

Screening and Early Diagnosis of Dementia

Norman Relkin, MD, PhD

Presentation Summary

In current practice, the diagnosis of Alzheimer's disease is often delayed for several years after the initial onset of symptoms. Earlier diagnosis is desirable for several reasons. It allows the patient, family, and clinician to plan more effectively for the future, reduces the likelihood of catastrophic events such as

motor vehicle accidents, and permits more effective administration of medications to delay symptom progression. Early detection of dementia can improve the quality of life for the patient and the caregiver and ultimately reduce total care expenditures by delaying the time to nursing home admission and other costly outcomes.

Early and accurate clinical diagnosis of Alzheimer's disease (AD) is promoted by the application of standardized criteria (eg, *Diagnostic and Statistical Manual of Mental Disorders*, edition 4 [DSM-IV], National Institute of Neurologic and Communicative Disorders and Stroke—Alzheimer's Disease and Related Disorders Association [NINCDS-ADRDA], and the Consortium to Establish a Registry for Alzheimer's Disease [CERAD]) that require the clinician to recognize the common presenting features and typical clinical course of AD. The direct diagnosis of AD requires skilled medical and neuropsychiatric evaluation that includes interviews with the patient and caregiver as well as cognitive and functional assessments. Laboratory tests and brain imaging are not a substitute for clinical acumen but when used selectively can sometimes assist in clarifying the diagnosis. The accuracy of

diagnosis is affected by many factors, including the quality of the clinical history, the skill of the examiner, and the time allotted for examination. To improve detection and improve AD outcomes at the present time, managed care organizations (MCOs) should educate practitioners about recognition and management of dementia, promote adherence to published guidelines for diagnosis of dementia, and allow sufficient time and incentives to facilitate diagnosis of dementia at the primary care and specialty levels.

Current experience indicates that AD is treatable, and ongoing research suggests that it may be preventable in the future. To capitalize on new treatment approaches that can prevent excess morbidity and unnecessary costs, earlier recognition and destigmatization of the disease are essential. A highly prevalent disorder in the elderly such as AD would seem

ideally suited to detection by population-based screening. However, there is no current consensus on how to carry out routine broad-based cognitive screening in the elderly or how to proceed once the results of such testing are obtained. Validated, cost-effective methods are needed to permit large-scale, population-based screening for cognitive and behavioral impairments. Considerable public education may be necessary to bring about acceptance of such screening methods and to defuse negative perceptions surrounding the detection of memory loss and other forms of cognitive impairments.

Physicians are often reticent to diagnose AD, even when confronted by patients with fairly dramatic cognitive impairments. Underrecognition remains a key stumbling block in developing better patient management approaches in private practice and managed care. This presentation emphasizes the potential benefits of early diagnosis of dementia and the practical steps that can be taken to achieve this goal. Because MCOs possess organizational structures that are well suited to promoting physician education and standardized practice patterns, they are in an excellent position to improve the early recognition and management of a costly, chronic disorder such as dementia.¹

Importance of Early and Accurate Diagnosis of AD

Several studies confirm a widespread failure to recognize AD in its early stages. One recent study found that primary care physicians failed to recognize dementia in 24% to 72% of documented cases.² Another showed that general practitioners recognized mild cognitive impairment in only 3.2% of cases and dementia in only 23.5% of cases.³ At present, only a minority of AD cases are diagnosed in the early stages.

What are the consequences of delaying recognition of AD until its later stages? Among the major conse-

quences are catastrophic outcomes such as motor vehicle accidents and major financial losses. Such events are all too often the precipitating factor that leads the patient with dementia to seek medical attention. Early diagnosis provides opportunities for the patient, the family, and the physician to formulate an appropriate care plan that includes steps to prevent such catastrophic outcomes.

Dementia must be diagnosed before it progresses beyond the point where the patient is able to make informed decisions about his or her own care, including designating a healthcare proxy or granting legal representation in the form of power of attorney. This provides a compelling reason to seek the earliest possible diagnosis.

But perhaps of equal importance to MCOs seeking short-term returns on investment, early diagnosis would also permit early symptomatic treatment and potential prolongation of the disease at a milder stage. Because the costs of AD care increase with advancing severity of the disease,^{4,5} this ability to delay progression may have substantial economic implications. The prevailing evidence indicates that early diagnosis and treatment may foster the maintenance of a milder and less costly disease state. Because the currently available treatments do not prolong life, their application earlier in the disease process can be cost effective.

