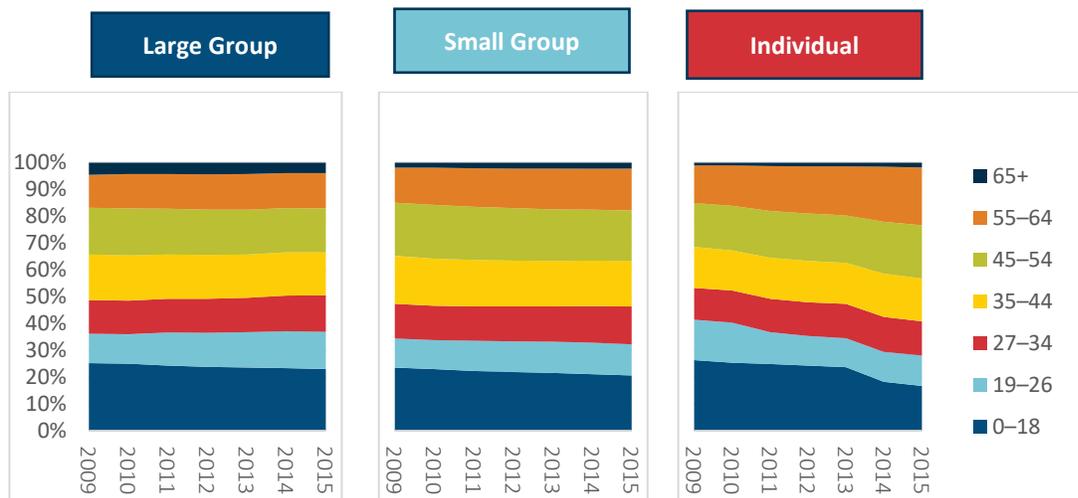


Figure 4 illustrates changes in age bracket distribution by market type.

**Figure 4**  
MEMBERSHIP DISTRIBUTION



The large group membership distribution shows a slight increase in membership share for ages 19–26, 27–37 and 55–64 from 2009–2015, while other age groupings have been slightly down. The largest increase was in the 19–26 age group, which is likely attributable to the September 2010 ACA requirement that dependents be allowed to remain on their parents’ coverage until age 26.

The distribution of small group membership was shifted toward lower middle age and child membership share. This block seemed to have the largest stability among its membership, with the biggest change being the relative drop in those age 0–18 years.

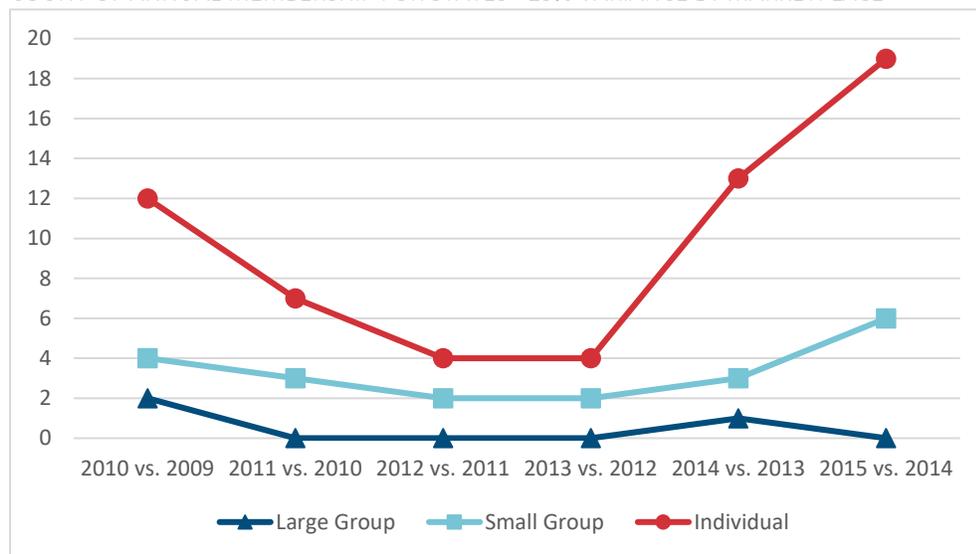
The individual marketplace shows some of the largest changes in age bracket distribution. Prior to 2014, the age distributions were more stable, with the biggest shift being in the 19–26 market. This was likely driven by the 2010 mandate that allowed individuals under the age of 26 to be added to their parents’ plans. As a result, many of those members likely dropped their individual coverage and switched over to their parents’ large group policies. Starting in 2014, there were some more significant shifts. Most notably, those age 0–18 lost significant market share with the onset of the ACA Exchanges and Medicaid expansion. The 0–18 group’s share fell from the mid-20s to the high teens. The 45–54 and 55–64 age groups saw the biggest increases in market share. This is a clear sign that the types of members who enrolled in individual plans was very different pre and post exchanges.

Overall, the membership distribution by age brackets has shown that a need to be cautious when examining claims and utilization trends for each market, knowing that in cases where there are large membership variations—particularly in the individual market—those can be driving the trend conversation.

Figure 5 is another data point on membership that shows the count of states by year and by marketplace whose annual variance exceeds  $\pm 15\%$ . As the figure shows, there are very few large group states that exceeded the 15% annual variance threshold. In contrast, there is a significant majority of individual states that saw a change in 2014 and 2015 enrollment of  $>15\%$ , with almost all of 2015 individual market states seeing a membership change of  $>15\%$ —caused by the Health Insurance Exchanges market beginning in 2014. Small group membership varies more than large group but still has relatively few states that exceeded the 15% threshold. This further strengthens the conclusion that individual trends for 2014 and 2015 are likely to not reflect the run rates of previous years due to these dramatic membership changes. On the other hand, membership changes are unlikely to have significant impacts on large group and individual trends for the measurement period.

**Figure 5**

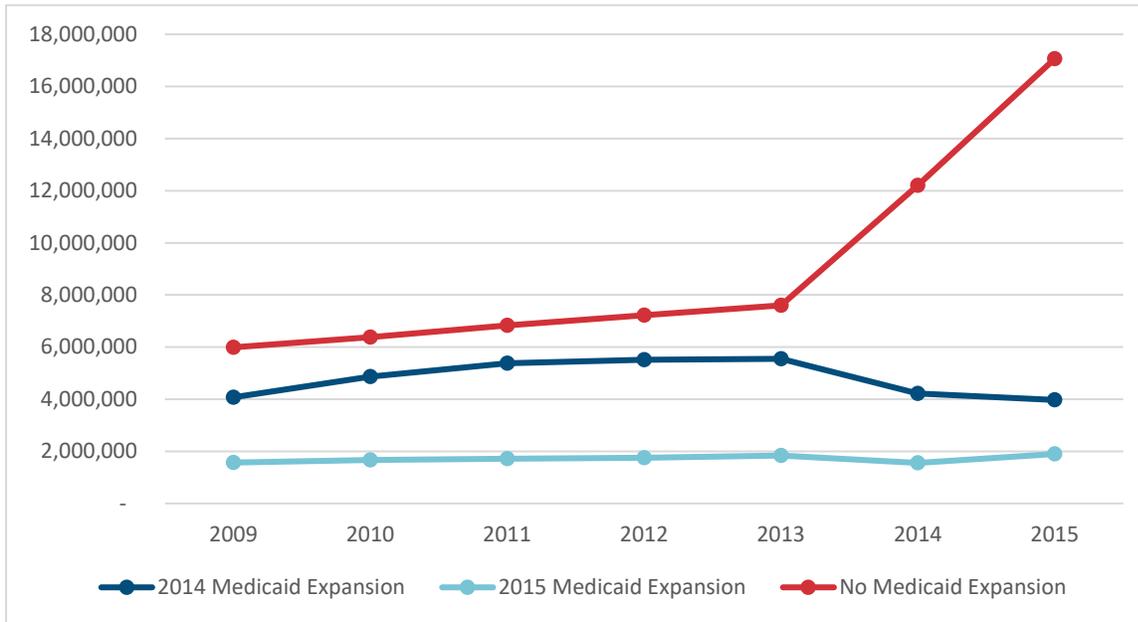
COUNT OF ANNUAL MEMBERSHIP FOR STATES  $>15\%$  VARIANCE BY MARKETPLACE



Another factor that influenced changes in the individual market membership was the existence of Medicaid expansion. Figure 6 shows the changes in membership by expansion and nonexpansion states. The clear pattern here shows that nonexpansion states drove the 2014 and 2015 membership increases, while expansion states had net membership declines in 2014 and flat membership in 2015.

**Figure 6**

INDIVIDUAL MEMBERSHIP BY MEDICAID EXPANSION STATUS

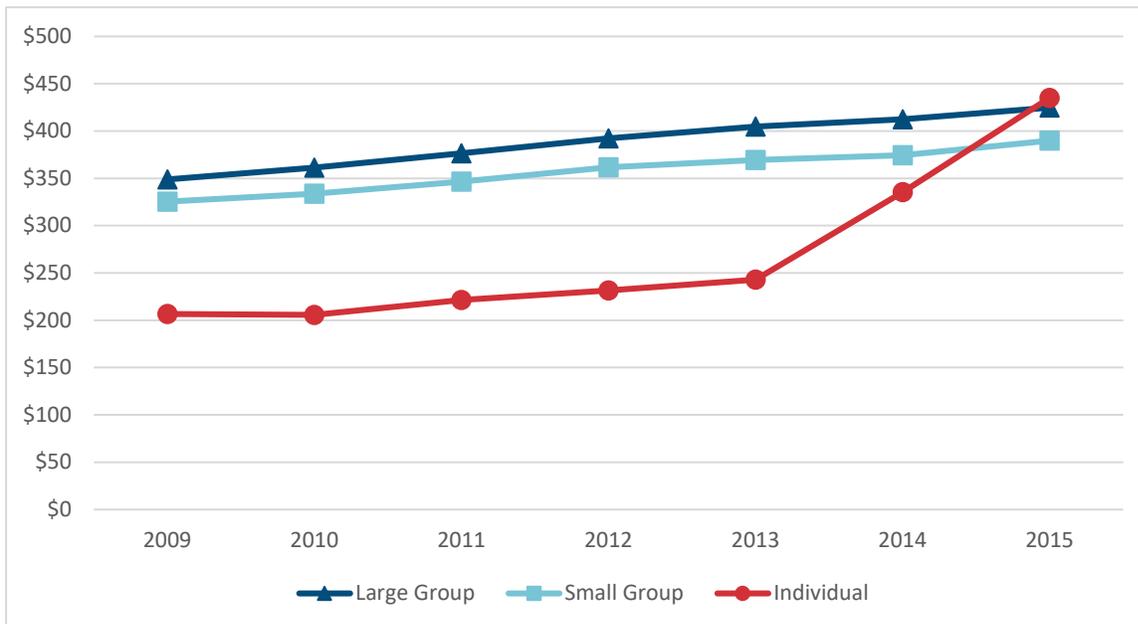


**5.2 Allowed Cost Trends**

Allowed costs are one of the best ways of measuring medical inflation—that is, cost trends. This is because allowed costs represent the adjudicated value of the service. Figure 7 demonstrates some of the aggregate cost changes by market that have taken place for this particular data extract.

**Figure 7**

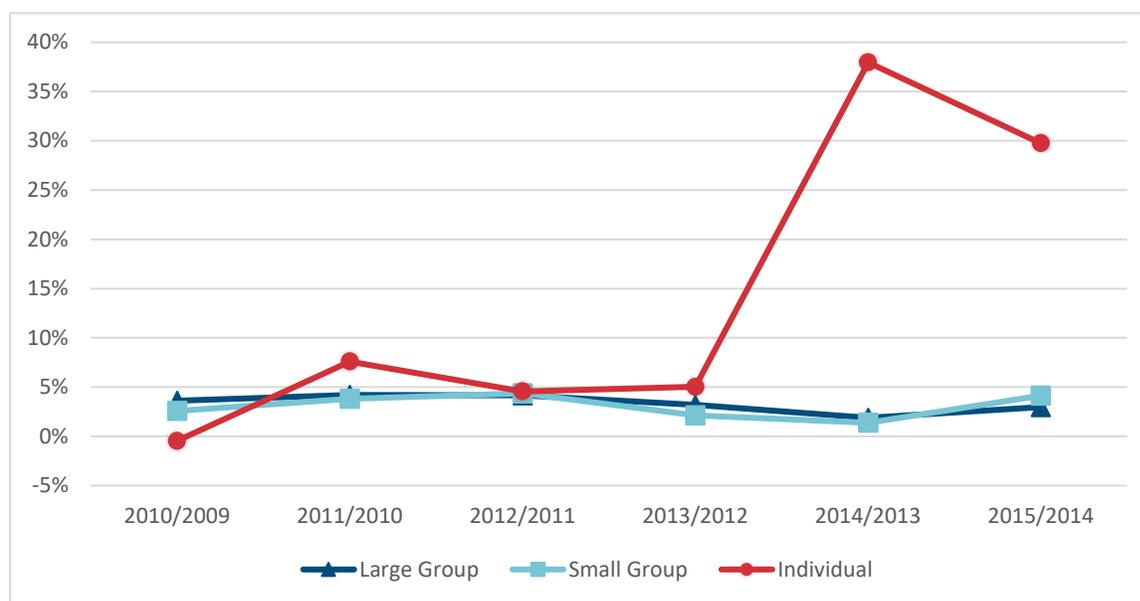
PMPM ALLOWED CLAIMS COSTS BY YEAR AND BY MARKETPLACE



It is worth noting that total allowed claims trends had a steady progression from 2009–2015 for the large and small group marketplaces chosen. Their costs are also fairly similar to each other, with large group costs coming in consistently higher than small group. Individual market PMPM claims costs essentially doubled from 2009–2015. The bulk of this increase took place in 2014 and 2015 with the inclusion of ACA Health Insurance Exchange experience, resulting in 2015 individual PMPM costs, which were higher in aggregate than large and small groups. This was driven by the elimination of medical underwriting and the advent of covering preexisting conditions, which had generally not been covered in previous Individual plans. In addition to this, there were large benefit plan design changes where benefits previously not required and often not covered under the old individual policies were now required to be covered as part of the ACA EHBs. Finally, the shifting of membership toward higher age brackets with greater costs also contributed to PMPM increases.

The actual trend rate of increase is also an interesting point of reference. Figure 8 shows how overall medical expense trends have varied by market.

