

The Impact of Aging on Medical Care Services Covered by Commercial Insurance in New Hampshire

The New Hampshire Insurance Department

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Summary

People covered by commercial insurance and self-insured plans administered by third party administrators (TPAs) were assigned to five year age groups and analyzed to determine how medical costs differ by age.

Primary findings include:

- NH's commercial population is aging, despite increased enrollment of people in their early 20s (probably due to HB 790 in 2007). The difference between 2005 and 2009 represents an average age increase of 1.7 percent.
- Total spending for people in the 50-54 age cohort is seven times higher than those in the 5-9 year age group, but membership is less than double.
- The per member per month spending rate of people in the 60-64 year age group is 5.7 times the rate of those in the 5-9 age group.
- Spending for males is higher than for females in the early years, but after age 15 spending on females far exceeds that for males.
- The majority of covered members over the age of 19 are female.
- Many of NH's covered members are between forty and sixty years old.

Introduction and Background

An aging population has ramifications on economic and social fronts. The commercially insured and self-insured populations primarily include people under the age of 65 and are often not included in discussions about aging populations. Health insurance premiums tend to increase substantially with member age resulting in confusion to policyholders regarding the reason for the increase. Although NH insurance laws allow carriers to rate based on age, there are statutory limits to premium adjustments. These restrictions may result in subsidization between age groups if the range of medical costs among age groups exceeds the allowed range carriers may charge for premiums.

Health insurance premiums are based on many factors, including the expected age distribution of covered members and their medical care claims costs. If the assumptions are incorrect or trends are not identified, premiums will be too high or too low, resulting in either increased affordability issues or carrier insolvency.

This study is the result of a partnership between the New Hampshire Insurance Department (NHID) and the NH Center for Public Policy Studies (NHCPP) developed to provide a broad perspective about the ramifications of aging in NH and the impact on health care costs. This report should be reviewed in conjunction with the aging work performed by the NHCPP and covered under a separate report to be released this fall.

Purpose

The purpose of this study by the NHID is to better understand how age impacts the commercially insured and self-insured medical care costs in NH. Health insurance

premiums largely reflect medical care cost and use, and the medical care costs identified in this study translate into health insurance premiums. A secondary purpose of the study is to assess the current age distribution of covered members and identify any recent changes due to an aging of the insured populations.

Methodology

The New Hampshire Comprehensive Health Care Information System (NHCHIS) was used to perform the analysis. Data using dates of service from calendar year 2009 are the focus of the study, and in some cases data from calendar year 2005 are used as a comparison group. The NHCHIS includes people insured under NH policies and self-insured arrangements. The data may include members living outside NH and may not include NH residents covered under an insurance policy originating outside of NH.

The NHCHIS database includes medical claims, prescription drug claims, as well as member enrollment records which track member insurance status on a monthly basis. All three of these datasets are used in this study. References to “insured” spending or membership include people covered under self insured employer health plans. Members with only medical care coverage or only prescription drug coverage are excluded from the findings.

When the findings are relevant, calendar year 2005 is compared to calendar year 2009. Due to the nature of the NHCHIS database, these data should be considered a sample of the insured population in New Hampshire. The NHID considers the NHCHIS to be a good representation of the overall insured populations in NH, but still subject to sampling error. Due to the nature of the database, comparisons between years focus on distributions and trends, rather than totals that may differ because the data are more or less robust.

Medical care categories are based on the provider type. All providers are assigned to one of the following groups: ambulance, chiropractics, clinic facilities, DME & supplies, home health services, hospital care, independent labs, independent radiology, medicine specialty care, mental health, other, physical/speech/occupational therapy, primary care, psychiatry/psychology, rehabilitation, pharmaceuticals (Rx), social workers, and surgery specialist care.

All medical care costs/spending are determined by adding health insurance carrier payments to any patient liabilities, such as deductibles, coinsurance, or co-pays. This total amount is commonly referred to as the allowed cost.

Member months are used to reflect membership. A member month is one month that a member is covered by insurance. In order to calculate the average number of insured members over the period of a year, sum the total number of member months and divide by twelve.

Members are assigned to five year increment age groups based on their age as of December 31.

Although the medical cost increases between 2005 and 2009 are evident in some of the charts, 2005 to 2009 increases are not the focus of this study.

Age groups 65-70 and 70+ are included, but the health insurance benefits are usually quite different from the rest of the commercially insured population as these older members are also covered by Medicare.

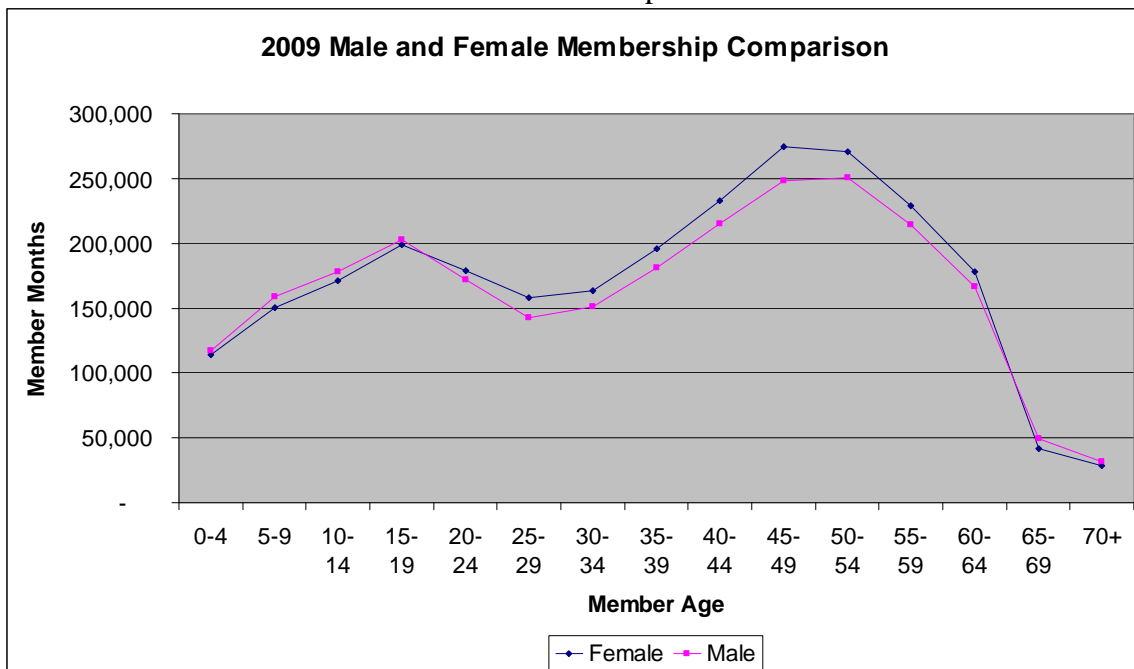
Detailed Findings

The impact of age on the commercial insurance sector is measured using the distribution of membership gender and age, total spending, per member per month (PMPM) spending, and spending by age group and provider type. The first section focuses on membership.

Membership

The average medical care costs that contribute to premiums are highly dependent on the distribution of member ages covered under the premium. Older people will typically have higher medical care costs, but often these costs will be offset by the younger members covered under the same policy.

