Practical Diagnosis and Management of Dementia Due to Alzheimer's Disease in the Primary Care Setting: An Evidence-Based Approach

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ABSTRACT

Objective: To review evidence-based guidance on the primary care of Alzheimer's disease and clinical research on models of primary care for Alzheimer's disease to present a practical summary for the primary care physician regarding the assessment and management of the disease.

Data Sources: References were obtained via PubMed search using keywords *Alzheimer's disease* AND *primary care* OR *collaborative care* OR *case finding* OR *caregivers* OR *guidelines*. Articles were limited to English language from January 1, 1990, to January 1, 2013.

Study Selection: Articles were reviewed and selected on the basis of study quality and pertinence to this topic, covering a broad range of data and opinion across geographical regions and systems of care. The most recent published guidelines from major organizations were included.

Results: Practice guidelines contained numerous points of consensus, with most advocating a central role for the primary care physician in the detection, diagnosis, and treatment of Alzheimer's disease. Review of the literature indicated that optimal medical and psychosocial care for people with Alzheimer's disease and their caregivers may be best facilitated through collaborative models of care involving the primary care physician working within a wider interdisciplinary team.

Conclusions: Evidence-based guidelines assign the primary care physician a critical role in the care of people with Alzheimer's disease. Research on models of care suggests the need for an appropriate medical/nonmedical support network to fulfill this role. Given the diversity and breadth of services required and the necessity for close coordination, nationwide implementation of team-based, collaborative care programs may represent the best option for improving care standards for patients with Alzheimer's disease.

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An estimated 5.4 million Americans currently have Alzheimer's disease, and it is predicted that by 2025, that number will approach 6.7 million.[1] Because Alzheimer's disease is so prevalent, guidelines[2–5] increasingly recommend that it be diagnosed and managed to a great extent by primary care physicians. Because Alzheimer's disease is chronic, with a typical course lasting approximately 8 to 10 years, health care and related services need to be provided over an extended period and require ongoing coordination. Moreover, because Alzheimer's disease results in profound loss of functional capabilities, a great deal of caregiving is necessary; this exacts a personal cost to the patients' caregivers and families, who in turn require support.[1]

Given the magnitude of the problem, the US Department of Health and Human Services has developed a National Plan to Address Alzheimer's Disease,[6] which sets clear expectations for the medical and psychosocial services that should be provided to all patients with Alzheimer's disease. These recommendations echo much of what has been included in the seminal practice guidelines set forth by major national organizations during the past 12 years.[2,5,7] These guidelines represent the most valuable source of information regarding best practices in dementia care. In all of these documents, the role of the primary care physician is identified as central to the diagnosis and treatment of Alzheimer's disease. Most recently, the Medicare annual wellness visit requirements included the addition of a cognitive evaluation, emphasizing the role of the primary care physician in case finding and subsequent diagnosis and treatment.[8,9]

It is important to recognize that many primary care physicians in the United States do not feel that they are in a position to fulfill the roles expected of them with regard to Alzheimer's disease. Primary care physicians have identified a number of barriers to diagnosing and treating Alzheimer's disease, including lack of time, a negative perception with respect to the importance of early diagnosis,[10] difficulty managing behavior and other problems in dementia,[11] and poor connections with community social service agencies.[12] Many surveys and formal studies of primary care physicians have documented these and other concerns.[12–15]

In response to these challenges, clinical researchers and service providers have conducted studies aimed at demonstrating the feasibility of innovative approaches to screening, diagnosis, and treatment of Alzheimer's disease.[16–19] This invaluable work is informing discussions of what could be done to enable primary health care in the United States to meet the legitimate needs of the ever-increasing number of patients with Alzheimer's disease and their caregivers.

This article presents a practical, evidence-based, expert opinion regarding the role of the primary care physician in the diagnosis and management of patients with dementia due to Alzheimer's disease. We understand that primary care physicians face substantial challenges and increasing demands on their time. The recommendations presented herein are based on the most current guidelines and consensus documents in the field, and any specific suggestions for practice are based on successful pilot studies of defined interventions. Where possible, we present evidence from clinical

Clinical Points

- Practice guidelines contain numerous points of consensus, with most advocating a central role for the primary care physician in the detection, diagnosis, and treatment of Alzheimer's disease.
- A body of research suggests that implementation of team-based, collaborative care programs for Alzheimer's disease can improve the quality of primary care for patients and their caregivers.
- Incorporation of the cognitive assessment as part of the Medicare annual wellness visit will greatly assist primary care physicians in making the diagnosis of Alzheimer's disease earlier and engaging patients and their families in treatment.

research supporting the utility of particular approaches to successfully providing guideline-compliant care.