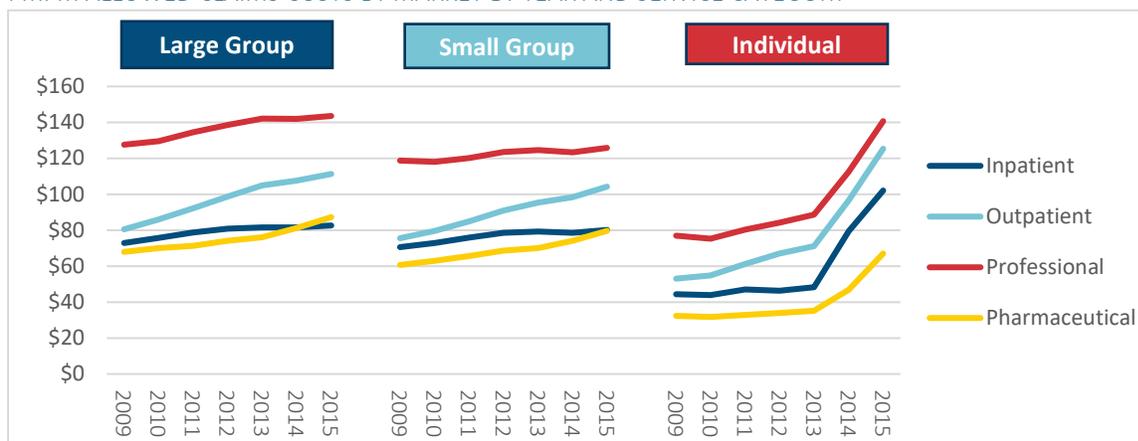
**Figure 8**  
PMPM ALLOWED CLAIMS TRENDS BY YEAR AND BY MARKETPLACE



The overall annual trends for large group and small group ranged from 0% to 5% for the entire period covered. The Individual had greater volatility in membership as well as trends for 2009–2013 but without any significant outliers. That all changed beginning in 2014 as exchange members and their plans drove up aggregate individual trends by more than 38% in 2014 and almost 30% in 2015. By classifying out claims costs and trends by service categories, the types of services that may be driving overall trends up the most over time are discernable. Figure 9 provides PMPM cost grouped by service category for each market segment.

**Figure 9**

PMPM ALLOWED CLAIMS COSTS BY MARKET BY YEAR AND SERVICE CATEGORY



Outpatient Services exhibited the highest trends for the large group membership, followed by professional services. Pharmacy had large trend increases in 2014 and 2015, while inpatient costs have been relatively flat.

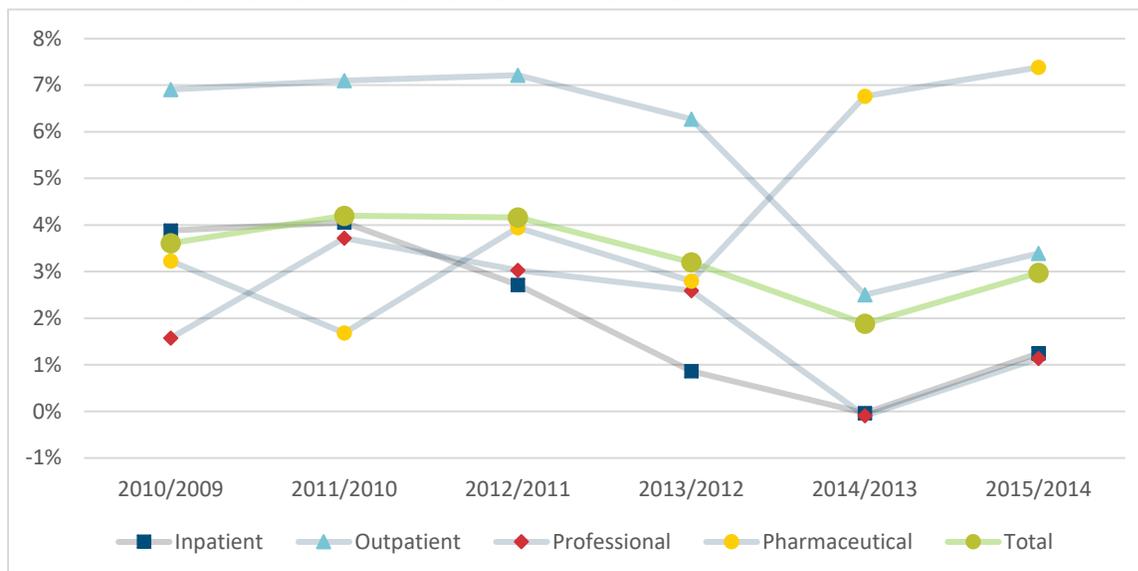
Small group claims have showed similarly high trends in outpatient services, along with pharmacy, which also sharply increased in the last two years of the study. Professional and inpatient trends were smaller overall.

For the individual market, all claims categories increased dramatically in 2014 and 2015. Between those two years, inpatient trends were generally higher in 2014. Outpatient and professional increased by similar percentages in both years, while pharmacy saw a higher trend in 2015.

Claims trends by category also give a good picture of where the increases have taken place over the last few years. As Figure 10 shows, the biggest large group trend driver for 2009–2013 was in outpatient hospital. However, in 2014–2015, pharmacy trends were the largest factor, while all other areas of trend decreased, along with overall trends.

**Figure 10**

LARGE GROUP ALLOWED CLAIMS TREND BY YEAR AND SERVICE CATEGORY



The small group patterns in Figure 11 are very similar to those in the large group. Outpatient trends outpaced all others every year from 2009–13. In 2014–2015, pharmacy trends were the highest. Overall trends were at their lowest in 2014.

**Figure 11**

SMALL GROUP ALLOWED CLAIMS TREND BY YEAR AND SERVICE CATEGORY

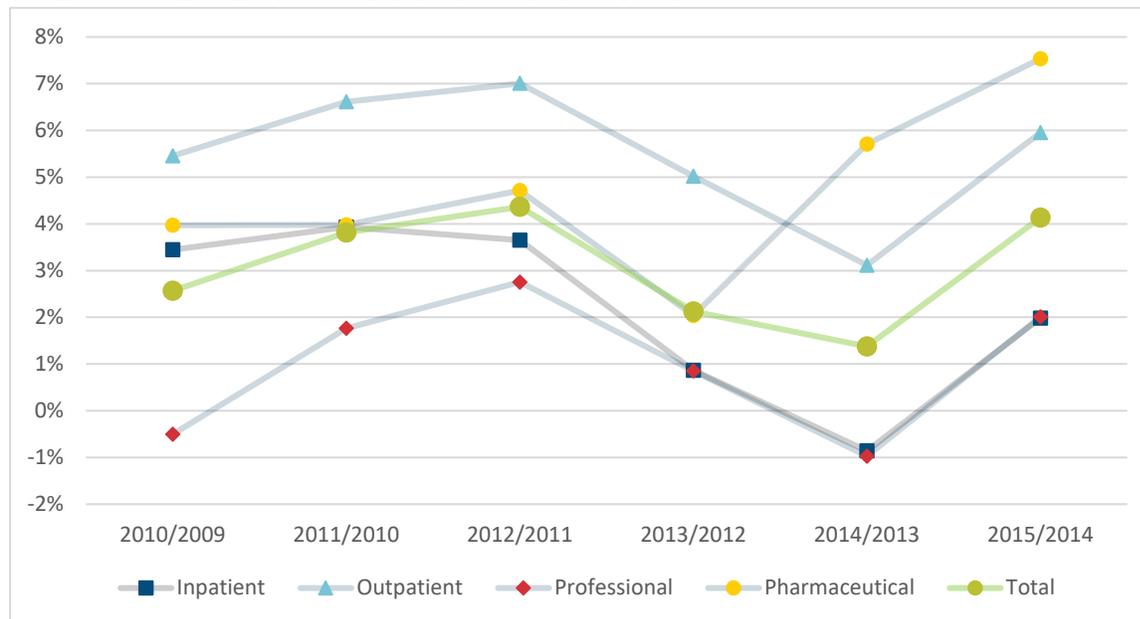
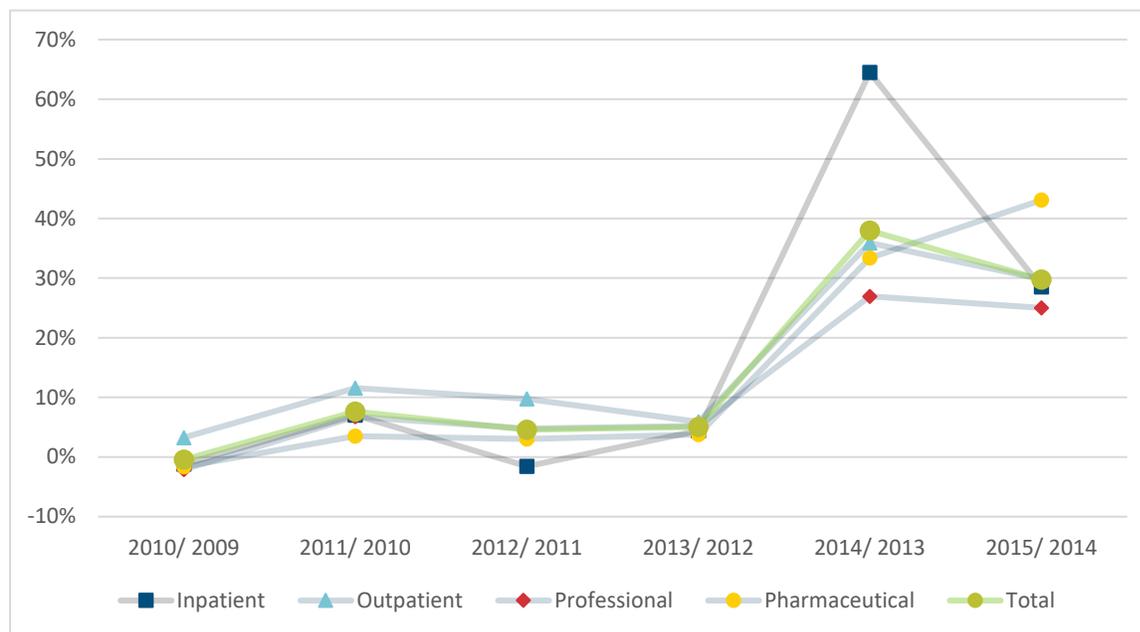


Figure 12 shows similar patterns for the individual market compared to the large group and small group for 2009–2013. This includes the highest trends in outpatient services. Starting in 2014 when Health Insurance Exchange products went live, a very different pattern emerges.

**Figure 12**

INDIVIDUAL ALLOWED CLAIMS TREND BY YEAR AND SERVICE CATEGORY



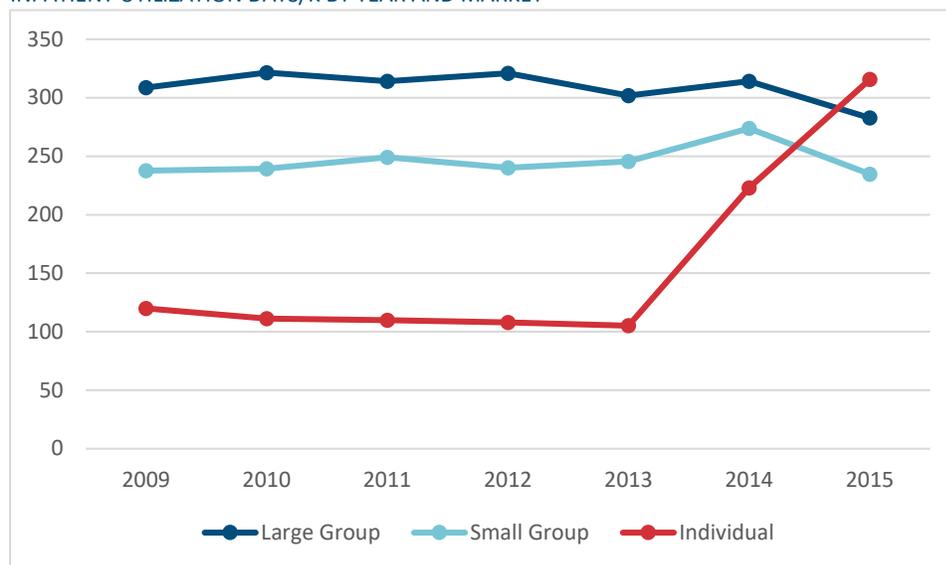
As the population changed, numerous individuals who had new or expanded insurance coverage helped to drive the large increase in claims costs. Inpatient hospital had the biggest increase in 2014 as many of the new members first utilized health care in that setting. . Inpatient trends had the higher trends in 2014, followed by the largest drop-off in trend, although their trends were still positive. Outpatient and professional trends decreased slightly from 2014–2015. Pharmacy trends increased in 2015, because pharmacy had a slower uptake in utilization than other categories.

### 5.3 Utilization Trends

This report and the accompanying data extract also address utilization trends. Utilization trends reflect the change in the count of specific types of service. Older and more complex populations tend to have higher utilization, while younger and healthier ones tend to use fewer services. Utilization is often a function of the demographics and the local practice delivery patterns as well as social determinants of health. Figures 13–16 show the utilization patterns by market for each service category.

**Figure 13**

INPATIENT UTILIZATION DAYS/K BY YEAR AND MARKET



Inpatient utilization was fairly consistent for the large and small groups. In 2015, there was a step down. Individual inpatient utilization was fairly consistent until 2014 and 2015, when it increased dramatically due to the shift of membership to the exchanges, where EHB requirements helped expand the utilization of certain services, particularly maternity and behavioral health.

Outpatient utilization shown in Figure 14 displays a similar pattern in 2014–2015. Small group utilizations were fairly consistent, while the large group had some slight declines in 2014–2015.

The outpatient utilization was adjusted to exclude “other outpatient,” because there appears to have been a slight distortion in that category due to claims grouping logic. In general, it is best to also examine both utilization and unit cost trends in tandem in case there is a change in any utilization counting methodology that may show unit cost trends going in the opposite direction.

**Figure 14**  
 OUTPATIENT UTILIZATION UNITS/K BY YEAR AND MARKET

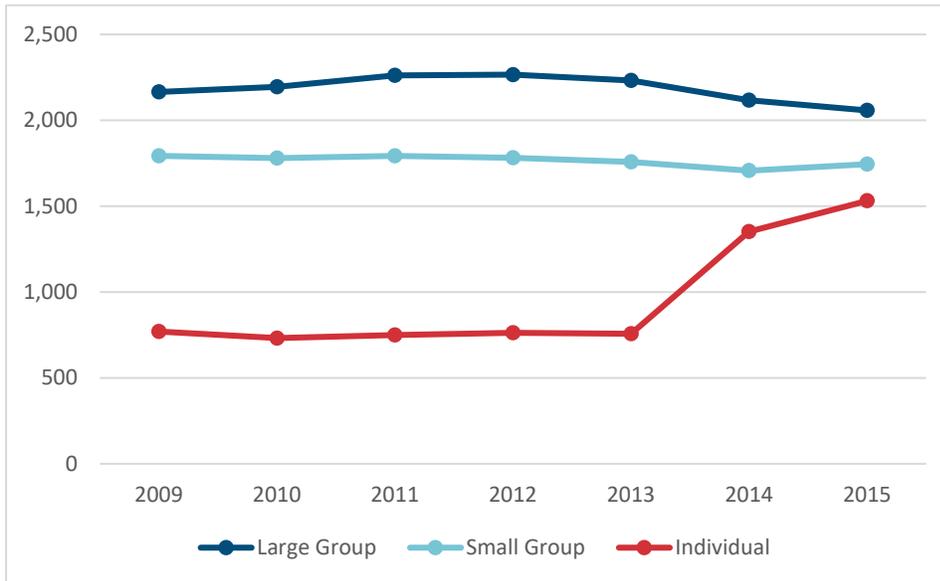


Figure 15 shows that professional utilization for the large and small groups increased from 2009–2013 and then dropped in 2014. Individual utilization increased dramatically in 2014 and 2015 similar to what was seen in the other service categories. The authors removed the utilization in the chemotherapy—therapeutic injections category from this exhibit due to some distortion that was taking place in the mix of services and sensitivity to variation in unit counts.

