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## Assessing Care of Vulnerable Elders – Alzheimer's Disease: A Pilot Study of a Practice Redesign Intervention to Improve the Quality of Dementia Care

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### Abstract

**Objectives**—To determine whether a practice redesign intervention coupled with referral to local Alzheimer's Association chapters can improve the quality of dementia care.

**Design**—Pre-post intervention

**Setting**—Two community-based physician practices

**Participants**—Five physicians in each practice and their patients age 75 and older with dementia

**Intervention**—Adaptation of the Assessing Care of Vulnerable Elders (ACOVE)-2 intervention (screening, efficient collection of clinical data, medical record prompts, patient education/empowerment materials, and physician decision support/education). In addition, physicians faxed referral forms to local Alzheimer's Association chapters who assessed patients, provided counseling and education, and faxed information back to the physicians.

**Measurements**—Audits of pre- (5 per physician) and post- (10 per physician) intervention medical records using ACOVE-3 quality indicators for dementia to measure the quality of care provided.

**Results**—Based on 47 pre- and 90 post-intervention audits, the percentage of quality indicators satisfied rose from 38% to 46% with significant differences on quality indicators measuring the

assessment of functional status (20% versus 51%), discussion of risk/benefits of antipsychotics (32% versus 100%), and counseling caregivers (2% versus 30%). Referral of patients to Alzheimer's Association chapters increased from 0 to 17%. Referred patients had higher quality scores (65% versus 41%) and better counseling about driving (50% versus 14%), caregiver counseling (100% versus 15%) and surrogate decision-maker specification (75% versus 44%). However, some quality indicators related to cognitive assessment and examination did not improve.

**Conclusions**—This pilot study suggests that a practice-based intervention can increase referral to AA chapters and improve quality of dementia care.

### Keywords

Dementia; Alzheimer's Association; health care delivery; community-based organizations; coordination of care

## INTRODUCTION

Dementia is a common problem in older persons, reaching epidemic prevalence among those 85 years and older.<sup>1</sup> Although appropriate care for this disorder has been identified<sup>2,3,4,5</sup>, the care actually provided for dementia has been poor. For example, studies of community practice found that only about one-third of recommended care processes for dementia were performed.<sup>6, 7</sup> Moreover, a practice redesign intervention, Assessing Care of Vulnerable Elders-2 (ACOVE-2)<sup>8</sup>, did not improve dementia care although it substantially improved the quality of care for falls and urinary incontinence.<sup>9</sup> Examination of the deficiencies in these studies reveals that physicians performed better on the medical components (e.g., ordering tests, discussing and prescribing medications) compared to the counseling and educational aspects of dementia care. This may be due to inadequate knowledge among physicians about community resources and behavioral management needed to optimally care for patients with dementia. Moreover, there is little time during the office visit for physicians to provide counseling and support for caregivers.

One approach that physicians can use to enhance counseling and supportive care for patients with dementia is to partner with community-based organizations. Specifically, Alzheimer's Association chapters provide patient and family education, offer and arrange counseling, and facilitate the use of needed community services. To date, however, the medical community and local Alzheimer's Association chapters have operated independently in parallel systems with little communication or collaboration. A few research and demonstration projects that have linked large, integrated health care systems to Alzheimer's Association chapters<sup>7, 10,11</sup>, and one pilot study that linked community-based physician practices to an Alzheimer's Association chapter<sup>12</sup> have shown improvements in physician knowledge, practices, and attitudes and improved patient and family caregiver satisfaction and other psychosocial outcomes. However, these linkages have been difficult to implement and sustain, particularly in smaller practices and those with little infrastructure.

To improve the quality of care that primary care physicians provide for dementia, we strengthened the ACOVE-2 intervention in three ways. First, we added a quality improvement component that provided feedback to the providers on their baseline performance. Second, we conducted focus groups to identify physician perceptions of unmet needs in managing dementia patients.<sup>13</sup> Third, we worked with the practices to customize the intervention to meet these unmet needs and to improve quality of care, including establishing referral linkages to local Alzheimer's Association chapters to strengthen the patient and family education and community services component. We then piloted the new

ACOVE-AD intervention in two community-based practices and measured quality of dementia care before and after the intervention.

