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Alzheimer's Mortality

By Dave Moran



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Alzheimer's disease is the sixth leading cause of death in the United States, affecting an estimated 5.2 million Americans of all ages. Over the next 40 years, that number is expected to grow to approximately 14 million. Although it can be difficult to peg Alzheimer's as the primary cause of death, one in every three seniors dies with Alzheimer's or some other form of dementia. When I was in high school, that number for me was one in four, as I lost my maternal grandfather to Alzheimer's.

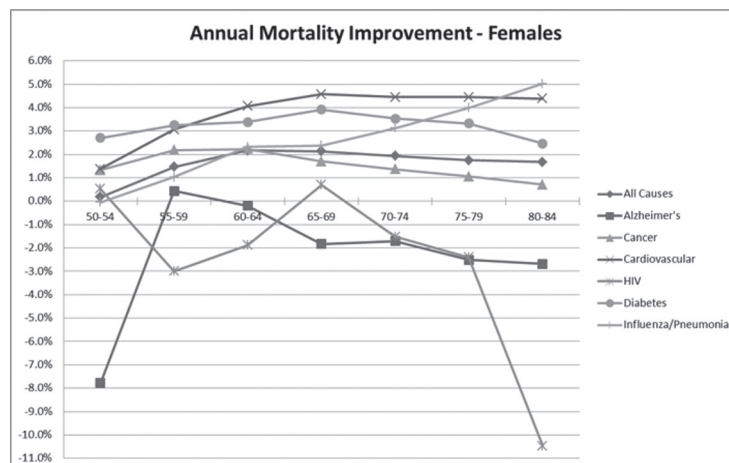
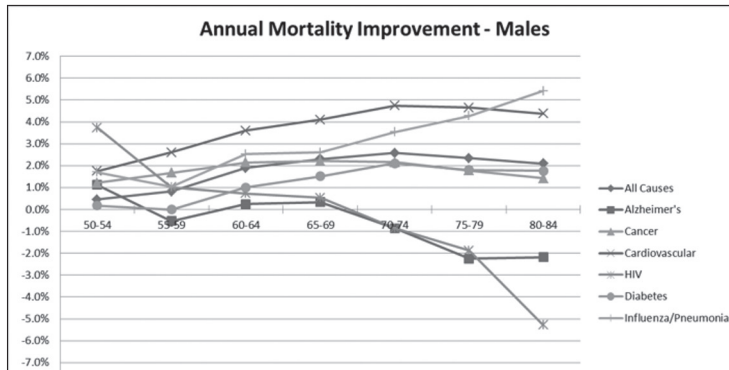
The CDC recently released a report discussing the increased rate of death occurring from Alzheimer's disease in the United States. According to the report, there was a 39 percent increase in Alzheimer's related deaths from 2000 to 2010. As an actuary who often utilizes mortality improvement as a part of the assumption setting process, I was intrigued by the fact that the death

rate for Alzheimer's is getting worse, so I set out to look a bit more closely at the data.

Before jumping into the results, allow me to clarify a few important points. Although I initially set out to utilize actual-to-expected ratios in my analysis, it quickly became clear that attempting to identify an appropriate table for the expected portion would be prohibitively difficult given the time that I had. As a result, the data I examined was total population data for the United States. All of the mortality data was sourced from the CDC's Underlying Cause of Death database.

For the purposes of comparison, I examined all causes of death combined as well as deaths wherein the main cause identified belonged to the following list: Alzheimer's disease, cancer, cardiovascular disease, HIV, diabetes, and influenza/pneumonia. Quinquennial age bands for ages 50 to 84 were examined in order to combine enough data points together so as to be somewhat credible, although the incidence of death for some of the diseases in question is so low at some ages that it is hard to attach much credibility to the data. The two charts below show average annual rates of mortality improvement by age and gender for the period 2000 to 2010. As you can easily see, overall population mortality has been decreasing by between 1 percent and 3 percent for the ages in question. There are plenty of other observations to be made about the differences in rate of improvement between different age/gender/disease combinations, but that is beyond the scope of this brief article. Suffice it to say that for the conditions that were examined, the improvement in mortality is, for the most part, expected due to advances in prevention and treatment.

Because the impetus for my inquiry was the CDC's report on the degradation of Alzheimer's mortality rates, I was not surprised at the shape of the graph for that disease. However, I was somewhat intrigued by the similar change in mortality for HIV. Call me naïve, but we often hear about new drugs and treatments; and I was expecting to see improvement in the HIV mortality rate that mirrored that of the other conditions. However, the more I thought about it, the more it made sense that both HIV and Alzheimer's are progressing in a similar fashion.



New treatments for cancer allow patients to live longer and, in some cases, can completely remove the cancer from the body. Increased awareness about influenza and basic preventive measures have reduced deaths from the virus. Although diabetes cannot technically be cured, new techniques for managing the disease have allowed individuals to control it to such a point that they are no longer dying as a direct result of this condition. However, with Alzheimer's (and HIV) there is no cure and no treatment as effective as what we have for some of these other conditions. Based on the greater mortality

degradation at higher age bands, it appears that treatments for Alzheimer's disease are simply delaying the inevitable.

There is a good chance that you know someone who has been affected by Alzheimer's disease, either directly or indirectly. Although there is currently no cure for Alzheimer's, research is ongoing. If you want to learn more, I would encourage you to visit the Alzheimer's Association website at www.alz.org. □

Assumption Development and Governance Discussion Group

By Liz Olson

It is no surprise that companies are devoting more and more resources to assumptions as models become complex and bottom-line results are assumption-driven. Best practices around experience studies, assumption approvals and documentation, and monitoring are demanding a much higher level of attention in many companies, whether they have had formal systems in place for years or are just starting to develop them.

A number of actuaries across the industry have met a few times via conference call to discuss assumption

practices, and now, with the endorsement of the Product Development and Financial Reporting Sections of the SOA, we're looking for broader participation. Our calls consist of introductions and brief updates on company initiatives, followed by a discussion around a topic of interest.

If you are interested in joining our conversations, please contact me at olsonl@nationwide.com or 614-249-0605. I can field your questions and add you to our group. Also, look for announcements around our calls in the SOA updates. □

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