The nature of the potential cost savings associated with early diagnosis and treatment is illustrated in the Figure. As shown in the top portion, the cost of dementia care rises as a function of worsening disease stage. Increasing severity of dementia is indicated in this Figure by declining scores on the Mini-Mental State Examination (MMSE). The most significant costs, including those related to nursing home care, tend to accrue once the patient reaches the moderate and severe stages of the disease. As indicated, the common late diag-

nosis is most often made in the moderate stage of the disease where the treatment impact on future costs may be limited. Although a variety of data demonstrates that late treatment can reduce both behavioral and cognitive symptomology in the moderate or even the severe stages, these treatment effects may occur too late to impact healthcare costs.

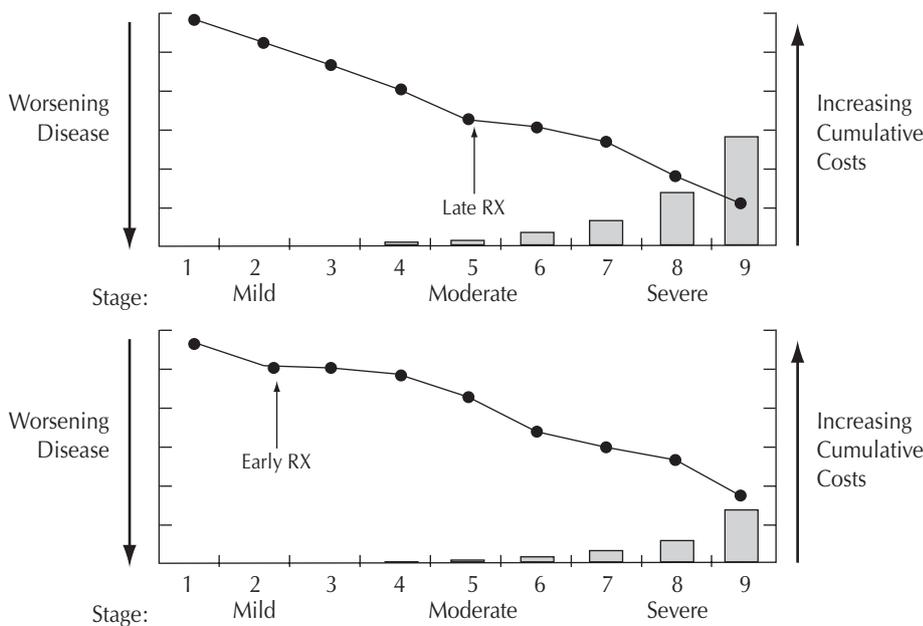
As shown in the bottom portion of the Figure, early diagnosis of the disease can trigger early treatment and a lengthening of the mild phase. Initiation of early treatment has been demonstrated to prolong time to nursing home placement and time to disabilities.⁵⁻⁸ Thus, a longer mild phase is associated with concomitantly shorter phases of moderate and severe disease and reduced cumulative costs. Whether the agent is a cholinesterase inhibitor or an antioxidant such as high-dose vitamin E, the potential for prolonging the mild

phase has become an important target of therapy today. However, the target for cost effectiveness requires a more finely tuned ability—backed by a commitment from the MCO—to make an early diagnosis.

Making the Diagnosis

In considering the range of tests available for dementia, it is important to distinguish between screening tests and the instruments used for differential diagnosis. Screening tests should have high sensitivity to capture a majority of the cases. They should also be simple and inexpensive to allow rapid administration to a large number of people. Simplicity is key in the screening environment, because the most likely administrators of screening tests are primary healthcare providers and their designates, who often have little or no formal training in cognitive testing.

Figure. Hypothetical Cost Savings with Early Diagnosis and Treatment



The clock-drawing test is an example of a sensitive, but not specific, screening test for cognitive impairment.⁹ In this test, the patient is asked to draw the face of a clock showing a particular time and then to copy a clock from an existing example. The test takes 1 to 2 minutes to administer and is very inexpensive. The results of such tests capture a variety of impairments, including those seen in AD and many other diseases of the brain; however, developmental disorders, low educational attainment, affective disturbances, and a variety of other factors may yield false-positive results. There is very little consensus today on which screening tests for dementia work best in the standard doctor's office setting or remotely as in the case of telephone-based screening. A large number of putative screening tests have been proposed, but no single screen has been found to be ideal in all populations.

Diagnostic tests, on the other hand, help to distinguish normal patients from those truly affected by a disease and assist in establishing a specific diagnosis. These tests can help the clinician determine if a cognitive impairment is more likely to occur as a result of a primary neurodegenerative process, such as AD, or an affective disorder, such as depression. Distinguishing between dementia of the AD type and a frontal temporal dementia, for example, provides important prognostic information about the likely course of the disease and comorbidities, which can strongly influence clinical management. Diagnostic tests usually require skilled administration and interpretation and tend to be more time consuming and costly than screening tests.

