



Long-Term Care News

The Newsletter of the Long-Term Care Insurance Section

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2004 LTC Operations and Technology Survey

by Van Beach

Introduction

The budget for claims processing seems very high—is it reasonable for a company our size? It seems to take a long time to get a policy issued—how does our time to issue compare with other companies? Are we certain there isn't a new technology that we should be pursuing? What initiatives and challenges are other companies addressing? These and other questions were the drivers behind the creation of an operations and technology benchmark survey specific to the long-term care industry.

The goals of the first Annual LTC Operations and Technology Benchmark Survey were to develop time and cost benchmarks for LTC operations, identify the most pressing operations and technology issues, and gain insight into the technologies that are being used to administer long-term care business. The survey was conducted through the SOA, and was sponsored by the operations track of the Long-Term Care Section. The full 2004 Summary Report can be found on the SOA Web site at www.soaltci.org.

Methodology

The 2004 Long-Term Care Operations and Technology Survey responses are based on data from the first two quarters of 2004. Point-in-time data is as of June 30, 2004, while annualized data is based on the period from January 1 through June 30, 2004.

The survey questions were categorized into four sections:

- **Company information, Part 1** (new business premium, in-force premium, employees, etc. for *all lines of business*); and **Part 2** (new business premium, in-force premium, policy counts, new business applications, employees, claims, etc. for *group and individual LTCI lines of business*).
- **General questions** (use of various technologies, challenges and initiatives, etc.).
- **Costs** (budgets, staff, internal versus external costs, information technology versus other functional costs, etc.).
- **Times** (time to issue, time to receive underwriting requirements, time to complete home office requests, etc.).

Survey questionnaires were submitted to 40 companies, and several follow-up e-mails and calls were made in an attempt to maximize participation rates (the survey committee quickly found that one of the challenges of a new survey is developing an appropriate distribution list). All survey responses were de-identified and confidential.

Participating Companies

Companies participating in the survey include those that are currently marketing and selling new long-term care insurance policies as well as others that have ceased writing new policies and are administering a closed block. Of the 40 companies, to which survey

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This newsletter is free to section members. To join the section, SOA members and non-members can locate a membership form on the LTCI Web page at www.soa/ltci.org. Back issues of section newsletters have been placed in the SOA library and on the SOA Web site (www.soa.org).

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A Word From the Editor

New Changes on the Horizon

by Brad S. Linder

It is my pleasure to introduce to you some simple changes to the newsletter. You will notice this issue is a bit thicker than previous issues. It isn't because there are a lot of purely actuarial articles—or even lengthy ones at that! It's because there are quite a number of articles from each of the tracks, or networking sections, into which we have organized our LTC Section. The current eight tracks range from actuarial to claims, compliance, group, management, marketing, operations and underwriting. For this issue, we present topics from quite a number of our tracks.

From this issue onward, we're going to try and present you with a range of topics from each of these eight areas. Periodically, we will present you "themed newsletters"—where we present articles from each track that specifically address that identified theme. Should a particular track be so hot to generate enough articles for an additional track issue, you might be pleasantly surprised to find such an issue in your mailbox! For those having the time and talent to write in a periodic featured columnist style, we welcome your efforts.

I believe that you will agree that our authors of this issue deserve our thanks. Please notice that there are a number of very talented experts who have volunteered their time and efforts in co-editing these articles. Thanks go to each of them. Also, special thanks must go to each of our track chairpersons.

Lastly, I like to encourage and welcome authors wishing to write articles for the newsletter. Feel free to suggest themes for future issues! There's a wealth of information out there, including different perspectives. I hope you enjoy learning about it as much as I like to do. Read on...*



Editor
Brad Linder

LTC Newsletter Publication Schedule

Publication Month	Articles Due
December 2005	October 1, 2005
March 2006	January 1, 2006
August 2006	June 1, 2006

questionnaires were distributed, 17 responded (42.5 percent). However, when measured by annualized LTCI premium or by LTCI premium in-force, it has been estimated that over 70 percent of the industry is represented by the survey participants.

The participating companies represented 2.5 million in-force policies, \$3.6 billion of annualized in-force premium, and 50,000 open claims (as of June 30, 2004). The participating companies, categorized by LTC annualized premium in-force as of June 30, 2004 are shown in Table 1 to the right.

Sample Benchmarks Based on 2004 Results

With the information that was gathered, a wide array of benchmark metrics can be calculated. Just a few of the many examples of the types of benchmarks include:

- The cost to issue a LTC policy,
- The cost associated with not taken or declined applications,
- The cost to administer an open claim, and
- The overall budget supported by each in-force policy.

continued on page 4

Table 1: Participating Companies

	Group	Individual	Total
Average	193,203,355	201,287,731	225,388,752
25th Percentile	184,805,033	16,236,775	16,273,323
50th Percentile	142,992,506	80,835,502	103,926,531
75th Percentile	276,496,253	121,558,166	232,075,050

* Note that for the calculation of the percentiles and average, only nonzero responses were included (e.g., the calculation of the average group premium in force only considers those companies with nonzero amounts of group LTC).

Table 2: New Business Budget per LTC Policy Issued

	2004 Total Policies Issued	NB Budget Per Policy Issued
Average	15,495	435
25th Percentile	3,088	208
50th Percentile	9,170	386
75th Percentile	13,133	459

* Total 2004 policies issued per company were estimated based on the policies issued per company through June 30, 2004.

Table 3: Costs of Not Taken and Declined Policies

	New Business Budget Per Application	Percent of Applications Not Taken or Declined	\$ Spent on Applications Not Resulting in Issues	\$ Per Policy Issued Spent on Policies Not Issued
Average	354	30%	1,058,365	99
25th Percentile	144	18%	42,579	64
50th Percentile	278	31%	932,308	65
75th Percentile	325	38%	1,495,905	108

* Total 2004 applications per company were estimated based on the applications per company through June 30, 2004.

Table 4: Operational Claim Costs

	Open Claims	New Claims	Open Claims/1,000 Policies In-force	New Claims/1,000 Policies In-force	2004 Claims Budget Per Open Claim
Average	2,823	1,079	12.7	4.7	965
25th Percentile	63	8	2.1	1.0	397
50th Percentile	246	89	7.2	3.3	637
75th Percentile	2,217	863	16.0	4.9	843

* Total 2004 new claims per company were estimated based on the new claims per company through June 30, 2004.

* Open Claims and Policies In-force were as of June 30, 2004.

Table 5: Total Cost per Policy and Cost per \$1,000 Premium

	Total LTC Budget Per Policy	Total LTC Budget Per \$1,000 Premium
Average	113	82
25th Percentile	48	31
50th Percentile	100	74
75th Percentile	167	110

These included here are an example of the types of benchmarks that can be gleaned from the survey results. As mentioned above, the full 2004 Summary Report is available on the SOA Web site under the Operations Track of the LTC Section at www.soa.tci.org.

New Business Budget per LTC Policy Issued

Table 2 details the new business budget per policy issued. Here the “new business budget” includes operational costs associated with underwriting (including underwriting requirements) and other new business administration and processing costs. The new business budget does not include any commissions shown in Table 2 on page 3.

Costs of Not Taken and Declined Policies

For Table 3, the new business budget described above is allocated to all LTC new business applications. The applications that resulted in issued policies are subtracted to get the number of applications “not taken or declined.” The absolute amount spent on applications that don’t result in issued policies is shown as well as this amount allocated to issued policies. These results are shown in Table 3 on page 3.

Operational Claim Costs

Claim information collected for the first two quarters of 2004 was used to estimate the total 2004 new claims. Open claims and policies in-force were as of June 30, 2004. The operational claims budget (i.e., does not include claim payments) was used to calculate the budget per open claim. Results are shown in Table 4 on page 3.

Total Cost per Policy and Cost per \$1,000 Premium

For the calculation of the per-policy expense and the per-premium expense, the total 2004 LTC budgets (internal and external, individual and group) were included and divided by the in-force amounts as of June 30, 2004. The results are shown in Table 5 above.

Comments on the 2005 Survey

In future releases of the survey, we (the Survey Committee) anticipate that the results will be released in the fourth quarter of the year of the survey (e.g., 2005 results would be released in fourth quarter of 2005). Collection of data for the 2005 survey will begin in September. We anticipate that the survey will close on Oct. 31, 2005. In order to continue providing this valuable industry information, it is very important that all companies are represented. If you have any questions or would like more information, contact Van Beach, 2005 survey chairperson.