**Figure 15**  
 PROFESSIONAL UTILIZATION UNITS/1,000 BY YEAR AND MARKET

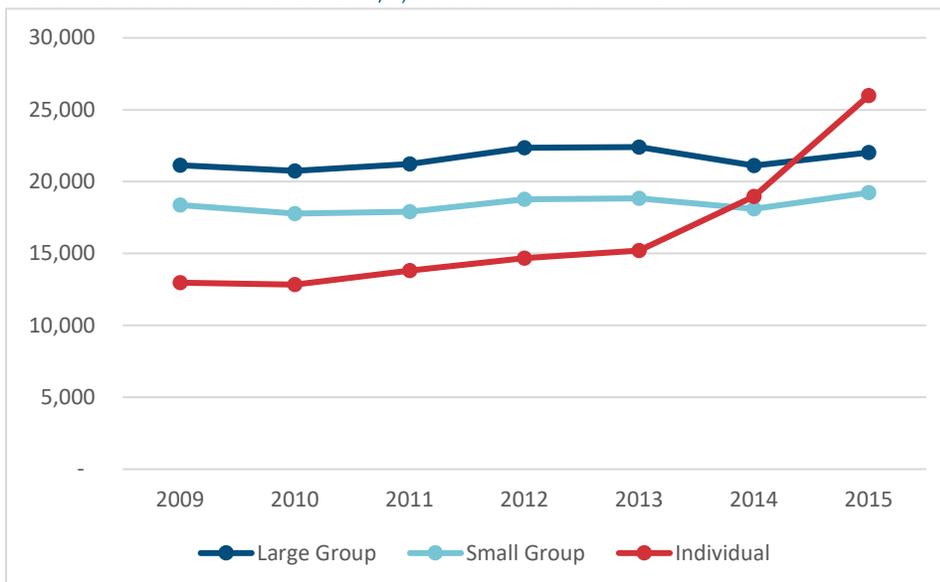
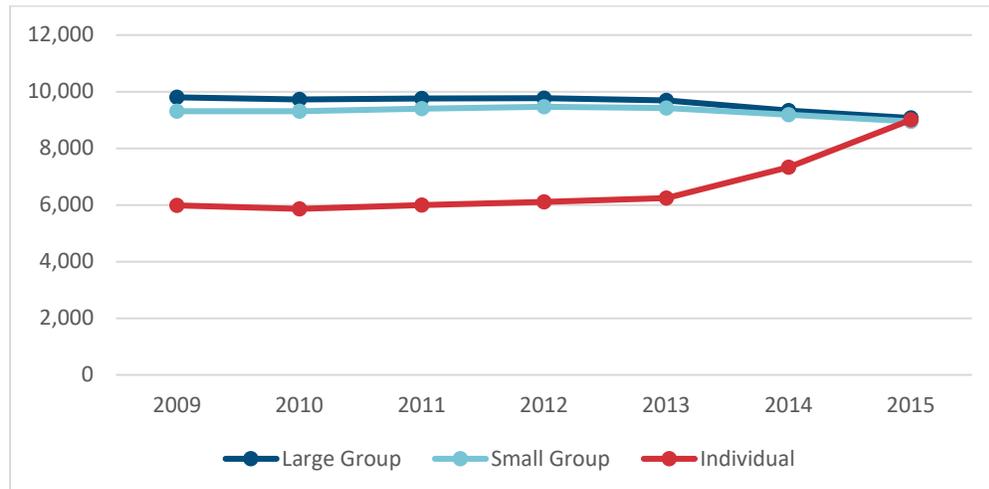


Figure 16 shows that pharmacy utilization had a similar pattern to the other service categories. Utilization trend for the large group and small group was relatively flat for 2009–2013 and then dropped off after that. Individual pharmacy utilization had modest increases from 2009–2013 and then jumped significantly in 2014 and 2015.

**Figure 16**  
PHARMACY UTILIZATION PRESCRIPTIONS/K BY YEAR AND MARKET

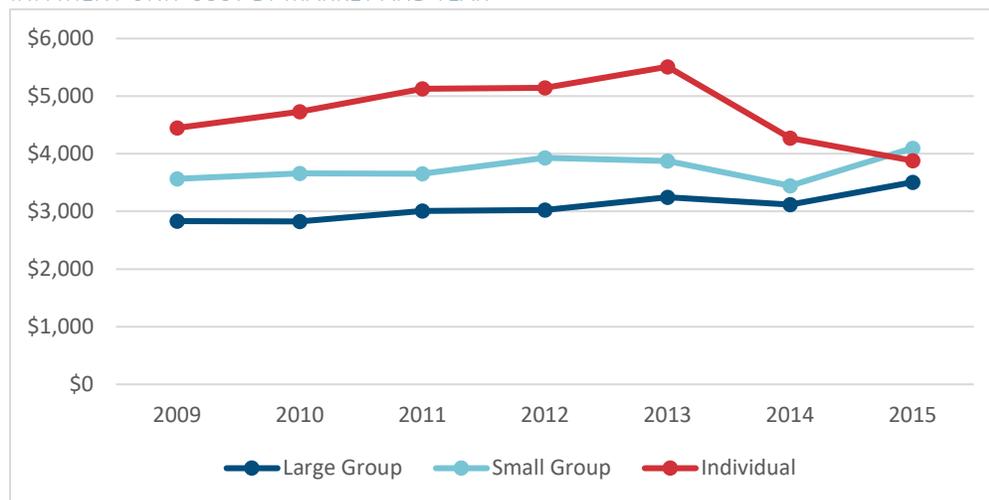


Overall, the utilization patterns for the large and small groups are similar, with the large group having consistently higher utilization than the small group. Individual utilization started off with significantly lower utilization, particularly in inpatient and outpatient. However, the new exchange membership in 2014 and 2015 more closely resembled the utilization levels of the small and large groups, particularly in inpatient and pharmacy, due in no small part to the underwriting exclusions for chronic diseases, which are managed by pharmacy management. Professional individual utilization was even higher, but that may drop back down once the pent-up demand related to conditions not previously covered and onboarding of previously uninsured members work through the system.

### 5.4 Unit Cost Trends

Unit cost trends is another aspect of health care that can impact total expenditure. Changes in the costs of services over time tend to reflect general inflation, higher prevalence of chronic health issues, as well the impact of new high-cost services or treatments, the use of more advanced diagnostic tools, or provider contracting changes. Figures 17–20 show the unit costs by each service category.

**Figure 17**  
INPATIENT UNIT COST BY MARKET AND YEAR



Inpatient unit costs had a generally increasing trend for all marketplaces. This was interrupted by drops in 2014. The large group had the lowest unit cost, while individual was mostly the highest. Individual unit costs dropped to values more resembling those of the other markets once the exchange business went live. This was likely impacted by higher volume and more moderate costs associated with admissions due to chronic diseases.

Outpatient unit costs consistently increased throughout the measurement period for all markets as shown in Figure 18. Individual unit costs were the highest, while the large group had the lowest. The individual market did not experience any significant fluctuations in outpatient unit costs, similar to what was seen in 2014 in other categories.

**Figure 18**  
OUTPATIENT UNIT COST BY MARKET AND YEAR

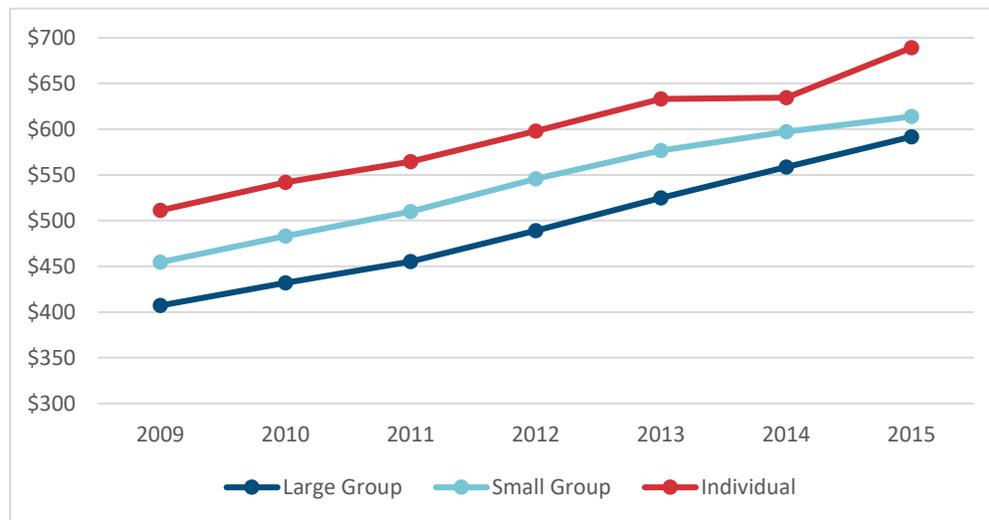


Figure 19 shows that the large group and small group professional unit costs saw some upward and downward fluctuations in the measurement period before ending on a high note in 2014 and 2015. Individual unit costs followed a similar pattern as the small and large group. Like professional utilization, the unit cost graph reflects the exclusion of therapeutic injections and chemotherapy.

**Figure 19**  
PROFESSIONAL UNIT COST BY MARKET AND YEAR

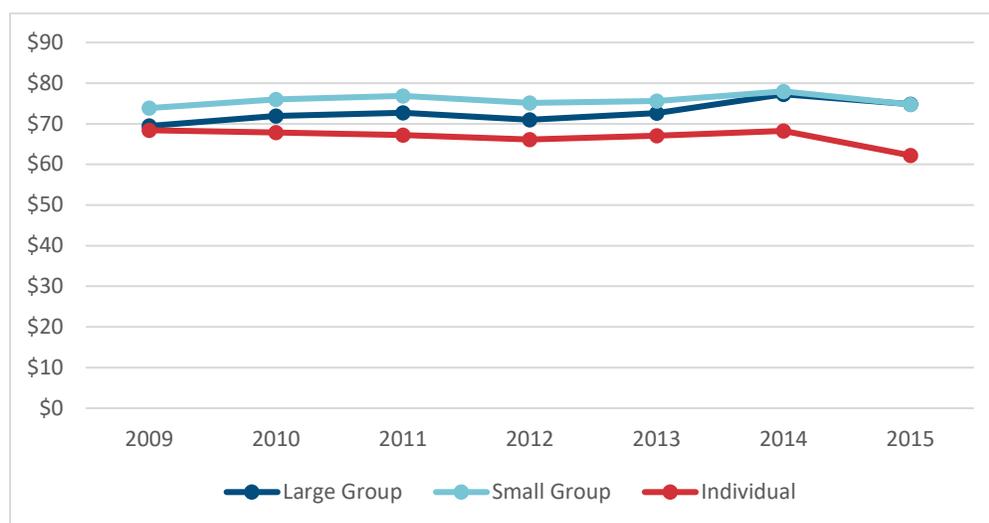
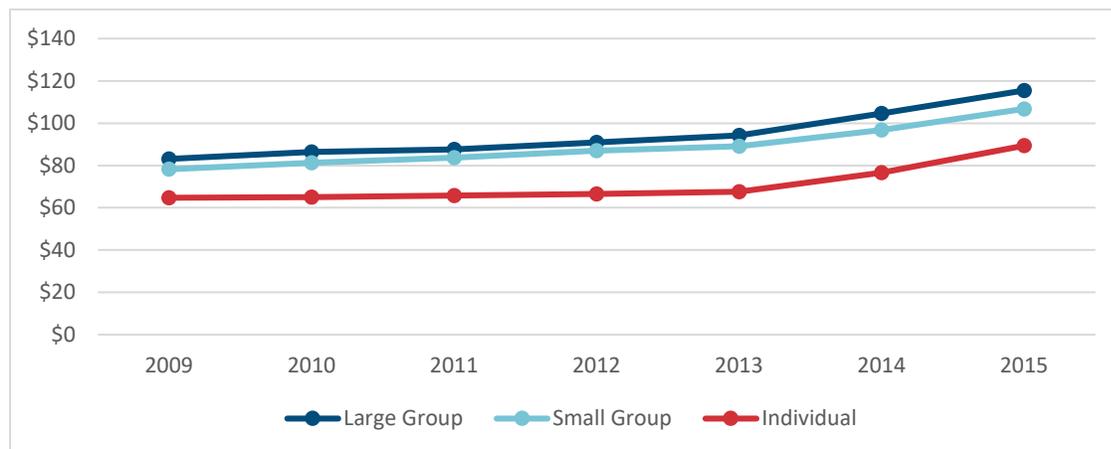


Figure 20 shows that pharmacy unit costs were increasing steadily through 2013 before accelerated trends were observed in 2014 and 2015. This pattern appears to be independent of market segment and was not significantly impacted by the increased individual volumes. This appears to be driven by an increase in high-cost specialty drugs, as well as increases in the unit costs for older therapeutics such as insulin.

**Figure 20**  
PHARMACY UNIT COST BY MARKET AND YEAR



Overall, in the small and large group markets, the main drivers of trend appear to be unit cost based. In particular, specialty pharmacy and hospital-based expenses seem to be the main contributors, while physician costs were mostly held in check. Utilization was a big factor of increase in the individual lines, because individuals previously uninsured due to the effect of underwriting on insurability and cost of coverage coupled with richer ACA exchange plans brought more costs into the system that had not been previously included. Table 1 summarizes the aggregate annual observed trends during 2009–2013. There are a lot of similarities in the trends for these periods. In general, unit cost trends tend to be the main drivers of trend, because utilization trends during the period are mainly flat to negative. The authors excluded 2014 and 2015 because of the large individual market shift.