METHOD

References were obtained via a PubMed search using the following keywords: *Alzheimer's disease* AND *primary care* OR *collaborative care* OR *case finding* OR *caregivers* OR *guidelines*. Searches were limited to English-language articles and to articles published between January 1, 1990, and January 1, 2013. Bibliographies within articles were subsequently searched to identify frequently cited sources and additional pertinent references. All articles identified were reviewed and selected for inclusion in the current article on the basis of study quality and relevance, with a focus on including a broad range of data and opinion across geographic regions and systems of care throughout the United States. Given the many important differences between the US health care system and that of other nations, we limited our search primarily to US sources.

This article is structured according to the following topics: cognitive assessment, Alzheimer's disease diagnosis, and Alzheimer's disease management. Information extracted from the guidelines and consensus statements is presented within this framework, and recommended approaches to particular clinical tasks are presented concurrently.

RESULTS

Practice Guidelines, Quality Indicators, and Position Statements

The 2 most comprehensive sets of guidelines are those issued by the American Academy of Neurology and the American Psychiatric Association.[2,5,7] In addition to these guidelines, a systematic set of quality indicators for dementia care, Assessing Care of Vulnerable Elders, provides operationalized criteria for diagnosis and management of dementia in individuals aged ≥65 years.[20] Topic-specific guidelines have been issued by the US Preventive Services Task Force (USPSTF; screening),[21] the American College of Physicians and the American Academy of Family Physicians (medication management),[22] the American Geriatrics Society (management of neuropsychiatric symptoms in dementia),[23] and the American Academy of Neurology (driving).[24] Other important documents include a position statement of the American Association for Geriatric Psychiatry on the care of patients with dementia due to Alzheimer's disease[25] and a set of guidelines from the American Geriatrics Society encompassing screening, diagnosis, and management of dementia that were abstracted from the American Academy of Neurology guidelines.[7] Table 1 shows the points of consensus from the different practice guidelines and recommendations.

Cognitive Assessment

The routine assessment of cognition in patients over age 65 years is in keeping with the principles of case finding in primary care and has been endorsed by large majorities of patients and providers in a survey conducted by the Alzheimer's Association.[28] Case finding, as opposed to general screening, targets a particular patient population for routine assessment on the basis of presence of a major risk factor for disease. With respect to Alzheimer's disease, the predominant risk factor is age. Only approximately 200,000 (3.7%) of the estimated 5.4 million patients with Alzheimer's disease in the United States are aged < 65 years. The incidence of dementia due to Alzheimer's disease increases dramatically with age, from 53 new cases per 1,000 people aged 65 to 74 years, to 170 new cases per 1,000 people aged 75 to 84 years, to 231 new cases per 1,000 people aged > 85 years.[29]

Nonetheless, the issue of whether or not to employ routine cognitive assessment in primary care has been controversial, which is reflected in the fact that it was not endorsed in the American Psychiatric Association or American Academy of Neurology guidelines and was not recommended by the USPSTF.[5,21,26] However, as part of the health reform legislation of 2010, with its emphasis on early detection and health maintenance, an annual wellness visit is now required for all Medicare beneficiaries.[8,9] Cognitive assessment is a mandated component of both the initial and annual wellness visit, but implementation is at the discretion of the provider. An invaluable set of recommendations from the Alzheimer's Association provides excellent guidance concerning all aspects of incorporating cognitive assessment within the annual wellness visit (Figure 1).[8]

A major concern of many primary care practitioners is deciding which cognitive screening test to use, as there are many.[30–34] Cordell et al[8] provide clear guidance on this topic, suggesting that the 3 most suitable instruments are the Mini-Cog,[30,35] the Memory Impairment Screen,[32,36] and the General Practitioner Assessment of Cognition.[31] A short video produced by the American College of Physicians Foundation and the Alzheimer's Association demonstrates how to use the Mini-Cog for the assessment of cognitive impairment during a primary care visit (http://www.alz.org/professionals_and_researchers_14294.asp). The Short Portable Mental Status Questionnaire,[37] Saint Louis University Mental Status Examination,[38] and Montreal Cognitive Assessment[39] are also mentioned as acceptable. In addition, an 8-item informant tool called the AD8 is a very useful method of gathering information from someone

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Table 1. Synthesis of Guideline Recommendations for Assessment and Management of Alzheimer's Disease in Primary Care