## METHODS

The project had two components, a quality improvement component and a research component. The research component was approved by the UCLA Institutional Review Board. Two community-based physician practices, one in California and the other in Washington state, were identified by local Alzheimer's Association chapters in these geographic areas and agreed to participate. Practice A is in a large multi-specialty clinic, with more than 150 primary care and specialty physicians in most areas of medicine. It is housed in a large building with substantial on-site infrastructure. Practice B is located in a smaller office that is part of a 71-physician organization that also has several hundred affiliated and contracted physicians. Practices were not remunerated for implementing the intervention. However, medical groups received a small compensation to offset expenses associated with chart review and other research aspects of the project.

The project was conducted in two phases: provider focus groups to guide intervention modification and a pilot of the modified intervention. Four focus groups were held to learn what busy primary care physicians perceive to be the most important components in the management of dementia, obstacles to such care, and how to meet these needs.<sup>13</sup> Focus group findings highlighted the importance of establishing effective community connections including increased physician referrals to local Alzheimer's Association chapters and transmission of information from the chapters back to physicians. The quality improvement component began with providing participating physicians (5 at each site) the results of audits of the medical records of 5 of their patients (per physician) with dementia to provide a baseline of the quality of care provided. For these audits, physicians identified patients they recalled as having dementia. The practice redesign team, including two geriatricians (DBR and NSW), a nurse (CPR) with expertise in practice redesign and quality measurement, and Alzheimer's chapter staff then visited the practices. At this visit, the components of the ACOVE-2 intervention were reviewed with the physicians and modified as follows:

- **Case finding** - In this project, case finding was conducted by office medical assistants, who administered a 3-item recall test to patients age 75 and older with no current diagnosis of dementia during regular office visits. Failing to recall at least two items was considered to be a positive screen. Patients already diagnosed with dementia were also included in the study.
- **Efficient collection of condition-specific clinical data** - The completed case-finding tool, along with a structured visit note and supporting educational materials (available at <http://www.geronet.ucla.edu/centers/acove/index.htm>), were added to the patient chart at the time of the scheduled office visit. The participating physicians and their staff decided how much clinical data collection (e.g., history taking) could be delegated to office staff as well as any alterations in clinic patient flow to facilitate data collection.
- **Medical record prompts** - The structured visit note prompted physicians to address the identified condition; led them through the appropriate data collection and diagnostic and therapeutic care process, including patient education and community linkages through the local Alzheimer's Association chapters; and could serve as the permanent progress note for that visit. .
- **Patient and family education materials** - Simple paper patient education materials were available in the examination rooms as prepared packets for physicians to distribute to patients and families. In addition, physicians were encouraged to refer

patients to local Alzheimer's Association chapters. Based on preferences expressed in the focus groups, a physician fax referral form was created as well as an Alzheimer's Association fax response form to standardize communication to the physician. Both forms are available at <http://www.geronet.ucla.edu/centers/acove/index.htm>. Counselors at the Alzheimer's Association included 2 bachelor level social workers (at the chapter serving Site A) and 1 Licensed Clinical Social Worker (at the chapter serving Site B) who did this work as part of their overall responsibilities at the Alzheimer's Association.

- **Physician decision support and physician education** – Two geriatricians (DBR and NSW) with expertise in physician office management of dementia personally worked with participating physicians on how to modify and incorporate the educational materials and Alzheimer's Association chapter information into their practices. During a 60–90 minute education session, physicians learned how to incorporate the recommended dementia care processes into their time-limited patient visits. Results of the baseline medical record audits were also reviewed with the physicians. A nurse (CPR) conducted a separate training session for office staff to orient them to the screening process and other intervention implementation activities.

After these visits, the practices implemented the intervention. Physicians' visit times were not adjusted to accommodate the intervention nor were additional staff hired. Fidelity of the implementation was monitored and corrections were made as necessary. For example, when an Alzheimer's Association chapter at one site did not receive the anticipated number of referrals, the referral process was audited, and it was discovered that some fax referral forms had been placed in the chart but not faxed. Similarly, when it was learned that physicians were not referring early stage dementia patients because of patient and family reluctance, a conference call was held with the physicians to discuss how to present and discuss the importance of early referral with patients and their families.

