



SOCIETY OF ACTUARIES

Article from:

Health Watch

May 2011 – Issue 66

Retirees versus Active Workers: What is the Cost Difference?

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At the SOA's Retiree Boot Camp in November, one of the attendees asked a great question: everything held equal, how much more do retirees cost than active workers? We already know that the typical retiree age group costs much more than all others, but what about retirees versus non-retirees within that age group? The answer to this question has implications on how consulting actuaries would develop claims expectations for valuing retirement health care benefits. Further, this difference should play a role in how employers set premiums for retirement benefits. Finally, more savvy insurance companies could use this information to refine their insurance premiums.

Methods

When looking at retiree costs, we calculated medical and pharmacy claims on a per member per month (PMPM) basis. We also felt that risk scores add a really excellent piece to the puzzle because risk scores help us understand what would be expected based upon the health of the members.

Because retirees are biased toward older ages, it was important that we review each age separately, rather than putting the experience into age brackets. That is, we did not want to attribute to "retirement" the factors that are actually and more simply attributable to older age.

Data Sources

We used data from 68 employers who have both pharmacy and medical coverage with Blue Cross and Blue Shield of Minnesota. We excluded employers who did not separately group actives from retirees. Claims were pulled from Jan. 1, 2009 through Dec. 31, 2009 incurred dates and processed through June 30, 2010. Because of our book of business and state mandates, there is a high representation of schools and municipalities within the 68 employers we evaluated (see Exhibit A).

We explored ages 55 through 64 because the amount of retirees younger than age 55 is very small and less credible, and likewise for the amount of active workers over age 65. Further, Medicare coverage after age 65 makes comparisons more complex and was beyond the scope of this project. There were 8,567 retirees and 39,948 working actives included in the study.

We pulled our risk scores from Episode Risk Groups¹ (ERGs). This way of assessing risk takes into consideration "episodes of care." It groups each claim or prescription into underlying conditions or prognosis, rather than factoring each individual service provided. ERGs were introduced in the early 2000s and have been useful in understanding why some employers' costs are so different from others on the average. Using ERGs, we pulled the retrospective risk scores for those aged 55 through 64 for the time period Jan. 1, 2009 through Dec. 31, 2009.

Findings

In this study, we expected early retirees to consistently cost more than the working population. Though

Study's Industry Composition

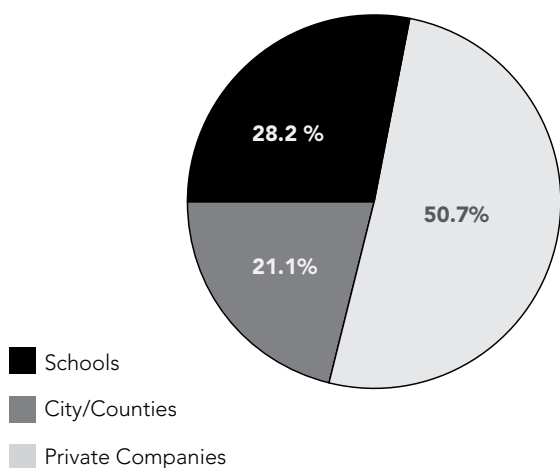


Exhibit A. 71.8% of BCBSMN employers with early retiree plans are schools and municipalities.

¹ Episode Risk Groups (ERGsTM) were developed jointly by Integrated Healthcare Information Services (IHGIS), of Lexington, Mass. and Symmetry Health Data Systems of Phoenix, Ariz. and are being marketed exclusively by Symmetry. For more information, contact Symmetry at 602.840.1910.

our risk score analysis reflected this hypothesis, our claims data did not.

Risk Scores

When comparing the overall 55-to-64 age band risk score to the rest of the employers' population, the members in the 55-to-64 age bracket are expected have costs that are 189 percent of an average individual's costs in these groups.

According to our risk scores, the early retirees are expected to cost 21.0 percent more than those working between ages 55 and 64, at least as a group. However, much of this overall conclusion is due to the heavy weighting of those in their mid-60s for early retirees as opposed to mid-to-late 50s for the working groups. When the banding of early retirees is dissolved and we look at each age individually, the majority of differences between the risk scores do not come close to the weighted average of 21.0 percent (see Exhibit B).

When a member ages, it is intuitive that their risk score also increases. With the ERG data, not only is this pattern shown but also suggests that the early retiree population's risk scores increase at a faster pace and that, at least on average, retirees' risks are similar to workers' risks that are generally two years older.

We noticed a sharp increase in risk scores for those working at age 64. This phenomenon could reflect a bias toward those on COBRA coverage as well as non-vested employees staying in their jobs even in bad health. Another possible factor could be that we are studying only 68 employers, and that this jump is a unique or temporary phenomenon for our book of business. These are only a few possible scenarios; there could be more.