Thanks

Thanks to all of those who invested the time to respond to the survey and a special thank you to the 2004 Survey Committee for their diligence and hard work in creating this first annual survey. *

2004 Survey Committee

Chairperson: Van Beach, Milliman
 Maryellen Beach, Society of Actuaries
 Kimber Howard, Society of Actuaries
 Lynn Hartung, Aegon
 Sandra Latham, LTCI Partners
 Pete Petersen, Northwestern Mutual



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The Underwriting Network

by Linda Jonides and Margaret Czellecz, Underwriting Editors

Welcome to the first articles written for the Underwriting Network appearing in the newsletter. At the 5th Annual Inter-Company LTCI Conference, Dr. William Rodman Shankle and Dr. James M. Jacobson gave us a fresh look at cognitive testing. The response to this panel was tremendous and led to numerous requests for the research behind the presentations.

For those who weren't at the meeting in Orlando, Dr. James M. Jacobson, MD, MBA, CPE, FACPE, FACP, is the president of Net Education Design, Inc., a company that specializes in health-care processes and educational materials for both patients and health-care providers. This company designs and implements interventional programs for diabetes, chronic lung disease, chronic heart disease and cognitive impairment. As a researcher, Dr. Jacobson designed a device that measures how fast people think, which was used in space shuttle equipment. Today, he researches measures of cognitive function, with a special interest in methods that allow early detection of cognitive impairment. Rather than testing memory or the content of thought, the AQT tests the speed of processing. In his article titled "*New Developments in Cognitive Testing*", Dr. Jacobson will give an overview of the tools available for LTC underwriters to identify individuals with cognitive impairment including the AQT.

Dr. William Rodman Shankle, MS, MD has managed over 7,000 patients and families affected by Alzheimer's Disease. He currently manages a community-based dementia clinic of over 900 demented patients two days a week, using an automated health-care system for Alzheimer's Disease and related disorders by him and his colleagues. His book, *Preventing Alzheimer's* is his most recent endeavor to provide knowledge to help disseminate dementia-related preventive and disease-delaying treatments with and without solid scientific support. In the excerpt of his article "*Methods to Improve the Detection of Cognitive Impairment*," Dr. Shankle the CERAD 10-Word List which has shown to be effective in detecting mild cognitive impairment.

The Minnesota Cognitive Acuity Screen (MCAS) has been available to the long-term care insurance industry for over five years. Dr. Dean Knudson, medical director for Nation's



CareLink, is certified by the American Board of Psychiatry and Neurology and has a Certificate of Added Qualification in geriatric psychiatry. As an expert in cognitive testing of the elderly, Dr. Knudson devotes a large portion of his practice to geriatric psychiatry. His article, "Update on the MCAS: A Cognitive Screen Used in LTCI for Over Five Years," gives an overview of the MCAS, including its effectiveness in reducing early cognitive claims. *



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Methods to Improve the Detection of Mild Cognitive Impairment

by William R. Shankle, A. Kimball Romney, Junko Hara, Dennis Fortier, Malcolm B. Dick, James M. Chen, Timothy Chan and Xijiang Sun (from the Departments of Cognitive Science and Anthropology and Brain Aging Research Unit, University of California, Irvine, CA 92612; and the Medical Care Corporation, Irvine, CA 92612).

Dementia is defined as the presence of two or more areas of cognitive impairment that affect instrumental activities of daily living at the very least.

In the United States today, approximately 12 percent of individuals age 65 and over and 0.8 percent of persons 45–65 years old have Alzheimer’s disease (AD) or a related disorder (ADRD)¹. ADRD refers to all disorders that can lead to mild cognitive impairment (MCI), which is typically followed by dementia. MCI has been defined in a variety of ways, and there is no universally accepted standard. However, all definitions share the feature of cognitive impairment (usually just one) that does not impair instrumental activities of daily living (e.g., shopping, finances, cooking, household maintenance and finding familiar locations). Dementia is defined as the presence of two or more areas of cognitive impairment that affect instrumental activities of daily living at the very least.

The most common dementia-related disorders are AD (55–70 percent), cerebrovascular dementia (15–25 percent), Lewy body disease and Parkinson’s disease (10–15 percent), frontal lobe dementia (5–10 percent) and traumatic brain injury (about 5 percent)². A comprehensive multifactorial evaluation including clinical assessment, laboratory testing and imaging is typically used to diagnose ADRD. The earliest clinical stage of ADRD is classified as MCI. During this stage, an individual’s most complex abilities may be compromised but higher-order instrumental activities of daily living such as traveling, paying bills, doing laundry and balancing a checkbook are spared. Because there is irreversible loss of function for every month that mild to moderate AD goes untreated, and because cholinesterase inhibitor treatment reduces the rate of cognitive impairment in AD patients treated for five years by about 50 percent^{3,4}, it is important to detect, diagnose, and treat AD as early as possible.^{5,6,7,8,9}

MCI and dementia can be measured by using a variety of standardized tools, one of which is the clinical dementia rating (CDR) scale. The clinician using this scale interviews the patient and family, assigns a severity score to each of six CDR subcategories (memory, orientation, judgment and problem solving, community affairs, home and hobbies and personal hygiene), and then applies standard scoring rules to obtain an overall severity score. A CDR score of zero (0) suggests normal aging, a score of 0.5 indicates MCI, and scores of 1, 2, and 3 indicate mild, moderate, and severe dementia, respectively. A person with mild dementia (MD) is impaired in performing instrumental activities of daily living

such as traveling, shopping, paying bills, keeping house and cooking. A person with moderate dementia is impaired in basic activities of daily living such as dressing, bathing and toileting.

Although current methods of detecting moderate dementia in community-based clinical practices are reasonably accurate, they do not sensitively detect MCI and often do not detect MD. This insensitivity is because a person with MCI or very MD experiences subtle memory problems greater than normally expected with aging but may not show other symptoms of dementia such as impaired judgment or reasoning. In fact, 67 percent of individuals are moderately demented at the time of first diagnosis.^{10,11}

The difficulty in detecting MCI and, in many cases, MD is largely because of the insensitivity of the most commonly used screening test in clinical practice, the MiniMental Status Examination (MMSE). The MMSE is a brief test of several cognitive abilities with a maximum score of 30 points. One of the larger studies designed to differentiate individuals with MCI from those with normal aging showed that the MMSE detected only 30 percent of 244 subjects classified as MCI according to a CDR score of 0.5.^{12,13} This showed that more sensitive screening tests are needed in community health care settings.

The National Institute of Aging, founded in 1986, has brought together 24 major medical research centers in the Consortium to Establish a Registry for AD (CERAD). The consortium has developed an extensive battery for evaluating and diagnosing persons with the MCI and dementia stages of ADRD. The CERAD battery includes demographic data on subject and informant, clinical history and examinations, extensive neuropsychological exams, laboratory and imaging studies, and neuropathological studies. One of the subtests of this battery, the CERAD 10-word list (CWL), has been shown to be one of the more sensitive tests for detecting MCI.¹⁴ The CWL consists of three immediate-recall trials of a 10-word list, followed by an interference task lasting several minutes, and then a delayed recall trial with or without a delayed-cued-recall trial. The CWL is usually scored by recording the number of words recalled in each of the four trials. A single cutoff score for the delayed-recall trial, with or without adjustment for demographic variables, is typically used to determine whether cognitive impairment exists. This approach, however, may ignore other important

information contained in the CWL. For example, the measurement of attention, working memory, learning, retention and serial position effects may be important in identifying MCI. The research summarized herein tests the hypothesis that additional information contained in the CWL can more accurately distinguish MCI from normal aging.

As mentioned, the delayed-recall score of the CWL is reported to be somewhat sensitive for detecting the earliest stages of ADRD and has been used by the National Institute of Aging CERAD centers for approximately 20 years.¹⁵ The sensitivity of delayed recall is high because it measures entorhinal and hippocampal cortical function, where the earliest neuropathological changes in AD occur.¹⁶ In detecting subtle entorhinal or hippocampal dysfunction, measuring encoding may be more important than retrieval because analysis of the "people and doors" test showed no difference in classification accuracy between delayed recall (which requires that a word be previously encoded to be retrieved) and delayed-recognition (which eliminates retrieval and simply measures whether the word was encoded).¹⁷ Disorders such as cerebrovascular disease, depression and Lewy body disease, in which delayed recall is impaired, but delayed recognition is intact, indicate a dysfunction of retrieval that is presumably caused by disrupted connections to the entorhinal-hippocampal circuit without damage to the circuit itself.