AD was long considered to be a diagnosis of exclusion during life that required autopsy confirmation to be made with any certainty. There is now a groundswell of support for the idea that the diagnosis of AD can be made during life in many cases, based

on recognition of its typical presenting features and clinical course.¹⁰ A careful clinical history may be the most important part of the diagnostic process. In many cases, the patient's lack of insight into his or her own deficits and a diminished ability to recount recent life events provides the clinician with the first powerful indication of dementia.

Of course, the ability to detect common features of the disease hinges on the skill of the clinician. Those practitioners who see hundreds of patients per year with dementia, such as geriatricians, geropsychiatrists, and behavioral neurologists, would recognize AD symptoms more readily than would clinicians who see 4 or 5 cases per year. To bolster the office-based assessment and interview, a brief mental status screening examination is usually sufficient in primary care to recognize and evaluate cognitive impairment. The clock-drawing test, as well as the MMSE^{11,12} and functional assessments of activities of daily living,¹³ may also help grade the cognitive impairments and determine the need for further evaluation. Deterioration of performance on such quantified screens of cognitive function may also help confirm the diagnosis.¹⁴

The exclusion of other forms of dementia adds to the diagnostic certainty and helps to identify any treatable comorbid conditions. Laboratory tests, which once were used for ruling out other forms of dementia, are now increasingly viewed as appropriate tools for identifying and monitoring the comorbidities in disorders such as AD. The main laboratory evaluations generally include a complete blood count, blood chemistry, liver-function tests, a serological test for syphilis, thyroid-stimulating hormone, and serum vitamin B₁₂ levels.^{10,11} Interpretation of these test results has evolved in recent years

to reflect our better understanding of dementia and its comorbidities. For example, vitamin B₁₂ deficiency is only rarely the primary cause of a dementia but not uncommonly a coexisting condition in a patient with AD. This may be a result of the increasing frequency of B₁₂ deficiency in elderly patients, the same group that is at risk for AD, or a reflection of suboptimal nutritional intake of a patient with dementia. Thus, vitamin B₁₂ deficiency is better thought of as a frequent concomitant feature of the dementia than as the underlying cause of the symptoms. This new view changes the nature of B₁₂ testing and highlights the importance of monitoring the total nutritional state over the course of the disease. The cost implications of this and other evolving testing strategies remain to be determined. However, as in the case of cholinesterase-inhibitor therapies, treating comorbid conditions such as B₁₂ deficiency could help delay symptomatic progression to the more advanced stages of disease in which costs of care climb dramatically.

Barriers to Accurate Diagnosis

Even in the most skilled hands, diagnosing AD can be challenging. A recent study compared clinical diagnoses made by dementia specialists with the gold standard of findings at autopsy. Clinical diagnoses were made based on the NINCDS-ADRDA criteria, which distinguishes among unlikely, possible, probable, and definite AD.¹⁵ Compared with the postmortem classification, the clinical antemortem diagnosis of probable AD had a 98% specificity but only a 40% sensitivity. This implies that when clinicians were confident enough about the diagnosis to use the term “probable” they were essentially as accurate as the autopsy findings in those cases. However, if this probable category were used exclusively, most patients with the

disease would be overlooked. When possible and probable categories were combined, the sensitivity was boosted to 94% but the specificity fell to 50%. These results, which reflect a best case scenario of specialists with access to a full range of diagnostic tools, illustrate the lingering difficulties inherent in the diagnosis of AD.

Even in the most skilled hands, diagnosing AD can be challenging.

What are the factors that continue to limit an accurate diagnosis of AD? As listed in the Table, the limitations include a broad array of patient-related and technical causes, only some of which may be eligible candidates for improvement. Advancing age, for example, is well known to reduce the diagnostic specificity, whereas educational attainment can compromise both specificity and sensitivity. Furthermore, because many forms of dementia begin to share clinical features in their later stages, AD becomes more difficult to diagnose accurately as it progresses. Mixed dementias also confound the diagnosis, as do the common comorbid medical and psychiatric illnesses. In addition, though often not appreciated, assessing the functional status of patients placed in nursing homes may be complicated by the varying levels of care and assistance provided.

In terms of technical factors, the quality of the available history may be the single most important factor in making the diagnosis. An essential component of the history in AD is an

interview with the spouse, family member, or caregiver. Although not always convenient or practical in every clinical encounter, this interview can be critical in corroborating and/or supplementing the case history. Although the constraints of time often preclude adequate interviews with family or caregivers, whether by telephone or in the office, this expanded history remains essential to the accurate early diagnosis of AD. This is an area where MCOs can perhaps find innovative solutions for improved and efficient information gathering.