Claims Data

Given large enough populations, risk scores are normally very good indicators of where our two groups' claims should land relative to each other. We were expecting to show that retirees had higher costs than those working for each and every age. Aside from seeming sicker based on the risk scores,

| Age | Working Risk* | Retiree Risk* | % Diff in Risk |
|-------|---------------|---------------|----------------|
| 55 | 0.84 | 0.92 | 10.0% |
| 56 | 0.85 | 0.94 | 10.8% |
| 57 | 0.88 | 1.06 | 20.4% |
| 58 | 0.91 | 0.98 | 7.4% |
| 59 | 0.96 | 1.13 | 17.2% |
| 60 | 0.98 | 1.10 | 11.3% |
| 61 | 1.06 | 1.16 | 9.4% |
| 62 | 1.11 | 1.24 | 11.1% |
| 63 | 1.14 | 1.28 | 12.4% |
| 64 | 1.30 | 1.24 | -4.8% |
| Total | 0.96 | 1.17 | 21.0% |

*Adjusted by the average risk score of all 55-64 age members studied weighted equally

-Risk scores are calculated on a numerical scale from 0 to infinity.

~The average risk score is 1.00. If <1, lesser risk. If >1, greater risk than the study's 55-64 average.

-Average risk score of 55-64 aged members studied is 1.89 after normalization to the full 68 employers' average risk scores. ages 0 to 64.

there is a long-held belief in the actuarial field that early retirees go to the doctor more because they have more time on their hands. To study that theory more specifically, we broke out pharmacy claims from medical claims.

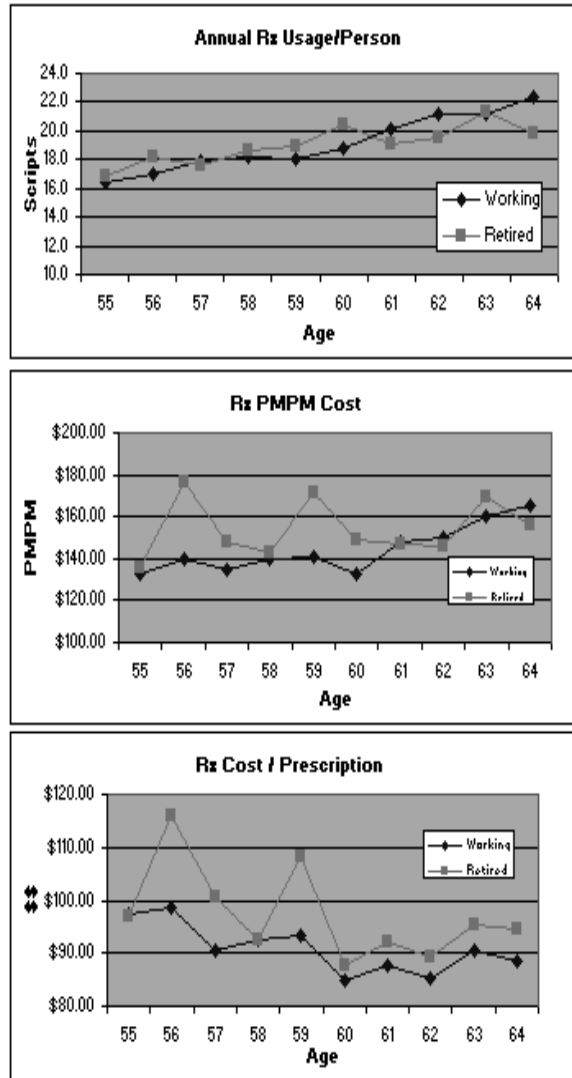
When comparing the two populations to one another, the early retirees purchase more prescriptions than workers, their drugs are more expensive, and their costs are higher. However, when examining the information age by age, the results are surprisingly different (see Exhibit C). The annual prescription use for workers versus retired members was very similar. Although prescription use is about the same, the cost per prescription and PMPM cost are nearly always (with one exception) more expensive for the retirees than the workers. Looking at information for pharmacy, we see that drugs are more expensive (per member and per prescription) for the retirees; there is a 7 percent (un-weighted) average difference between working and retirees. We see that the retirees' prescriptions are more expensive. However, when banded together such that the retirees' older age bias is reintroduced, there are differences in the retirees versus the working people ranging from 3 percent to 9 percent, much lower than we originally anticipated via risk scores differences.



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Exhibit C.



These graphs compare the working versus retiree information. As noted in the article, the drug usage for the two populations is similar, but there is great disparity in their costs.

Although retirees' pharmacy claims costs are almost always higher than the working, the medical claims do not follow this pattern. When breaking out each age interval, there is variation unlike anything we had anticipated (see Exhibit D). While the working population's costs increase in a semi-linear line, the claims for the retirees do not follow a definite pattern. We went into this study with the hypothesis that the costs of

retirees were going to be constantly higher than the non-retirees. Our experience does not support this hypothesis.