**Table 1**  
UTILIZATION AND UNIT COST TRENDS BY MARKET AND SERVICE CATEGORY 2009-2013

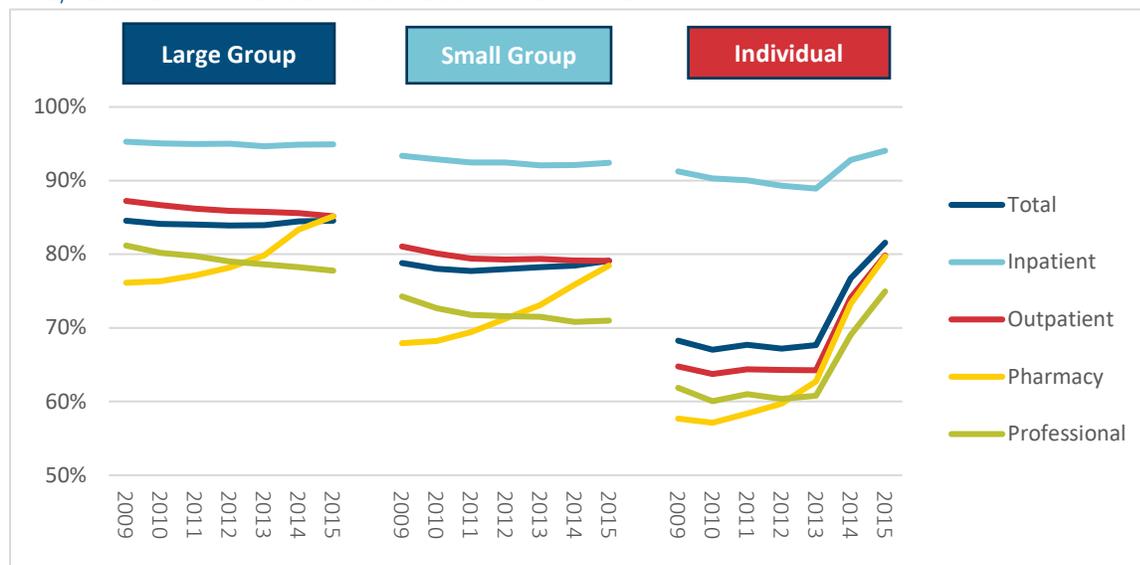
Market	Large Group	Small Group	Individual
IP UPK	-0.6%	0.8%	-3.2%
IP CPS	3.5%	2.1%	5.5%
OP UPK	0.8%	-0.5%	-0.5%
OP CPS	6.5%	6.1%	5.5%
PR UPK	1.5%	0.6%	4.1%
PR CPS	1.1%	0.6%	-0.5%
RX UPK	-0.3%	0.3%	1.1%
RX CPS	3.2%	3.3%	1.1%
Total UPK	0.5%	0.3%	0.9%
Total CPS	3.3%	2.8%	2.6%

### 5.5 Impact of Cost Sharing

Allowed costs consist of the sum of paid costs and cost sharing. Paid costs represent the portion of the adjudicated costs that the insurance company or self-funded group made. Cost sharing represents the portion of the adjudicated costs that are the insured individual’s responsibility. Different types of cost sharing include deductibles, coinsurance and copays. Deductibles represent first-dollar coverage amounts that insured individuals paid. Deductibles accumulate through the course of the policy year until they are exceeded; the emergence of high-deductible health plans, especially in large group plans, have made deductibles a much more significant part of cost sharing. Then, coinsurance is typically applied. Coinsurance represents a percentage of costs the insurer pays once the insured individual has met the deductible, with the insured individual paying the percentage not covered by the coinsurance. So, for example, if a policy has an 80% coinsurance rate, then the insurer pays 80% of coinsured costs and the insured individual pays 20% of those costs. Finally, copays represent a fixed first-dollar amount that the insured individual pays each time a service is rendered. For example, a \$40 specialty care physician copay means that individuals must pay \$40 for every specialty physician visit. Copays have been historically associated with HMO coverages, professional services such as office visits or emergency room visits, or tiered drug coverages. Plans usually have a maximum amount that an individual or family must pay each insured period, called the “out-of-pocket maximum” (OOP max). Patients with very high costs will exceed the OOP max, and the result is that the cost share on a nominal 80% plan will be considerably less than 20%.

Figure 21 shows the ratios of paid to allowed cost. Large fluctuations in this ratio can be a sign of changes in benefit design. Large fluctuations can be another indication of the lack of stability of a block of business. Significant changes in cost sharing can impact utilization, because lower cost sharing often drives higher utilization, while higher cost sharing tends to make members more selective in the services that they consume, resulting in lower utilization. Increases in cost sharing result in lower paid to allowed ratios.

**Figure 21**  
PAID/ALLOWED RATIO BY SERVICE CATEGORY AND MARKET



Large group paid/allowed ratios were relatively stable from 2009–2015 at around 85%. Inpatient hospital hovered around 95%, while outpatient remained around 85%. Pharmacy cost sharing appears to have decreased. The paid/allowed ratio increased approximately 5% from 2009–2015. This may be due more to higher utilization of specialty drugs, which, despite generally having higher copays, tend to have the insurer paying the vast majority of costs. Physician cost sharing went in the opposite direction.

The small group on the whole had less rich benefits than the large group, with their average paid/allowed ratio of around 78%. Inpatient paid/allowed was relatively stable around 92%, while outpatient was just below 80%. Both

were relatively stable. Professional paid/allowed ratios dropped from 74% to 71%, while pharmacy paid/allowed ratios increased from 68% in 2009 all the way up to 78% in 2015. Overall, the ratios moved in a similar fashion to what was seen in the large group. Paid/allowed ratios were lower across the board in the small group than in the large group due to less rich benefit designs. The results do point toward a relatively stable block of business and add credibility to the observed trends.

The individual block exhibits a very different pattern. There is one set of trends from 2009–2013 and a very different pattern in 2014–2015 when new Health Insurance Exchange Membership entered the individual marketplace. Inpatient hospital paid/allowed ratios steadily dropped from 91% to 89% from 2009–2013. In 2014–2015, they increased to 94%. Outpatient paid/allowed ratios hovered in the 64%–65% range from 2009–2013. These increased to 75% in 2014 and then to 80% in 2015. Professional paid/allowed ratios stayed within the 60%–62% range from 2009–2013, followed by 69% in 2014 and 75% in 2015. Finally, pharmacy cost sharing did show some increases during the 2009–2013 period, going from 57% up to 63% by 2013. In 2014 and 2015, the ratios jumped up to 73% and 80%, respectively. Overall, cost sharing in the pre-exchange period was in the 67%–68% range. This total ratio jumped to 77% in 2014 and 82% in 2015—which is roughly in the range of a gold plan on the Health Insurance Exchanges. These changes reflect significant benefit design enhancements and the importance of silver plans in the the market. Combining the benefit design changes with the inclusion of previously uninsured individuals with a different demographic profile helped drive up utilization and costs in the individual market.

One could conclude that the stability of the large and small group blocks in terms of population, benefit design and observed trends would make this trend data fairly reliable to use as a starting point for projections. The individual market lacked all of those aspects of stability and, as a result, are not useful for projecting future trends in this market. Taking the results of these high-level observations, the report will now delve into some of the overall trend outliers along with some elements that were driving the biggest changes in the individual markets.

## Section 6: Trend Outliers

After examining the overall utilization and cost trends for each of the markets and service categories, a few stand out as the most significant, and the authors further examined them. There were some cases where unit cost and utilization trends moved in opposite directions but resulted in similar overall trends. These are of slightly less concern, since the mix of services and variation in unit counts can sometimes change utilization while not significantly impacting the overall trend. The areas that this section will focus on are where there were unusual increases or decreases in overall claims costs for specific service categories and markets. The report will examine some of the underlying components driving those trends and try to identify root causes where possible. It is also important to note that at greater levels of granularity, there is also greater variability. It is unreasonable to expect the same level of trend stability for level 2 service categories on a subset of the population as for the whole marketplace at the overall service category level.

To that end, the authors examined two specific outliers. The first is the unusually high pharmacy trends observed in 2014 and 2015 for the small and large groups. The second is the change in cost and utilization patterns to the individual marketplace that took place in 2014 and 2015 when the Health Insurance Exchanges went live.

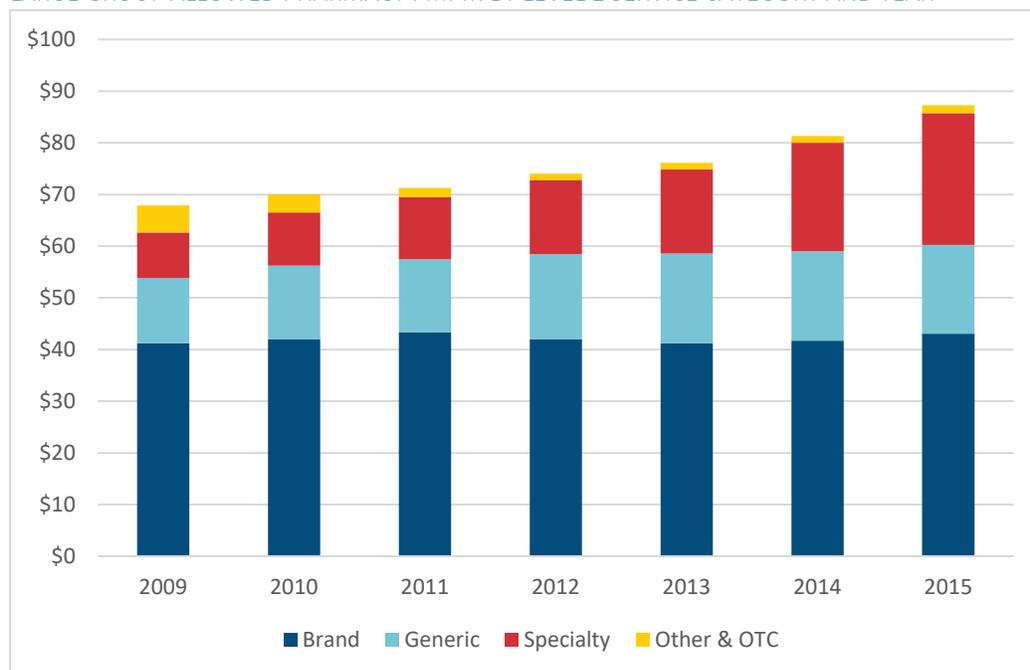
### 6.1 Pharmacy Trend

The pharmacy trends for all three markets saw some significant cost increases in 2014 and 2015, which exceeded the previous years' patterns. The trend was largest on the individual side but is in line with the observed trends in other service categories for the same time period. Large and small group pharmacy changes appear to be

independent of any other large membership mix fluctuation. Instead, their root cause is most likely due to changes in the actual pharmacy experience.

Figure 22 shows the large group annual PMPM pharmacy expenses by drug type. Large group pharmacy PMPM costs have decreased for other over-the-counter (OTC) drugs and remained relatively flat for brand drugs. Generic costs went up in 2010 and 2012 but remained flat for the remaining periods. Specialty drugs were the biggest drivers of trend, with the biggest increases coming in 2014 and 2015. Other OTC drugs consist of OTC medications that insurance plans covered. Over time, the drop in other OTC costs was likely due to shifting of some of those costs back to cheaper generic drugs or outside of the insurance system, because certain OTC medications were no longer covered by medical plans, especially drugs such as allergy medications or proton pump inhibitors.

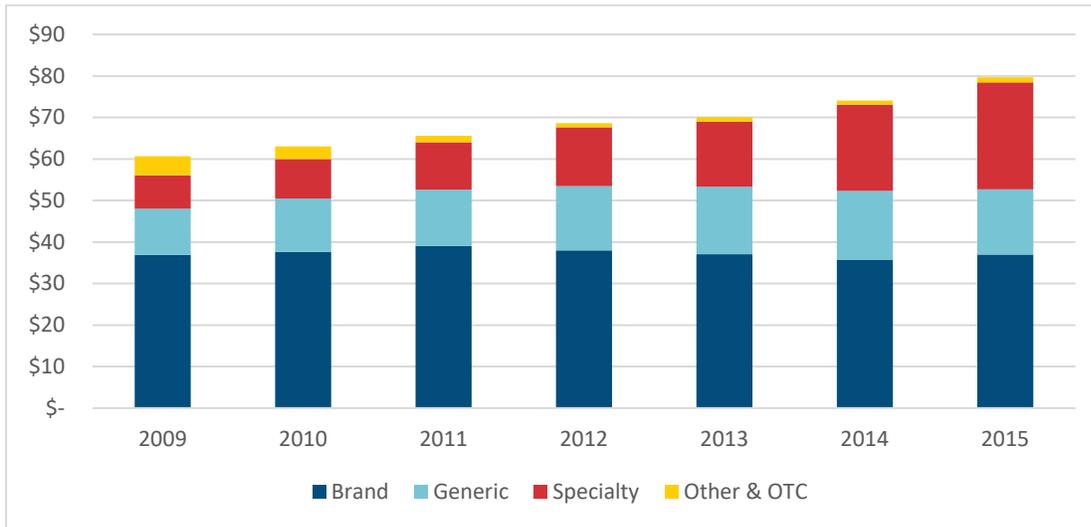
**Figure 22**  
LARGE GROUP ALLOWED PHARMACY PMPM BY LEVEL 2 SERVICE CATEGORY AND YEAR



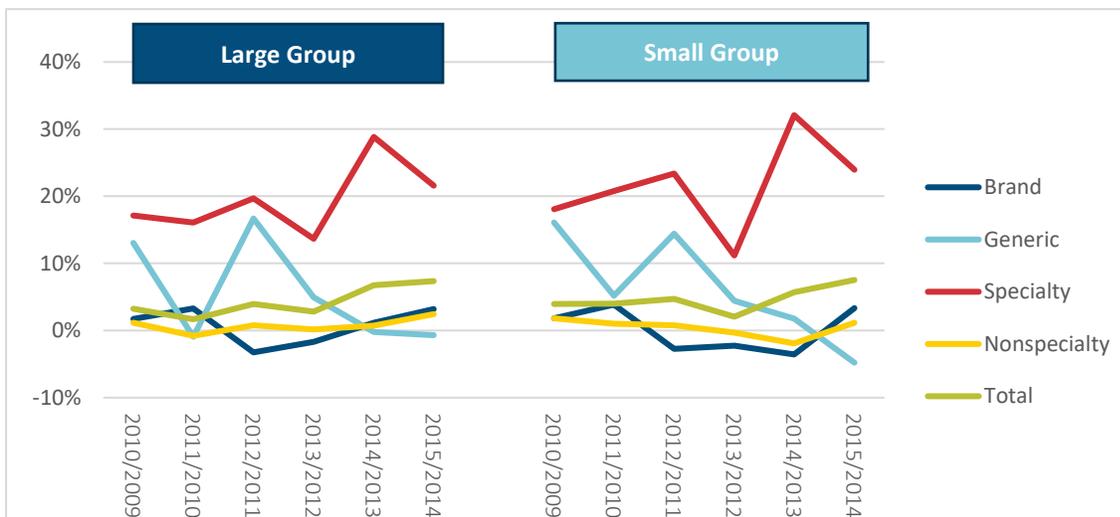
Small group pharmacy has a very similar pattern to that of the large group for each of the second-level 2 service categories but with slightly more volatility. The clear direction from these exhibits is that the specialty pharmacy is driving the trend. Figure 24 shows the trend rates broken out by level 2 categories.

As Figures 22-24 show, particularly the total and nonspecialty bars, the gross majority of the large group and small group pharmacy trends for this cohort come from the specialty side. While generic trends are high in 2010 and 2012, they do not contribute significantly to pharmacy trends, because they represent a relatively small slice of the total. OTC and other trends were not included in Figure 24 because they comprise such a small portion of the total in Figures 22 and 23. Despite some sporadically high generic trends, this contributes minimally to the overall pharmacy trend.