Encoding occurs during the immediate-recall trials of the CWL, and its persistence is measured with delayed-recall and delayed-recognition tasks. Our results suggest that the immediate-recall trials have encoding and/or retrieval information that enhances the power of delayed-recall measures to detect MCI. The relatively higher sensitivity of the present study's results compared with other studies of normal vs. MCI is likely caused by the use of all of the encoding and retrieval measures in the CWL data, including weighting of each word's relative importance by its position in the list and by the trial in which it is recalled. The CA-weighted column scores of the CWL data measure the difficulty of encoding and retrieval for each word in each trial. A simple summation or cutoff score of the number of words recalled across the four trials would not account for such weightings of encoding and retrieval difficulty.

With approximately 95 percent of the MCI subjects having a diagnosis that would produce progressive decline, the high sensitivity in the study means that many non-AD diagnoses also show early changes in encoding and, or retrieval that differ from normal aging. The implication of an abnormal screening result based on the randomization validation method is that it is correct in about 94 percent of MCI cases, most of which are progressive, and incorrect (a false positive result) in

about 11 percent of normal-aging subjects. The implication of a normal screening result is that it is correct in about 89 percent of all normal-aging subjects and incorrect (a false negative result) in approximately 6 percent of MCI cases. The probability that a person with a positive screening test result has MCI is 100 percent and the probability that a person with a negative screening test result is normal is at least 96.6 percent. These rather straightforward interpretations can provide guidance for busy clinicians as to whether to proceed with diagnosis and treatment.

Conclusions

CA can substantially improve the CWL, which has been internationally validated and is sensitive for detecting early stages of ADRD. Compared with the usual method of scoring and interpreting the CWL, the CA-weighted scores derived from the item responses increased sensitivity in detecting MCI by 12 percent while preserving high specificity. Following the literature search method for identifying normal vs. MCI studies, we found our results to be the highest reported. Because most other screening tests rely primarily on total scores that are not adjusted to maximize their explanation of the variance, they could be improved by incorporating the methods presented here. *

Author's note: The complete article can be found in *The Proceedings of the National Academy of Sciences of the United States of America* (PNAS), March 29, 2005, vol. 102, no. 13, 4919 – 4924.

Footnotes

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Update on the MCAS:

A Cognitive Screen Used in LTC Insurance (LTCI) for Over Five Years

by Dean Knudson, M.D.



MCAS Overview

The Minnesota Cognitive Acuity Screen (MCAS) is a brief cognitive screen that has been validated to correctly identify mild to moderate cognitive impairment in 98.1 percent of all cases. The MCAS has been in use in the LTCI industry for more than five years, and has shown excellent results in reducing early cognitive claims.

Since its introduction in May of 2000, the MCAS has been administered more than 250,000 times. It is now used by more than 30 of the leading LTC insurers.

Initial Research and Development

In late 1997, Nation's CareLink management recognized that the LTCI industry would benefit from a better and more efficient way to screen for early stage cognitive problems. Dr. David Knopman and I, working together with a group of independent psychometricians, led the research to develop a fully validated cognitive screen designed specifically for the needs of the LTCI industry. Dr. Knopman, a neurologist with the Mayo Clinic who is well known for his work with cognitive issues, is the developer of the Delayed Word Recall (DWR) test.

Over the next two years, the research team developed and validated a cognitive screen, which tests nine different areas of cognitive intelligence. The screen was created to more clearly identify problems with areas such as reasoning and judgment, as well as memory. The subsections are weighted based on their predictive power to determine an individual's cognitive status.

In 1999, the research team presented their work on a fully validated telephone cognitive screen. Dr. Knopman and the team of developers published their research in a peer reviewed medical journal: "Neuropsychiatry, Neuropsychology and Behavioral Neurology" Vol. 13, No. 4: October 2000. An unbiased scientific panel of experts in the field reviewed the research and approved it for publication.

High specificity along with high sensitivity was a goal in the development of the MCAS, as the research team was aware that insurers need to consider not only reducing the number of potential cognitive claims entering their risk pool, but also accepting as much profitable business as possible. Through the research, the MCAS has been proven to be 98.1 percent effective in determining the presence or absence of mild to moderate cognitive impairment. Not only was the tool proven to be sensitive (correctly identifying impaired subjects in 97.5 percent of cases), but it was also shown to be specific (correctly identifying non-impaired subjects in 98.5 percent of cases). Specificity is important, and is rarely considered in most screens. The less specific an exam is, the higher the number of applicants who will be declined based on false-positive results.

The results of the MCAS are presented to the insurer in a one-page report, which provides a single score and denotes the individual's level of cognitive acuity.

Advantages of the MCAS

There are several benefits the MCAS employs that make it unique among screens commonly used in the LTCI industry. The benefits include: sensitivity to the mildest forms of cognitive impairment, a focus on more than memory alone and the ability to employ the screen either telephonically or face-to-face.

The primary benefit of using the MCAS is its particular sensitivity to mild cognitive impairment (MCI). According to Dr. Knopman, "The

advantages of the MCAS are, in particular, two. In that there are two subtests of the MCAS that aren't really found in the other instruments. And these two subtests give the MCAS what we believe to be particular sensitivity for detecting the earliest kinds of cognitive changes that would occur in patients who are destined to have Alzheimer's Disease or who have very mild Alzheimer's Disease. These two subtests are the DWR test and the Verbal Fluency Measure."¹

The DWR tests short-term memory by giving the subject 10 words to recall. The applicant is asked to repeat each of the words and use it in a sentence. The applicant is then asked to repeat the words again, and then use them in a second sentence. This "elaborative processing" assists in the imprinting and storage of material. After five minutes, the applicant is asked to recall as many of the words as they can. Verbal Fluency is effective in detecting mild cognitive problems. It tests word finding ability and complex thinking. Applicants are given a category and asked to name, in a 30 second period, as many items as possible in that category (i.e. all the animals you can name in a 30-second period). The score for this section is the number of items the applicant is able to name in a given time.

Although the MCAS incorporates the most advanced memory screening available, it is made even stronger by its focus on more than just memory. Many cognitive research groups estimate 20-25 percent of dementia is caused by syndromes other than Alzheimer's Disease. These other types of dementia, such as vascular, Lewy Body and Korsikoff's dementias, have a different etiology and affect the brain differently, particularly in their earlier stages. Focusing on memory testing alone can lower sensitivity and specificity in screening for these types of dementias. Several of the cognitive domains selected for inclusion in the MCAS were chosen for their ability to more accurately test for these alternative types of dementia, making the screen more valuable and robust.

Finally, any cognitive screen must be administered consistently for accurate results. The MCAS is carefully and precisely programmed and scripted. Instructions have been refined over thousands of administrations. A thorough training program has been developed for assessors and interviewers who complete the MCAS, including video training on the administration of the MCAS for face-to-face interviews.

Results of Using the MCAS

Results of using the MCAS have been extremely favorable and insurance companies that have used the MCAS over a period of time have stated that it has had a very positive impact on their business. In a recent survey of insurers, the MCAS received high marks for the effect it has had on early cognitive claims.

Recent Claims Experience Study

A study on the MCAS's effectiveness in reducing early cognitive claims was recently completed with one large insurer. The study reviewed cognitive claims experience of more than 250,000 cases that had been underwritten in the five-year period since implementing the MCAS. Key findings of the study include:

- Cognitive claims in the insured population were less than 0.05 percent of the average found in comparable age groups of the U.S. population. In other words, cognitive claims in the age groups studied were 2,000 times less than what would be expected in the same age groups of the U.S. population (even without including adverse selection).²
- The false positive rate (number of applicants who passed the MCAS and went on to claim in the period studied) was 0.008 percent, or one for every 13,000 administrations.

Future Research

A comprehensive, multi-company study is in the planning stages with the goal to review underwriting and cognitive claims experience of using the MCAS compared to other cognitive screening tests. For more information, or if you are interested in being involved in this study, please contact Lori Rice at lori.rice@ncl-link.com. *

Footnotes

1) Quote from David Knopman, MD: Minnesota Cognitive Acuity Screen (MCAS) – A Highly Accurate Cognitive Screen. Video. March 2004.

2) Population statistics from: Report to the Secretary of Health and Human Services: Alzheimer's Disease, Estimates of Prevalence in the United States. January 1998.

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New Developments in Cognitive Testing

by James M. Jacobson, M.D. and Elisabeth H. Wiig, Ph.D.