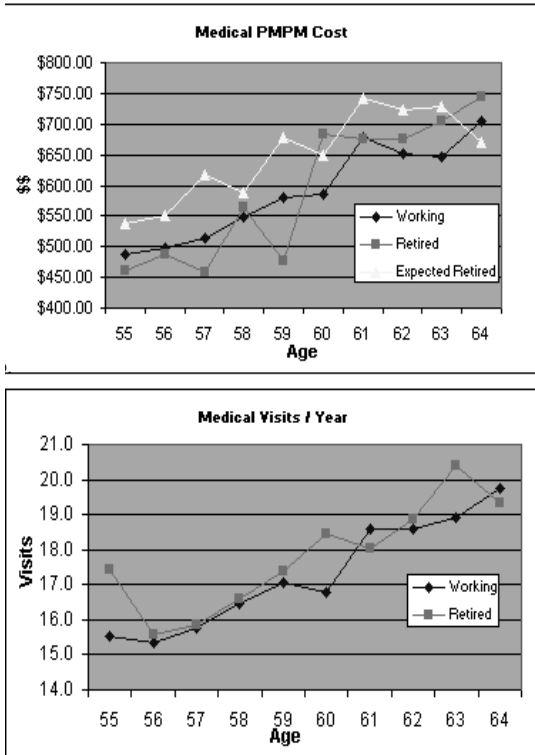
The expected claims for retirees indicated by the risk scores are much higher for the majority of the population than is actually experienced. In fact, the prediction is not close. Intrigued by these results, we took an arithmetic average of the differences in costs at each age and found the retirees to be on average only 0.24 percent more expensive than those working.

We expected the doctors' visits to be higher for retirees because they theoretically have more time on their hands, but as with drug data, the frequency of visits per year is very similar between the two populations. Because the cost data for the early retirees shows no distinguishable pattern, there is no evidence that our early retirees cost more than those working, at least when comparing similarly situated ages. Rather, early retirees cost more because of their bias toward older ages.

The theory that many people retire early because they are in poor health seems to be supported by the risk scores, but this did not translate to higher costs, at least for our population. Further, our findings show that this "free time" effect is not a likely cause of high costs. Using our risk scores as a benchmark to measure how much more we expect early retirees to cost, we find that the risk scores are predicting higher costs than are actually occurring. It is possible that early retirees are more diligent in shopping for medical care than their working counterparts. Thus, while their risk scores may indicate more utilization, their diligence in managing their own care might hold down the relative costs.

With our overall results, we find that by banding this age group together, there is a difference in PMPM of 12.5 percent, roughly \$90 PMPM in 2009, instead of the predicted 21.0 percent expected due to our risk scores. When changing our focus to an age-by-age study, our results do not support that retirement itself makes these members more expensive. The average cost increase from working to retired is only 1.7 percent higher and did not create a level of significant difference when tested through a p-value statistical

Exhibit D.



test. Rather, we conclude that it is simply the bias of early retirees toward older ages that causes this subset of members to be more expensive than their actively working counterparts.

Conclusions

Consulting actuaries may find this information useful as they contemplate the experience and demographics of their active and retired population in order to set an expected level of claims for current and future retirees. That is, our study suggests that actuaries can aggregate the experience of similarly aged working employees when trying to predict health care costs for early retirees. Our findings also suggest that if the ages had been bracketed by wider bands, like five or 10 years, one would find many more cost differences between the two populations and might incorrectly attribute such difference to “retirement” rather than simple demographic bias. One way to get around the confusion is to not use age banding at all within retirement health valuations.

Exhibit E.

Study's Employers' Risk Scores by Age Band

| Age Band | Average Risk Score | Cost Relativity |
|----------|--------------------|-----------------|
| 0 - 19 | 0.49 | 0.56 |
| 20 - 24 | 0.61 | 0.62 |
| 25 - 29 | 0.91 | 0.96 |
| 30 - 34 | 1.00 | 0.90 |
| 35 - 39 | 0.98 | 0.89 |
| 40 - 44 | 1.02 | 0.97 |
| 45 - 49 | 1.14 | 1.08 |
| 50 - 54 | 1.43 | 1.36 |
| 55 - 59 | 1.71 | 1.75 |
| 60 - 64 | 2.13 | 2.16 |
| | 1.00 | 1.00 |

As age increases, typically the average risk score and costs increase. For example, one would expect someone between the ages of 50 and 54 to cost 43% more than the average of this study, and the claims data reflects a 36% increase.

At the same time though, these findings suggest that insurers and employers should set premiums significantly higher for early retirees. These members have a bias toward the most expensive ages—not only of the age band itself which is expected to cost significantly more (see Exhibit E)—but even within the age band. This has particular significance in light of the current economies’ effect on delaying retirement now and in the future.

Please note that this data may be skewed by geographical and industry differences from what another employer or insurer might witness. For example, in our experience teachers tend to use more services and cost more than suggested by their risk scores. Our data could have overrepresentation of schools and municipalities and thus mask a phenomenon that may indeed exist. We would be interested in seeing whether other insurers’ experience mirrors our own. ■