

Coordination and Advocacy for Rural Elders (CARE): A Model of Rural Case Management With Veterans

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Purpose: To describe a pilot initiative sponsored by the Veterans Health Administration (VHA) to improve the health and community tenure of frail older veterans living in rural counties 50–100 miles from two host VHA medical centers. **Design and Methods:** Veterans aged 75 and older who scored at risk of repeated hospital admission on the PRA-Plus telephone questionnaire were targeted and visited by evaluators who administered a comprehensive health questionnaire prior to being assessed at home by the Coordination and Advocacy for Rural Elders (CARE) program clinical teams. Guided by current state-of-the-art practices, the nurse–social worker teams performed in-home standardized assessments using the MDS-HC, developed patient-specific care plans, and mobilized family, community, and VHA resources to implement plans. **Results:** On average, eight problems were identified for each patient, most commonly falls risk, social needs, pain, and needs related to IADL disability. As a result of initial assessment, two thirds of CARE participants received referral/linkage to formal services, more than half to medical providers. **Implications:** Through CARE, the VHA is learning more about the unmet needs of older rural veterans. Further development and evaluation should guide the VHA toward providing efficient, effective community-based services to all frail older veterans.

Key Words: Case management, Rural aging, MDS-HC

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The older rural population in America continues to grow (Krout, 1994). One quarter of all older individuals live in small towns or rural areas (U.S. Bureau of the Census, 1998). Rural older adults have incomes that are approximately 20% lower than those in urban areas. They also suffer from more chronic illness and disability than their metropolitan counterparts. Access to essential health and human services is limited and underdeveloped in rural areas (Coward, McLaughlin, Duncan, & Bull, 1994).

Almost one quarter of all veterans also live in rural areas (U.S. Bureau of the Census, 1998). In some states, such as Vermont and Iowa, more than half of the state's veterans live in rural areas. Frail, rural older veterans may be at particular risk of illness, disability, institutional placement, and death if they receive a portion of their care from a more centralized, urban Veterans Administration Medical Center (VAMC). These rural elderly veterans, in addition to their usual burden of disability risks, have less access to VAMC-based care options. Moreover, non-VA health and social services—besides being fragmented from the client's perspective—are less available or nonexistent in rural areas (Dwyer, Lee, & Coward, 1990).

To serve the rural veteran population better, a model of care is needed that addresses gaps in services and the current level of fragmented care experienced by these veterans. Following earlier findings concerning the efficacy of in-home geriatric assessment services (Stuck, Siu, Wieland, Adams, & Rubenstein, 1993), a recent systematic review suggests that well-developed community-based programs may be effective in reducing mortality, forestalling functional decline, and offsetting use of more expensive services (Stuck et al., 1999). The primary features associated with favorable outcomes in these programs were the following: (a) the use of comprehensive geriatric assessment as the initial clinical evaluation of older persons; (b) patient/client involvement in developing prevention, treatment, and self-management recommendations; and (c) long-term application of clinical intervention characterized by periodic return visits and reassessments.

The Coordination and Advocacy for Rural Elders Program

In response to the VA's new emphasis on home- and community-based services, the Coordination and Advocacy for Rural Elders (CARE) program began in 1997 as an attempt to integrate community-based, chronic geriatric care for a broader base of frail, rural veterans (Veterans Health Administration, 1998). Integrating the features of comprehensive geriatric assessment, patient involvement, and longitudinal reassessments, the goals of the CARE model are to improve health and functioning and to extend rural veterans' community tenure. These goals are achieved through improving their access to health and social services in their homes and communities as well as in VA facilities, and by attending to preventive care, self-care education, and care coordination and advocacy, consistent with best care coordination practices (Mathematica Policy Research, 2000). Heretofore, the VA has not addressed rural older veterans' needs in a systematic fashion. Although a few VA Home-Based Primary Care (HBPC) programs provide care far beyond their facility, most HBPC programs limit their services to a radius of 25–50 miles beyond their facility. Further, the success of a care management program in the VA system is not simply a matter of implementing targeted, standardized assessment and care management strategies that have proven useful elsewhere. Given this system's historic isolation from other public and private sector services, its manner of budgeting and reimbursing home health services, brokering community services, and cost-effectively allocating its own clinical resources represents considerable challenges for a rural care management model.