Cognitive Assessment[8]
Required per Medicare visit guidelines at each annual wellness visit
Objective cognitive test is required (eg, Memory Impairment Screen, Mini-Cog)
Spouse or other informant required (eg, AD8)
Diagnosis[2,5,7,20,26]
Pursue diagnostic workup if:
Cognitive assessment is positive
Patient or family request it
Patient presents with cognitive complaint
Diagnosis is a clinical diagnosis per National Institute on Aging, *DSM-IV,* or NINCDS-ADRDA criteria
Specialist consultation recommended if:
Atypical presentation
Aged < 65 y
Requested by patient or family
Disclosure of diagnosis
Management
Pharmacotherapy for dementia[2,5,7,20,25]
Any cholinesterase inhibitor for mild-to-moderate Alzheimer's disease
Memantine and donepezil for moderate-to-severe Alzheimer's disease
Pharmacotherapy for noncognitive symptoms[2,5,7,20,23,25]
Antipsychotics for agitation or psychosis; atypical agents may be better tolerated than traditional agents (this needs to be amended per guidelines and black box warnings)
Treat sleep disturbance
Selected antidepressants (eg, tricyclics, monoamine oxidase-B inhibitors) and selective serotonin reuptake inhibitors for depression (consider side-effect profiles when making choice)
Nonpharmacologic treatment[2,5,7,20,23,25]
Behavioral- and stimulation-oriented management
Behavioral modification to reduce urinary incontinence
Graded assistance and reinforcement to increase functional independence
Low lighting, music, simulated nature sounds may improve eating behavior
Intensive multimodal group training may improve activities of daily living
Addressing caregiver needs[2,5,7,20,23,25]
Short-term to educate family caregiver about Alzheimer's disease
Advice on financial and legal planning[5]
Intensive long-term education and support services for caregivers to delay nursing home placement
Comprehensive psychoeducational caregiver training for behavior management (include studies showing benefit)
Other interventions for caregivers
Support groups
Computer networks for education and support
Telephone support programs
Day care and respite care may help to delay time to nursing home placement
Other recommended services
Encourage participation in clinical trials and facilitate referral[5,26]
Advice on driving[24,26,27]
Even patients with probable Alzheimer's disease have significant traffic safety problems
In 2010, the American Academy of Neurology published recommendations for the management of driving risk in patients with dementia[27]; assessment with the Clinical Dementia Rating Scale gives the highest strength of evidence

Abbreviation: NINCDS-ADRDA=National Institute of Neurological and Communicative Disorders and Stroke–Alzheimer's Disease and Related Disorders Association diagnostic criteria.

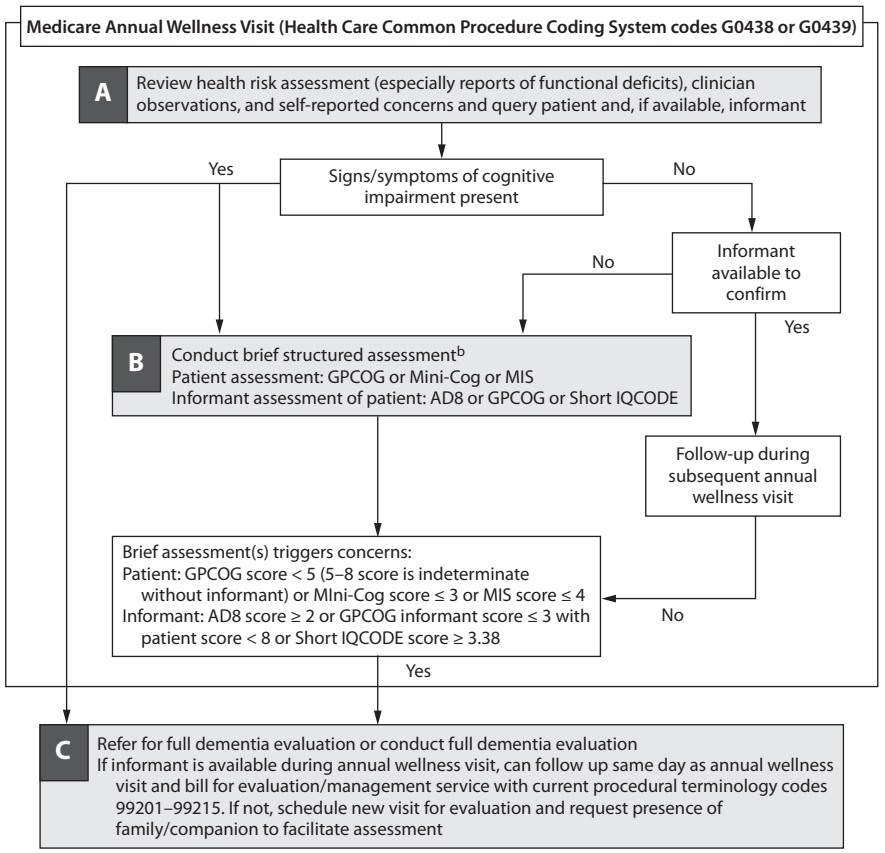
who knows the patient well.[40] Interestingly, the Mini-Mental State Examination[34] is not recommended as a screening test because of its length, educational bias, and copyright issues that increase cost.[8] No single cognitive screening tool is considered the gold standard, and we feel it may be more practical to become familiar with one of the suggested suitable instruments and routinely incorporate it into practice.