SYNOPSIS

Cognitive tests used in the long-term care insurance industry differ in cognitive domains tested, time required for testing, ease of test administration, sensitivity and specificity. Recently, new approaches to scoring or testing have improved test utility for screening for cognitive impairment. The cognitive test best suited for a particular situation is determined by the purpose of testing and the environment in which testing is conducted. In this article, we briefly review several tests of cognitive function currently used in the long-term care insurance industry, and describe two new approaches to cognitive testing. Though each of the cognitive tests addressed in this article has a role in assessing cognitive function, the AQT Test of Cognitive Speed provides several advantages to the long-term care industry, including ease of administration, high sensitivity and high specificity.

Introduction to the Need and the Tests

Dementia is characterized by progressive cognitive impairment, leading to dependency and death.¹ The consequences are devastating for the individual and for the family, in terms of both personal loss and enormous financial cost.²⁻⁵ While fewer than 5 percent of people have dementia at age 60, the incidence rises to about 50 percent in those in their 80s.^{6,7}

More and more individuals want to be screened for dementia. Screening offers afflicted individuals an opportunity to be treated with medications with known effectiveness to improve

cognition or delay cognitive decline. Thus, there is medical justification, as well, for early screening.

When the cost for care is covered by a long-term care insurance policy, the financial burden shifts, at least partially, to the long-term care insurance company that issued the policy. Long-term care insurance companies, hoping to avoid adverse selection, usually require some type of medical assessment prior to issuing a policy for long-term care insurance. Cognitive tests are commonly used as part of this assessment.

Numerous cognitive tests are available to assess cognitive function. They differ in cognitive domains tested, time required for testing and ease of test administration. Recently, new approaches to testing have been developed, and offer improved sensitivity and ease of testing. This article provides a review of key issues pertinent to screening for cognitive impairment in the long-term care insurance industry. We describe several current testing methodologies: the Mini Mental-State Examination (MMSE),⁸ the Short Portable Mental Status Questionnaire (SPMSQ),⁹ and the delayed word recall (DWR).¹⁰ Then, we introduce two new testing methodologies—the Correspondence Analysis-Weighted Scores¹¹ and the AQT Test of Cognitive Speed.¹²

Why Is It Difficult to Detect Dementia?

Detecting cognitive disease at an early stage is challenging due to several related factors. First, cognitive performance in a normal population is characterized by wide variability; that is, some people have cognitive ability substantially above average, and some have cognitive ability substantially below average, albeit normal. This variability is due in part to the influence of hereditary and developmental factors, and also due to education, practice, medical disease, medication, age and a host of environmental factors.¹³⁻¹⁸ This broad variability, both between individuals and within individuals, complicates detection of disease that impairs cognitive performance.¹⁹⁻²³

Second, characteristics of dementia itself make identification difficult. Dementia occurs slowly. It causes few recognizable symptoms. In an early state, disease is unlikely to be suspected based on observation alone. Further, individuals with progressive disease may pass through multiple levels of intellectual function. If their pre-disease “normal” state is one of superior function, they may demonstrate intellectual performance that appears normal, even while they are losing cognitive skills.



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Third, the most commonly used tests of cognitive content have suboptimal accuracy for detecting disease in early stages, or for differentiating disease from normal aging.²⁴ Newer tests offer hope of early detection, improved detection of disease or ease of administration.

Comparison of Cognitive Tests

The most commonly used tests of cognitive function have been based on observation or testing of cognitive content, such as memory and construction.^{8, 25-27} Because aberration of content is both clearly recognizable and clearly abnormal, these observations or tests have been useful to detect established (moderate or late stage) dementia and differentiate it from the normal state.

The Mini-Mental State Examination (MMSE)⁸ tests subject ability to perform serial subtraction, recall three words previously registered, name common objects, repeat a sentence, read text, write text and copy geometric figures. This exam is relatively easy to administer, but requires highly trained personnel. It has a relatively low sensitivity for detecting dementia.²⁴ MMSE is sometimes administered in partial form (excluding the writing, reading and construction portions) via telephone, but the validity of the telephone administration has not been published.

The Short Portable Mental Status Questionnaire (SPMSQ)⁹ tests a subject's ability to perform serial 3 subtractions, and to recall their age, birth date, telephone number, street address, mother's maiden name, as well as the current U.S. president, past U.S. president and day of the week. SPMSQ can be administered by telephone. Educated English-speaking adults with normal cognition usually perform the MMSE or SPMSQ tests without difficulty. However, both the MMSE and SPMSQ have low sensitivity and specificity, and are affected by the subject's education level.^{8,26,28} And, disturbingly, the SPMSQ appears to be affected by race. This effect occurs even when educational levels are considered. This means that if the test were used as designed, one would need to have different criteria by race for deciding when a subject is impaired. To have different criteria might be deemed socially unacceptable; to not have different criteria would be scientifically invalid.⁹

Delayed word recall is commonly used in the long-term care insurance industry, either alone or as part of a battery of tests. For this test, the subject is shown 10 cards each containing one word. As the cards are being shown one at a time, the subject is asked to read the word, use the word in a sentence, and memorize it. After a delay, the individual is asked to recall the 10 words. Only 1 of 55 normal individuals recalls all 10 words.¹⁰ The mean score is six words; some normal subjects recall as few as three out of 10 words. If scored alone, DWR should probably not

be used for decision-making because of known low repeatability. Used together with other data as part of a prediction equation, it is acceptable, if the DWR factor improves the predictive value of the equation.

Some organizations administer the DWR over the telephone—a modification that makes administration convenient. However, this method of testing obviously tests different cognitive circuits, and may achieve different results. Further, this method of testing has not been fully validated in the literature. Delayed word recall has been incorporated into a test battery known as the Minnesota Cognitive Acuity Screen (MCAS).²⁹

New Approaches to Cognitive Testing

Correspondence Analysis-Weighted Scores: In hopes of improving the utility of delayed word recall, some investigators¹¹ have proposed a weighted scoring system for delayed word recall, based on the fact that recall difficulty is influenced by the word itself (some words are harder to remember), and by its position in the list (words in the middle are harder to remember). When this weighted score was used in a regression equation, together with other demographic and medical information, the test sensitivity to detect cognitive impairment improved compared to sensitivity when the correct word count alone was used in the equation.

Because correspondence analysis depends on word recall, it should be expected to have the same limitations and restrictions as DWR. Further, the test procedure requires considerable time and repetitive testing. Whether the advantages extend to administration over the telephone has not yet been determined.

The AQT Test of Cognitive Speed: An alternative approach to assess cognitive function is to measure processing speed. Tests of processing speed use time, rather than content, as the outcome measure, and include both reaction time and response time for various tasks.^{12,13, 30-33} These methods are sensitive to even small changes in processing speed and have been used to examine the effects on cognition of epilepsy, executive function disorders, frontal lobe involvement, temporal-parietal lobe dysfunction, medication effect and other neurological conditions.^{14,16-17} Tasks based on rapid automatic naming of familiar competing stimuli are specialized measures of processing speed that allow evaluation of cognitive functions that underlie recognition, memory, reading and language production. The AQT can be performed easily and inexpensively in a matter of minutes, and training to administer the test can be accomplished with just a few minutes

Delayed word recall has been incorporated into a test battery known as the Minnesota Cognitive Acuity Screen (MCAS).