Chart 1 shows the 2009 distribution of membership:

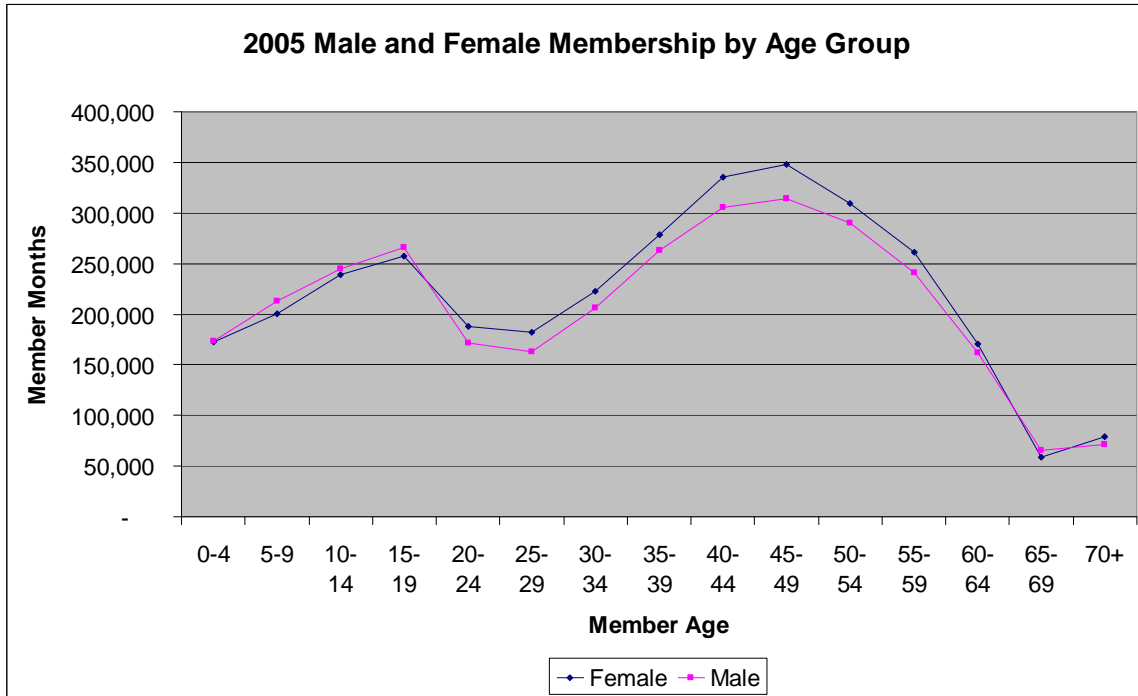


The two main observations:

- NH has more covered members who are female after the 15-19 age group
- The age groups with NH's greatest number of covered members are between forty and sixty years old

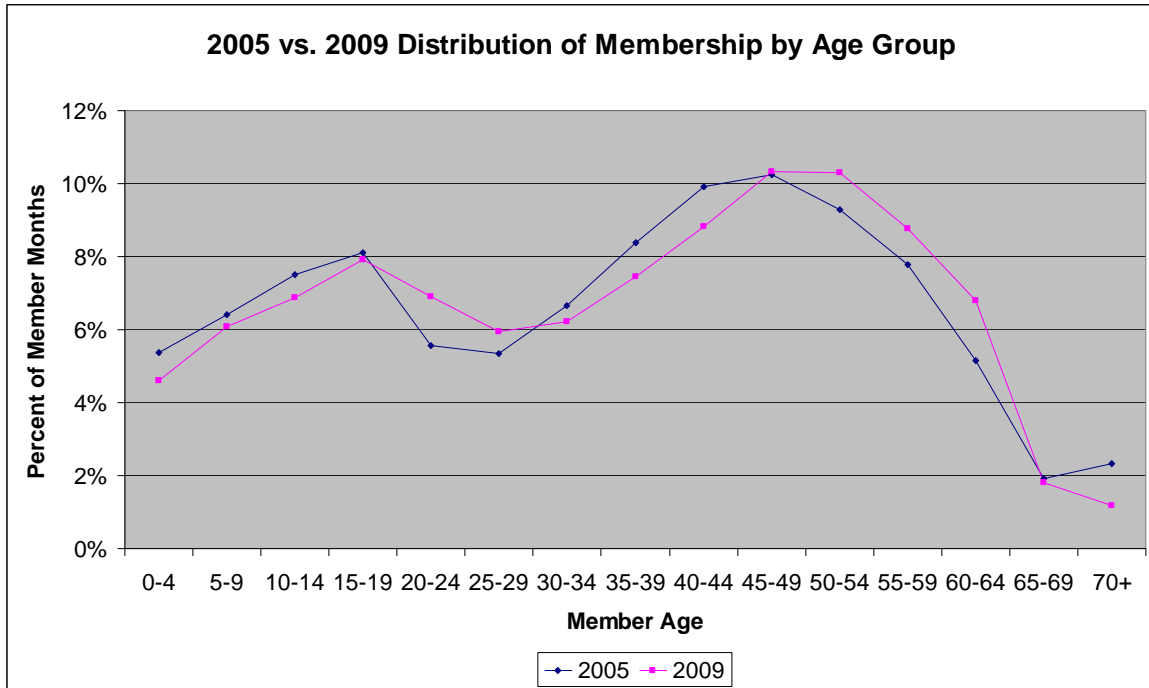
These two findings suggest that if medical costs are higher for women and older people, than those groups will have a substantially larger impact on overall medical costs and premiums. The next chart shows the distribution in 2005:

Chart 2



Although the two primary observations from 2009 are consistent with the findings in 2005, the distribution of the membership is different between the two years. Chart 3 shows the 2005 versus 2009 percent of membership in each age group:

Chart 3



When the two years are overlaid, we can see that there has been a shift in the membership toward the older age groups. When the average age is calculated, we see that:

- 2005 is equal to 35.71, and
- 2009 is 36.30

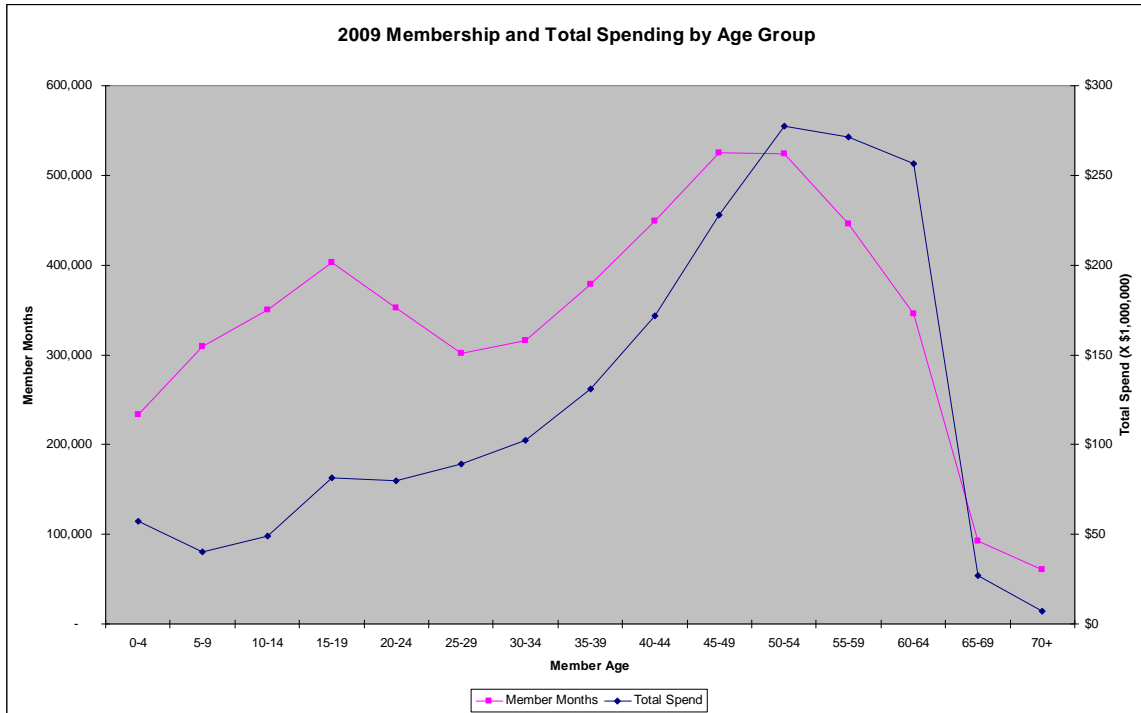
This represents an average age increase of 1.7 percent. Chart 3 also shows the likely impact of the HB790, an act relative to dependent coverage for health insurance that passed during the 2007 legislative session. This bill allowed families to insure dependents until their 26th birthday, and the result is there is an increase in the percent of covered members in the 20-24 and 25-29 age groups in 2009.