Diagnosis

Guidelines encourage the early detection of dementia,[5,26] including at the stage of mild cognitive impairment.[4] Early diagnosis provides the family and caregivers with an improved understanding of the patient's changes in behavior and can facilitate treatment aimed at maximizing functional capacities and potentially slowing the progression of the disease.[41] Early diagnosis also gives the opportunity for the patient, caregiver, and family members to anticipate problems and plan for the future while the patient is capable of making difficult decisions.[21] In addition, early diagnosis allows the patient the opportunity to choose to participate in a clinical research study, especially if the physician actively facilitates this process.[41]

All guidelines state that a diagnostic assessment is indicated for any patient who tests positive in the case-finding process,

Figure 1. Alzheimer's Association Medicare Annual Wellness Visit Algorithm for Assessment of Cognition[a]



[a]Adapted with permission from Cordell et al.[8]
[b]No one tool is recognized as the best brief assessment to determine if a full dementia evaluation is needed. Alternate tools (eg, Mini-Mental State Examination, Saint Louis University Mental Status Examination, or Montreal Cognitive Assessment) can be used at the discretion of the clinician. Some providers use multiple brief tools prior to referral of initiation of a full dementia evaluation.
Abbreviations: GPCOG = General Practitioner Assessment of Cognition, IQCODE = Informant Questionnaire on Cognitive Decline in the Elderly, MIS = Memory Impairment Screen.

as well as for patients who present with a complaint of cognitive decline or who have a family member bring forward serious concerns about the patient's cognition. The major component of the diagnostic evaluation is a comprehensive patient history, including at least 1 informant other than the patient. Cognitive and functional assessments are the core elements of the evaluation because documentation of cognitive deficits and functional impairment are required to make the diagnosis of Alzheimer's disease.[4,7,26] If cognitive decline is present, but there is no functional decline, the diagnosis of mild cognitive impairment may be made.[4]

An assessment for treatable causes of cognitive impairment is recommended in all guidelines, especially with respect to the possibility of adverse effects of medication, prescribed and over the counter.[5,20,26] Routine laboratory tests to rule out reversible causes of cognitive impairment are also universally recommended, though the yield has been shown to be quite small.[42,43] Structural neuroimaging with a noncontrast computed tomography or magnetic resonance imaging scan in the routine initial evaluation of patients with dementia is recommended by the American Academy of Neurology and American Geriatrics Society guidelines,[7,26] but others suggest neuroimaging be limited to cases in which the history and/or physical and neurologic examination indicate the possibility of a central nervous system lesion.[20]

Clinical scenarios for which most guidelines recommend specialist referral for diagnostic assessment include atypical presentation, diagnostic uncertainty following a standard workup, patient or caregiver request, and younger age at onset (< 65 years). The rationale for the latter is that patients < 65 years without a history of familial Alzheimer's disease (ie, dominantly inherited) have a low likelihood of sporadic Alzheimer's disease and require a specialist for appropriate evaluation, whereas patients < 65 years with a history of dominantly inherited Alzheimer's disease are best cared for in a specialized setting.[5,26]

There is clear consensus among the guidelines endorsing the clinical diagnostic criteria as set forth in the *DSM-IV* and the National Institute of Neurological and Communicative Disorders and Stroke–Alzheimer's Disease and Related Disorders Association diagnostic criteria (NINCDS-

ADRDA).[44] New criteria and guidelines to diagnose Alzheimer's disease were published in 2011 by the National Institute on Aging and Alzheimer's Association[3,45] that are divided into clinical diagnostic criteria and research diagnostic criteria, the latter based on proposals for new research diagnostic criteria set forth by Dubois et al.[46] While the criteria for a clinical diagnosis do differ in some respects from the *DSM-IV* or NINCDS-ADRDA criteria, they are based on history along with cognitive and functional evaluation. No laboratory or imaging tests are sufficient to diagnose Alzheimer's disease dementia. The research diagnostic criteria, in contrast, are designed particularly to define stages of Alzheimer's disease that precede the onset of dementia (mild cognitive impairment due to Alzheimer's disease) and even of any detectable cognitive impairment (preclinical Alzheimer's disease).[45,46] These diagnoses require biomarker evidence of disease, which includes brain amyloid-β imaging, volumetric magnetic resonance imaging, cerebrospinal fluid measures of amyloid-β42 total tau and phosphorylated tau, and positron-emission tomography used to detect hypometabolism.[45,47] None of these biomarker evaluations, however, are recommended by any guidelines for the diagnosis of Alzheimer's disease. As stated by Jack et al, "The recommendations of the preclinical Alzheimer's disease workgroup are intended purely for research purposes, and do not have any clinical utility at this time." [45(p260)]