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Figure 1: AQT Stimuli for Naming Color, Form and Color-Form

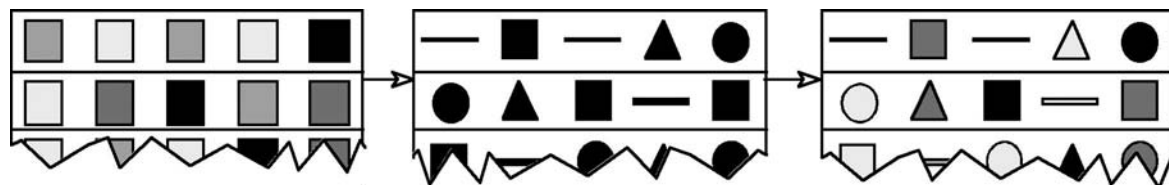
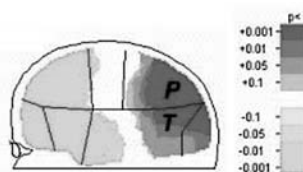


Figure 2: During color-form naming tests, the normal brain shows greatly increased cognitive activity in the temporal (T) and parietal (P) regions.



of self-training.³⁴ AQT may be administered by telephone.³⁵

People complete the AQT by naming, as rapidly as possible, the color of 40 colored squares on the first test page (Fig. 1A). Then, as quickly as possible, they name the form (shape) of 40 black forms on a second test page (Fig. 1B). Finally, as quickly as possible, they name both the color and form combination of a series of 40 items on a third test page (Fig. 1C), e.g. “blue line, red square, blue line, yellow triangle”. The combination-naming task is substantially more challenging than naming either color or shape alone.³¹ Individuals with impaired cognition require more time than non-afflicted individuals to complete the naming.³⁶⁻³⁷

The AQT in Figure 1 above detects cognitive impairment because it is designed to detect impairment in the brain regions involved with dementia. Braak and Braak,³⁸ in exquisitely detailed pathological studies, have shown that the earliest pathological signs of Alzheimer’s Disease begin in the parahippocampus and hippocampus, which are temporal lobe structures, and then spread to the parietal lobe. The AQT is designed specifically to test temporal and parietal lobe functions. If the temporal and parietal regions are damaged, as in dementia, there is reduced activity and reduced blood flow during color-form naming,³⁹ and an associated increase in color-form naming time.³⁶

AQT sensitivity (detection of people who have the disease) in Figure 2 above is 97 percent.³⁶ Specificity (recognition of normality in people without disease) is 97 percent.³⁶ The positive predictive value (likelihood that a person with a positive test actually has the disease) is thus 99.9 percent. This result is impressive, considering the apparent simplicity of the test and its administration. Further, AQT utility to diagnose dementia is not affected by age, gender or cultural-linguistic background.¹² Results are similar across languages—including English, Spanish, French Canadian, Swedish and Danish.³⁷ While results have a low positive correlation with age (increasing about 0.1 seconds per year), this age-effect will not interfere with test utility because people with dementia have scores substantially above the normal range.³³

Choice of a Cognitive Screening Test

The choice of test will be influenced by the purpose of testing and the population tested. Medical providers at a cognitive clinic, where the incidence of dementia is high, will want a test with high sensitivity (ability to detect disease when it is present). Specificity will have secondary importance because false positives will be less common in this population. Medical providers have available an array of alternative tests to substantiate or eliminate a diagnosis. The cost of

evaluation and patient inconvenience usually are not primary considerations.

Hopefully, underwriters for a long-term care insurance company will be exposed to a population with a low incidence of cognitive impairment. The optimal test for widespread screening will be characterized by rapidity, ease of administration by non-medical personnel, ease of training, low cost and high utility as measured by both sensitivity and specificity. It may be

administered via telephone, so as to minimize subject inconvenience and cost of administration.

Table 1 below compares cognitive tests on the basis of these criteria for a screening test of cognitive impairment. The tests that provide the best performance for each characteristic are shaded.

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Table 1: Characteristics of a Screening Test

Characteristic	MMSE ^a	SPMSQ ^b	DWR ^c	CA ^d	AQT ^e
Rapidity (minutes for testing)	10 mins.	10 mins.	15 mins.	15 mins.	3-5 mins.
Non-medical Personnel	No	No	No	No	Yes
Simple Training	No	Yes	No	No	Yes
Estimated Cost	Moderate	Moderate	High	High	Low
Free from influence of age, education, culture	No	No	No	No	Yes
Specificity^f	.94	.92	.96	.96	.99
Sensitivity^f	.88	.87	1.00	.91	.99
Candidate for administration via telephone	Partial	Yes	Yes	Partial	Yes
Utility as Screen	Low	Low	Low	Moderate	High

a) Mini Mental-State Examination

b) Short Portable Mental Status Questionnaire

c) Delayed Word Recall

d) Correspondence Analysis-Weighted Scores

e) Alzheimer's Quick Test

f) Highest value reported in literature

To summarize, those interested in screening for disease or establishing a baseline for later comparison, will demand a test that is simple, inexpensive and reliable. MMSE and SPMSQ are not optimal for these purposes because of low sensitivity (lowering the predictive value of a negative test) and specificity (lowering the

predictive value of a positive test). Delayed word recall can be administered via the telephone. Correspondence analysis-weighting scores improve the predictive value of the regression equation. AQT does not require medical training, can be administered in person or over the telephone, and has high sensitivity and specificity. *

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The Underwriting Network—

Track Chairperson's Perspective

by Noreen Guanci

The LTCI Section of the Society of Actuaries is organized into eight networking tracks consisting of actuarial, claims, compliance, group, managerial, marketing, operations and underwriting. Each track is in the process of defining its mission, role, activities and how it plans to benefit its membership. Among the initial activities for the underwriting networking track is development of the newsletter and Web site. The track will also work closely with those responsible for organizing the underwriting track sessions for the conference.

There will likely be many other activities undertaken as member interest and volunteer

energy allows. Some potential activities include a directory of membership from all tracks, a speaker's bureau, a bulletin board with job interests and postings, an organized discussion forum with experts from other areas who can answer technical, non-underwriting LTCI questions.

As this initiative moves forward, this presents a unique opportunity to create our own presence within the SOA. As mentioned, the underwriting networking track is in its infancy; creative ideas and enthusiastic energy are welcomed. If you are interested in participating or have suggestions, please contact Noreen Guanci at nguanci@longtermsol.com. *

Noreen Guanci is president of Long-Term Solutions in Sudbury, Mass. She may be reached at Nguanci@longtermsol.com.

The Marketing Network

by Mike Muench, Marketing Editor

The main focus of the marketing track has been preparing content for the newsletter and Web site as well as discussing our direction and agenda for the coming year. Our overall mission is to reverse the downward trend of LTCI sales by understanding the causes of the downturn and working on solutions. We have a nice mix of marketing types (home office, direct sales, group and reinsurance). So, naturally, we have many opinions on how best to attack the problem! One idea is to work on more awareness through marketing tools and efforts by the government and carriers. Another proposal has been to make a real effort to simplify the LTCI sales process, making it more accessible to agents and customers. If you have a suggestion or comment on either of these ideas, feel free to shoot me an e-mail! *

About our editor:

Mike Muench is the vice president of strategic alliances and a founder of Platinum Services Inc. Incorporated in 1995, Platinum is a Dubuque, Iowa LTCI agency selling with a captive field force of 70 agents, serving both individual and employer markets. Platinum can be found on the Web at: www.pltnm.com.



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Long-Term Care Insurance Planning

Protection for Business Owners and Key Executives

by Steve Cain

Most executives invest a lot of time and money building their estate. Then they spend even more money protecting their property with policies such as homeowners and automobile insurance. Most, though, overlook a critical tool in asset protection, long-term care (LTC) insurance.

Why Is LTC a Concern?

The likelihood that an executive will require some type of extended custodial or medical support—and the cost of that care—keep rising. In fact, the odds of an individual experiencing the need for a LTC claim are 120 times greater than losing his or her house because of a fire or other catastrophic loss, according to the American Healthcare Association.

LTC costs pose a greater threat to savings than either home or auto claims. That is because both the probability and size of the typical LTC claim are much higher. Unfortunately, it does not take long for those expenses to put even a reasonably wealthy individual's assets in serious jeopardy.

Advances in medical treatment and technology are extending our lives longer than ever before. Unfortunately, living longer does not guarantee a good quality of life. The older we get, the greater the likelihood an individual will experience chronic medical conditions such as arthritis, Alzheimer's Disease, joint replacement or a stroke. This creates a greater need for quality long-term or extended care.

In 2004, the national average cost for LTC services (skilled nursing home) was \$70,000 per year, according to *MetLife's Mature Market Survey*¹. What would you do if you developed a detrimental health condition that lasted several years? LTC insurance provides financial support that is affordable, necessary and timely.

What Are the Incentives for Employers?

Employers are looking at LTC insurance as a meaningful way to retain key employees, enhance benefits and reap significant tax benefits. These policies can protect the employee or business owner's personal assets with pretax dollars.

The Health Insurance Portability and Accountability Act of 1996 (IRC 213,162, and 105/106) created generous incentives for business owners to purchase LTC insurance for themselves, spouses and key executives. Here are the highlights:

- There are state tax credits available, but it varies by state
- Business owners can deduct 100 percent of premiums paid for employees
- Business owners can deduct up to 100 percent of their own premiums (including C corporations, S corporations, professional corporations, limited liability partnerships, and limited liability companies)
- Spouses can be added to policies at significantly discounted rates and the premiums can be deducted
- Policy benefits are income-tax free
- Benefits do not inflate employees' incomes
- Carve-outs are allowed in offering coverage
- LTC insurance is fully portable
- Paid-up options are available in most states (for example, paid-up after 10 years of premiums or paid-up at age 65)
- Return-of-premium features may be available, but they vary by state and by carrier

How Is LTC Insurance Beneficial?