MCOs may not be able to readily influence an AD patient's compliance with the examination, but they should be able to improve the overall skill of the examiner. Continuing education on dementia, for example, may not only increase overall awareness of AD but also improve specific diagnostic outcomes. Over the past 2 decades, perhaps the single most important

mechanism for improving diagnostic skills has been the consistent use of established diagnostic criteria. The choice of diagnostic standard—whether NINCDS-ADRDA, DSM-IV, or CERAD—appears to be less important than the clinician's consistent use of that criterion. Regular application of diagnostic criteria has proved especially helpful in improving the clinician's ability to distinguish between AD and other dementias.

One element that is integral to many of the factors just described is the time available for examination of the patient with potential AD. An appropriate cognitive examination simply cannot occur in the typical 5- to 10-minute primary care visit—and the *initial AD visit typically requires 1 to 2 hours*. Recognition of this time requirement for an adequate assessment should be a cornerstone of any MCO efforts to improve AD management and outcomes. Adequate time for evaluation must be reflected in both reimbursement policies and in internal practice guidelines.

Finally, testing technology can also affect diagnostic accuracy and costs. As already stressed, the diagnosis of AD is, in many cases, made on the basis of medical and neuropsychiatric evaluation.¹⁴ This may include some routine laboratory tests, if not already carried out around the time the patient first developed symptoms. More sophisticated technologies are not necessary for most AD diagnoses, although they can assist in some circumstances. Lockstep, unregulated use of functional brain imaging, biochemical markers in cerebrospinal fluid, and genetic testing in all cases of suspected AD would place an unreasonable and unjustifiable burden on the healthcare system. Furthermore, unregulated use of these tests can, in some circumstances, worsen diagnostic accuracy and lead to misdiagnosis because of common difficulties in interpreting the results.

Table. Factors Affecting Diagnostic Accuracy of Alzheimer's Disease

<p>Patient-Related</p> <ul style="list-style-type: none"> - Age - Premorbid intellectual function - Educational attainment - Stage of disease - Multiple coexisting dementias - Comorbid medical and psychiatric illnesses - Dwelling (eg, nursing homes) <p>Technical</p> <ul style="list-style-type: none"> - Available history - Patient compliance with examination - Skill of the examiner - Diagnostic criteria employed - Time available for examination - Available testing technologies

Thus, only in select cases would these highly specialized laboratory tests be considered cost effective. For example, specific findings in the history or on the physical examination may prompt specific tests. As for the patient shuttling from specialist to specialist in search of a diagnosis for a complicated mixed dementia, an MCO might consider tests such as functional imaging studies, genetic tests, a full battery of neuropsychological or physiological tests, or even assays for certain cerebrospinal fluid markers. Although controversial in some settings, such testing might resolve the diagnosis and reduce the costly referrals.

Tests for Mild Cognitive Impairment: Not Ready for Current Widespread Use

The entity known as mild cognitive impairment (MCI) is now recognized as a possible precursor of dementia. Some investigators have shown that per year 10% to 15% of individuals with this diagnosis—which is defined by less-than-expected performance on cognitive tests in the absence of dementia—progressed to develop diseases such as AD.¹⁶ This is an additive annual conversion rate, so that 50% to 75% of patients with MCI would be expected to progress to dementia over a 5-year period.

The MCI concept is certainly intriguing, and this patient population has naturally become a target for various pharmaceutical clinical trials focusing on prevention of AD. Enrolling high-risk MCI patients in primary prevention trials means that the differences between treatment and placebo groups may emerge in a matter of years rather than decades. Generating faster answers to questions about what works and what doesn't in AD prevention will be critical in staying ahead of the demographic surge in AD anticipated to accompany the further extension of life expectancy.

While unquestionably beneficial as a research aid, the use of MCI tests for widespread early identification of AD risk in MCO settings is premature. One reason for caution in translating this important work into today's clinical environment is that truly standardized clinical criteria for MCI still have not

Generating faster answers to questions about what works and what doesn't in AD prevention will be critical in staying ahead of the demographic surge in AD anticipated to accompany the further extension of life expectancy.

been agreed upon. Among ongoing trials involving MCI the diagnostic criteria appear to vary. In addition, the original findings concerning MCI have not been widely and uniformly replicated in patients in real-world clinical settings, which are often quite different from the populations involved in research studies. Thus, lacking a consensus on MCI diagnostic standards and without large numbers of physicians trained to recognize MCI, this possible dementia precursor state will, for the time being, remain a useful construct for research. MCOs are advised to remain alert to the future value of MCI in improving early diagnosis of AD, but testing for MCI should not yet be recommended as a clinical diagnostic tool.