**Figure 23**  
SMALL GROUP ALLOWED PHARMACY PMPM BY LEVEL 2 SERVICE CATEGORY AND YEAR



**Figure 24**  
ALLOWED PHARMACY PMPM TRENDS BY LEVEL 2 SERVICE CATEGORY AND MARKET



Another way to look at pharmacy trend is to examine the utilization and unit cost breakouts of pharmacy trends. Tables 2 and 3 show the total pharmacy utilization per thousand by subcategory for the large and small groups.

**Table 2**  
LARGE GROUP PHARMACY UTILIZATION PER THOUSAND BY YEAR

Rx Type	2009	2010	2011	2012	2013	2014	2015
Brand	3,010	2,741	2,585	2,253	1,959	1,690	1,511
Generic	5,727	6,269	6,764	7,220	7,454	7,358	7,271
Other & OTC	970	620	313	186	175	172	178
Specialty	92	98	103	107	109	109	111
Total	9,799	9,728	9,765	9,767	9,697	9,330	9,070

**Table 3**  
SMALL GROUP PHARMACY UTILIZATION PER THOUSAND BY YEAR

Rx Type	2009	2010	2011	2012	2013	2014	2015
Brand	2,872	2,633	2,500	2,209	1,916	1,635	1,453
Generic	5,471	6,017	6,523	7,001	7,264	7,302	7,242
Other & OTC	876	568	278	154	145	142	148
Specialty	87	93	99	103	103	105	108
Total	9,306	9,311	9,400	9,467	9,428	9,184	8,951

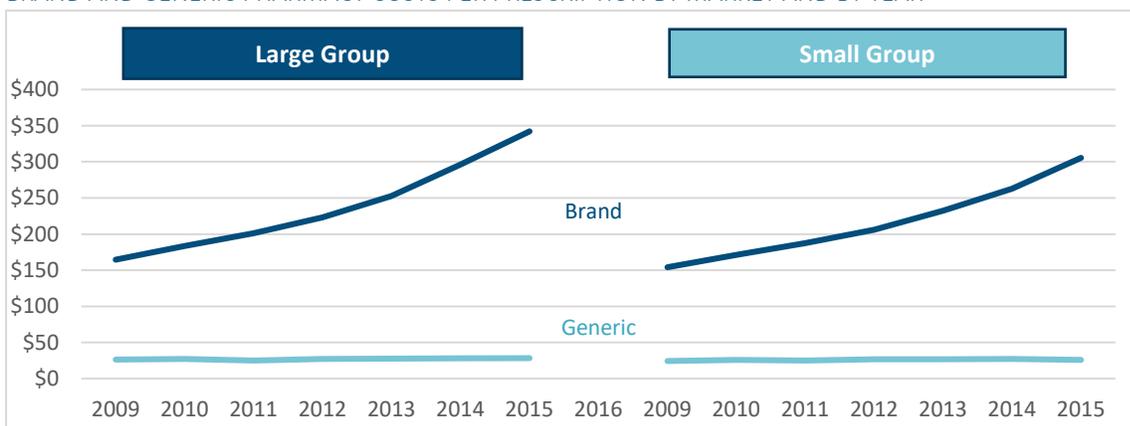
These tables show that brand utilization has been steadily declining since 2009, being offset by similar increases in generic utilization, because generic offerings increase and plans incented the use of generics through tiered benefit designs. Other and OTC utilization declined steeply, and specialty utilization increased modestly. Figure 25 shows the rate of change in utilization by pharmacy subcategory. The total utilization trend is equivalent to the nonspecialty utilization trend, because specialty drugs only represent ~1% of total utilization. This demonstrates how the utilization is shifting from brand to generic drugs. It also shows that the period of highest specialty drug cost trends had some of the lowest specialty drug utilization trends. Large and small group patterns are almost identical here.

**Figure 25**  
PHARMACY UTILIZATION TRENDS BY LEVEL 2 SERVICE CATEGORY AND YEAR



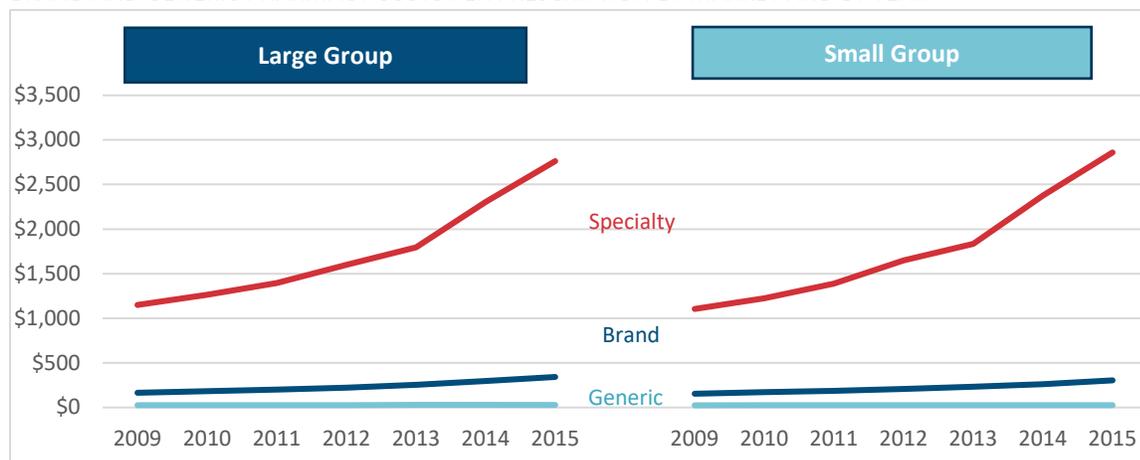
Because the utilization trend was such a small part of total specialty pharmacy, it is important to examine unit cost trends.

**Figure 26**  
BRAND AND GENERIC PHARMACY COSTS PER PRESCRIPTION BY MARKET AND BY YEAR



Figures 26–27 show how pharmacy unit costs have changed over time for brand, generic, and specialty drugs in the large group and small group markets.

**Figure 27**  
BRAND AND GENERIC PHARMACY COSTS PER PRESCRIPTION BY MARKET AND BY YEAR



Brand pharmacy trends are driven by large unit cost increases, which offset drops in utilization. Conversely, generic pharmacy trends have relatively low unit cost trends but are growing in utilization. Essentially, members are shifting out of brand drugs and into generics. It should be noted that brand and specialty unit costs do not take rebates into consideration. To that extent, the cost of brand and, to a certain extent, specialty drugs are overstated. Despite the incidence of these rebates, which are intended to help offset the purchase of brand drugs, generic drugs have continued to replace brand drugs in the large and small group marketplace. Specialty drugs paint a different and independent picture in Figure 26. Specialty drug costs have increased at robust rates throughout the measurement period and have particularly accelerated in 2014 and 2015. Figure 28 shows the relative cumulative cost per prescription trends of pharmacy prescription types by year. The generic trend has a slightly positive but minimal trend. Brand and specialty costs per scripts rose by a much faster rate than generic, although those figures are gross or rebates and, as such, may overstate the true unit cost increases to the payers. From 2009–2013, brand and specialty trends are fairly comparable in the large group market, while the small group has slightly higher specialty trends. In 2014 and 2015, the specialty costs per prescription for the large group and small group accelerated at a considerably higher rate than those of brand drugs.

**Figure 28**  
PHARMACY COST INDICES PER PRESCRIPTION BY MARKET AND BY YEAR

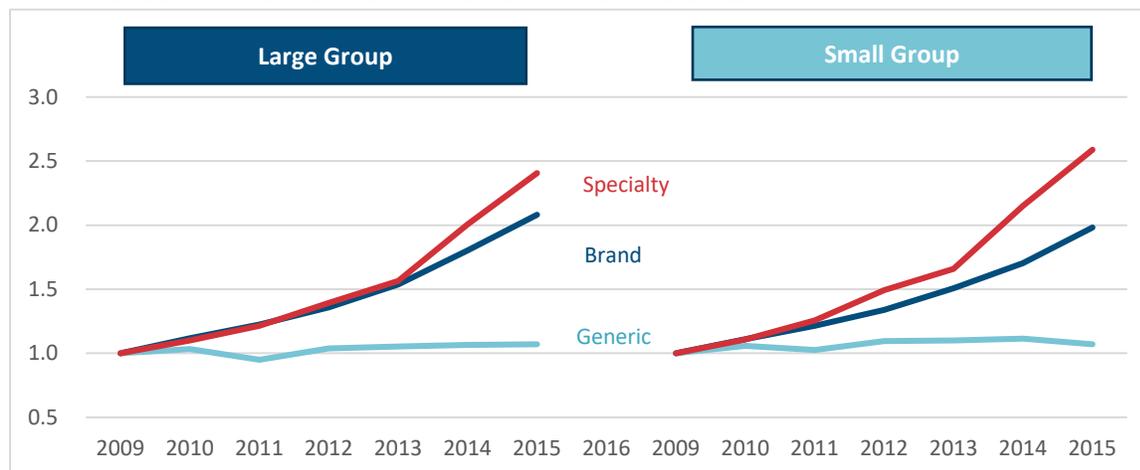


Table 4 shows the actual trends by year for each drug type. This highlights the low generic and high brand unit cost trends from 2009-2015. Specialty trends are also consistently high, although they accelerated their rates of increase in 2014 and 2015. From these exhibits, it's clear that specialty pharmacy is the driving force of trend in our Group population cohorts.

**Table 4**  
PHARMACY UNIT COST TRENDS BY MARKET AND SERVICE DRUG TYPE

Marketplace	Rx Type	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
Large Group	Brand	11.8%	9.5%	11.0%	13.1%	17.3%	15.5%
Small Group	Brand	11.1%	9.4%	10.0%	12.7%	13.0%	16.3%
Large Group	Generic	3.3%	-8.1%	9.3%	1.6%	1.1%	0.6%
Small Group	Generic	5.8%	-3.0%	6.7%	0.6%	1.2%	-4.0%
Large Group	Specialty	10.0%	10.4%	14.7%	12.2%	28.4%	19.9%
Small Group	Specialty	10.8%	13.3%	18.8%	11.2%	29.6%	20.4%

Next, the authors looked at an additional pharmacy breakout, which includes subcategories of specialty drugs. These include cancer drugs, multiple sclerosis drugs, and other specialty. All these subcategories are showing significant trends, but the highest observed trend was in the other specialty category, due to increased use of specialty therapies for a number of conditions such as rheumatoid arthritis and metabolic disorders. There, the authors saw PMPM costs more than triple for 2009–2015 and almost double for 2013–2015. Figure 29 shows this unmistakable trend. Only the large group chart was included here because the small group paints the same picture.

**Figure 29**  
LARGE GROUP SPECIALTY PHARMACY PMPM COSTS BY MARKET AND BY YEAR

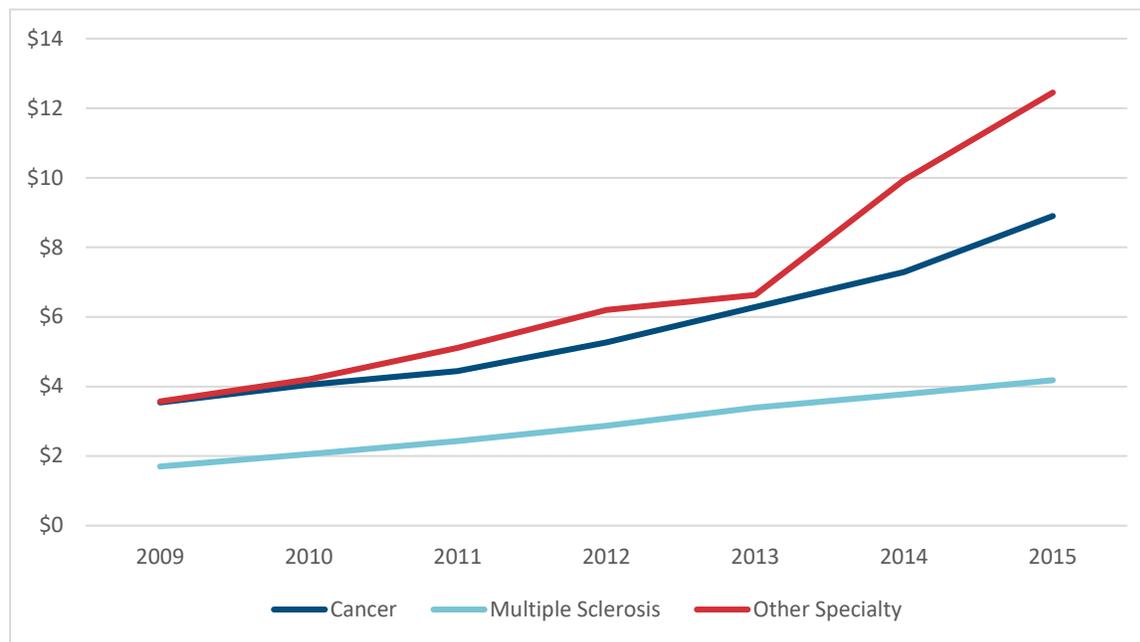


Figure 30 shows the relative growth of specialty drugs by specialty type for 2009–2015 with indexing back to 2009. The relative growth rates exhibited by the different categories are fairly close to each other for 2009–2013. In 2014 and 2015, there is a considerable departure, where the costs of other specialty drugs accelerated at a much faster pace than all other specialty drug trends. In fact, the cancer and multiple sclerosis cost trends kept a similar pace in 2014 and 2015 compared to their 2009–2013 trend rates.

**Figure 30**  
SPECIALTY PHARMACY COST PMPM INDICES BY CATEGORY AND BY YEAR

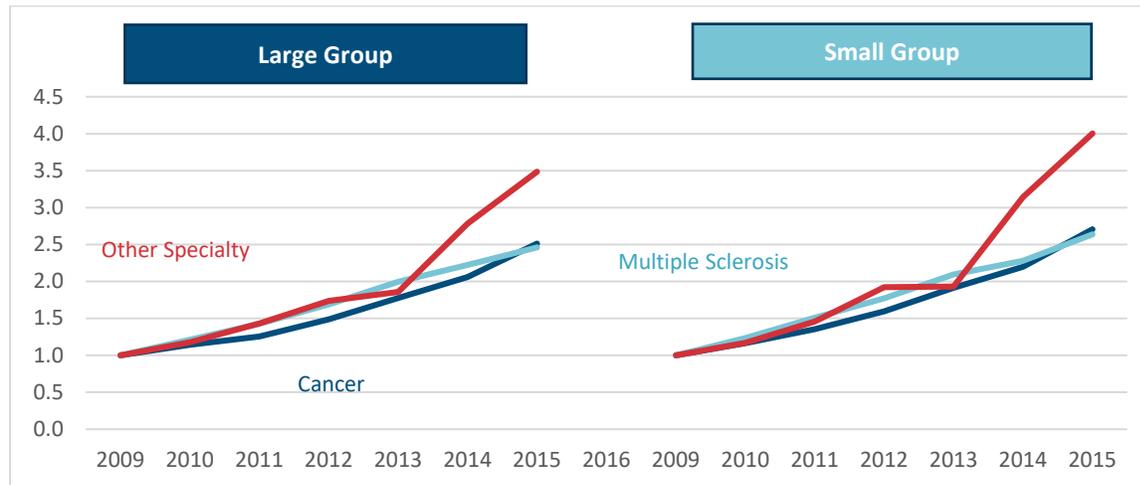


Table 5 shows the actual trend figures by specialty subcategory, and the other specialty subcategory stands out with its trends at or above 50%. Cancer and multiple sclerosis also have high trends throughout the measurement period, but their cost trends were relatively stable in 2014 and 2015 as seen in Figure 30.