Membership and Total Spending

This section compares the membership distribution to total spending. The next section will look at PMPM rates, but we cannot assume high PMPM rates will translate into high total spending without considering membership. Total spending combines the impact of PMPM rates and membership numbers.

Chart 4 shows both the membership distribution and the total spending:

Chart 4



Observations from Chart 4 include:

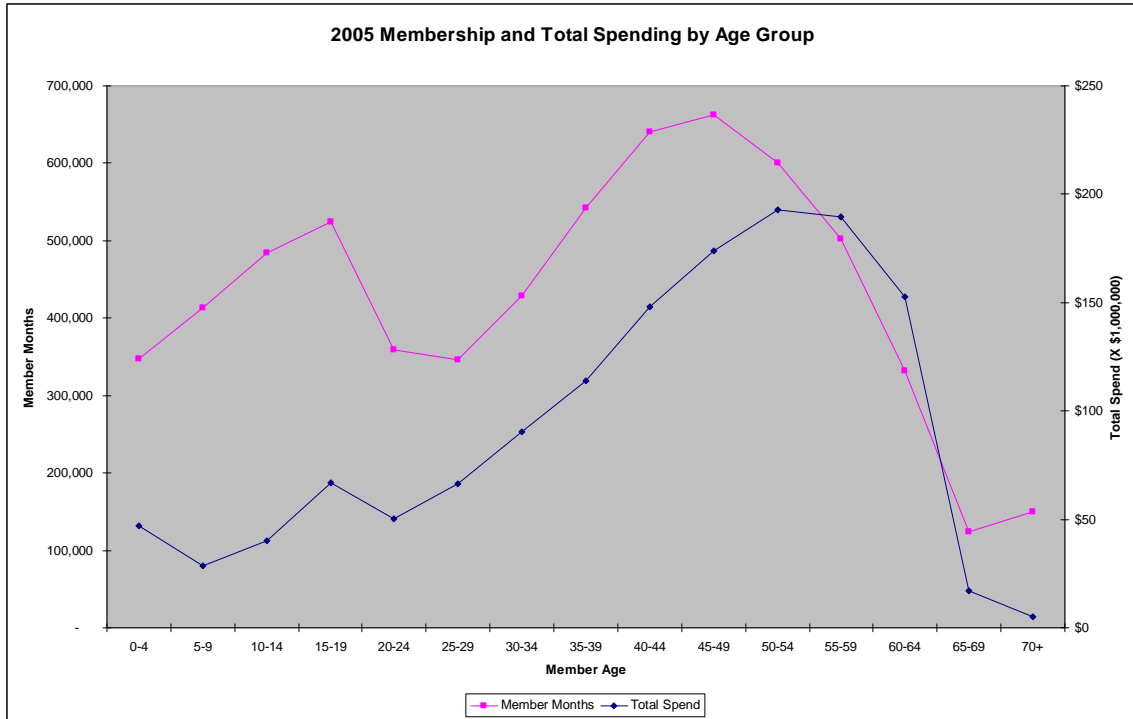
- The total spending peak seems to lag behind the membership peak. This is because spending per member increases beyond member age in the late forties more than the number of covered members drops off.
- The total spending for people during their younger years is much less on a relative scale than the membership differences.
- Total spending for people in the 50-54 age group is seven times higher than those in the 5-9 year age group, but membership is less than double.
- There is an anomaly with the spending curve for members in the 55-59 age group, showing that spending is less than might be expected. This anomaly is more identifiable in later graphs that focus on women in this age group and hospital services.

Medical care costs are the largest share of premiums, averaging about 90 percent in NH¹. Insurance premiums do not mirror the cost of medical care by age group due to the constraints of insurance laws and market dynamics. The dramatic differences between the spending in the older age groups means that if there is premium subsidization taking place between younger and older populations there may be a comparatively small premium base to charge for the subsidy needed to reduce the premiums for older members.

¹ 2008 NHID Supplemental Report: http://www.nh.gov/insurance/lah/documents/suprep_08.pdf

With so many of the insurance dollars paid for older members, we can expect that our health care delivery system will respond by directing resources to this population more than for the younger age groups.

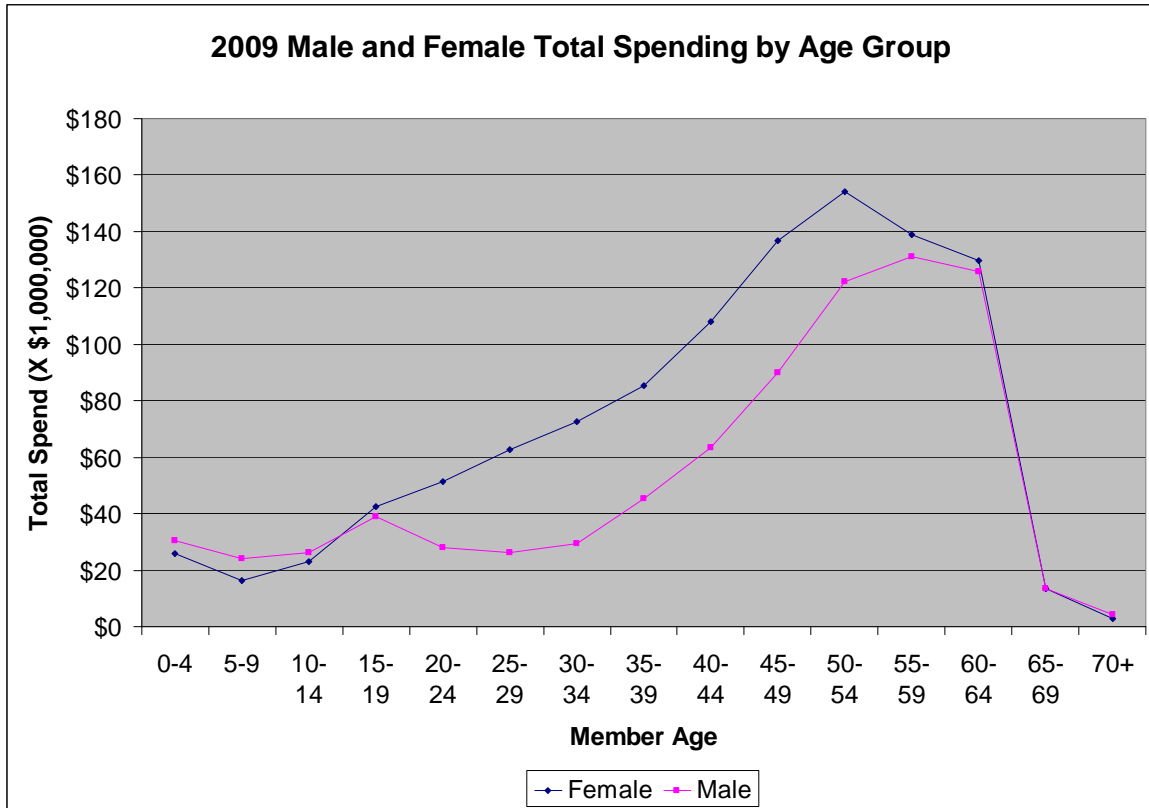
Chart 5 below, shows the same information in 2005.



The findings in this chart reflect the differences in the membership distributions. Because the membership peak in the 2009 data versus 2005 is narrower, the spending curve is steeper with the older age groups. In 2005 the total spending curve is wider, reflecting the more broadly distributed membership base. Because spending increases so dramatically in the later years, the change in the spending curve is more noticeable than changes in the membership curve. There appears not to be an anomaly within the data for the 55-59 age group, nor with the 50-54 age group (assuming these members move into the 55-59 age group in 2009).