LTC insurance can play a critical role in your clients' financial plan. Not only will LTC insurance help protect assets, but it can help ensure independence, personal dignity, quality and choice in extended healthcare. Corporate and association discounts, premium deductibility and income-tax benefits can make LTC insurance a financially attractive way to protect assets.

Disclaimer: Federal and state laws in this area are complex and subject to change. We do not render tax or legal advice. Please consult with your advisors regarding applicable tax or legal considerations. *

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¹ *MetLife Mature Market Survey of Nursing Home and Home Healthcare Costs, September 2004.*

The Group Network

by Chuck Breen, Group Editor

“Who am I, what is my purpose in the universe?” This is a philosophical question we have all asked ourselves. Have you asked: “What is group long-term care insurance? What is a group’s place in the marketplace?”

Welcome to the first edition of the group networking track for long-term care insurance. The goal of this portion of the newsletter is to provide education and discussion on group products. Group LTC covers a lot of products. There is large group, small group, true group, not-so-true group, employer sponsored, association, list bill, multi-life, etc. Well, you get the picture. There are a lot of products in this market. We would like to explore all of these products and help to clear up some of the confusion about them. Also, we would like to share some sales ideas along the way to help you penetrate this growing market.

Jeremy Pincus discusses the advantages of marketing to a younger population and how private LTC sales will help take the stress off government programs. He addresses how LTC needs to become a core product for employers for this benefit to grow.

At the time our author was writing these articles, the weather was hot, families were preparing for their 4th of July cookouts and celebrations. When you read this, fall will be creeping into the air, kids will be starting school, and the beach supplies will begin to be packed away. Seasons change, products change. This market is ever growing and changing. We would like to hear your ideas and comments on the group LTC marketplace. Whether it is an article or a comment, please send it along.

Thanks for being part of our inauguration. ✱

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The Critical Role of Group LTCI, Now and in the Future

by Jeremy Pincus, Ph.D.

A particular focus of my research has been the problem of increasing growth in both employer sponsorship of, and employee participation in, employer-sponsored group long-term care insurance plans. This is a worthy and necessary goal from a variety of perspectives:

- **Micro-simulation models of future long-term care financing show that the magnitude of projected savings to Medicaid arising from long-term care insurance (LTCI) coverage depends heavily on dramatic growth of LTCI among working age Americans.** Stimulating increased ownership of LTCI in the near term among baby boomers is critical to achieving significant future savings to Medicaid through private insurance.



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- **Purchasing LTCI at preretirement ages (40-59) is better for both consumers and the insurance industry.** Because premium costs are based on original issue age, buying LTCI at a younger age is an attempt to lock in a lower premium rate. Because younger applicants are less likely to suffer chronic health conditions, they are also more likely to pass medical underwriting. Generally, younger lives add lives to the risk pool with less processing time and expenses than the older lives.
- **Purchasing LTCI at the worksite is better for the industry and is preferred at pre-retirement ages.** Over the past five years, LTCI sales have been steadily shifting from one-on-one sales toward group or “multi-life” worksite sales, driven by the aforementioned combination of greater efficiency, affordability and insurability, as well as a limited number of insurance agents (there are only 3,000 LTC specialists nationwide to reach 80 million potential prospects). Although the multi-life approach to marketing LTCI makes a great deal of sense from the perspective of individual producers, it can only incrementally serve the goal of mass adoption of LTCI, since the goal of most multi-life producers is to “carve out” executive classes only.
- **The Congressional Budget Office has estimated the 10-year cost of inclusion of LTCI in cafeteria plans and flexible spending accounts at \$1.7 billion,** a figure that is dramatically less costly than the \$12 billion estimated for the proposed caregiver tax credit and \$28 billion for the proposed above-the-line tax deduction on all LTCI policies.
- **Health Savings Account legislation effectively permits group LTCI premiums to be paid with pretax income today,** although this is limited to those few employers who offer high-deductible health plans. Nevertheless, there is no policy-based rationale that would permit pretax premium payment for one type of employer arrangement and prohibit pretax for other employer arrangements.
- **Inclusion of LTCI in cafeteria plans and FSA’s would significantly boost ownership levels.**
 - o Baby boomers are highly price sensitive when considering the purchase of long-term care insurance. That is, a small change in price is associated with a relatively large change in demand (for the technically minded, price elasticity of demand = -1.3). We estimate that the cafeteria plan/FSA liberalization would result in an average decrease in premium cost of 21 percent, corresponding to a 25 percent to 28 percent increase in new enrollments in the first year.
 - o Survey research has consistently shown that 84 percent to 89 percent of current non-owners would be more likely to purchase LTCI if a tax deduction lowered the cost of ownership. Those aged 40-59 are disproportionately motivated by such tax incentives.

Because of the critical importance of employer-sponsored group LTCI to our society, tax incentives should be targeted to support worksite sales of LTCI by permitting inclusion of LTCI in Section 125 “cafeteria plans” and by allowing tax-free withdrawals from flexible spending accounts for the purchase of LTCI. Because these plans are tied to employment, provisions would need to be made for carrying plans over into retirement. Because full above-the-line tax deductibility for both individual and group policies has proven elusive due to its estimated cost, it would be prudent to pursue section 125/FSA deductibility now.

1) On June 14, 2005, the latest above-the-line bill was introduced (Long-Term Care and Retirement Security Act of 2005).

Five similar bills have been introduced in the past two years; all died in committee:

- H.R. 5110, The Comprehensive Long-Term Care Support Act of 2004
- H.R. 4595, The Ronald Reagan Alzheimer’s Breakthrough Act of 2004
- S. 100, Access to Affordable Health Care Act of 2004
- H.R. 2096, The Long-Term Care and Retirement Security Act of 2003
- H.R. 1083, The Lifespan Respite Care Act of 2003

These changes would create incentives for insurance companies to enter the employer-sponsored LTCI market. After a series of market exits, the LTCI market is increasingly concentrated among a small number of carriers. In the individual LTCI market, the top four firms represent 66 percent of new sales, compared with only 27 percent in the individual life insurance market. In the group LTCI market, the top four firms represent 90 percent, or nearly all, new sales. It will become increasingly difficult for any further consolidations to take place, as these market concentrations approach the anti-competitive zone designated by the Department of Justice. There is a clear need to motivate insurance companies to enter the employer-sponsored LTCI market to provide stability.

Beyond stimulating sales of employer-sponsored LTCI through tax incentives, there are a variety of other measures that can and should be undertaken by the industry itself. These measures include improving product marketing and positioning, ensuring the future relevance of the product itself and demanding a disciplined competitive approach to product, pricing and underwriting going forward.

Moving toward a financial planning positioning. Actively changing the positioning of LTCI from the current themes of “health and disability” toward a financial planning platform is critical to future growth. Consumers invariably refer to LTCI as “long-term health care,” which presents a more significant barrier than first meets the eye. Whereas health insurance/managed care focuses on curing diseases and preventing early death, LTCI addresses quality of life issues. In this way, LTCI is much more like defined benefit and defined contribution plans. Those without significant assets at retirement will have limited options for quality of life, relying on Social Security for income and Medicaid for LTC; those with greater assets should be able to rely on their accumulated investments for income and LTCI for high-quality life assistance. As the first baby boomers begin to retire in six years, their highest priority (and therefore, the nation’s highest priority) will be retirement financial management. LTCI will need to be fully integrated into employment-based (and individual) retirement planning to benefit from this surge of activity.

Beyond the overall positioning, LTCI messaging is in critical need of improvement. Current marketing does not sufficiently resonate with most American adults. Since all boomers are not alike, LTCI marketing would greatly benefit from a segmented view of the boomer market.

Moving toward a future-relevant product. A revolution is underway in the development of assistive technologies involving telecommunications, computing and robotics that will radically change the delivery of LTC services supporting greater long-term independence. Today consumers almost universally view LTCI as “nursing home insurance,” at a time when nearly one-third of American adults would rather die than live in a nursing home. Imagine the possibilities if LTCI were used to pay for services that were not dreaded, but welcomed as a normal part of aging in place.