**Table 5**  
PHARMACY UNIT COST TRENDS BY MARKET AND SERVICE DRUG TYPE

Marketplace	Rx Type	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
Large Group	Cancer	14.4%	9.6%	18.7%	19.2%	16.1%	22.1%
Small Group	Cancer	16.4%	16.4%	17.9%	19.9%	14.7%	23.2%
Large Group	Multiple Sclerosis	21.2%	18.0%	18.1%	18.1%	11.5%	10.6%
Small Group	Multiple Sclerosis	23.6%	22.2%	17.3%	18.3%	8.8%	15.6%
Large Group	Other Specialty	17.9%	21.4%	21.3%	6.9%	49.8%	25.4%
Small Group	Other Specialty	17.1%	24.6%	31.9%	0.3%	62.6%	27.5%
Large Group	Total Specialty	17.1%	16.1%	19.7%	13.7%	28.8%	21.6%
Small Group	Total Specialty	18.1%	20.8%	23.4%	11.2%	32.1%	24.0%

Utilization increases are displayed in Table 6. Other specialty has the highest utilization trends for 2014 and 2015. However, the utilization trends for those periods are lower than the observed utilization trends from 2009–2013 for all categories. Therefore, it makes sense to also examine unit cost patterns.

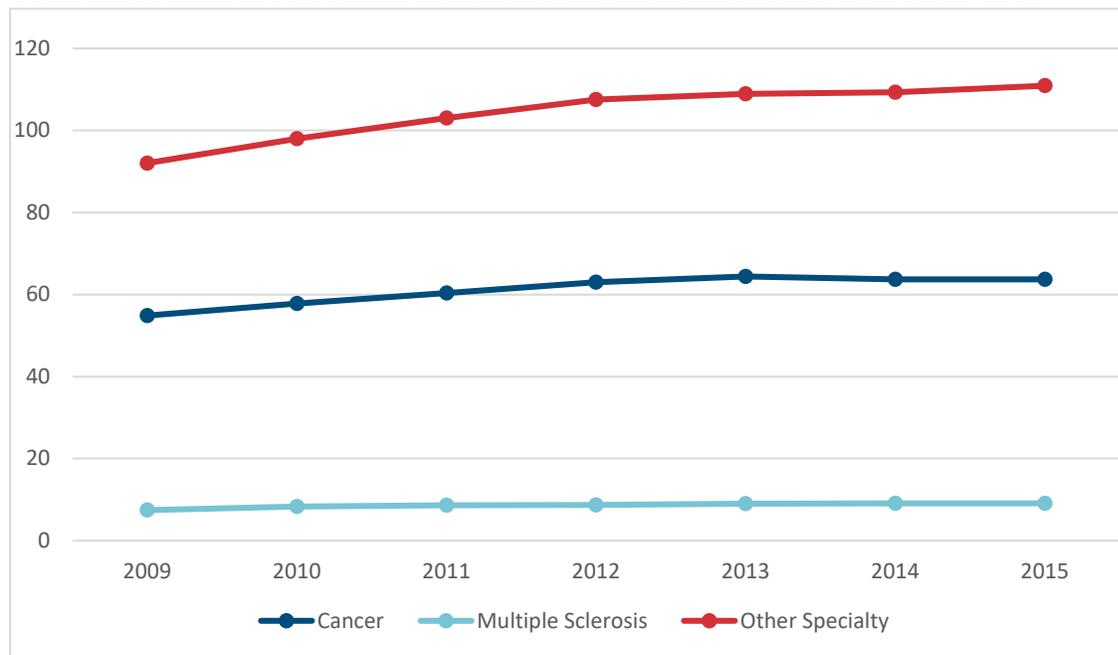
**Table 6**  
PHARMACY UTILIZATION TRENDS BY MARKET AND SERVICE DRUG TYPE

Marketplace	Rx Type	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
Large Group	Cancer	5.3%	4.4%	4.3%	2.3%	-1.1%	0.0%
Small Group	Cancer	5.9%	7.0%	4.0%	1.7%	0.4%	0.2%
Large Group	Multiple Sclerosis	11.4%	3.9%	1.2%	3.7%	0.5%	-0.3%
Small Group	Multiple Sclerosis	10.4%	6.0%	-2.2%	1.2%	-2.1%	8.5%
Large Group	Other Specialty	7.4%	6.7%	5.1%	-0.8%	3.0%	4.3%
Small Group	Other Specialty	6.7%	5.9%	5.7%	-3.9%	6.3%	7.0%
Large Group	Total Specialty	6.5%	5.1%	4.3%	1.4%	0.4%	1.4%
Small Group	Total Specialty	6.5%	6.6%	4.0%	0.1%	1.9%	3.0%

Figure 31 illustrates the relative utilization of cancer, multiple sclerosis and other specialty drugs. Their relative shares appear to be fairly stable. Figure 32 shows the cost per prescription of each drug type. Multiple sclerosis and other specialty drugs had the biggest increases in cost per script. However, due to the larger percentage increase and higher volume of other specialty, that subcategory had the biggest impact on trends.

**Figure 31**

LARGE GROUP SPECIALTY PHARMACY UTILIZATION PER THOUSAND BY DRUG TYPE AND BY YEAR



**Figure 32**

SPECIALTY PHARMACY COST PER SCRIPT BY DRUG TYPE AND BY YEAR

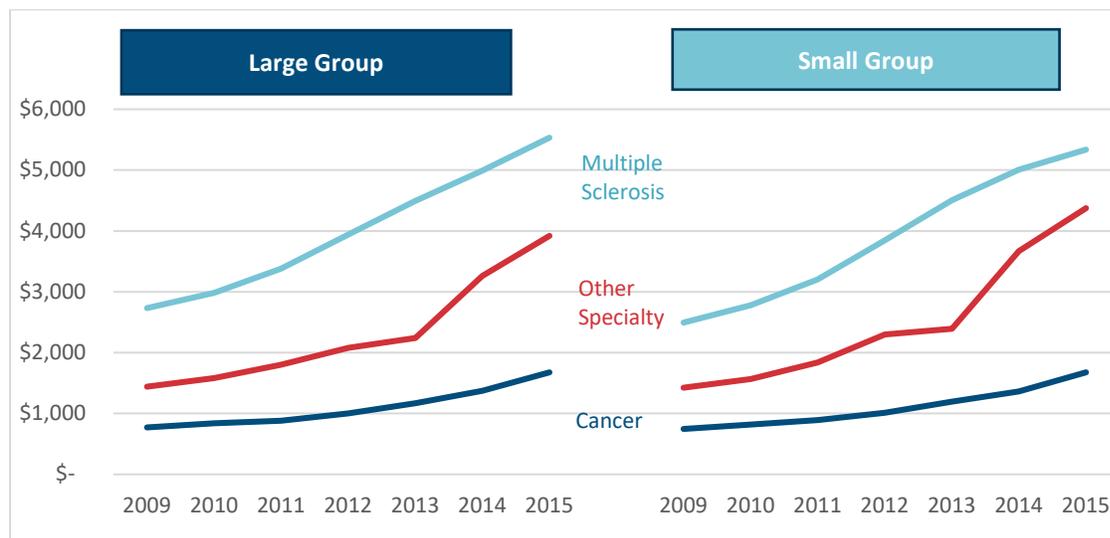


Figure 33 shows the trends in cost per script for all specialty drug types. Other specialty costs per script had large increases in 2015 and even more so in 2014, where the trends were more than 45%. Unit cost trends in the cancer and multiple sclerosis areas were high but more in line with previous year trends.

**Figure 33**  
PHARMACY UNIT COST TRENDS BY MARKET AND SERVICE DRUG TYPE

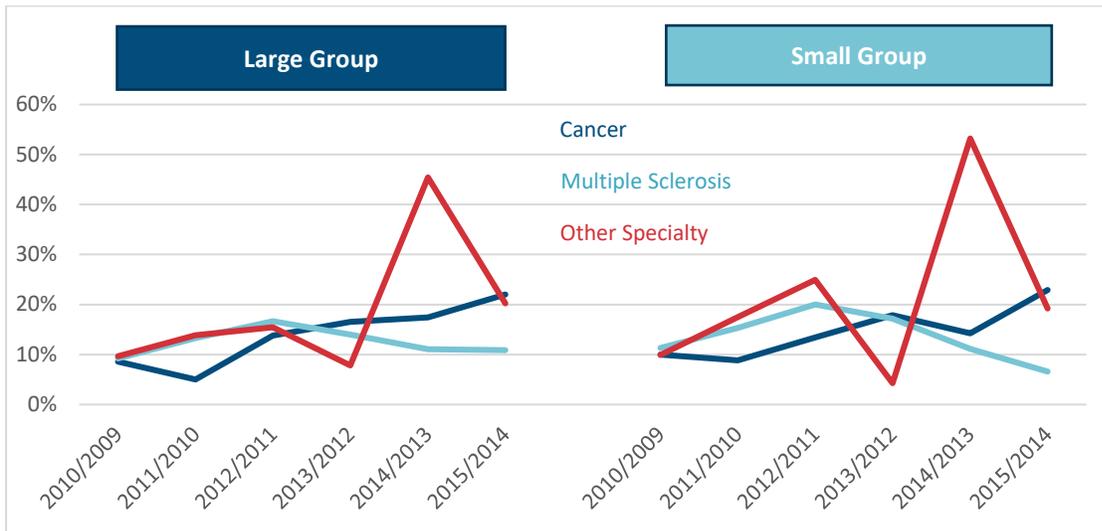
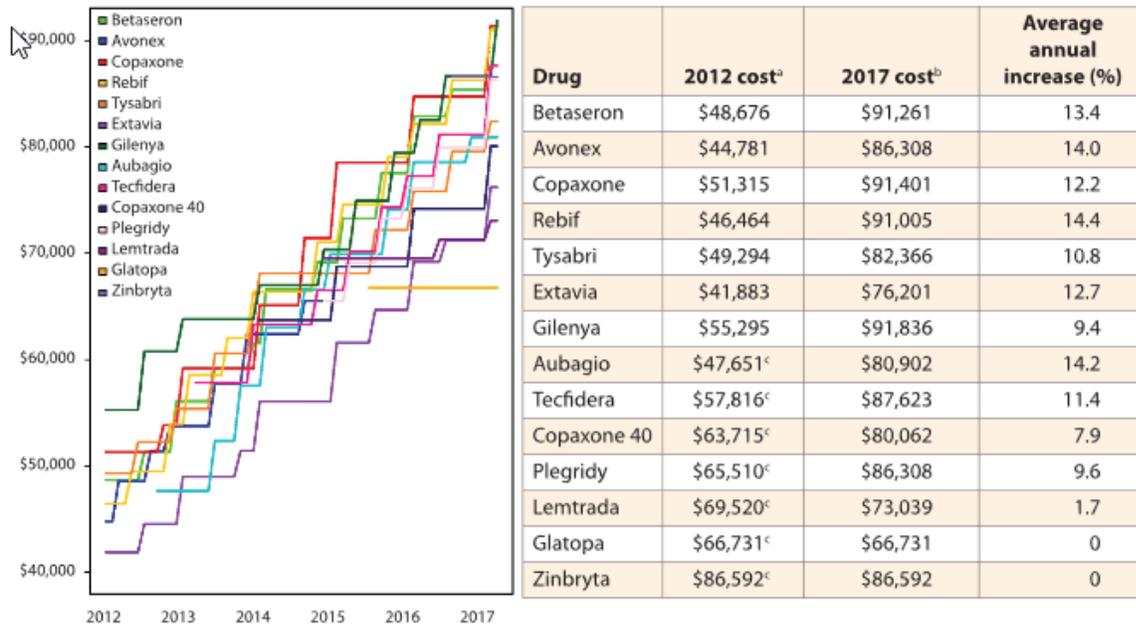


Figure 34 shows some of the multiple sclerosis unit cost trends that have been observed for a sample of multiple sclerosis drugs for 2012–2017. This shows a continuing pattern of steep annual costs even though many of these drugs are not new.<sup>2</sup>

**Figure 34**  
MULTIPLE SCLEROSIS ANNUAL PRICE TRENDS BY DRUG NAME



<sup>a</sup> January 2012

<sup>b</sup> February 2017

<sup>c</sup> Launch price if approved after 2012

Annual costs were calculated from average wholesale price (converted from wholesale acquisition price) minus 12% discount.

Methodology based on Hartung et al., *Neurology*, 2015

Source: National Multiple Sclerosis Society

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Overall, pharmacy trends have been shown to be driven by higher specialty trends, particularly in the cost per prescription of other specialty drugs. A further breakout of these trends by age group shows that those higher trends are disproportionately concentrated in the older age groups. Hepatitis C curative therapies were responsible for the significant increase in the unit costs of other specialty drugs, sending overall drug trends higher. Almost immediately, the unit costs for Hepatitis C drugs were decreased and unit cost trends reverted to a very high but more representative rate. These results are not necessarily indicative of a long-term trend. When examining and projecting pharmacy trends, it is important to consider any expensive new treatments on the horizon that may push the trend higher as well as generic alternatives entering the market that could drive costs and trends lower.