Chart 6 shows the differences between total spending for males and females:

Chart 6



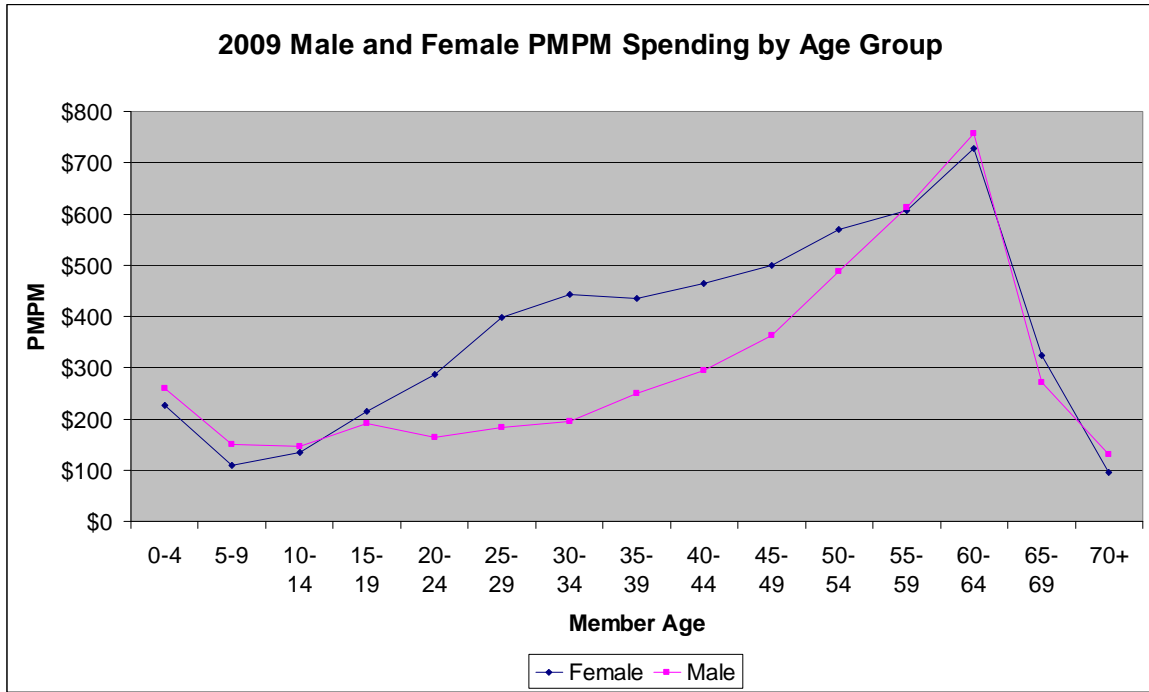
Although spending for males is higher than females in the early years, the majority of the spending for females across other age groups exceeds that for males. To an extent, this results from the greater number of females insured. Again, there is the unexplained decrease in spending for females in the 55-59 age group.

The next graph, chart 7, shows spending on a PMPM basis, a calculated rate that adjusts for differences in membership totals.

PMPM Spending

PMPM rates are a way of adjusting for differences in membership as the values are calculated based on the covered members within the period of a month.

Chart 7



Two observations when male and female spending distributions are shown on a PMPM basis:

- Spending for females substantially exceeds spending on males throughout most of the age groups.
- Displaying spending on a PMPM basis shows a more linear increase toward the upper age groups, until members reach the age of 65 and private health insurance benefits typically change.

PMPM rates are useful for the purpose of comparisons, but total spending provides greater insight about how our health care dollars are distributed. Chart 8 shows the distribution of total spending in comparison to the PMPM rates.

Chart 8

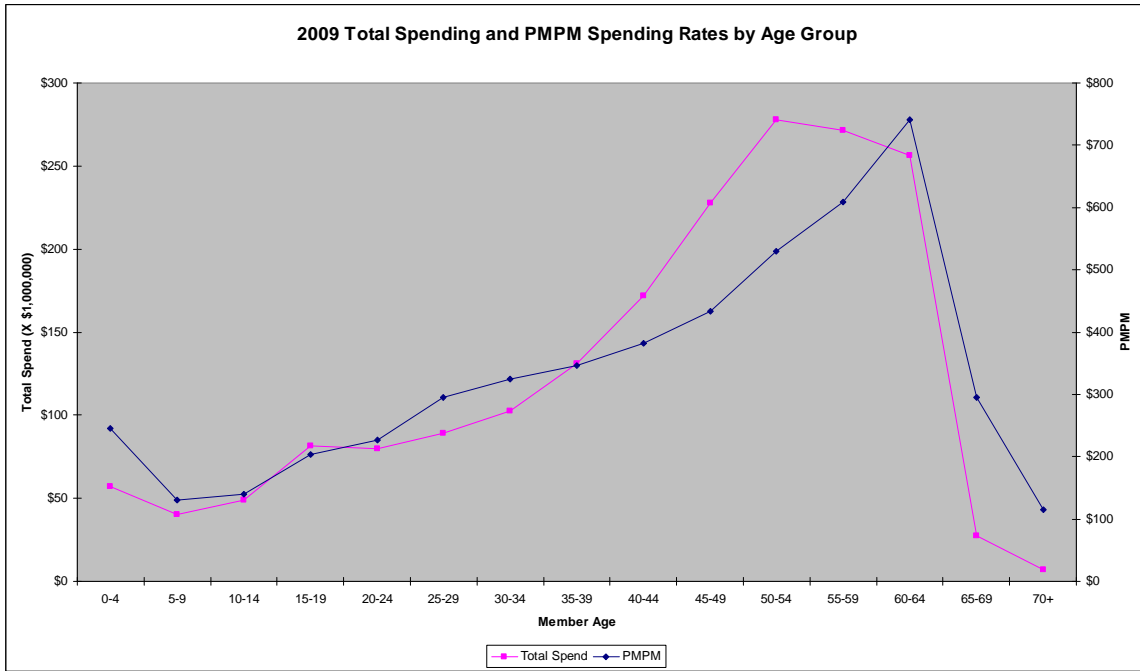


Chart 8 shows the steeper total spending increase between the 30-34 and the 60-64 year age groups that is due to larger membership totals, but not shown in the PMPM rates.

To see the components of total spending, Chart 9 maps the membership totals and the PMPM spend:

Chart 9

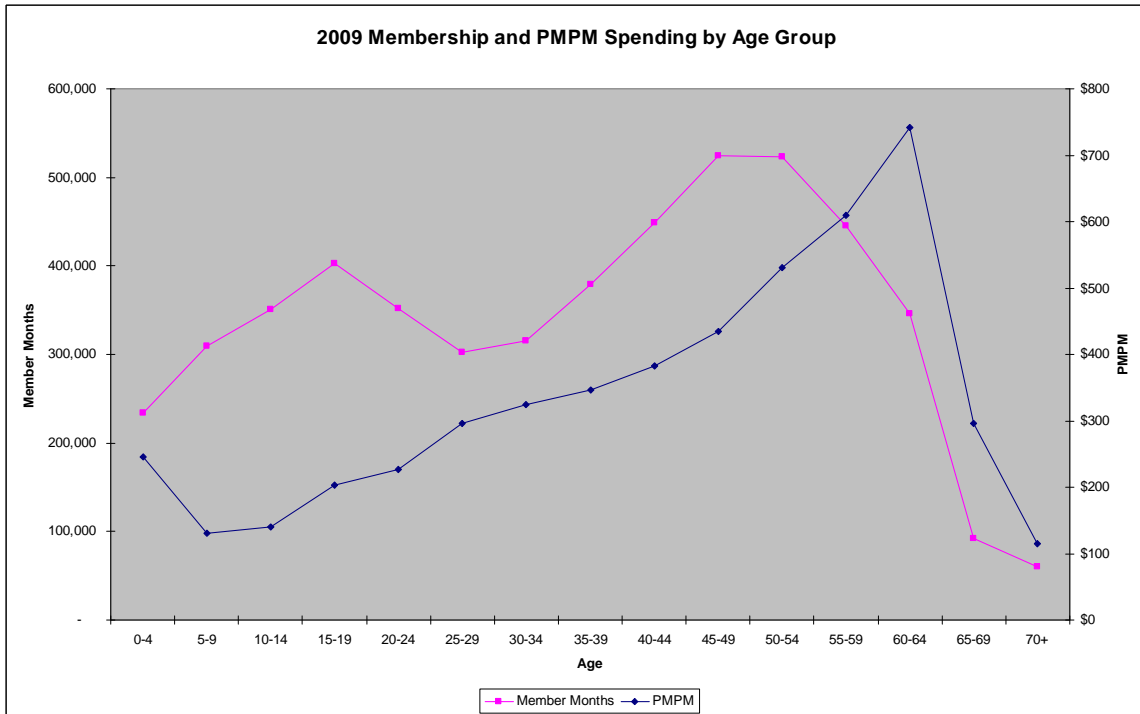
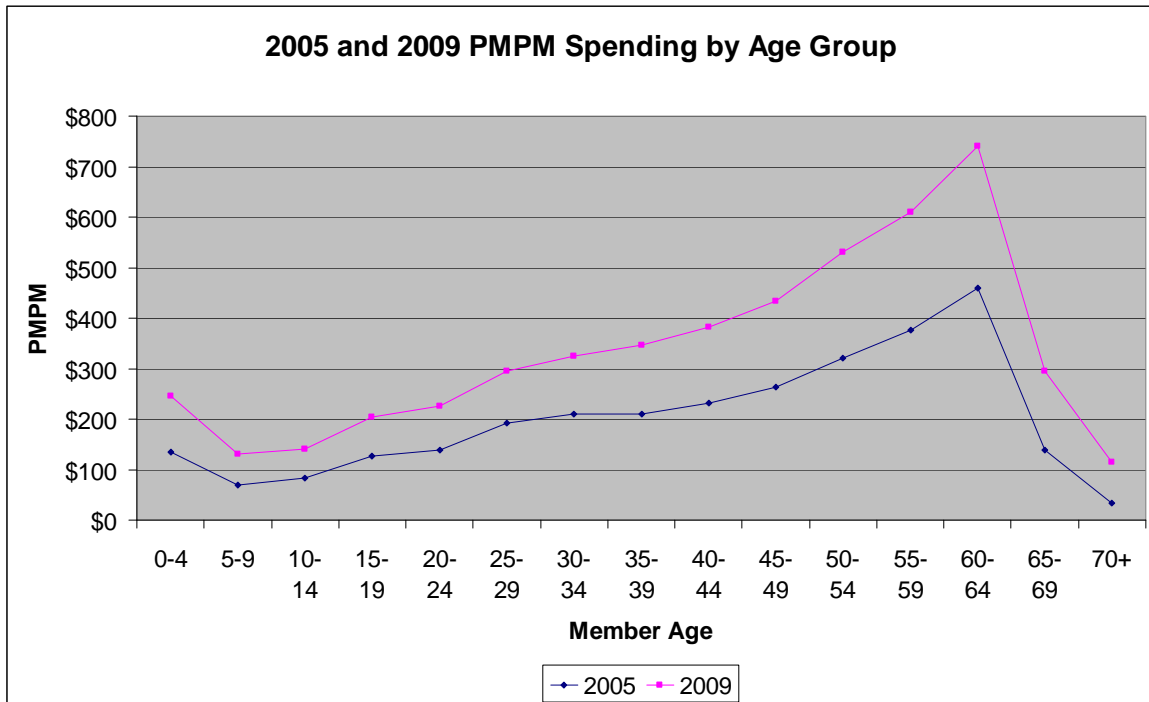


Chart 8 and Chart 9 depict how high PMPM rates and strong membership in the 40-60 year age groups result in high total spending, whereas although membership during the early years is substantial, low PMPM medical costs in the younger age groups keep overall spending for these age groups comparatively low.

Chart 10 compares the PMPM spending between 2005 and 2009.

Chart10

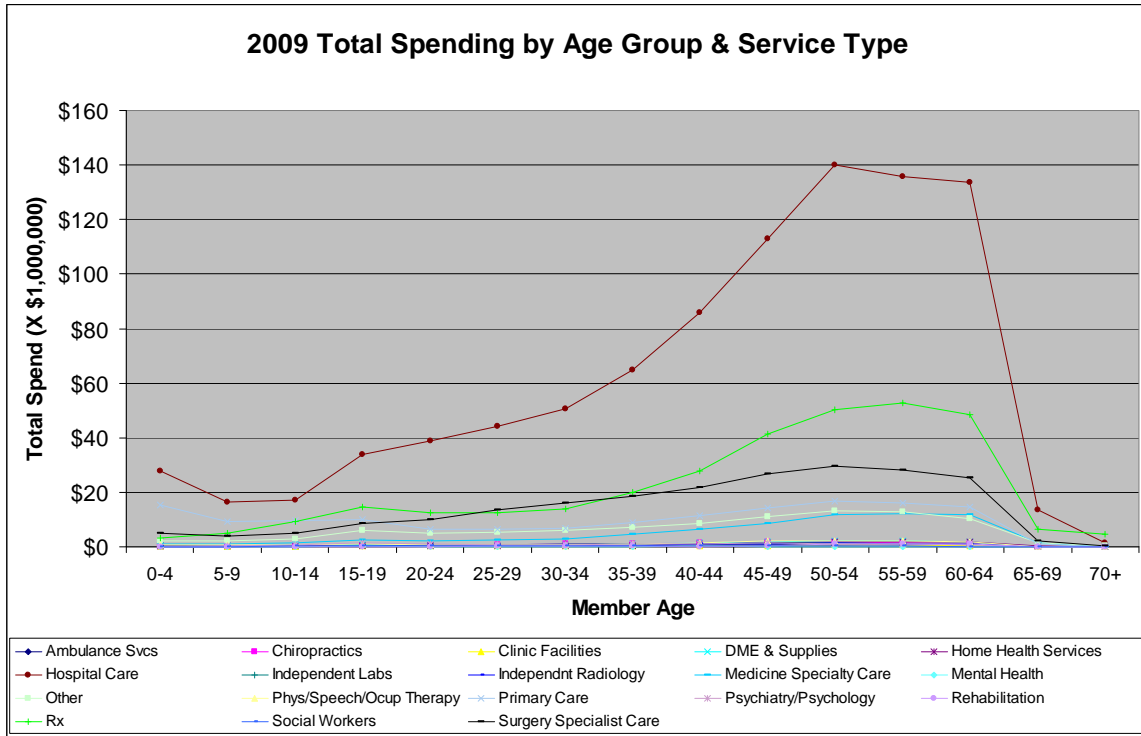


As PMPM rates adjust for membership differences between age groups, a similar distribution of spending is seen between 2005 and 2009.

Spending by Service Type

The distribution of medical care spending increases for different kinds of services at varying rates. Chart 11 shows the total spending by age group and service type:

Chart 11

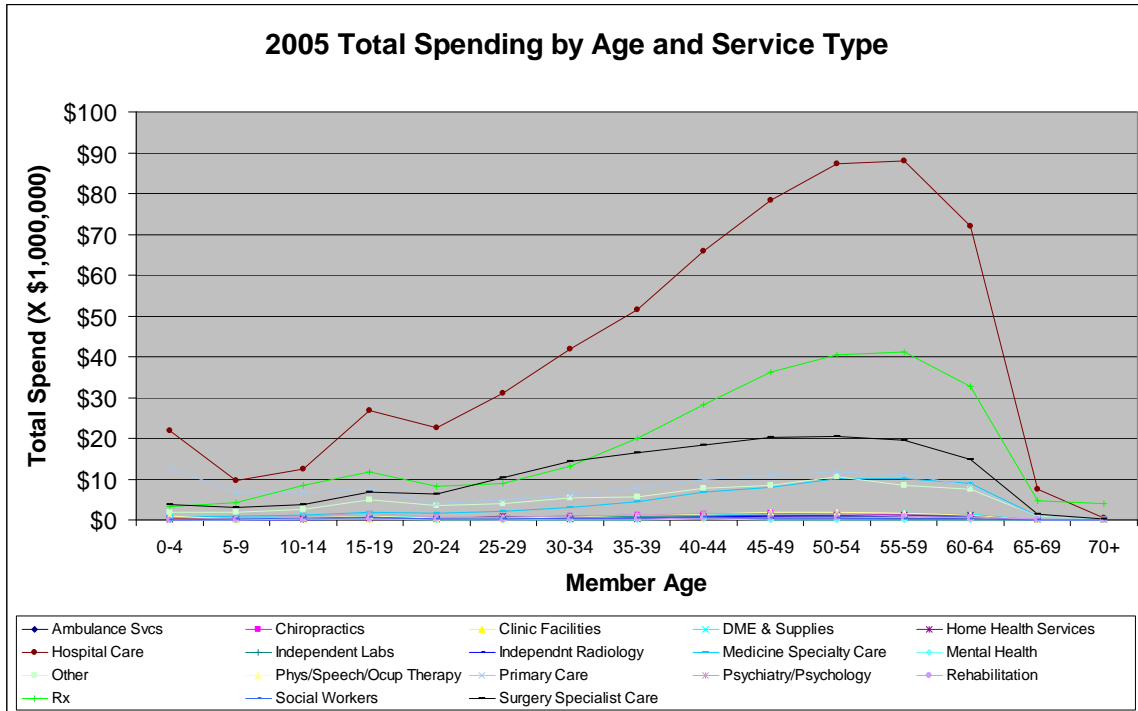


Hospital services are clearly the dominant spending category, but other categories increase with member age as well.

The high amount of spending for hospital services is likely to shape hospital resources so that they are directed toward patients in the older age groups. Prescription drug spending (the majority of the costs in the Rx category) and surgical specialty care are also heavily weighted toward members in the 40-65 year age groups. In the hospital services category the curve has a flatter spread for the 55-59 year old group.

Chart 12 shows the same data for 2005.

Chart 12



There are many similarities between the 2005 and 2009. Among the differences include:

- A curved distribution for hospital spending between the 50-54 age group and 60-64.
- 2005 shows a substantial drop for the 20-24 age group, particularly for hospital services, due to fewer people insured in this age group when compared to 2009 (a difference most likely due to HB 790).

Chart 13

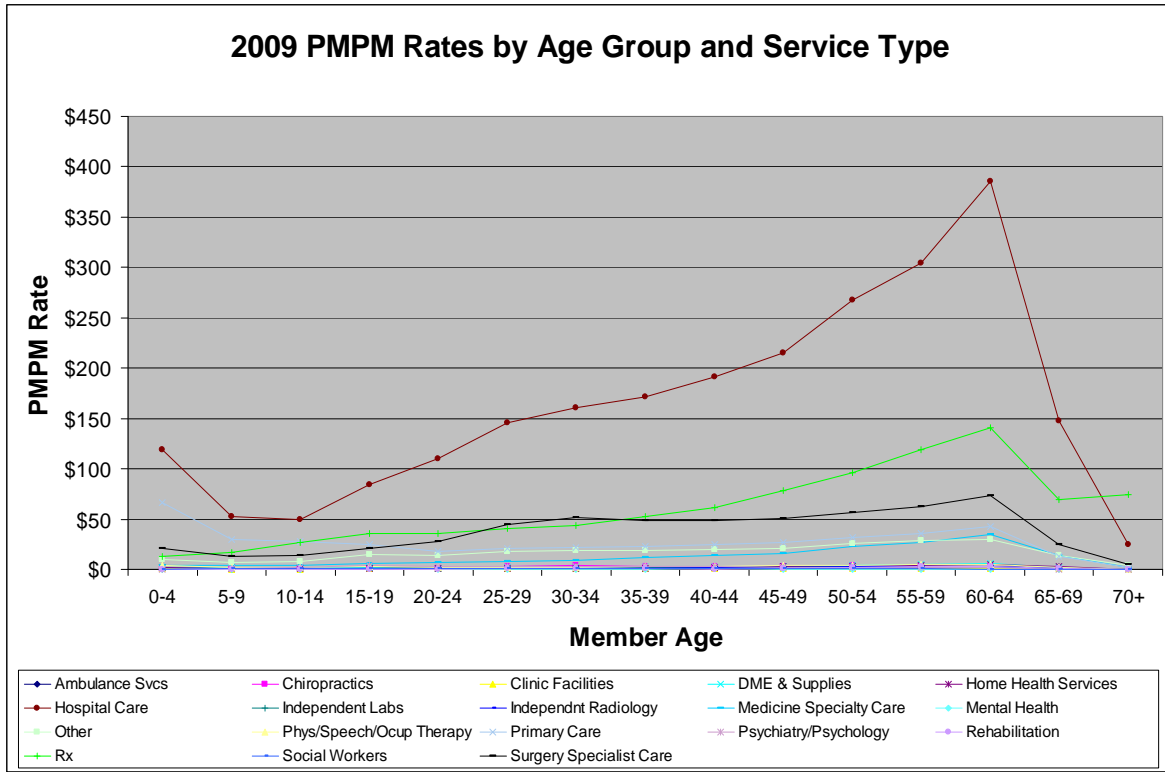
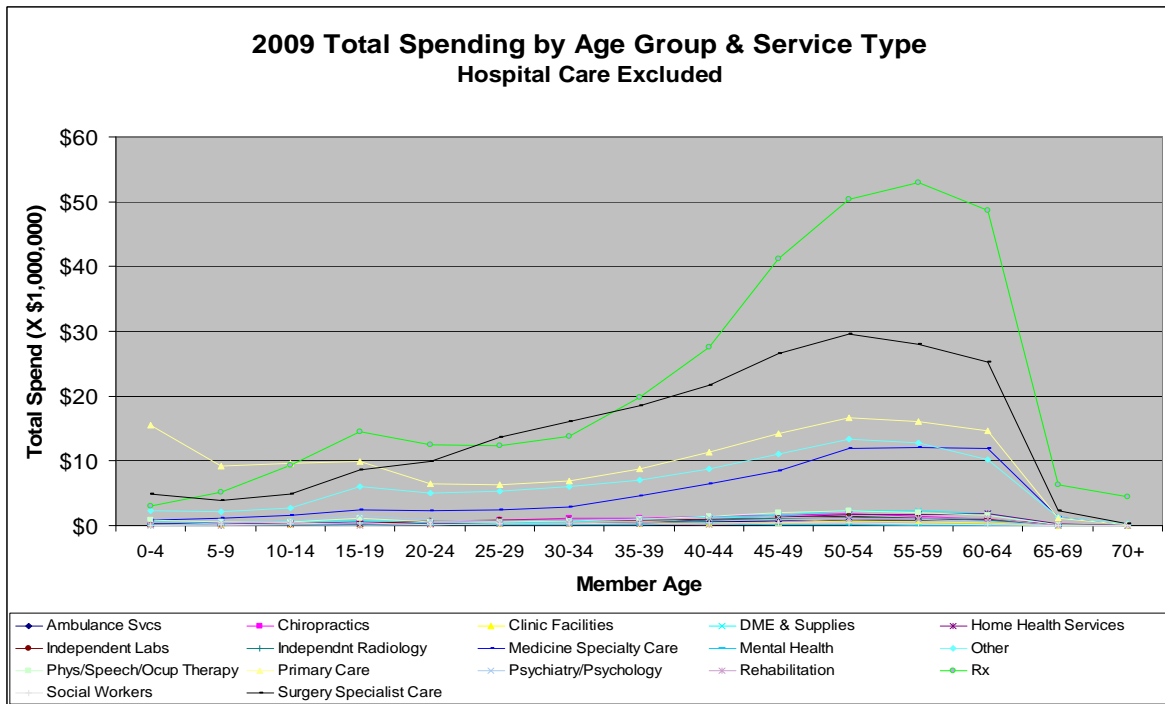


Chart 13 shows the calculated PMPM rates, providing a more linear distribution of costs. Chart 14 shows total spending by service type, but excludes hospital services.