Recently, florbetapir was approved by the US Food and Drug Administration (FDA) for use in brain imaging of amyloid-β plaques among patients with cognitive impairment who are being tested for Alzheimer's disease.[48] Despite this regulatory approval, neither the Centers for Medicare and Medicaid Services nor any private insurer has approved payment for its use in clinical settings. A consensus document from the Alzheimer's Association has suggested specific clinical criteria for the use of amyloid imaging.[49] Given that any patient fulfilling any of these criteria is also a patient who should be referred to a specialist, amyloid imaging would not have a role in the routine diagnostic assessment for Alzheimer's disease.[49]

Management

Pharmacologic therapies that are approved for the treatment of Alzheimer's disease by the FDA include the acetylcholinesterase inhibitors donepezil, rivastigmine, and galantamine and the *N*-methyl-D-aspartate receptor antagonist memantine. Rivastigmine and galantamine are currently approved for the treatment of mild and moderate Alzheimer's disease.[50–52] Memantine is approved for moderate and severe Alzheimer's disease.[53] Donepezil 10 mg/d is approved for mild, moderate, and severe stages of the disease, and a higher dose, 23 mg/d, is approved for moderate and severe disease.[54] Memantine may be used in combination with a cholinesterase inhibitor, but this practice is not addressed in any guidelines.

All of the guidelines recommend pharmacotherapy with cholinesterase inhibitors or memantine for patients diagnosed with Alzheimer's disease, while acknowledging that benefit is modest.[2,5,7] The USPSTF screening recommendations conclude that the cholinesterase inhibitors have the best evidence and provide symptomatic benefit in cases of mild dementia but have mixed evidence of the effect on functional measures.[21] The American Psychiatric Association recommendations state that "these medications [the 3 cholinesterase inhibitors] should be offered to patients with mild to moderate Alzheimer's disease after a thorough discussion of their potential risks and benefits, and they may be helpful for patients with severe Alzheimer's disease."[5(p12)] Memantine is recommended in the American Psychiatric Association guidelines for patients with moderate-to-severe Alzheimer's disease only.[5] Although acknowledging the potential benefit of these pharmacotherapies, the American College of Physicians/American Academy of Family Physicians guidelines classified the strength of recommendation for memantine and cholinesterase inhibitors as weak and the quality of evidence as moderate.[22] Other therapies, including ginkgo biloba,[55] estrogen,[56] nonsteroidal antiinflammatory drugs,[57] statins,[58] and omega-3 fatty acid,[59] have not been proven efficacious and are not recommended.[2,5]

Unfortunately, there is no specific guidance on when to stop pharmacologic treatment presented in any of the available guidelines. The evidence suggests that stopping treatment often results in transient worsening[60,61] and that patients receiving pharmacologic treatment for at least 6 months to a year are able to delay the need for nursing home admission.[62,63]

Psychosocial interventions include cognitive and social stimulation, behavioral-oriented therapies, and caregiver support. These approaches generally require accessing resources outside of the primary care physician's practice setting and are best addressed by nonphysician members of an interdisciplinary team.[41] Improved self-care, emotional well-being, and cognitive function are some of the benefits that may be achieved with these nonpharmacologic therapies,[2,5,20] as well as a reduction in risk for, or a delay in, nursing home placement.[64,65]

Treatment of the behavioral symptoms of dementia in ambulatory settings is often one of the most challenging aspects of treating patients with Alzheimer's disease or other dementias, and most primary care physicians receive very little formal training in this area during residency. Nonpharmacologic treatment of behavioral symptoms is universally recommended as an initial approach. Behavioral and environmental interventions that can be managed by the caregiver with appropriate training have the best evidence.[2,5,7] Utilizing a collaborative model that includes social work, nursing, home health, and community resources can facilitate the provision of this education and training for caregivers as well as address issues of patient safety and caregiver well-being. The use of antipsychotic medication in cases in which nonpharmacologic management is deemed insufficient is recommended, but caution is advised due to the potential for serious adverse effects. Atypical agents are generally preferred, but there is a drug class black box warning regarding their use for this indication. Due to the difficulties