Adequate inflation protection, within flexible guidelines, is another essential component of maintaining product relevance over many years. A compounding inflation adjustment that is tied to the *actual* rate of inflation of private pay LTC services is needed to avoid the twin perils of either under-insuring or over-insuring. Such an inflation adjustment presents challenges for data collection (it appears that no one currently tracks private LTC service costs in a systematic, reliable way). These are challenges for pricing; nevertheless, these are problems worth solving.

Moving toward effective industry stewardship. The problems leading to the recent “perfect storm” (simultaneous violation of assumptions of high lapse, high investment performance, low morbidity, low expenses and high sales performance) that caused several carriers to exit the market and others to raise rates on new or existing business were not unforeseeable. Overly optimistic expectations are not the instinct of most actuaries; I’ve found most actuaries to be rather conservative by nature. This kind of optimism is generally the by-product of the intense competitive pressure that precipitates a “race to the bottom.” Although regulators have now instituted systematic rate stability, going forward the industry must do a better job of steering clear of danger zones (e.g., combining limited-pay, compounding, unlimited lifetime benefits) to earn the long-term trust of distributors, policy-makers and consumers. *

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LTCI Member Survey—

“The People Have Spoken”

by Philip J. Barackman

Whether you were part of the *vocal minority* who responded to last fall’s LTCI Member Survey, or the *silent majority*, you may be interested in learning about the results, so read on.

Actually, the level of participation was not so bad, as far as surveys go. The survey was distributed by e-mail to all 1,163 LTCI Section members (whether SOA member or not). 259 people opened the link to the survey, 175 answered some questions and 132 completed the entire survey. All answers were included in the results tabulation whether or not the entire survey was completed.

Following are some of the more interesting results, which may help to point the direction for the LTCI Section’s future efforts to be a more valuable resource to its members. To the extent they do not reflect your thinking, and you didn’t participate this time, please use that as an incentive to do so next time!

1. In what ways would you like the LTCI Section to provide value to you?

In terms of providing basic *LTC knowledge*, 70 percent responded that this area is either moderately or highly valuable, and only 6 percent responded that the LTCI Section is doing an inadequate job in that area. Over the years, the range of LTC knowledge and experience of LTCI Section members has clearly broadened, particularly with its open membership policy, and it’s great to see that the LTCI Section continues to meet the need for basic LTC education.

Regarding specialized *LTC knowledge*, respondents would most like the LTCI Section to provide value in the following areas, based on the percentage selecting “highly valuable”.

	Highly Valuable?
Industry Experience	.71 percent
Valuation	.70 percent
Regulation	.67 percent
Pricing	.66 percent
“Go to” source for research, etc.	.65 percent
Product Design	.63 percent
Sponsor LTCI Sessions	.54 percent
Publish Newsletter	.51 percent
Sponsor Research	.46 percent
Claims	.46 percent

Areas of specialized LTC knowledge that appear to be of relatively lower interest to respondents with respect to the LTCI Section as a resource include: underwriting, compliance/policy language, marketing, technology, administration and sponsoring special programs, events, etc.

I believe that it would be a mistake for the LTCI Section to ignore these latter areas going forward. The diverse interests of the members would not be well served. One idea might be to seek volunteers to champion areas of interest that are currently less valued by the majority of members. I suspect that a strong argument could be made that most, if not all, of these areas are also highly important to the success of LTCI Section members and their organizations.

However, as the LTCI Section strives to strike some balance on where to focus efforts and create new initiatives, clearly the respondents have spoken, which should also not be ignored.

2. How well is each of your expectations currently being fulfilled by the LTCI Section?

While the above list identifies the areas for which respondents would most like the LTCI Section to provide value, the following shows the areas that respondents indicated are most “inadequately” being fulfilled.

	Currently Fulfilled Inadequately?	Highly Valued?
Industry experience	.40 percent	.71 percent
Be a “go to” source...	.39 percent	.65 percent
Experience analysis	.34 percent	.34 percent
Technology	.32 percent	.26 percent
Pricing	.29 percent	.66 percent
Compliance/policy language	.28 percent	.38 percent
Marketing	.28 percent	.28 percent
Valuation	.28 percent	.70 percent
Claims	.27 percent	.46 percent
Regulation	.27 percent	.67 percent

Naturally, there is some correlation between high demand and a lack of satisfaction with the current supply. Therefore, it is not too surprising

to see that industry experience heads both lists. I would also hasten to point out that the survey was conducted shortly *before* the release of the most recent LTC Intercompany Study. Therefore, the survey does not reflect any impact of that study on member opinion.

“Be a ‘go to’ source” also appears high on both lists, which implies that members are looking to the LTCI Section for research literature, experience studies, etc. to a greater degree than is currently being met.

Finally, pricing is a highly valued area, which the LTCI Section is perceived as not very well supporting.

3. What would you like to see more of, or less of, for us to better meet your expectations of the LTCI Section?

Here is a sample of what you would like to see more of:

- Industry experience analysis—long claim continuance and incidence rates
- Information on claims
- Product trends
- Risk analysis for each pricing component
- Average cost of LTC per state, per age cohort and per diagnosis
- Hear from experts outside of LTCI to provide insight into issues we face
- Valuation information
- Market and experience intelligence
- Underwriting related information
- Basic research
- Innovation

Here is a sample of what you would like to see less of:

- Basic LTC knowledge sessions
- Presentations which only “sketch” without the underlying mathematics
- Same presenters at meetings
- Duplication within sessions
- Actuarial numbers!

4. What do you think are the top three key issues facing LTC?

The most prevalent themes included:

- **Pricing** – stability, affordability, underpricing, repricing, pricing assumptions
- **Rate increases** – inadequacies, valuation implications, stabilization, approval
- **Education** – public, consumer, agent understanding of product, options, needs

- **Regulation** – restriction on plan design, rates, capital requirements, inflexibility
- **Claims** – lack of experience, trends, reserving, predicting future costs

Some other issues that were submitted included: not enough sales to younger ages, poor market position, systems for administration, consolidation/dropping out of carriers, quality of nursing home services, access to caregivers, lack of valuation standards, understanding morbidity, long-term profitability, litigation concerning rate adjustments, fraudulent activities by agents and policyholders, lack of innovation, failing investment returns, and the future supply of caregivers.

5. Would you be interested in helping the LTCI Section fulfill its mission to its members?

	% of Respondents
• Presenter at SOA meeting25 percent
• Write an article for LTCI Section Newsletter19 percent
• Help plan/coordinate/recruit LTCI session15 percent
• Stand for election to the LTCI Section Council13 percent
• Help develop/review LTCI content for SOA exam11 percent
• Serve on a committee11 percent
• Help update/maintain the LTCI Section Web site4 percent

In conclusion, I want to thank all of you that participated in the LTCI Section Survey. The results provide an important indication of what you value in being a member of the LTCI Section, and how well the section is meeting your needs. Future surveys will help us determine how your opinions have changed, and also provide further direction to the LTCI Section Council and active members who play a vital role in keeping the section on course in pursuing its mission of supporting your growth in LTC. If you didn't participate in this survey, please seriously consider doing so next time! *



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Practical Aspects of Long-Term Care Continuance Table Construction

by Dawn Helwig

This article addresses the complexities and practicalities of constructing a continuance curve from long-term care (LTC) claims data. The process discussed herein is one that makes use of the maximum amount of actual data available. The methods and formulas presented describe one way to create tables; different methods or approaches could be equally possible.

What is a Continuance Curve?

The “continuance curve” and its construction are topics that most actuaries study as part of their exam curriculum. Continuance tables provide the probabilities that someone who begins a claim (such as for disability, long-term care or hospitalization) will still be on that claim at the end of a given time period. The time intervals can be measured in days, months or years, depending on what is being measured and how long it’s expected to last. The tables usually start with a radix (beginning value) of 1.0, and then give factors that show what proportion of the original claimant population is expected to remain on claim at various points in time.

A hypothetical example of what a LTC continuance curve could look like is shown in Table 1. This table says that, for example, out of a given group of starting claimants, we would expect 34.1 percent of them to still be on claim at the end of 12 months, 24.5 percent at the end of 24 months, 16.1 percent at the end of 36 months, etc..

Getting Started

Most companies who are selling LTC will eventually find themselves in the position of wanting to create continuance curves that reflect their own claim experience. These continuance curves might be used to help create claim costs, to develop claim liabilities, and/or to compare to other available “industry” tables.