## 6.2 Individual Market Transition to the Health Insurance Exchanges

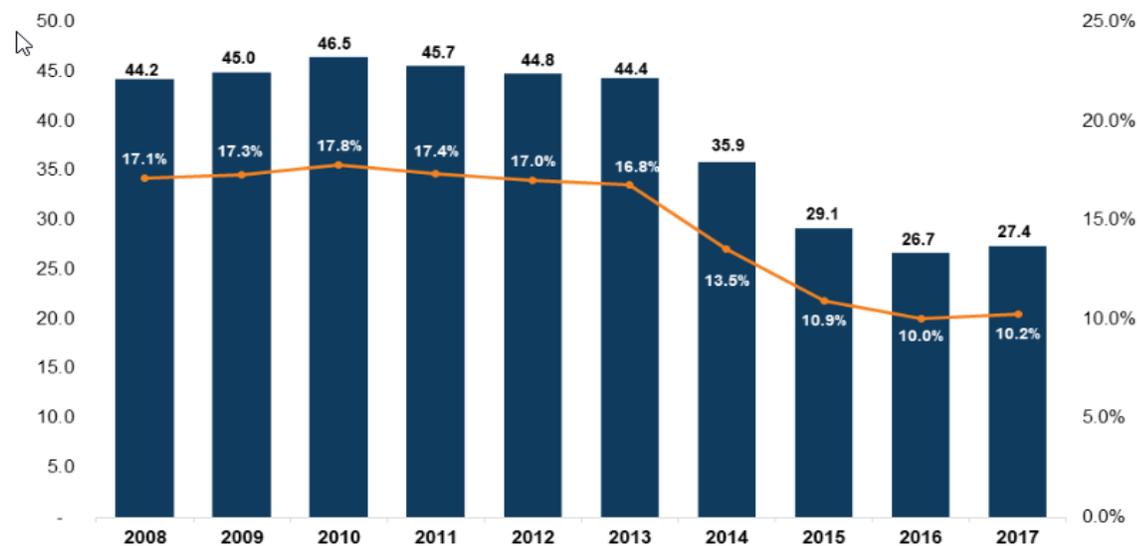
The Individual market saw a significant increase in cost and utilization trends beginning in 2014 due to the onboarding of Health Insurance Exchange members. The trends for this market were significant and worth examining as a basis of comparison to the old market but also to evaluate the utilization characteristics of these new members, many of whom were previously uninsured. While there was likely a significant volume of grandfathered individual plans that still existed within the dataset, the authors expected those plans to have phased out and occupied a smaller portion of the total with each passing year.

The figures in Section 3 of this report illustrate the big changes in the individual market from a membership, utilization, unit cost, and member cost sharing perspective, all leading to much higher PMPM claims. There are also some elements of trends not related to membership that overlap with the large and small group marketplaces that contribute to the higher trends. However, the large and small group trends for 2014 and 2015 are relatively insignificant compared to those observed in the individual market. In reality, the vast majority of the 2014 and 2015 trends in the individual market are most likely related to the large shifts in the individual market caused by the passage of the ACA. The individual plan costs were significantly impacted by the new type of membership enrolling in ACA plans as compared to the type of pre-ACA individual members. Prior to the ACA's passage, there were many involuntarily uninsured individuals. These individuals were uninsured because of preexisting medical conditions, unaffordable insurance premiums or a combination of both. Some individuals had preexisting conditions that insurers chose not to cover prior to the ACA. Other individuals chose not to purchase individual insurance because they could not afford to pay premiums despite a lack of preexisting conditions. Last, there were uninsured individuals who were offered coverage at more expensive rates due to preexisting conditions and could not afford the insurance at those higher rates.

One large impact of the ACA legislation was to introduce affordable coverage to these previously uninsured individuals. Those individuals with lower incomes could qualify for traditional Medicaid (if they had not previously applied), Medicaid expansion (in those states that offered it), or subsidized Silver plans. The introduction of the ACA EHB requirements resulted in more standardized individual insurance plans and higher costs of services for those individuals not receiving premium subsidies. Some of the previously insured members chose to pay the individual mandate penalty and drop their coverage rather than pay for the higher rates. Overall, the implementation of the ACA led to a significant reduction in the uninsured population. Figure 35 illustrates the significant drop in the uninsured population that coincides with the implementation of the ACA Exchanges and Medicaid expansion in many U.S. States.<sup>3</sup>

**Figure 35**

NUMBER OF UNINSURED AND UNDERINSURED RATE AMONG THE NONELDERLY POPULATION, 2008–2017



NOTE: Includes nonelderly individuals ages 0 to 64.  
 SOURCE: Kaiser Family Foundation analysis of 2008-2017 American Community Survey (ACS), 1-Year Estimates.



Source:

Key Facts About the Uninsured, Kaiser Family Foundation, Dec. 7, 2018, <https://www.kff.org/uninsured/fact-sheet/key-facts-about-the-uninsured-population> (accessed June 24, 2019)

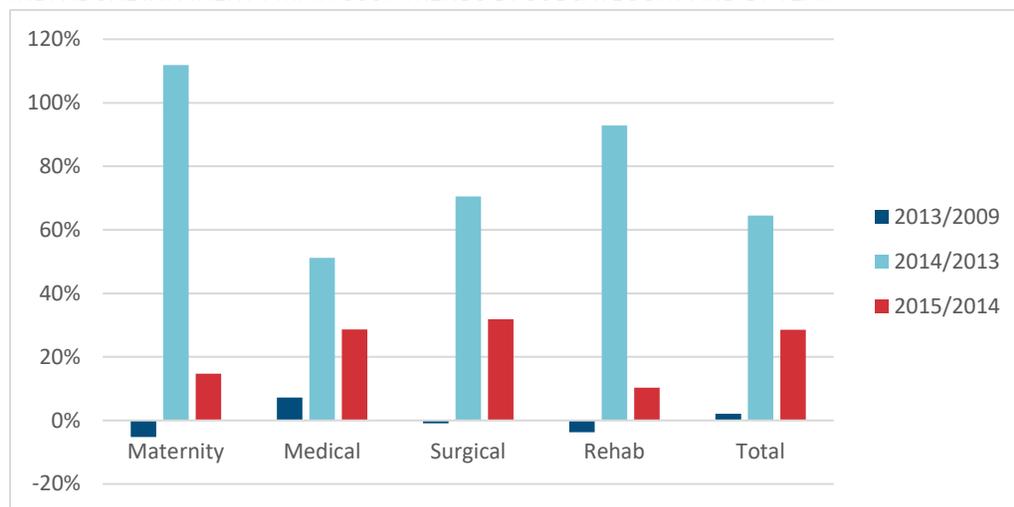
However, in states with Medicaid expansion, the large increases in coverage were primarily observed in Medicaid expansion, while in nonexpansion states, the previously uninsured primarily received coverage in the individual market. This was illustrated in Figure 6, which showed significant individual market growth in nonexpansion states and virtually no individual market growth in Medicaid expansion states.

The goal of this subsection of the report is to examine the impact of these population and benefit changes and to look at 2014 and 2015 individual market trends. To recap: Figure 12 shows the significant cost increases in the individual market across all service categories. Figures 13–16 demonstrate that utilization drives these increases. Unit costs follow a similar pattern to the other marketplaces for outpatient, professional and pharmacy while they dropped for inpatient services.

One thing that differentiates the individual market cost and utilization increases is the degree to which they occur right away or are delayed. Inpatient hospital is a service type whose largest trends happen early in the period. Figure 36 shows that the trend experienced in 2014 was significantly higher than that of 2015 for all inpatient subcategories. Changes in maternity reflect a very different population base resulting from the inclusion of maternity coverage in all Exchange policies. Previously, a member with individual coverage that covered maternity would be pooled together with other members that had a high likelihood of being pregnant. As a result, they would pay a much higher premium for that coverage since it was more likely they would use it. Similarly, male members or other members not likely to give birth would select individual coverages that excluded maternity so as to pay a lower premium. Now that individual Exchange policies are required to cover pregnancy and childbirth services, the costs of pregnancy are spread among more individuals. As a result, the nonpregnant members end up subsidizing the pregnant ones in the exchanges. Therefore, pregnant members have a greater financial incentive to buy Exchange products, while those who will not use maternity services have a lower financial incentive to buy those policies in the absence of other underlying factors. The result is a shifting of members participating in the individual market toward women of child-bearing age. Figure 37 shows how the age distribution in the individual markets

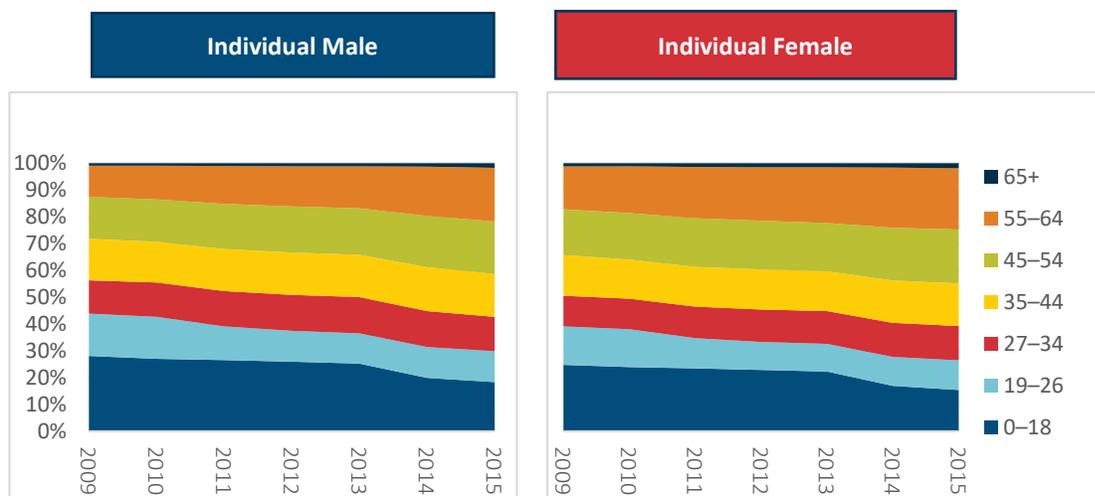
shifted from those age 0–18 to older categories in 2014 for all ages. Furthermore, females went from 52% of the individual market share in 2013 to 53% of the market share in 2014.

**Figure 36**  
INDIVIDUAL INPATIENT PMPM COST TRENDS BY SUBCATEGORY AND BY YEAR



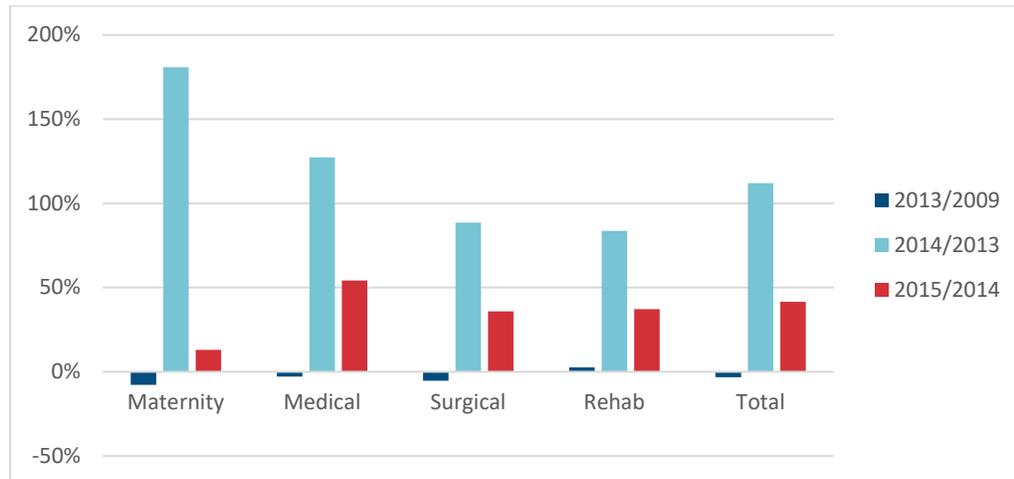
The other changes to nonmaternity inpatient services are intuitive, especially for individuals with preexisting conditions that were not previously insured. Those individuals are more likely to access inpatient services through the emergency department for high-acuity situations as their initial encounter with the health care system, especially if they had conditions that had been neglected. Over time, one would expect that increase to flatten out more quickly as members start to better control their chronic preexisting conditions through the utilization of other services and to establish relationships with primary care physicians. It is also important to note that not all members were enrolled immediately after the exchanges opened. The 2015 inpatient trends reflect the fact that there are still some members whose initial health care encounter would have occurred in the inpatient hospital setting.

**Figure 37**  
MEMBERSHIP DISTRIBUTION



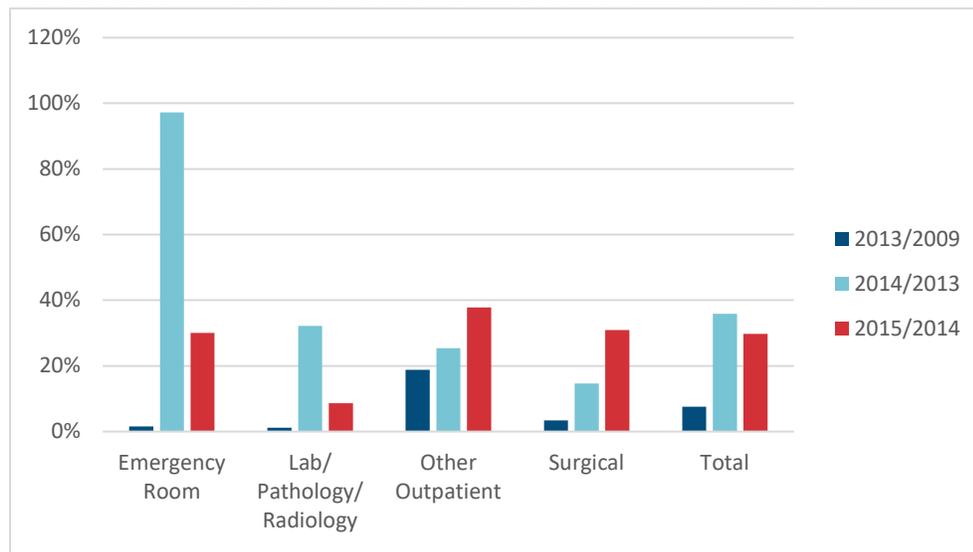
An examination of utilization trends for inpatient costs reveals a similar pattern in Figure 38. The differences seen are related to different unit cost changes as well as changes in mix of services.

**Figure 38**  
INDIVIDUAL INPATIENT UTILIZATION TRENDS BY SUBCATEGORY AND BY YEAR



An analysis of individual outpatient hospital trends creates a more diverse pattern when broken out by service level subcategories. In fact, outside of the emergency room and lab/pathology/radiology services, outpatient trends were higher in 2015, as Figure 39 illustrates.

**Figure 39**  
INDIVIDUAL OUTPATIENT PMPM COST TRENDS BY SUBCATEGORY AND BY YEAR



It's also worth noting that lab/pathology/radiology utilization trends were about the same in 2014 and 2015. This is driven by higher utilization in lower cost lab services, which are commonly used for routine maintenance and prevention.

On the professional side, there is even more variation in different service category trends. Overall, 2014 and 2015 trends are much closer than they are for other service categories, as shown in Figure 40.

Other professional and injections have higher 2015 trends, while diagnostics and surgeries have higher 2014 trends. It's worth noting on the surgery side that musculoskeletal and skin surgeries had higher 2015 trends, while all other surgeries had higher 2014 trends. Also, office visits have significantly lower trends than most other professional

service subcategory. This is due to inpatient visits being the only high-trend subcategory within that grouping. Physician and prevention visits have essentially zero trend for 2014 and 2015. This shows how costs for low acuity maintenance and prevention types of visits increased very little with the new population.

Other professional services is another subcategory where there was a lot of variance in yearly trends. Figure 40 illustrates this with a wide variation between 2014 and 2015 by different categories. Those services related to Cardiovascular events, ER Visits, and Maternity saw large trend increases in 2014 followed by much lower trends in 2015. Behavioral Health/Substance Abuse, Immunizations and Other saw lower trends in 2015 vs. 2014. Immunizations even had negative trends in 2014, which indicates the replacement of a healthier population in 2013 with a different member profile that included less healthy and previously uninsured individuals.