Table 2. Valuable Internet-Accessible Resources for Patients With Alzheimer's Disease and Their Caregivers

Resource	Web Site	Summary
Alzheimer's Disease Education and Referral Center	http://www.nia.nih.gov/alzheimers	A program of the National Institute on Aging
Alzheimer's Association	http://www.alz.org/	Most complete local resource for all Alzheimer's disease–related needs; welcoming and user-friendly; includes 24/7 helpline, clinical studies matching service, educational programs, and support groups
American Geriatric Society	http://dementia.americangeriatrics.org/	A compact but comprehensive guide for the primary care practitioner in the evaluation and treatment of dementia
Eldercare Locator	http://www.eldercare.gov/Eldercare.NET/Public/Index.aspx	A public service of the US Administration on Aging; provides connection to services for older adults and their families; searchable by zip code, city/state, and topic
Family Caregiver Alliance	http://www.caregiver.org/	Support services for caregivers (not only dementia) on a state-by-state and local basis; richly resourced
National Association of Professional Geriatric Care Managers	http://www.caremanager.org/	The main professional association for geriatric care managers with a user-friendly resource locator to find managers by city/state or zip code
National Family Caregivers Association	http://caregiveraction.org/	For caregivers, with information on Alzheimer's disease, including video series

and safety issues of managing dementia behaviors, specialist consultation is often necessary.[2,22,25]

All guidelines emphasize addressing the needs of the caregiver. Education about the disease and specific training to help the caregiver provide care to the patient are strongly recommended. Facilitating caregiver access to support groups, respite services, and other community services can also be extremely valuable in promoting the well-being of the caregiver.[2,5,25] In most communities, the local Alzheimer's Association is a superb resource. There are also excellent resources available online or by telephone (Table 2).

Another important function of the primary care physician that is not generally included in guidelines is to inform the patient and caregiver about clinical trials.[41] Research participation is a common concern among families facing the challenge of dementia. In addition to the potential clinical benefit to the patient that may ensue from participation in a trial, patients may value the opportunity to be part of the medical endeavor to better understand and treat Alzheimer's disease. A simple way to access trials is by using the Alzheimer's Association's TrialMatch (http://www.alz.org/research/clinical_trials/find_clinical_trials_trialmatch.asp), a confidential interactive tool providing comprehensive clinical trial information and an individualized trial-matching service for people with Alzheimer's disease.

Collaborative Models of Dementia Care in Primary Care Settings

This section highlights projects that aim to make guideline-compliant care possible and practical. Primary care physicians can determine which type of program or intervention is most applicable to their professional practice setting. Given the importance of nonmedical services for the patient with Alzheimer's disease and the caregiver(s), we have focused on studies that were conducted to evaluate the effectiveness of collaborative care. These models are based on clearly defined roles for the primary care physician and other service providers, who together constitute a dementia care team.

The first randomized, controlled clinical trial evaluating the effectiveness of primary care–based, treatment guideline–compliant care for Alzheimer's disease using a collaborative care model was conducted in primary care practices at 2 university-affiliated health care systems in the United States.[19]

In this trial,[19] an interdisciplinary team headed by an advanced practice nurse administered care management for 1 year to intervention patients; the control group received augmented usual care. Evidence-based protocols were used to guide treatment, and behavioral protocols were used to identify, monitor, and treat behavioral and psychological symptoms of dementia, stressing nonpharmacologic management. The main outcome measure was the Neuropsychiatric Inventory, an instrument that scores adverse behavioral symptoms.[19]

In 89% of patients in the intervention group, caregiver reports triggered at least 1 behavioral protocol (mean of 4) for management of a behavioral or psychological symptom of dementia.[19] Intervention patients had significantly better total Neuropsychiatric Inventory scores at both 12 and 18 months compared with augmented usual care (−5.6 and −5.4 points, respectively, $P = .01$ for both). Intervention patients were also more likely to receive cholinesterase inhibitors (79.8% vs 55.1%, $P = .002$) and antidepressants (45.2% vs 27.5%, $P = .03$). Caregivers also had significantly better caregiver Neuropsychiatric Inventory scores at 12 months ($P = .03$) and better health at 18 months as measured by the 9-item Caregiver Patient Health Questionnaire ($P = .02$). Caregivers in the intervention group were also significantly more likely to rate the quality of the patient's primary care as very good or excellent at 12 months (82.8% vs 55.9%, $P = .002$).[19]