Chart 14

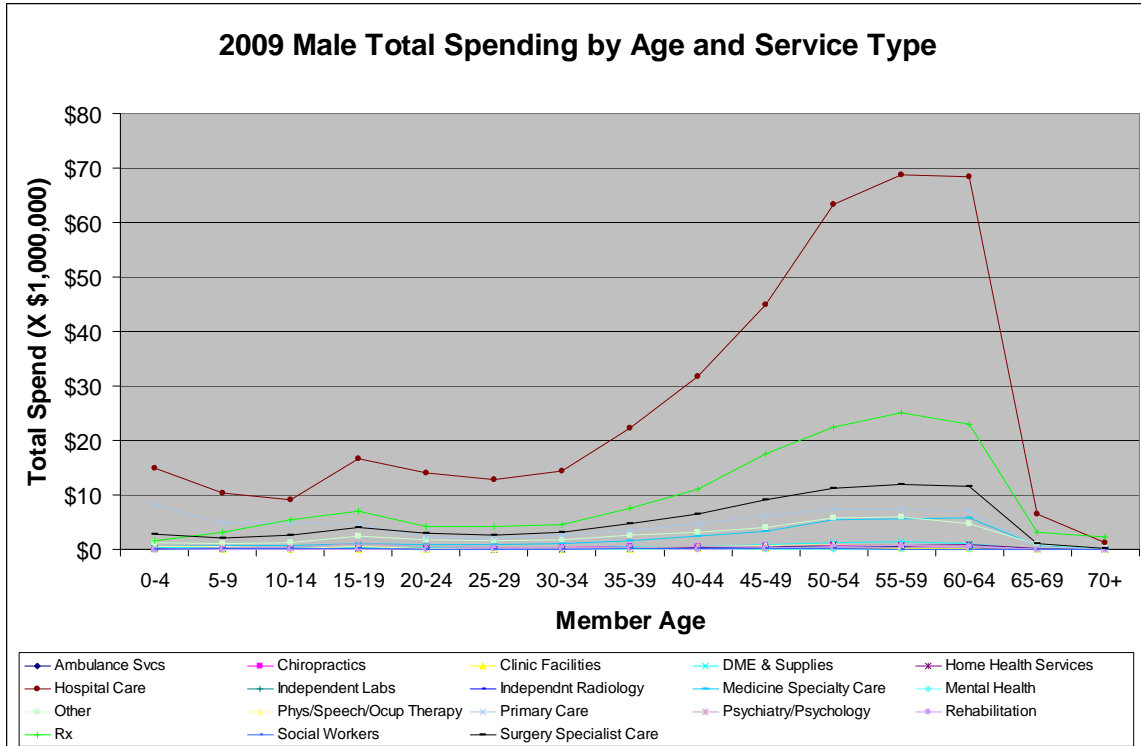


Excluding hospital services so makes it easier to identify the upward trend of other services. With the exclusion of hospital services, pharmaceuticals now become the major cost driver as age increases.

Spending by Service Type and Member Gender

The following graphs show the differences in spending distributions for males and females.

Chart 15



When male spending is shown separately, there is a much rounder distribution of hospital spending through the 55-59 year age group, and a much steeper hospital increase during the 35-50 year age span. This is also true for some of the other service types. Women only are shown in Chart 16, and total hospital spending actually decreases for women in the 55-59 age group versus the 50-54 year olds. There is greater spending in the younger age groups (ages 10-35), allowing for a more gradual increase to the highest peak for the females.

Chart 16

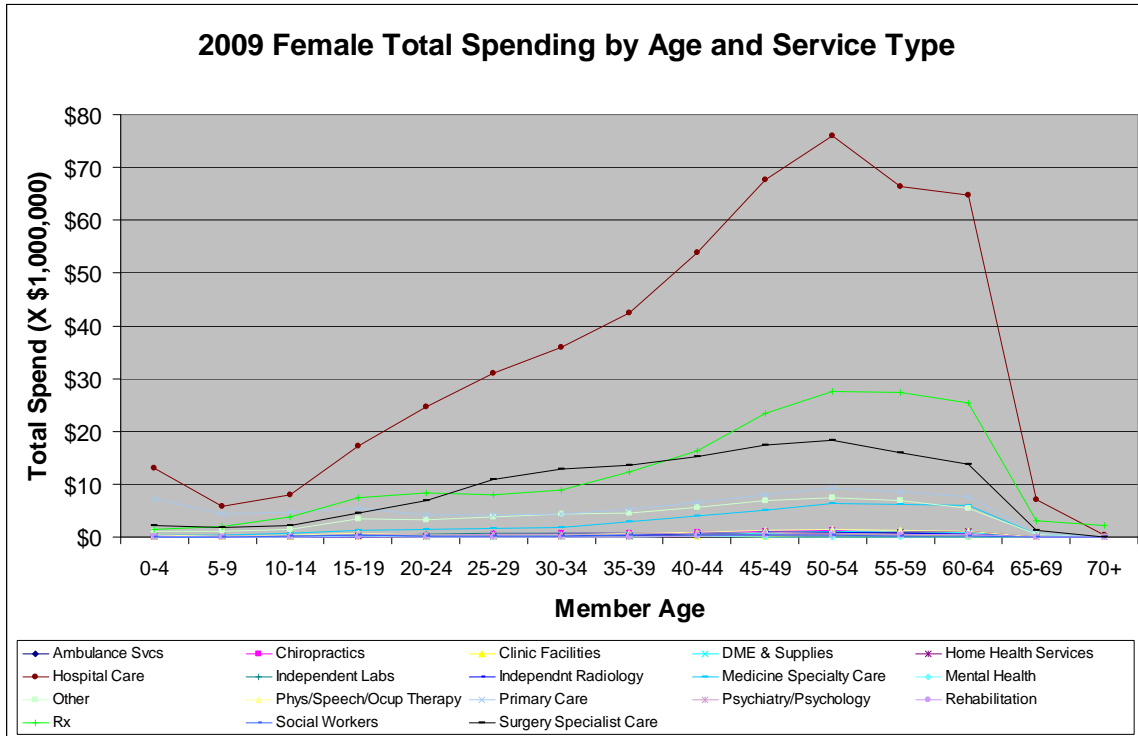


Chart 17

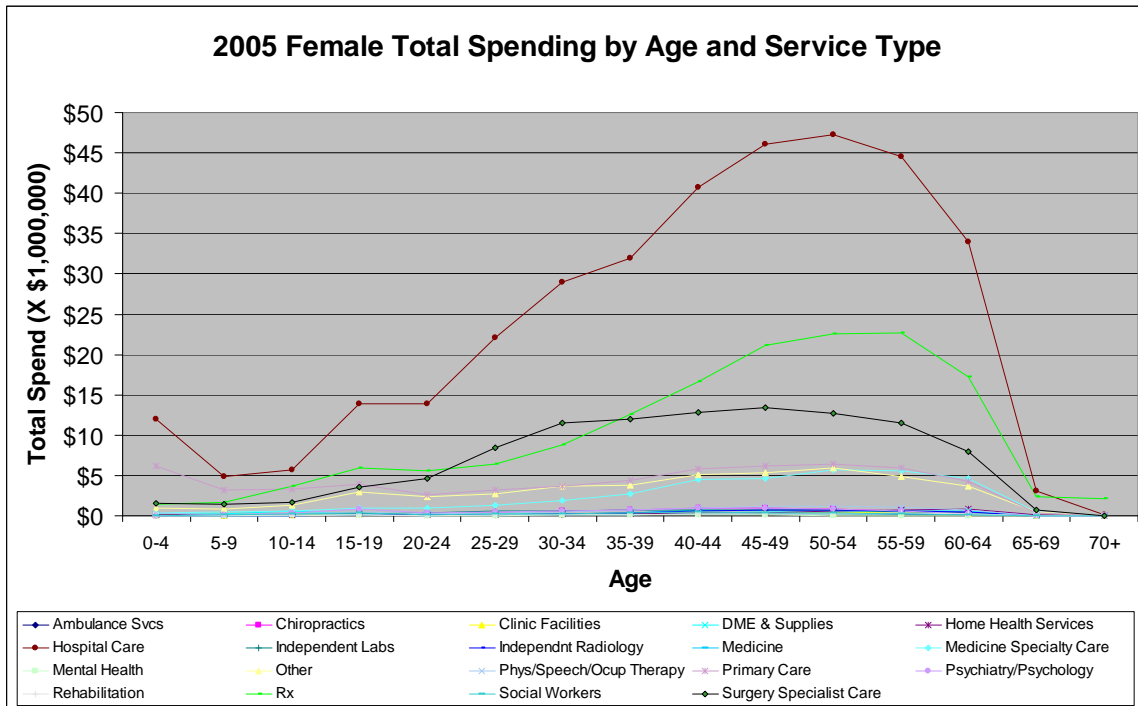


Chart 17 allows for the comparison between female medical service use in 2005 compared to 2009.