Developing continuance curves from a company’s own experience can be a complicated and difficult process, requiring a significant amount of data for credibility. The “tail” of a LTC continuance curve can be quite long, requiring many years of experience to get the “full picture.” Continuance can vary substantially by site of care (nursing home versus assisted living facility versus home care), by claimant age, and by diagnosis. Large portions of the continuance curve could be unknown, due to elimination periods and benefit period maximums. Changing care

management practices or benefit triggers over time could affect the pattern and length of the continuance curve.

In order to create continuance curves, a company must first create a database that contains its historic claim payments by as many data variables as possible. At a minimum these variables should include elimination period, benefit period/pool of money, site of care, sex and claimant age. Some basic decisions must be made as to the level of detail at which tables will be constructed (this may depend on credibility) and whether the continuance curve will begin at the date of disability (which may be difficult to determine) or the first date of service that is either paid or applied to the elimination period. These decisions should be made to be consistent with product definitions.

A company must also decide whether a “disability” type of table will be created, which tracks the entire clinical care pathway of a person (regardless of the site of care) or whether separate tables will be created for each site of care (at least nursing home versus home care). This decision may be driven by how the continuance tables will be used and on how frequency rates are constructed for claim cost calculations. A disability-type of table may not be appropriate for a company who has home care or assisted living facility (ALF) benefits that are paid at a different amounts than nursing home benefits, since it would be important to know the point at which the benefit amount changes (when a person transfers from one level of care to another). A disability-type table may also be less than optimal for use in developing claim liabilities on reimbursement style policies, since the pattern of continuance for nursing home care could be significantly different than for home care (i.e., the continuance could be much longer), and all that is known of a claimant at valuation time is the current site of care. Any possible transference to a future site cannot be predicted.

However, having separate continuance curves by site of care also has its problems. For pricing, further assumptions would be needed about the proportion of people who transfer from one site to another so that integrated pools of money could be priced.

For reserving, having composite home care and composite nursing home tables (with time zero (0) being the point at which the person enters that site of care) may mean that, upon

Table 1

Claim Duration (in months)	Total
0	1.00
1	.790
2	.698
3	.628
4	.569
5	.519
6	.477
7	.442
8	.413
9	.389
10	.370
11	.354
12	.341
...	...
24	.245
...	...
36	.161
Etc.	Etc.

transference from one site to another, a person is not really in the “right” duration for his actual clinical length on claim, and expected lengths of stay could thus be affected. However, this latter concern is alleviated if the continuance curves are constructed in a manner in which they are to be used for reserving, i.e., by treating the duration of the claim as the transfer duration in both the continuance table construction and in valuation. Another possibility is to create two sets of tables: the first for claims before site transfer (which ultimately includes those who stay in one site of care throughout the claim), and the second for use after transfer. Finally, the database needs to include whether a claim is open or closed at the time of the study. And, if the claim is closed, the database should include whether the claim closed due to maximum benefits being paid.

Basic Formulas

For most companies, it will be important to get as much credibility as possible out of the data it possesses. This implies that data for all elimination periods and benefit periods should probably be combined. Claim persistency rates (i.e., the number of claims still active at the end of the duration divided by the number active at the beginning of the duration) would then be created for each claim duration, using all available claims that had the opportunity to be exposed at *both* the beginning *and* the ending of the claim duration. If monthly durations are used, the incurral date is defined as $t = 0$, and the end of 30.42 calendar days (or other acceptable definition) is defined as the monthly duration $t = 1$.

We then define BOP_x to be the number of claims at the beginning of the month x . Likewise, EOP_x is the number at the end of month x .

$$\text{Persistency at each claim duration } t = \frac{EOP_t}{BOP_t}$$

In this formula, a claim that terminates in month t due to recovery or death will be included in BOP_t , but excluded from EOP_t , thus contributing to the termination rate (1 minus persistency) for the month. The persistency for each duration reflects the probability that a claim that is open at the beginning of that duration will still be open at the end of the duration.

The BOP_t will not necessarily equal EOP_{t-1} at each duration, since we only want to include, for each duration, those claims that have the potential to end in the duration. Likewise, EOP_t does not equal BOP_{t+1} . This is discussed further in the next section on exposure guidelines.

Once claim persistency rates have been calculated for each possible duration, the continuance table can be constructed by calculating the number of lives on claim at each time t (l_t), as follows:

$$l_1 = l_0 * \frac{EOP_1}{BOP_1}$$

$$l_2 = l_0 * \frac{EOP_1}{BOP_1} * \frac{EOP_2}{BOP_2}$$

$$l_3 = l_0 * \frac{EOP_1}{BOP_1} * \frac{EOP_2}{BOP_2} * \frac{EOP_3}{BOP_3}; \text{ etc.}$$

Using the above approach, many companies will be faced with the problem of how to extrapolate at the end of their credible data. Choices of approach include choosing an endpoint of the continuance (such as 15 or 20 years) and interpolating from the last available point to the end of the table, artificially creating a set of termination rates from a mortality table at the tail, or extrapolating using the most recently measured persistency rate until l_x approaches zero.

Exposure Guidelines

As mentioned above, the claims included in the exposure at the end of one duration are not necessarily the same number of claims included in the exposure at the beginning of the next duration. The exposures to include in each period t must be adjusted considering the following:

- Claims that end due to the maximum benefit being paid,
- Claims that are still open at the end of the study period, and
- Claims that do not have a zero-day elimination period.

Each of these situations is discussed in further detail below.

a) Claims that Close Due to the Maximum Benefit Period Being Reached

These claims should be included in BOP and EOP up until the time that the policy benefits have been completely used up; they should then be excluded from the BOP exposure for the next duration after the end of the benefit period (and for all subsequent durations, since nothing is known about the claimant after that point).

In order to do this:

- The maximum benefit period is calculated for each claim. This may be expressed either in dollars or as a calendar period.
- The ending service date is compared to the end date of the maximum benefit period if it is a “calendar” policy. If it is a “pool of money” policy, the comparison is to the sum of paid-to-date.

For all claims with the last duration equals x due to reaching the maximum benefit period:

- The exposures are included in EOP and BOP for $t = x$

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- The exposures are not included in EOP and BOP for $t = x+1$ or greater. Even though the exposure is included in EOP_x , it is not included in BOP_{x+1} .
- Exposures are included in BOP and EOP for durations $x+1$.

Even though claims may theoretically be included in the study up to the last duration of their benefit, it may be prudent to examine data for a behavioral bias. For example, behavior caused by a restoration of benefits provision in a LTC contract may be important to examine. Claimants having such a contract may choose to end their services a month or two before their benefits are exhausted in an attempt to be eligible to restore benefits in the future. If a company observes this in their data, the exposure rules may be modified to define the last period x for inclusion in the study to be several months before the actual expiration of benefits.

b) Claims that are Open at the End of the Study Period

These claims should be handled similarly to claims that reach the end of the benefit period, as described above. Exposures for claims that are open at the end of the study period are calculated in the following manner:

- The duration at the end of the study period is noted. This duration = x .
- The exposures for these claims are included for EOP and BOP where $t = x$.
- The exposures are not included in EOP and BOP for $t = x+1$ or greater.

c) Claims that have Elimination Periods other than zero

It is important that the claims incurral date be set by the claims department in a consistent manner—to either be the first date the claimant begins services, the first date that the claimant meets the qualification criteria or the first date that the deductible is met.

Since there are many claims that will have terminated prior to satisfying the elimination period, and detail about these claims may not be captured in the database, information during the elimination period will be lost. Thus, in order to avoid a bias of having too many claims with early duration persistencies of 100 percent, claims with elimination periods greater than zero should not be included in the exposures until the elimination period has been met. That is:

- Claims that have an elimination period of zero days are included in all exposures.
- Claims with an elimination period equal to x are not included as an exposure count for any EOP or BOP of duration up to and including duration x .

It should be noted that claim persistency rates that are calculated using the above guidelines may end up containing some biases at the beginning and the end of the continuance curve. This is because the beginning duration persistency rates will be driven by the zero-day elimination period claims and the end will be driven by the lifetime benefit period claims. These claims have typically been somewhat more anti-selective, thus perhaps resulting in higher claims persistency rates.

Conclusion

The methodology described above should provide optimal results, since the most of data possible will be incorporated into the tables. It should be noted that a significant amount of data is still necessary. Also, claim persistency rates derived from that data could be constantly changing (due to changes in mix of comprehensive versus stand-alone business, claim payment and management procedures, etc.). Thus, the tables should be updated regularly or continually validated against actual experience. *



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