Another exciting concept with potential future value in early diagnosis is presymptomatic testing for AD. It is widely believed that AD begins long before clinicians can recognize the symptoms. Neuro-pathologic studies indicate the brain may change decades before manifestations of cognitive failure, and clinical research has discovered correlates of such changes. In 1 such

study of patients with AD whose family members possessed 2 copies of an AD genetic risk factor (apolipoprotein E-ε4), measurable changes in cerebral metabolism were found on positron emission tomography (PET) scans.¹⁷ These areas of hypometabolism were evident even though the individuals were an average of 10 years younger than their affected family members and cognitively normal by standard testing at the time of the PET scan. This study suggests the feasibility of detecting presymptomatic states in individuals at high risk for AD using currently available technology.

With current PET scanning costs of about \$1500 to \$3000 per patient, the total cost of screening all at-risk individuals would be astronomical. Thus, widespread application of this technology would require availability of a preventive agent that had been proved efficacious and cost effective when given fully a decade before onset of symptoms. The potential of new diagnostic technologies certainly deserves attention, but this interest should not divert energy from many practical steps that can be taken immediately to improve diagnosis and move toward earlier recognition of AD.

Steps to Take Now

In summary, the diagnostic accuracy of AD can be improved in most clinical practices today by institutional commitments to the following practices:

- Adhering to practice guidelines for dementia diagnosis
- Allowing sufficient time for diagnosis
- Corroborating history with a third party (family or caregiver)
- Diagnosing by inclusion (recognizing typical features) and exclusion (of other causes)
- Acknowledging level of certainty about diagnosis (possible, probable, etc)

- Using adjunct laboratory tests intelligently to increase diagnostic certainty
- Making serial reassessments

As clinical practice guidelines and reimbursement structures evolve to reflect these practical recommendations, it can be predicted that more patients with early signs of AD will be accurately diagnosed. With concurrent efforts aimed at improved therapy for this population at high risk of imminent costly complications, improved economic outcomes may be possible. The prospect of better care at lower cost provides strong incentives for pursuing earlier and more accurate diagnosis of dementia.

... DISCUSSION HIGHLIGHTS ...

Screening Populations for Cognitive Impairment

Dr. Rabins: How do we deal with the fact that neuropathologists themselves often disagree on the diagnosis when they are not given the clinical history?

Dr. Relkin: This does create something of a tautology. The so-called gold standard of autopsy diagnosis of AD requires documentation of the presence of plaques and tangles in a characteristic density and distribution in the brain. However, the standard neuropathologic criteria also stipulate the brain in question must come from a patient with a documented clinical history of dementia to merit a diagnosis of AD. It's been reported there can be as much as 90% variability in diagnosis of AD when pathologists are blinded to the clinical history. To the extent that the postmortem diagnosis requires clinical history, it is arguably a poor standard for measuring the accuracy of clinical diagnosis. It is hoped that new biological markers will eventually be found to help us better identify AD and differentiate it

from other causes of dementia, both antemortem and postmortem. For the foreseeable future, however, the diagnosis very much depends on clinical evaluations.

Dr. Fillit: The Public Health Service, which issues recommendations every few years on the value of various screening tests, has given screening for cognitive impairment a "C" rating. I disagree with that and think the rating should now be higher given our effective treatments. Should MCOs start including cognitive screening in their prevention programs, as they do for colonoscopy or influenza vaccines, perhaps as part of an age-based program?

Dr. Relkin: An expert panel convened by the American Academy of Neurology recently evaluated several hundred peer-reviewed papers on screening tests for dementia using the standards of evidence-based medicine. They reached the conclusion there is currently insufficient evidence to recommend population-based screening for detection of dementia, however desirable it might seem to all of us. More work has to be carried out to develop effective screening protocols, validate them in real-world populations, and deal with the consequences of their implementation.

Dr. Fillit: But how can we complain about underrecognition of AD if we are not recommending more screening?

Dr. Relkin: I think you have to examine the causes of the pervasive underrecognition of AD to understand why population-based screening may not be the best answer at the present time. In the current medical environment, substantial numbers of symptomatic patients with AD (some say 1/2 to 3/4 of all cases) remain undiagnosed even in fairly advanced stages of the disease. This isn't because doctors aren't capable of recognizing

their impairments; in some cases the deficits are grossly apparent even in casual conversation. Other factors evidently mitigate against the diagnosis of dementia being made, including the physician's concern about the negative impact of making an AD diagnosis and nihilism about the value of the available symptomatic treatments. Screening could bring to light more patients with cognitive impairment, but unless we address these other issues, the whole process will likely prove to be an expensive exercise in futility. I am also concerned about the possible adverse effects of subjecting large segments of the general population to unvalidated cognitive screening paradigms. Screening tests often have a high false-positive rate, meaning that they may needlessly alarm many unimpaired people if they are applied in an uninformed way. I'm not aware of any large-scale controlled, longitudinal studies that fully explore these issues or provide meaningful practical solutions. So, while I agree that cognitive screening is a very desirable goal, there's a lot of work that remains to be done before population-based screening can be recommended.