Chart 17 observations:

- In 2005 there is a leveling in spending between the 15-19 year olds and the 20-24 year olds. This change in 2009 is most likely due to the dependent expansion resulting from HB 790 and the additional members insured in 2009.
- The relative difference for pharmaceutical services in 2005 compared to the next highest category, surgical specialty care, was greater than what is observed in 2009.
- Overall, the peak spending age categories (40-60) show a rounder distribution of hospital spending.

Charts 18 and 19 show the PMPM rates for specific service types by gender. There is greater spending for surgical specialties on women versus men during their 20s and 30s, perhaps partially related to the number of cesarean sections women receive in these age groups.

Chart 18

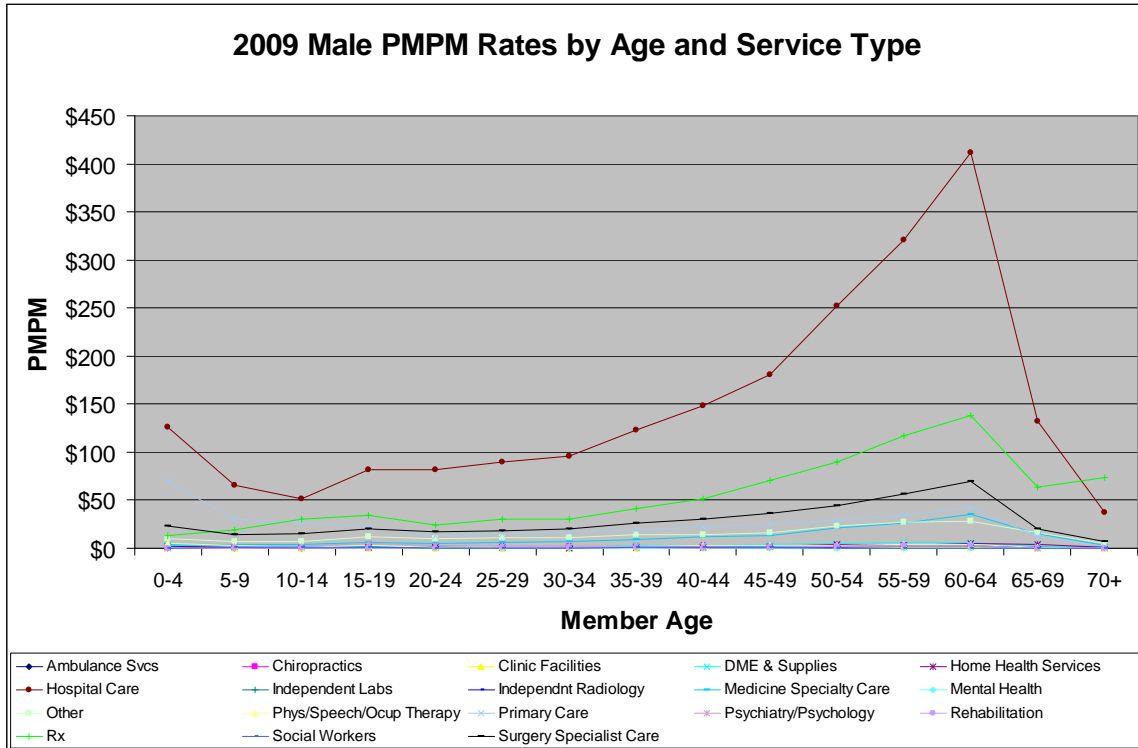
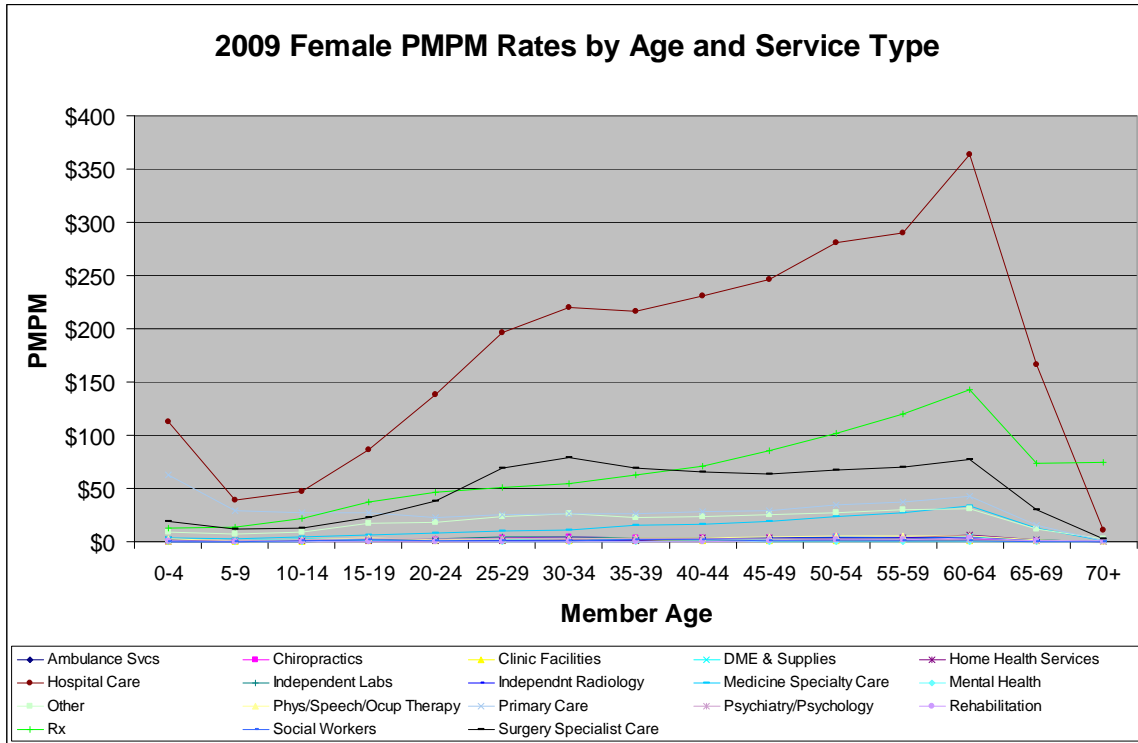


Chart 19



Study Limitations

All carriers and all product lines are combined for the analysis. The patient populations and benefit levels are likely to vary between carriers and products. Therefore, the results of this analysis may not reflect the unique nature of any specific carrier subpopulation.

Health care providers are assigned to medical service categories, but similar medical care providers may offer different services. What is considered a hospital service may include services that could typically be assigned to another category.

The findings are based on the NHCHIS, which are claims data. These data are self reported by health insurance carriers and third party administrators. The findings in this study are dependent on the integrity of those data submissions.

Since the NHCHIS does not include data on all of NH's residents, our findings are subject to sampling error when used to generalize about the whole population.

Comments or questions should be directed to tyler.brannen@ins.nh.gov.