In an attempt to obtain meaningful information on the impact of such a rural longitudinal care management model, CARE was initiated as a pilot clinical program in the Southeast, where one third of all veterans live in rural settings. The CARE team's focus is on care coordination and patient advocacy. The goal of CARE is not to be a substitute for primary care but, based on identified problems, to educate participants and caregivers and advocate for patients within the health care system, connect them to services, and monitor progress. The CARE team performs scheduled, standardized assessments, identifies problems, develops care plans, and tracks resolution of identified problems. The team stays abreast of services available to their patients through extensive resource manuals they have developed and updated for each county. Thus CARE teams provide both a standardized and tailored advocacy role in the form of community and VA service linkage, empowering older rural patients and communicating with providers about patient needs.

Target Population

At the initiation of the CARE program, older rural veterans were first risk screened, with those at risk recruited into the program. CARE targeted at-risk and frail elderly veterans (age ≥ 75 years) living in non-

urban counties between 50–100 miles from host VAMCs in Atlanta, Georgia, and Columbia, South Carolina. This radius was chosen because VA-based integrated home care services currently extend to 50 miles from the host VAMC, but no such services exist beyond 50 miles. To screen the population base, veterans were first identified from databases of historical users (within the past 5 years) of any VAMC or outpatient clinic within the Atlanta Veterans Integrated Service Network (including most of Alabama, Georgia, and South Carolina). Then, rural elderly service users living in targeted rural counties were telephone screened by a university-based survey lab using the Probability of Repeated Hospital Admission (PRA-Plus) questionnaire (Boult et al., 1993; Boult, Pacala, & Boult, 1995; Pacala, Boult, & Boult, 1995). PRA-Plus includes questions on self-rated health, health care utilization, medical problems including diabetes and CAD, living arrangements, and caregiver status. The telephone screener also included questions confirming key demographic data (name, address, gender, race, education, and marital status) and the Short Portable Mental Status Questionnaire (Pfeiffer, 1975). A PRA-Plus risk threshold of ≥ 0.35 for eligibility was established, conforming to moderate-to-high PRA-Plus risk. Together, the age threshold (≥ 75 years), rural residence, and moderate-to-high PRA-Plus risk were expected to produce a patient cohort whose age-related challenges, access-to-services issues, and multidimensional health problems would be appropriately addressed by the CARE approach.

After screening, at-risk veterans were called by non-clinical program evaluation staff (Figure 1). Consenting veterans were visited in their homes by these staff, were informed about the program, and then—with proxies if necessary—underwent a full baseline interview. The interview covered a range of health and functional areas. Baseline health-related quality of life was assessed using bodily pain and general health perception items from the Short Form-36 (Ware, 1993). Cognition was assessed using the Mini-Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) and functional status using both the Functional Independent Measure (telephone version; McDowell & Newell, 1996), and the Personal Self-Maintenance Scale (Lawton & Brody, 1969). Affect was measured using the two-question PRIME-MD (Whooley, Avins, Miranda, & Browner, 1997). To address burden of illness, a validated patient-interview version of the Charlson comorbidity measure were administered (Katz, Chang, Sangha, Fossel, & Bates, 1996). Insurance coverage and household income were also determined. Evaluation staff also comprehensively recorded prescription, over-the-counter (OTC), and alternative medications and nutraceuticals, along with dose and frequency information.