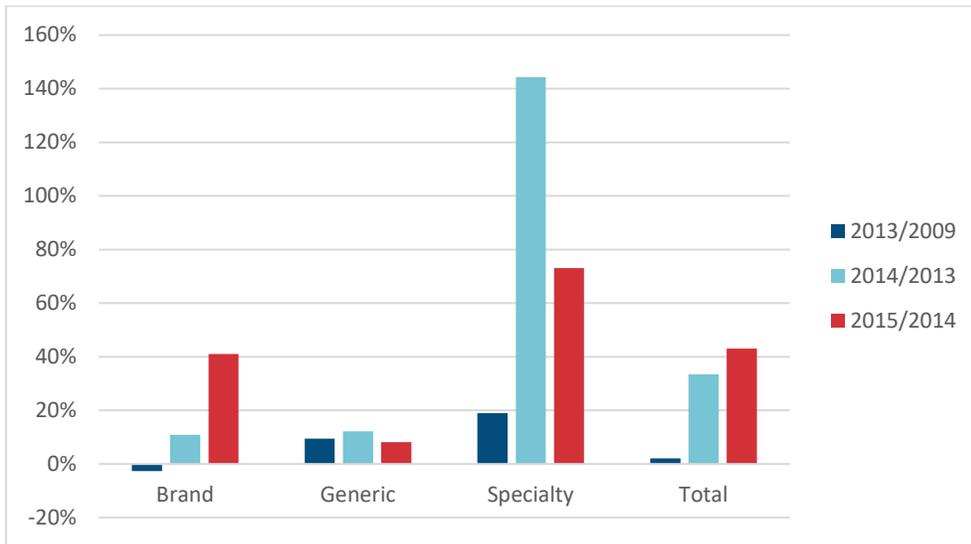
**Figure 40**  
INDIVIDUAL PROFESSIONAL PMPM COST TRENDS BY SUBCATEGORY AND BY YEAR



Pharmacy is another area that had an interesting mix of individual trends in 2014 and 2015. Figure 40 illustrates some of the more specific trends impacting individual pharmacy.

The brand trends were positive in 2014 and rose even more in 2015, which is a reversal of slightly negative trends before the population shift. This is a possible indication of members with preexisting conditions or chronic conditions with more complex pharmacy needs, as well as increases in specific therapies. This also demonstrates that with newer members, pharmacy tends to be prescribed toward the tail end of the treatment cycle. Specialty drugs increased dramatically in 2014 and then at a somewhat lower rate in 2015. The introduction of new Hepatitis C drug therapy in late 2014 was a key contributor, followed by increased utilization in other specialty areas once the Hepatitis C unit costs stabilized. Finally, generic drug trends in 2014 and 2015 were fairly consistent with the 2009–2013 period. These drugs are typically associated with populations having lower morbidities and a more established treatment protocol than what takes place in the brand and specialty pharmacy. Drugs that don't have generic alternatives tend to be for more emerging conditions or treatment methods, and they often have higher costs. Figure 41 illustrates this point.

**Figure 41**  
INDIVIDUAL PHARMACY PMPM COST TRENDS BY SUBCATEGORY AND YEAR



Overall, the analysis of the individual market claims and trends in 2014 and 2015 provides some good insights on what may be seen when a relatively less healthy population that consisted of many previously uninsured members enters the market. Some of the services such as maternity increased due to benefit designs that mandated their inclusion in the new individual health insurance exchanges. Services related to conditions that had gone untreated had some of the largest and fastest increases, particularly in emergency room and inpatient hospital settings. Other services related to maintenance, such as pharmacy, behavioral health and certain surgeries also saw large trends, but those were more delayed in their manifestation. Finally, preventive services and those that were more typically utilized in healthier populations saw the smallest increases, with trends being very similar to those observed prior to 2014. This gives some helpful insights in what type of activity to expect in the event of another wave of new membership coming into the market.

## Section 7: Conclusion

The HCCI data are a reliable source of historical cost and utilization trend data due to their volume and breadth. The observed trends in the small group and large group markets can probably be used as benchmarks with some adjustments to project future trends. In addition, the dataset can be used to drill down to the desired level to try to identify areas where health care cost trends have changed significantly and to help identify root causes. The introduction of the Health Insurance Exchange population into the individual marketplace helped provide insight into how utilization and cost can change when benefit designs change dramatically and previously uninsured members sign up. The trends observed in the individual marketplace are not suitable for projecting steady state trends due to the large membership shifts by geography, age distribution and plan design. These are some of the analyses that were done but should not be viewed as an exhaustive list. In fact, there are probably many other areas of interest to individuals who look at these data. Those individuals can then decide where their interests lie and could dive into the data in search of answers.

## Appendix A: Data Dictionary

Field Name	Definition	Possible Values
min_elig_gdr	Gender	1 = Male, 2 = Female
min_elig_ageBracket_u	Age Brackets	0_18, 19_26, 27_34, 35_44, 45_54, 55_64, 65+
min_elig_bus_line	Line of Business	COM
min_elig_mkt_sgmnt_cd	Market Segment	I = Individual, S = Small Group, L = Large Group
billDesc	Service Category	Inpatient, Outpatient, Pharmacy, Professional, Rehab & Sub (SubAcute Care)
drgDesc1	Inpatient & Rehab Subcategory Level	Maternity, Medical, Rehab & Subacute Care, Surgical & Transplant
d1MDSS	Inpatient & Rehab Subcategory Level	13 Separate Categories - See Appendix B
yr	Year	2009,2010,2011,2012,2013,2014,2015
count_dist_pat_all	Distinct Patients	Count of Patients
sum_admits_u	Total Hospital Admissions	Count of Admissions (Inpatient Only)
sum_daysCombo_u	Total Hospital Days	Count of Days (Inpatient Only)
sum_daysDos_u	Hospital Days	Count of Days (Inpatient Only)
sum_daysUnits_u	Hospital Days	Count of Days (Inpatient Only), Used in UPK
sum_calc_allwd	Total Allowed Amounts	In Dollars, Paid + Deductible + Coins + Copay
sum_amt_net_paid	Total Paid Amounts	In Dollars, Paid by Insurers
sum_deduct	Deductible Amounts	In Dollars, Deductibles Paid by Members
sum_coins	Coinsurance Amounts	In Dollars, Coinsurance Paid by Members
sum_copay	Copay Amounts	In Dollars, Copays Paid by Members
count_uniq_pat_all	Unique Patients	Count of Unique Patients Associated with all Claims
byvar	Flag of Variables 1	This flag includes Gender, Age Brackets, Market Segment, State, and RX Coverage
membermonths	Member Months	This is a measurement of exposure - member months
model	Flag of Variables 2	This Flag includes Service Category and shows if Age, Gender, Market, and RX are populated
units	Claims Units	This has claims units. Inpatient and Subacute use Days. Pharmacy uses scripts. Outpatient and Professional use Encounters, Procedures, Services, Units, and Visits
CPS	Cost Per Service	This field is Allowed Amount divided by units
UPK	Units Per Thousand	This field is Units (same as in CPS) divided by membermonths * 12,000
APK	Admits Per Thousand	This field is Inpatient Admits (sum_admits_u) / membermonths *12,000
LOS	Length of Stay (Average)	This field is "sum_daysUnits_u" divided by "sum_admits_u" or also UPK / APK
AllowedPMPM	Allowed PMPM Spend	This field is equal to "sum_calc_allwd" / "membermonths"
PaidPMPM	PaidPMPM Spend	This field is equal to "sum_amt_net_paid" / "membermonths"
DEDPMPM	Deductible PMPM Spend	This field is equal to "sum_deduct" / "membermonths"
CoinsPMPM	Coinsurance PMPM Spend	This field is equal to "sum_coins" / "membermonths"
CopayPMPM	Copay PMPM Spend	This field is equal to "sum_copay" / "membermonths"
min_elig_rx_cvg_ind	Pharmacy Coverage	Pharmacy Coverage Indicator "0" = No, "1"
min_elig_stateMapping_u	State	The State field is only populated for certain rolled up combinations
cptDesc1	OP and PR Subcategory Level 1	9 Separate Categories - See Appendix B
cptDesc2	OP and PR Subcategory Level 2	10 OP and 26 PR Categories - See Appendix B
count_dist_pat_nonzero	Nonzero OP and PR patients	Count of OP and PR patients
sum_nonzero_units_u	Nonzero Units	Check Appendix B for where these are utilized in CPS and UPK for OP & PR
sum_nonzero_procs_u	Nonzero Procedures	Check Appendix B for where these are utilized in CPS and UPK for OP & PR
sum_nonzero_visits_u	Nonzero Visits	Check Appendix B for where these are utilized in CPS and UPK for OP & PR
ndcDesc1	Pharmacy Subcategory Level 1	4 Separate Categories - See Appendix B
ndcDesc2	Pharmacy Subcategory Level 2	13 Separate Categories - See Appendix B
sum_nonzero_quantity_u	Total Dosage Units	Units of Dosage - not used in CPS, UPK, or DPK.
Sum_nonzero_days_sup_u	Total Supply - in days	These are not used in DPK for Pharmacy
sum_nonzero_scripts_u	Total Scripts	These are used in CPS and UPK for Pharmacy
DPK	Prescription Days Per Thousand	This is calculated using (Sum_nonzero_days_sup_u)/ membermonths *12,000

## Appendix B: Service Category Breakouts

billDesc	Service Category Level 1	Service Category Level 2	Units	UPK field
Inpatient	Maternity	Maternity	Days	sum_daysUnits_u
Inpatient	Medical	Other Medical	Days	sum_daysUnits_u
Inpatient	Medical	Behavioral	Days	sum_daysUnits_u
Inpatient	Medical	Circulatory	Days	sum_daysUnits_u
Inpatient	Medical	Infectious and Bacterial Disease	Days	sum_daysUnits_u
Inpatient	Medical	Respiratory	Days	sum_daysUnits_u
Inpatient	Medical	Symptoms and Ill-Defined Conditions	Days	sum_daysUnits_u
Inpatient	Medical	Digestive	Days	sum_daysUnits_u
Inpatient	Medical	Injury and Poisoning	Days	sum_daysUnits_u
Inpatient	Medical	Neoplasm-Benign and Malignant	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Other Surgical	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Circulatory	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Digestive	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Injury and Poisoning	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Musculoskeletal	Days	sum_daysUnits_u
Inpatient	Surgical & Transplant	Neoplasm-Benign and Malignant	Days	sum_daysUnits_u
Inpatient	Rehab & Subacute Care	Rehab & Subacute Care	Days	sum_daysUnits_u
Outpatient	Emergency Room	Emergency Room	Visits	sum_nonzero_visits_u
Outpatient	Lab/Path/Radiology	Advanced Imaging	Procedures	sum_nonzero_procs_u
Outpatient	Lab/Path/Radiology	Laboratory/Pathology	Procedures	sum_nonzero_procs_u
Outpatient	Lab/Path/Radiology	Radiology	Procedures	sum_nonzero_procs_u
Outpatient	Other Outpatient	Cardiovascular	Services	sum_nonzero_procs_u
Outpatient	Other Outpatient	Chemotherapy and Therapeutic Injections	Services	sum_nonzero_procs_u
Outpatient	Other Outpatient	Dialysis/ESRD	Procedures	sum_nonzero_procs_u
Outpatient	Other Outpatient	Other Outpatient	Units	sum_nonzero_units_u
Outpatient	Other Outpatient	PT/OT/ST	Encounters	sum_nonzero_procs_u
Outpatient	Surgical	Surgical	Visits	sum_nonzero_visits_u
Professional	Chemotherapy and The	Chemotherapy	Procedures	sum_nonzero_procs_u
Professional	Chemotherapy and The	Therapeutic Injections	Units	sum_nonzero_units_u
Professional	Lab/Path/Radiology	Advanced Imaging	Procedures	sum_nonzero_procs_u
Professional	Lab/Path/Radiology	Laboratory/Pathology	Procedures	sum_nonzero_procs_u
Professional	Lab/Path/Radiology	Radiology	Procedures	sum_nonzero_procs_u
Professional	Office Visits/Consul	Consults	Visits	sum_nonzero_procs_u
Professional	Office Visits/Consul	IP Visits	Visits	sum_nonzero_procs_u
Professional	Office Visits/Consul	Office/Home Visits	Visits	sum_nonzero_procs_u
Professional	Office Visits/Consul	Physical and Prevention Visits	Visits	sum_nonzero_procs_u
Professional	Other Professional S	Cardiovascular	Services	sum_nonzero_procs_u
Professional	Other Professional S	Emergency Room Visits	Visits	sum_nonzero_procs_u
Professional	Other Professional S	Immunizations	Units	sum_nonzero_units_u
Professional	Other Professional S	Maternity	Services	sum_nonzero_procs_u
Professional	Other Professional S	Mental Health/Chemical Dependency	Encounters	sum_nonzero_procs_u
Professional	Other Professional S	Other Professional Services	Units	sum_nonzero_units_u
Professional	Surgery	Anesthesia	Units	sum_nonzero_units_u
Professional	Surgery	Cardiovascular Surgery	Procedures	sum_nonzero_procs_u
Professional	Surgery	Digestive Surgery	Procedures	sum_nonzero_procs_u
Professional	Surgery	Musculoskeletal Surgery	Procedures	sum_nonzero_procs_u
Professional	Surgery	Nervous System Surgery	Procedures	sum_nonzero_procs_u
Professional	Surgery	Other Surgery	Procedures	sum_nonzero_procs_u
Professional	Surgery	Skin Surgery	Procedures	sum_nonzero_procs_u
Professional	Therapy and Ancillar	Ambulance	Encounters	sum_nonzero_procs_u
Professional	Therapy and Ancillar	DME	Units	sum_nonzero_units_u
Professional	Therapy and Ancillar	Private Nurse/Home Health/Hospice	Encounters	sum_nonzero_procs_u
Professional	Therapy and Ancillar	PT/OT/ST	Encounters	sum_nonzero_procs_u
Pharmacy	Brand	Antidiabetics	Scripts	sum_nonzero_scripts_u
Pharmacy	Brand	Cardiovascular Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Brand	Other	Scripts	sum_nonzero_scripts_u
Pharmacy	Brand	Psychotherapeutic Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Brand	Respiratory Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Generic	Anti-infective Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Generic	Cardiovascular Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Generic	Other	Scripts	sum_nonzero_scripts_u
Pharmacy	Generic	Psychotherapeutic Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Other & OTC	Other	Scripts	sum_nonzero_scripts_u
Pharmacy	Specialty	Cancer	Scripts	sum_nonzero_scripts_u
Pharmacy	Specialty	Multiple Sclerosis Agents	Scripts	sum_nonzero_scripts_u
Pharmacy	Specialty	Other	Scripts	sum_nonzero_scripts_u

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