At the conclusion of the pilot, clinic research staff audited up to 10 records of a different set of cognitively impaired patients for each physician. These audits included all charts of patients who had known dementia on the screener or failed the memory screen after the intervention had been implemented. Because the sites were encouraged to include structured visit notes, screeners, and fax referral forms in the medical record, it would not have been possible to blind the reviewers as to whether the charts were pre- or post-intervention. The medical record audits covered a 13 month time period and were designed to determine whether ACOVE-3 quality indicators<sup>5</sup> for dementia care had been satisfied. Quality indicators are typically “If, ... then...” statements (e.g., “If a vulnerable elder screens positive for dementia, then the physician should document an objective cognitive evaluation that tests 2 cognitive domains.”). A total of 18 different quality indicators were assessed.

For each quality indicator, the percentage of patients who received recommended care was divided by the number of eligible patients to compute a percentage passed score. Finally, a summary score for dementia quality of care was generated by combining the scores across all quality indicators.

Pre- and post-intervention scores were compared using Fisher's exact test stratified by medical group. In addition, the quality score of patients who had been referred to Alzheimer's Association chapters was compared to those who had not been referred, using Fisher's exact test. An e-mail survey was conducted in July 2009 to determine the persistence of redesign components within the practices.

## RESULTS

Ten physicians participated in the project, five at each site. On average, physicians were 44.3 years old (standard deviation 7.9). Half were male and half were white. Most (70%) had attended medical school in the United States. The mean score on a pre-intervention knowledge test was 8.9 of 11 possible points. No significant between-site differences on physician characteristics were noted.

Over an 11-month period, a total of 1179 patients were screened (928 at Site A and 251 at Site B) and of these 67 (49 at Site A and 18 at Site B) had known dementia. An additional 54 (37 at Site A and 17 at Site B) failed the 3-item recall screen. Thus, a total of 121 patients (10% of those screened) were eligible for the study (86 at Site A and 35 at Site B). The number of total screened positive varied considerably across physicians, ranging from 1 to 43. The number of medical records audited per physician ranged from 1 to 15, median 8.5

The effects of the intervention on quality of care are presented in Table 1. Based on 47 pre- and 90 post-intervention medical record audits, summary quality scores (percentage of quality indicators satisfied) rose from 38% to 46% ( $p < 0.05$ ) after implementation of the practice redesign. Significant pre-post differences (all  $p < 0.05$ ) were demonstrated for quality indicators measuring the assessment of functional status (20% versus 51%), discussion of risk/benefits of antipsychotics (32% versus 100%), and counseling caregivers (2% versus 30%). In contrast, scores on some quality indicators representing cognitive assessment, medication review, and the neurologic exam did not improve.

Although site A had a higher pre-intervention quality score (44% versus 33%), this difference was not significant ( $p = 0.06$ ). Site A did not improve its summary score ( $p = 0.77$ ). In contrast, site B improved overall quality from 33% to 46%, a 39% increase ( $p = 0.01$ ).

Before the intervention, no patients at either site had been referred to the Alzheimer's Association, and after 17% were referred ( $p < 0.05$ ). Table 2 presents comparisons of care received by patients who were referred with those who were not referred. Those who were referred had higher quality scores (65% versus 41%) and were more likely to receive (all  $p < 0.05$ ) counseling about driving (50% versus 14%), caregiver counseling (100% versus 15%) and specification of a surrogate decision-maker (75% versus 44%).

Based on the July 2009 survey of practices the persistence of the intervention was variable. Screening had ceased at both sites but at Site A some physicians had incorporated inquiring about memory problems into the Review of Systems and some physicians are using the fax referral sheets. Site B continues to use the fax referral forms to the local Alzheimer's Association chapters and is expanding the program to other office sites in the practice.