Initial Clinical Assessment

Patients referred to the CARE program were seen in their home by a nurse–social worker team, who performed initial and periodic follow-up home visits

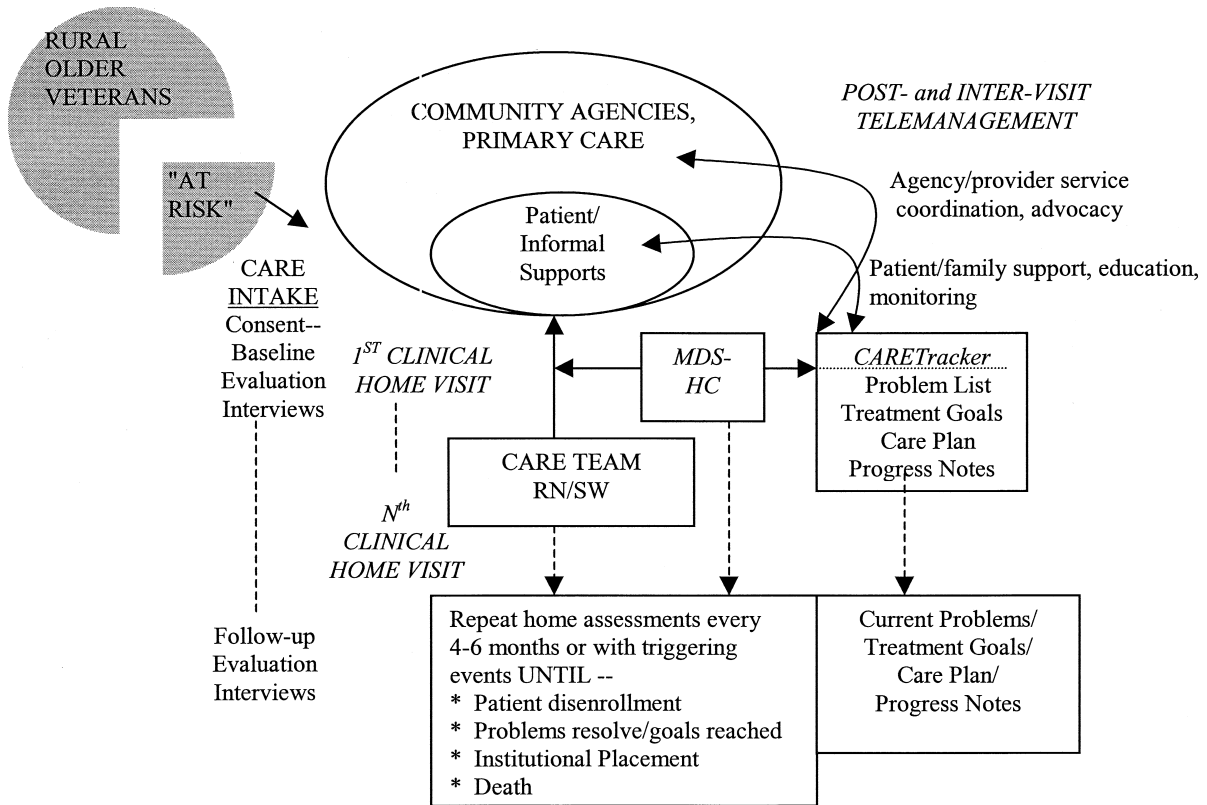


Figure 1. Coordination and Advocacy for Rural Elders (CARE) program intake and process. MDS-HC = Minimum Data Set-Home Care; RN = registered nurse; SW = social worker.

to identify multidimensional health problems and risks (Figure 1). The CARE team used a standardized assessment protocol, the Minimum Data Set-Home Care (MDS-HC), Version 10(a) (Morris, Bernabei, et al., 1997), to capture risk factors as well as active health problems and link them to comprehensive intervention strategies. MDS-HC is software-supported, with computerized intervention triggers (Morris, Fries, et al., 1997). After CARE team visits, completed MDS-HC forms were scanned, and client assessment protocols (CAPs) were generated (analogous to the resident assessment protocols [RAPs] in the nursing-home MDS system). Thirty CAPs indicated problems in the six major problem domains of Functional Performance, Sensory Performance, Mental Health, Health Problems/Syndromes, Service Oversight, and Continence. The CAPs served as a starting point for identifying patient problems that would increase patients' risk for imminent functional decline, hospitalization, or institutionalization (Landi et al., 2000; Morris, Fries, et al., 1997).