A second randomized, controlled trial (Alzheimer's Disease Coordinated Care for San Diego Seniors)[66] examined the effectiveness of a dementia guideline–based

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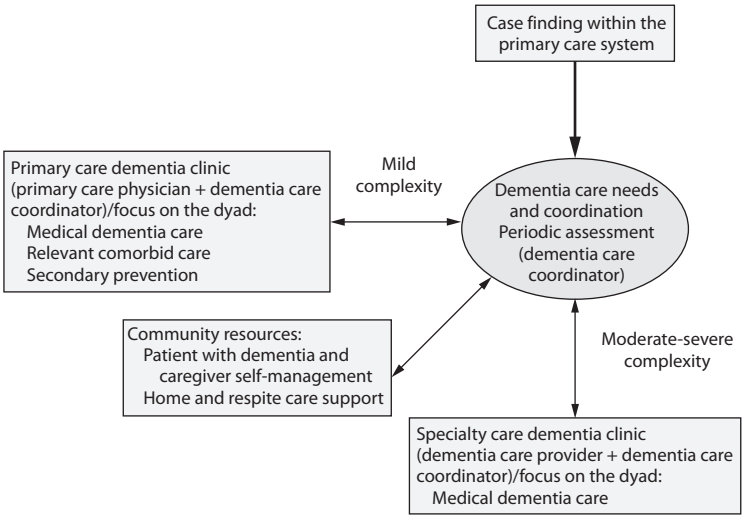
Figure 2. Postulated Example of an "Ideal" Collaborative Dementia Care Program[a]



[a]Adapted with permission from Boustani et al.[15]

disease management program led by care managers to improve quality of care and outcomes in dementia patients compared with usual care. A steering committee identified 23 existing dementia guideline recommendations to be used as care goals. The intervention group had significantly greater adherence to guideline recommendations versus the usual care group (63.9% vs 32.9%, respectively, $P < .001$). Furthermore, intervention patients experienced higher care quality on 21 of 23 guidelines ($P \leq .013$ for all), and more of the intervention patients received community agency assistance ($P \leq .03$) than those in the usual care group. Health-related quality of life, overall quality of patient care, caregiving quality, social support, and level of unmet caregiving assistance needs were all rated significantly higher in the intervention group than in the usual care group ($P < .05$ for all). However, in contrast to the first study,[19] no difference was observed in caregiver health-related quality of life.[66]

Kaiser Permanente physicians in Los Angeles, California, evaluated the use of practice guidelines and social worker support to improve the quality of dementia care.[67] Guideline-based training was given to physicians, with social workers providing ancillary support. In total, 83 dementia patients in the community and their caregivers were referred to the program.[67] Following assessment by the physician and social workers, data were reviewed from medical records to identify whether these interventions improved quality of care indicated by adherence to key care processes derived from the adopted dementia guidelines. At follow-up, higher rates of provider and caregiver satisfaction were observed with this system of dementia care compared with baseline.[67] In addition, significantly higher rates of adherence to a number of practice guideline–based quality measures, referrals to the Alzheimer's Association, and assessment of cognitive status and activities of daily living, depression, decision-making, and risk of wandering were observed.[67]

Two additional projects were carried out by the same group to further evaluate this strategy for training primary care physicians in the identification, diagnosis, and management of Alzheimer's disease and related disorders along with provision of nonmedical support services.[68] Evidence-based practice guidelines to improve Alzheimer's disease care were used to develop benchmarks from which training and other interventions were implemented. Creative training strategies were used, including provider tool kits, checklists, and endorsement from organizational leadership. Furthermore, a system of dementia care management complemented traditional primary care to improve the chance of achieving the quality benchmarks. These studies confirmed that the quality of dementia care can be improved using physician education and a coordinated system of care management and by working with community agencies to access guideline-recommended social services.

Other models for collaborative care have been described for which there is less rigorous supporting evidence. For example, addressing the issue of integrating specialty care as part of a comprehensive treatment model, Boustani et al[15] put forward an "ideal" collaborative dementia care program (Figure 2) based on a stepped-care approach, in which the level of specialty care is tailored to the disability of the patient. The Assessing Care of Vulnerable Elders project[69] developed an intervention designed to improve care for community-based older persons (aged ≥ 75 years) provided by primary care physicians for 3 geriatric conditions, including cognitive impairment/dementia. Given the similar needs of vulnerable elders with other debilitating chronic illnesses, the Assessing Care of Vulnerable Elders approach leverages collaborative care across a range of conditions that includes Alzheimer's disease and other dementias but is not limited to them. The costs of the intervention are low, but its effectiveness needs to be evaluated in controlled trials. Another study, which focused on providing care to a largely minority population in a community clinic setting, employed a geriatric nurse practitioner to coordinate care with the primary care physician and to run a monthly psychoeducational support group for caregivers. The intervention also included a comprehensive screening and diagnostic protocol and proactive longitudinal tracking. Although not a controlled study, the intervention was well received, and about 50% of caregivers regularly attended the support group.[70]

Taken together, this research provides a foundation for the development of innovative approaches to improve the quality of dementia care. Across all of the studies described here, there are common key components that characterize a successful dementia care program (Table 3). The role of the primary care physician, as envisioned in these studies and models and which is consistent with treatment guidelines, comprises a clear set of core elements (Table 3).