## DISCUSSION

This pilot study demonstrated that community-based physician practices were able to implement the ACOVE-AD intervention and connect patients and families to local Alzheimer's Association chapters for many of the education and counseling functions that are needed for higher quality dementia care. Although dementia care was improved when the two sites were combined, the improvement was confined to one practice. Because the sample size of practices and number of records audited at each practice were small, no conclusions can be drawn about the differences between sites and the underlying reasons. Moreover, some key quality indicators relating to assessment of cognition and physical examination did not change. In fact, the major gains were related to the care processes that were completed by the Alzheimer's Association chapters.

Part of the reason that quality scores were not higher may be the time frame for completing the examination for the cognitive assessment quality indicator, which specifies that at least 2 cognitive domains need to be assessed within-2-weeks. It is possible that many of the physicians deferred the evaluation to the next visit, which may have been greater than 2 weeks after the screen was performed. Documentation of care processes is poor for history, counseling and exam quality indicators, in general,<sup>14,15</sup> and this may be the limiting issue. Finally, it is possible that the physician education component was not powerful enough. However, baseline physician knowledge was high suggesting that the major barriers were behavioral rather than knowledge. One possible approach to improving poor performance of history and exam quality indicator is to delegate components of the history and examination to mid-level providers or office staff.

Performance on a few quality indicators actually declined, though the decline was not statistically significant from baseline performance. One possible explanation is as follows. The pre-intervention cases were selected based on the physicians' recall, which may have led to a bias in the selection of more severe cases on which they intervened more aggressively. In contrast, the post-intervention cases included dementia cases that were noted in the chart or were detected by screening and may have been less severe. A similar phenomenon was noted in a prior ACOVE study<sup>9</sup>. In addition, it is possible that as a result of the intervention, primary care physicians may have incorrectly expected more of the medical assessment to be done by the Alzheimer's Association.

Although referral to the Alzheimer's Association increased as a result of the intervention, only a minority of patients was referred. Impediments to referral include both patient and family reluctance, particularly in early stage disease, and physician lack of knowledge about the services that the Alzheimer's Association can provide.<sup>7</sup> In addition, the way the referral is framed may be important. When implementing ACOVEAD, we learned that physicians need to be proactive in making referrals, including educating patients and families about the specific services that the Alzheimer's Association might provide. For example, physicians need to refer early in the course of the disease and to explain to patients that even though the full resources of the Association may not be needed at this time, better family knowledge about the disease and resources of the Association can help prepare them to cope as the disease progresses.

The overall absolute effect size was 8%. Although no studies have examined the relationship between improved dementia quality care and clinical outcomes, better overall quality of care (including dementia as well as other conditions) using ACOVE Quality Indicators demonstrated that a 10% higher quality score was significantly associated with a 36% lower mortality after 500 days in multiply adjusted models.<sup>16</sup> Hence, an 8% effect size may be clinically meaningful.

These findings build upon several successful interventions for management of Alzheimer's disease that are more resource intensive and comprehensive. Callahan et al. developed a collaborative care management model using an advance practice nurse.<sup>17</sup> The intervention included education on communication and coping skills, legal and financial advice, patient exercise guidelines, and a caregiver guide provided by the Alzheimer's Association. The advance practice nurse contacted patients and caregivers for one year and provided recommendations on how to manage behavioral symptoms. Patients and their caregivers were invited to attend group support sessions. The intervention resulted in improvement in the quality of care, reduction of patients' behavioral symptoms, and alleviation of caregiver symptoms.

Vickery et al. developed another model using dementia care managers (primarily social workers) facilitated by an Internet-based care management software system that communicated referrals to community agencies. Care managers made an initial in-home assessment, as-needed telephone follow up, and a formal in home reassessment every six months. As a result, the percentage of guidelines that were adhered to in the intervention group was approximately double that of a control group.<sup>7</sup>

Both of these models rely on the addition of another clinician to augment dementia care, which would be difficult to finance and would probably require a minimum of several practices to fill the added professional's caseload. In contrast, the ACOVE-AD model relies on existing office staff and depends more on community-based organizations, specifically the Alzheimer's Association.