CARE team members had varying experience in geriatric and community-based care. However, the average time needed to complete in-home assessments was about the same in Georgia (GA) and South Carolina (SC), at about 40 min. CARE teams used the initial CAP reports, their own clinical judgment, and interventions started during the first visit to develop for each client a comprehensive problem list and action plan (Figure 1). Action plans encompass connecting

patients to services, advocating on the patient's behalf within the patient's health care context, and following progress, usually by telephone. Using a coded activity (process) inventory ("CARE-Tracker"), the teams recorded actions initiated for each problem detected at each assessment, and followed the problems to resolution. With up-to-weekly consultation from geriatricians and intervisit contacts with patients, families, and formal service providers, teams further refined problem lists and management plans (Figure 1). Patients were scheduled for in-home MDS-HC reassessments at 4–6 month intervals or a minimum of twice annually. However, those with more active problems or experiencing especially critical events (e.g., a hospitalization) may have been visited for full reassessment ahead of schedule. By proactively evaluating patients, CARE teams were often able to identify new problems soon after they developed.

Results of Telephone Screening and Characteristics of Participants

Roughly 2,600 veterans aged 75 and older who lived 50–100 miles from host VAMCs were identified from 5-year VA utilization files. Of these, 35% were not telephone screened due to inaccurate telephone information or death. Only 3.5% of contacts refused or were unable to complete screening. Among those screened, 52.1% had risk scores over the PRA-Plus threshold of 0.35. Recruitment was terminated once

Table 1. Baseline CARE Patient Characteristics

Participant & Family Characteristics	Georgia (N = 118) % (n)	South Carolina (N = 120) % (n)
Demographics		
Age (years)*	78.38 ± 2.96	79.13 ± 3.83
Male	100.0 (118)	99.2 (119)
African American	20.3 (24)	23.3 (28)
Education ≤8th grade**	49.2 (58)	34.2 (41)
Income <\$900/month	20.5 (24)	21.1 (20)
Income thought adequate**	44.9 (53)	62.5 (75)
Married	85.6 (101)	81.7 (98)
General Self-Rated Health^a		
General health fair or poor**	90.0 (99)	74.8 (89)
Health worse/much worse than year ago	55.5 (61)	46.2 (55)
Body pain in past 4 weeks moderate-very severe***	72.0 (85)	52.1 (62)
Pain interferes with normal work moderately-extremely***	69.2 (81)	46.2 (55)
Medications		
Prescription medications	96.6 (114)	96.7 (116)
OTC medications	67.8 (80)	58.3 (70)
Health foods/herbals	22.0 (26)	27.5 (33)
Selected Diseases and Comorbidity		
Myocardial infarction**	38.1 (45)	25.0 (30)
Congestive heart failure	27.1 (32)	37.5 (45)
Peripheral vascular disease***	32.2 (38)	4.2 (5)
Cerebrovascular accident	82.2 (97)	75.8 (91)
Respiratory disease***	67.8 (80)	84.2 (101)
Ulcers	24.6 (29)	15.0 (18)
Diabetes	75.4 (89)	80.0 (96)
Renal insufficiency/failure	79.7 (94)	87.5 (105)
Rheumatoid arthritis**	20.3 (24)	9.2 (11)
Cancers ^b ,*	19.5 (23)	12.5 (15)
Katz-Charlson Index ^c ,** (M ± SD)	2.73 ± 2.05	2.08 ± 1.87
Affective Status		
Depressed in past 4 weeks***	54.5 (60)	37.0 (44)
Little interest	32.7 (36)	31.9 (38)
Impairments and Disabilities		
Mini-Mental State Exam (M ± SD)	24.41 ± 4.16	24.53 ± 5.46
Selected IADL Disabilities^d		
Managing finances***	20.3 (24)	37.5 (45)
Managing medications*	14.4 (17)	26.7 (32)
Telephone use	24.6 (29)	24.2 (29)
Shopping	35.6 (42)	35.0 (42)
Transportation***	33.9 (40)	34.2 (41)
Three or more IADL dependencies**	34.7 (41)	38.3 (46)
ADL Disabilities^e		
Eating	4.2 (5)	9.2 (11)
Transferring—bed, chair, wheelchair	7.6 (9)	10.0 (12)
Transferring—toilet	5.1 (6)	7.5 (9)
Transferring—tub, shower**	8.5 (10)	15.8 (19)
Bathing**	9.3 (11)	15.8 (19)
Dressing—upper body**	10.2 (12)	14.2 (17)
Dressing—lower body**	8.5 (10)	14.2 (17)
Toileting**	5.1 (6)	12.5 (15)
Walking/wheelchair	28.0 (33)	20.8 (25)
Total FIM score ± SD	115.83 ± 16.37	113.55 ± 18.65