Dr. Reichman: Experience suggests that even a simple cognitive screen as part of a system review is, from a practical standpoint, going to be difficult to accomplish. A few years ago the Agency for Health Care Policy and Research encouraged primary care physicians to ask a couple of core questions as part of any routine checkup. They said that when asking patients if they are short of breath or are having problems with their joints also ask them, and an informant, about their memory. This should only take a few minutes, but it has never been embraced by primary care nationally. So when we think about screening, let's forget functional neuroimaging. Let's concentrate, instead, on including cognitive function in the review of systems.

Mr. Sosa: MCOs need a quick and easy screen, not a complex diagnostic test. For depression, we now have screens that patients can fill out while they're in the waiting room. In some cases, the screen indicates more in-depth exploration is warranted. I think this type of 3- to 5-minute screen, written perhaps by a group such as the American Academy of Neurology, is exactly what is needed to raise awareness at the primary care level.

Dr. McCarten: Access to an informant is critical. A patient with dementia cannot be depended on to give a reliable history, so it's critical to ask an informant if one is available. Most older adults go to the physician alone, but sometimes a spouse or other family member is in the waiting room and could provide valuable information.

Dr. Moak: Yes, the spouse in the other room is often an untapped resource. But the real problem with screening in many healthcare systems may be the prevailing "don't ask, don't tell" dynamic. On one side, patients and their families are simply not ready to deal with this issue. And on the other side, the clinician wonders why he or she should open the Pandora's box if there is no reimbursement for managing the early symptomatic stages of the disease. The clinician asks, "Why should I screen if I don't have the resources?" So the challenge is not only finding a quick instrument for screening but also overcoming this resistance to using the screen.

Dr. Fillit: There is no question that we need to change the paradigm and address the fear and stigma, and the barriers to diagnosis that you've addressed. But my experience is that most patients do actually want to talk about these things. As with advanced directives, it's really the doctors who resist talking about these issues.

These families are very concerned, in fact they're terrified, that somebody may be losing their mind and they don't know what to do about it. They would love to have that conversation. I've always felt that I've never met a patient with AD I couldn't help—at any stage. Help may not always be in the form of a drug, but there's always some form of help or advice that can be given to the patient and family. We should also mention that screening need not always occur in the primary care doctor's office. Especially in managed care, more efficient and effective methods may be needed. Cognitive impairment has a prevalence of perhaps 40% in populations older than age 80, and it is a major cause of disability and cost. Yet the cognitive screen is still not part of the routine Health Care Financing Administration [HCFA] required risk assessment for every Medicare patient. The HCFA assessment could easily become the platform for a simple cognitive screen of the elderly population older than age 75 or 80. The organization can decide who should be screened and how. The alternatives to the primary care population-based screen, including mail surveys and telephone screening, are now being studied and employed in many systems.

Mr. Hambacher: Education of both patients and primary care physicians needs to become part of this whole process. Population-based screening, perhaps beginning at age 75, is a good start, but then we have to educate everyone on the advantages of early detection and treatment of AD. If patients start drug treatment early, they can be stabilized and save money in the long run. The thought leaders in neurology and psychiatry need to develop guidelines for screening and the MCOs or pharmaceutical companies need to develop disease management programs.

Dr. Rabins: I think doctors will start screening and treating when the

public starts to expect it. So, convincing the public may be as important as educating physicians. In many ways, the situation with AD is similar to that with hypertension or depression years ago. When I started medical school, many people still doubted that blood pressure in the 160/90 mm Hg range should be treated. The early Veterans Administration studies showing prevention of heart attack and stroke were responsible for convincing doctors to test regularly. For depression, it was only when the selective serotonin reuptake inhibitors came along that screening in primary care became common. Even though we don't have the perfect methods yet, we can do a good job of detecting cognitive impairment, and we should now realize that there are benefits—economic, to the family, and in quality of life for the patient.

Dr. Relkin: Everybody agrees that primary care population-based screening would be a great thing. But the devil is in the details. I would support such screening if I knew what instrument to use, what criteria to give clinicians for interpreting results, and how that information translates into better patient care. It needs more study. Perhaps managed care is the environment where these issues can be studied free of such barriers as long-term healthcare insurance, which often prevents people from seeking diagnosis.

Barriers to Recognition of AD

Dr. McCarten: Will a diagnosis of mild memory loss or early AD adversely affect a patient's eligibility for long-term-care insurance? And if so, is that a possible reason for a physician not to record concerns or to make a diagnosis?

