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Update on the MCAS:

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

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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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