Note: CARE = Coordination and Advocacy for Rural Elders; IADL = instrumental activity of daily living; ADL = activity of daily living; OTC = over-the-counter.

*From MOS Short Form-36 questionnaire (Ware, 1993).

^bOther than skin cancers, leukemia/polycythemia vera and lymphoma.

^cKatz's modified patient questionnaire version of the Charlson Comorbidity Index (Katz et al., 1996).

^dDefined as the total number of dependencies (some help/unable vs. independent) across 7 IADL items.

^eIndividual item Functional Independence Measure (FIM) scores ≤5, i.e., helper necessary (supervision through total assistance).

p* < .1; *p* < .05; ****p* < .01.

follow-up capacity was reached. Among at-risk veterans contacted for CARE enrollment, the participation rate was 84.3%.

Characteristics of CARE participants are listed in Table 1. On average, CARE participants were male (99.6%), married (83.6%), and White (78.2%). Although they generally reflect an elderly, chronically ill, and disabled rural veteran population “at risk,” some differences between the GA and SC subgroups emerged. Compared with the SC patients, the GA participants were less educated, felt more income pressure, and had worse self-rated health, pain, depression, and comorbidity scores. In contrast, the SC patients tended to be older and to have more disabilities than the GA participants.

Problems Identified by the CARE Team

At the initial clinical home visit, the nurse–social worker CARE team identified at least one problem for each patient through assessment. On average, eight problems were identified for each patient. The CAP prevalences are shown in Table 2. Falls/Falls Risk, Social Function, Pain, IADL Needs, Cardiorespiratory Problems, and Health Promotion Issues triggered on more than 50% of participants.

Some of the health differences between the GA and SC populations seem to be reflected in the CAP prevalences. For example, the four CAPs in the Functional Performance domain, as well as Falls/Falls Risk, were significantly more prevalent in the more disabled SC population. The GA population, which had less income security and education as well as a higher comorbidity index score, more often triggered CAPs for Cardiorespiratory Problems and Social Function. Some differences in CAP prevalences were not explained by baseline health differences from the evaluation interviews (Table 1) or were contradictory. For example, the Pain CAP was of high but approximately equal prevalence in both states, whereas pain indicated by the SF-36 items was more prevalent in the GA subpopulation (see Table 1). The Cognition CAP was significantly more prevalent in GA, although the baseline MMSE scores were not significantly different. The Depression/Anxiety CAPs triggered disproportionately in the SC group, but in both states triggered less frequently than might be expected, based on the participants’ PRIME-MD responses.

Interventions Initiated by the CARE Team

Following initial assessment, the CARE team initiated at least one intervention in 78.8% of the participants. On average, 7.7 (± 8.5 , median = 4) interventions were initiated per patient. Table 3 shows the distribution of care management activities to CARE patients as well as the frequencies of each as a percentage of all CARE activities. Almost half (47.3%) of CARE initial activities were educational in nature, with 57.1% of patients/families receiving at least one such intervention. Although fewer than a third of in-

Table 2. Prevalence of Triggered CAPs at First Assessment, Georgia and South Carolina