Table 3. Common Key Components of a Successful Dementia Care Management Program[a] and Core Elements of the Primary Care Physician's Role

Components of a Successful Dementia Care Management Program
Team focused on collaboration between primary care physicians, specialists, care manager, and caregiver
Primary care physician has adequate support
Care manager central to care coordination
Maximal utilization of community resources
Individualized treatment plan
Regular monitoring of outcomes as basis for revising treatment plan
Targeted specialty consultation
Protocols for stepped care
Caregiver's needs considered equally to those of the patient
Core Elements of the Primary Care Physician's Role
Assess cognition in appropriate patients
Make the diagnosis of Alzheimer's disease
Share the diagnosis with the patient and family
Provide appropriate pharmacotherapy
Collaborate with team members to develop, monitor, and revise the treatment plan
Refer to specialists as needed
Coordinate care with specialist(s)

[a]Based on Reuben et al.[69]

CONCLUSIONS

This article outlines an approach to the assessment of cognitive function and the diagnosis and management of dementia due to Alzheimer's disease in primary care settings based on the most current practice guidelines, expert consensus statements, and research on models of care. Adhering to such an approach can ensure that patients receive optimal, guideline-compliant care from their primary care physician and a coordinated team of office-based and community-based service providers. This model of care addresses the critical need for a wide range of medical and nonmedical services while retaining a central role for the primary care physician in the diagnosis and management of dementia due to Alzheimer's disease. Our review shows that there is consensus of expert opinion on the type of services required and that such services cannot be provided by a primary care physician alone. Review of clinical research on collaborative care revealed a further body of empiric evidence supporting a multidisciplinary interprofessional approach.

Changes in service delivery and payment will likely be required to achieve these aims because fee-for-service reimbursement does not provide the primary care physician adequate compensation for the time and resources necessary to meet these standards. The pilot projects highlighted in this article suggest that Medicare payment reform for dementia diagnosis and disease management programs will be needed to provide adequate financial resources for primary care physicians and the health care delivery systems within which they practice to successfully provide high-quality, comprehensive care. Accountable care organizations are one place where these models could be implemented and assessed. An integrated system of care, such as Kaiser Permanente,[67] provides an example of alternatives to fee-for-service that are compatible with the primary care physician role discussed in this article. Moreover, the adoption of the National Alzheimer's Plan in 2012[6] suggests that the challenges of financing necessary services are being addressed.

A central driver of change will most likely be the Medicare wellness visit, which includes a mandate for cognitive assessment and related dementia services.[8] We anticipate that important innovations will be tested on a large scale and the most successful implemented as expeditiously as possible. To this end, Internet-based resources can be used to support ongoing skills and knowledge training for primary care physicians. Modern communications technology also presents opportunities for promoting team-based collaborative care. Telemedicine applications, for example, can be used for remote diagnostic interviews and specialty consultation, and the Internet already hosts an ever-growing number of educational resource sites for patients, caregivers, and families.

In summary, guidelines and consensus statements all agree that primary care has a central role to play in the routine assessment of cognitive function and in the diagnosis and management of Alzheimer's disease, but they provide few specific recommendations or resources to assist primary care physicians in fulfilling this role. Case finding, making and delivering the diagnosis, prescribing Alzheimer's disease–specific medication, referring to Alzheimer's disease specialists as indicated, and facilitating patient and caregiver participation in clinical research are the major elements of this role. In addition to these medical tasks, provision of psychosocial services is also of critical importance throughout the course of the disease. Given the diversity and breadth of services and the necessity for coordination, we argue that nationwide implementation of team-based, collaborative care programs represents the best option for improving care standards. Such an effort will allow patients and caregivers to obtain the services they need, physicians to have the support they need to provide care they can be proud of, and communities to have the confidence that our health care system is capable not only of great technological interventions, but also of competent and compassionate care.

Drug names: donepezil (Aricept and others), florbetapir (Amyvid), galantamine (Razadyne), memantine (Namenda), rivastigmine (Exelon and others).

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