For several reasons, these findings must be considered preliminary. First, only two practices participated in the program and the number of patients who were assessed for quality was small. Second, the pre-post study design cannot provide the same level of evidence as a clinical trial. Third, the Alzheimer's Association chapters that participated were well staffed and able to accommodate physician referrals. It is unclear whether other chapters with limited staff would be able to provide the same services. Finally, although the physician practices were community-based, they were innovative as demonstrated by being willing to participate in this program. It is unclear whether other practices would achieve the same results.

Although the relative effect size (approximately 20% overall and nearly 40% at site B) was considerable, the quality of care after the intervention was still below that provided for common diseases such as hypertension, stroke, and diabetes.<sup>6</sup> Specifically, in this small study, recommended clinical history and exam components were provided only a small percentage of the time, suggesting the need to modify physician behavior more intensively or to increase delegation to other providers. Future studies also need to develop approaches that increase referral rates to the Alzheimer's Association chapter.

In summary, a practice redesign program like the ACOVE-AD intervention, when coupled with strong linkages to community-based services such as local Alzheimer's chapters, is a promising approach to improving quality of dementia care. Such partnerships capitalize on the strength of the physician to evaluate and treat the medical issues and the Alzheimer's Association to facilitate management of the social, emotional, and behavioral aspects of dementia.

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**Table 1**

Percentage of Quality Indicators Satisfied Pre- and Post-intervention by group and total

	Site A		Site B		Both Groups	
	Pre (N=25)	Post (N=56)	Pre (N=22)	Post (N=34)	Pre (N=47)	Post (N=90)
<b>Summary quality score</b>	44	46	33	46*	38	46*
<b>Individual Quality Indicators</b>						
<i>-New memory impairment</i>						
Assessing cognition	63	67	80	31	69	53
Reviewing medications	63	71	80	56	69	65
<i>-New dementia</i>						
Conducting neurologic exam	67	71	60	33	63	54
Screening for depression	67	100	40	83	50	92
Performing laboratory tests	0	0	0	33	0	15
<i>-Management of dementia</i>						
Assessing functional status	30	51	10	50*	20	51*
Discussing cholinesterase inhibitor	86	67	50	71	75	68
Screening for behavioral symptoms	30	51	76	69	54	58
Managing behavioral symptoms	0	4	6	22	5	12
Discussing risk/benefits of antipsychotics	50	100	23	100*	32	100*
Counseling about driving	33	16	0	27	13	20
Counseling caregiver	5	22	0	42*	2	30*
Specifying surrogate	75	62	52	27	63	49
<b>% referred to Alzheimer's Association</b>	0	9	0	29*	0	17*

N= number of patients;

\* p &lt; 0.05 comparing pre to post

**Table 2**

Quality of Care Scores (%) Post-intervention by referral to Alzheimer's Association

	Site A		Site B		Both Groups	
	AA referral (N=5)	No AA referral (N=51)	AA referral (N=10)	No AA referral (N=24)	AA referral (N=15)	No AA referral (N=75)
<b>Summary quality score</b>	67	44 *	65	34 *	65	41 *
<b>Individual Quality Indicators</b>						
<b>-New memory impairment</b>						
Assessing cognition	100	64	57	11	67	48
Reviewing medications	100	68	71	44	78	61
<b>-New dementia</b>						
Conducting neurologic exam	100	67	50	0	60	50
Screening for depression	100	100	100	50	100	88
Performing laboratory tests	0	0	25	50	20	13
<b>-Management of dementia</b>						
Assessing functional status	25	54	88	33 *	67	47
Screening for behavioral symptoms	25	54	100	56 *	75	54
Discussing cholinesterase inhibitor	100	62	50	89	64	70
Managing behavioral symptoms	0	5	13	30	11	13
Discussing risk/benefits of anti-psychotics	100	NA	100	67	100	67
Counseling about driving	25	15	63	11 *	50	14 *
Counseling caregiver	100	15 *	100	17 *	100	15 *
Specifying surrogate	100	59	63	11 *	75	44 *

N= number of patients,

\* p &lt; 0.05 comparing AA referral to No AA referral