Problem Domains/CAPs	Georgia (N = 108) % (n)	South Carolina (N = 118) % (n)
Health Problems/Syndromes		
Falls*	63.0 (68)	76.3 (90)
Pain	55.6 (60)	58.5 (69)
Cardiorespiratory**	61.1 (66)	45.8 (54)
Dehydration	28.7 (31)	26.3 (31)
Oral health	20.4 (22)	24.6 (29)
Nutrition	17.6 (19)	18.6 (22)
Skin/foot condition***	28.7 (31)	2.5 (3)
Pressure ulcers	11.1 (12)	13.6 (16)
Mental Health		
Social function***	75.0 (81)	46.6 (55)
Cognition*	25.9 (28)	13.6 (16)
Depression/anxiety**	1.9 (2)	9.3 (11)
Behavior	2.8 (3)	5.1 (6)
Alcohol abuse	2.8 (3)	0.8 (1)
Elder abuse	0	0
Functional Performance		
IADLs***	42.6 (46)	66.1 (78)
Health promotion**	62.0 (67)	42.4 (50)
Institutionalization risk***	7.4 (8)	19.5 (23)
ADL/rehabilitation potential	1.9 (2)	14.4 (17)
Sensory		
Visual function	49.1 (53)	38.1 (45)
Communication disorders***	52.8 (57)	31.4 (37)
Service Oversight		
Medication management	44.4 (48)	34.7 (41)
Preventive measures	20.4 (22)	18.6 (22)
Psychotropic drugs*	10.2 (11)	20.3 (24)
Reduction of formal services**	1.9 (2)	9.3 (11)
Adherence***	0	10.2 (12)
Brittle support system	2.8 (3)	5.9 (7)
Palliative care	1.9 (2)	1.7 (2)
Environmental assessment	1.9 (2)	1.7 (2)
Continence		
Bowel management***	39.8 (43)	16.9 (20)
Urinary/indwelling catheter	13.9 (15)	16.1 (19)

Note: CAP = client assessment protocol; IADL = instrumental activity of daily living; ADL = activity of daily living.
* $p < .1$; ** $p < .05$; *** $p < .01$.

dividual initial CARE activities comprised formal service coordination, almost two thirds of CARE patients received at least one referral or were linked to a formal service for an identified need. Over 56% received a medical service referral/linkage, and 13.3% received a referral to community-based supportive services. About 3% were hospitalized or institutionalized as a result of the initial assessment. Most patients referred to medical services and supportive services (82.5% and 71.4%, respectively) were referred to VA as opposed to private or other community providers. Two of the seven hospitalizations and nursing home placements were in VA facilities.

Table 4 displays the diversity and frequency of selected initial CARE activities in relation to higher prevalence triggered CAPs. The activities displayed are the most frequent. Concerning the diversity of activities, the activities appear to be responsive and appropriate to the identified problems. However,

Table 3. Distribution and Frequency of Care Management Activity Classes

Activity Class	CARE Clients (N = 226) % (n)	Initial Activities (N = 1,741) % (n)
Formal Service Coordination/Linkage	66.4 (150)	28.7 (499)
Medical	56.2 (127)	22.5 (391)
Community skilled & supportive	13.7 (31)	2.9 (50)
Prosthetics/equipment	11.1 (25)	2.0 (34)
Nutritional services	4.9 (11)	0.8 (14)
Institutional care	3.1 (7)	0.6 (10)
Patient/Caregiver Education	57.1 (129)	48.7 (848)
Care Oversight/Disease Management	44.2 (100)	11.3 (197)
Legal/Insurance/Benefits/Financial Assistance	25.7 (58)	4.1 (71)
Brief Counseling Interventions	20.8 (47)	5.0 (87)
Transportation/Telecommunication Assistance	14.6 (33)	2.2 (39)

Note: CARE = Coordination and Advocacy for Rural Elders.

particularly for Falls and Pain, the CARE teams appear not to have responded aggressively at least initially across all patients manifesting these problems, with nearly half in each problem group receiving no defined intervention.