Dr. Rabins: Whether it is a pre-existing condition is a good question given

the 5- to 10-year prodrome. The better the clinician, the sooner the diagnosis will be made.

“Even though we don't have the perfect methods yet, we can do a good job of detecting cognitive impairment, and we should now realize that there are benefits—economic, to the family, and in quality of life for the patient.”

—Peter Rabins, MD

Dr. Fillit: At this point, mild memory loss is not a diagnosis and so it should not affect a person's insurance eligibility. And keep in mind, those with mild memory loss know they have it. When someone comes in and says, “I've got memory loss. Do I have AD?” screening can provide a real benefit. In most cases, I can reassure them that they don't have it, that they don't meet the criteria. This is a good service that the primary care doctors can provide. And, of course, the next question from the patient is, “Well, what can I do about my memory loss?” We need to admit that until a diagnosis of dementia or AD is made, little can be done beyond some general recommendations for cognitive or mental exercises such as doing crossword puzzles and remaining engaged with work and social activities.

Dr. McCarten: Of course, some of those cases we reassure come back a few years later with the disease, nonetheless.

Dr. Relkin: But we're still providing an important service in such cases by reassuring patients they are not currently suffering from dementia, or when their testing indicates impairment, by providing an early diagnosis.

Dr. Rabins: Are there specific cultural or ethnic groups who don't

want to know the diagnosis and for whom we should, for ethical reasons, limit testing?

Dr. Parker: For some groups saying “you might” or “you may” become ill or die means “you will.” It can be a self-fulfilling prophecy. And many groups just don’t discuss this disease. They are aware of the symptoms and of the fact that the family member will eventually die, but they don’t want to deal with it in an explicit way.

Dr. Rabins: I’ve seen groups who approach talking about death that way but none who consider it taboo to talk about serious memory problems or dementia. Perhaps some groups are simply interpreting the diagnosis as a condition that’s normal and not really a disease.

Dr. Relkin: I think these issues cross cultural lines. Different people want different information. This shouldn’t tie our hands as clinicians in evaluating them, but it should influence what we disclose to them and how we disclose it.

Cost Issues in Diagnosis

Dr. Rabins: If I were managing the benefit dollars for an elderly population at risk of getting AD, I would want to know how I could trim costs down the road as a result of spending more on screening now. But I also would want to hear about which tests may not be absolutely necessary to guide my interventions. What advice would you offer regarding the metabolic panels that are frequently part of the dementia evaluation? And what about \$800 structural neuroimaging? Are these warranted?

Dr. Reichman: Cost effectiveness of diagnostic tests will be critical in developing the guidelines for diagnosis of dementia. Even old standard

tests like the rapid plasma reagin or venereal disease research laboratory test for syphilis are now being reevaluated in terms of cost effectiveness. And it turns out, by the way, that the yields on these syphilis tests are so astronomically low that the new guidelines will probably only allow these screens for a small segment of the population.

Dr. Fillit: An expert panel called the Alzheimer’s Disease Managed Care Advisory Council issued guidelines on the early detection and diagnosis of dementia. In these guidelines, we stated that imaging is not necessary in the general population without focal signs or atypical dementias because the yield is so low. This is, of course, a broad recommendation, and we might all employ imaging or the metabolic panel differently for an individual patient. But the fact is that MCOs need to make these decisions right now, based on the best information available now.

Dr. McCarten: As Dr. Relkin stated in his talk, the diagnosis is often a search for comorbidities, and so the imaging test may reveal something that is aggravating the dementia, perhaps a comorbid vascular disease that is making the AD worse. Another point about comorbidities is that the screening for dementia may also have an immediate payback in the hospital setting. For example, consider a patient with undetected baseline dementia admitted to the hospital who then becomes delirious postoperatively. A screen that identified dementia before admission might have avoided the emergency scans and laboratory tests that are often done to evaluate acute cognitive changes.

Dr. Fillit: I think we can all agree, however, that genetic testing and PET scan imaging should not be part of the routine screening or diagnostic evaluation in managed care.

Dr. Reichman: Since most of our elderly patients are still not in formal Medicare health maintenance organization [HMO] settings, shouldn't most of these recommendations regarding rational diagnostics also apply to non-managed care practices? Aside from geriatric care, managed care has informed our healthcare system in a number of positive ways. These sensible ideas being discussed here may be the beginning of better management outside the Medicare HMO as well as within.

Dr. Fillit: Yes, although we need to recognize that MCOs have the administrative structure and the medical management structure—including capitation and risk—to care about population-based screening in a way that fee-for-service medicine does not. The HCFA should certainly care, but we haven't seen this.

Dr. Rabins: We appear to be at a point where we realize that early detection of dementia could prevent a fair amount of morbidity—whether it's early treatment or detection of delirium—but it is now the job of the researchers to demonstrate what can be prevented. Managed care populations will be our best chance to answer these questions about prevention.

Dr. Fillit: Prevention is what the HMOs were developed for originally, and preventive services are still their strength. In the Health Employer Data and Information Set [HEDIS] measures for breast cancer screening or vaccination, for example, HMOs routinely score higher than fee-for-service settings. Dementia screening has not yet reached the level of a HEDIS issue, but there are burgeoning quality-of-care initiatives now addressing these issues. One day soon we will have a quality score for dementia care.

Dr. Parker: One MCO recently worked with the local AD groups to

start monthly visits in the home for patients with AD. The nurse checked on falls, nutrition, pressure ulcers, medications, and other preventive care measures. This and the EverCare nursing home model¹⁸ are the types of programs that are needed. They rely on great geriatricians and geriatric nurse practitioners [GNPs]. These teams are the ones who go in the nursing home to provide as much care as possible and thereby prevent the patients from bouncing back and forth between the home and the hospital every week. It may be difficult to replicate these models with the declining numbers of geriatricians and GNPs, but they set a standard for quality of care. It's where MCOs need to go.

... REFERENCES ...

1. Cummings JL, Jeste DV. Alzheimer's disease and its management in the year 2010. *Psych Serv* 1999;50:1173-1177.
2. Duncan BA, Siegal AP. Early diagnosis and management of Alzheimer's disease. *J Clin Psychiatry* 1998;59(supp 9):15-21.
3. Callahan CM, Hendrie HC, Tierney WM. Documentation and evaluation of cognitive impairment in elderly primary care patients. *Ann Intern Med* 1995;122:422-429.
4. Kinosian BP, Stallard E, Lee JH, et al. Predicting 10-year care requirements for older people with suspected Alzheimer's disease. *J Am Geriatr Soc* 2000;48:631-638.
5. Neumann PJ, Hermann RC, Kuntz KM, et al. Cost-effectiveness of donepezil in the treatment of mild or moderate Alzheimer's disease. *Neurology* 1999;52:1138-1145.
6. Sano M, Ernesto C, Thomas RG, et al. A controlled trial of selegiline, alpha-tocopherol, or both as treatment for Alzheimer's disease. *N Engl J Med* 1997;336:1216-1222.
7. Cummings JL, Cyrus PA, Beiber F, et al. Mefenonate treatment of the cognitive deficits in Alzheimer's disease. *Neurology* 1998;50:1214-1221.
8. Rogers SL, Friedhoff LT. The efficacy and safety of donepezil in patients with Alzheimer's disease: Results of a US multicenter, randomized, double-blind, placebo-controlled trial. *Dementia* 1996;7:293-303.
9. Esteban-Santillan C, Praditsuwan R, Ueda H, et al. Clock drawing test in very mild

Alzheimer's disease. *J Am Geriatr Soc* 1998;46:1266-1269.

10. Fillit H, Cummings J. Practice guidelines for the diagnosis and treatment of Alzheimer's disease in a managed care setting: Part I—early detection and diagnosis. *Managed Care Interface* Dec 1999;12:53-62.

11. Folstein MF, Folstein SE, McHugh PR, et al. Mini-Mental State. A practical method for grading the cognitive state of patients for the clinician. *J Psychiatr Res* 1975;12:189-198.

12. Kukull WA, Larson EB, Teri L, et al. The mini-mental state examination and the diagnosis of dementia. *J Clin Epidemiol* 1994;47:1061-1067.

13. Lawton MP, Brodie EM. Assessment of older people: Self-maintaining and instrumental activities of daily living. *Gerontologist* 1969;9:176-186.

14. Small GW, Rabins PV, Barry PP, et al. Diagnosis and treatment of Alzheimer dis-

ease and related disorders. *JAMA* 1997;278:1363-1371.

15. Nagy Z, Esiri MM, Hindley NJ, et al. Accuracy of clinical operational diagnostic criteria for Alzheimer's disease in relation to different pathological diagnostic protocols. *Dement Geriatr Cogn Disord* 1998;9:219-226.

16. Petersen RC, Smith GE, Waring SC, et al. Mild cognitive impairment: Clinical characterization and outcome. *Arch Neurol* 1999; 56:303-308.

17. Reiman EM, Caselli RJ, Yun LS, et al. Preclinical evidence of Alzheimer's disease in persons homozygous for the epsilon 4 allele for apolipoprotein E. *N Engl J Med* 1996;334:752-758.

18. Parker M. Care management in managed care. In: Applebaum R, White M, eds. *Key Issues in Case Management Around the Globe*. San Francisco, CA: American Society on Aging; 2000:113-119.