Although the CARE teams had received MDS-HC training and uniformly performed the standardized assessment on their home visits, the teams were encouraged to perform supplemental evaluations at their discretion if they felt MDS-HC was not capturing a problem or information necessary to proceed with recommendations or a care plan. Further, CARE teams were free to determine whether and what ac-

Table 4. Typical Initial CARE Activities in Response to Specific Triggered Problems

Initial Visit (No. with problem)	Selected CARE Activities	Patients With Problem Receiving Service (%)
Falls (159)	Fall prevention education	38.4
	Prosthetics	5.0
	Exercise/rehab referral	3.8
	Adult Protective Services	1.3
Pain (128)	Pain management clinic referral	28.1
	Pain management education	16.4
	VA Specialty Clinic	1.6
	VA Primary Care Clinic	1.6
	Skilled Home Health Services	1.6
Social Function (136)	Patient/caregiver education	33.8
	VA benefits coordination	19.1
	Brief counseling	12.5
	Conflict resolution	9.6
	Other mental health intervention	5.1

Note: CARE = Coordination and Advocacy for Rural Elders; VA = Veterans Administration.

tions were appropriate in any given case should MDS-HC or independently developed problems be identified. For example, the most frequent CAP was for Falls or Fall Risk. However, CARE often initiated no specific interventions either because the teams felt fall risk was low or because no new opportunities for risk modification existed. Also, although no CAP fired for Elder Abuse or Neglect (Table 2), the teams made four referrals to Adult Protective Services based on information that was not captured by MDS-HC.

Discussion

Our findings to date suggest that the CARE model is a feasible approach for screening, assessing, and managing a population of at-risk elderly veterans living in rural communities. We were able to telephone screen large numbers of veterans, and a large percentage of the at-risk group agreed to participate in CARE.

A key finding of the program in its initial development is the high level of newly discovered unmet needs in the groups receiving CARE services. The CAP trigger or the team's independent identification of a problem identified problems that were more active than was realized by current health care providers, or otherwise not being monitored or treated. This finding highlights the benefit of routine standardized comprehensive assessment in this population. The VA Policy Board for Geriatrics and Extended Care has recognized this need, and has recently mandated the use of the MDS-HC for VA community health programs.

Nearly two thirds of clients required referral or linkage with formal services (and more than half specifically with medical providers) to deal with active health problems. While the differences in problem prevalence between the GA and SC populations is notable, the problems appear to be congruent with the differing baseline patient characteristics and are ultimately traceable to differences in the populations using the Atlanta and Columbia VAMCs. However, some differences between SC and GA CAP rates, and between overall CAP rates and baseline characteristics, suggest the need for building assessment skills and ongoing monitoring.

Although many CARE interventions make use of community and non-VA resources, many linkages are back to hospital- or clinic-based VA services, entailing all the usual transportation, communication, and adherence difficulties. To what extent this reflects resource scarcity in rural areas or other factors, including patient preference or fiscal and structural barriers, is unknown. At their inception, the CARE services were limited to referral functions with respect to non-VA providers, but more recently the program has become responsible for brokering these services as well, which may improve their effectiveness (Christianson, Applebaum, Carcagno, & Phillips, 1988). Examples of such interactions include working with patients' private physicians to provide rehabilitation services, advocating with community agencies for respite ser-

vices, and partnering with veterans services organizations to address transportation needs. Improvement of CARE's effectiveness may also largely hinge upon continuing education of the CARE teams concerning evidence-based and best-practices approaches that address the problems they uncover in their patients. Monthly team conference calls have provided a basis for undertaking such education and consensus building. In the long run, building a longitudinal database containing both MDS-HC information as well as the CARE-Tracker data (encompassing treatment/management goals, care plans, and progress notes) will enable a continuous quality improvement approach to managing and improving the impact of the CARE program.

While the unavailability or under-capacity of various rural sources of medical and supportive services requires continuing attention from policy makers, the CARE experience has already begun to highlight the need to reengineer VA services and benefits toward more efficient and effective rural community-based care. Because of gaps in Medicare benefits, many frail or at-risk rural elderly veterans, whose primary medical needs might be more effectively served by the rural federally qualified health centers, are drawn to urban VAMCs to receive drugs and other services not covered by Medicare. Over the longer term, VHA will need to determine an appropriate balance of direct versus brokered services. Adding VHA fiscal resources to other public dollars might stimulate improved capacity in rural areas for care of veterans. In the short term, the current fragmentation of provision and financing, which is worst in rural communities, demands programs like CARE to mitigate negative outcomes. Implementing comprehensive, community-based care in at-risk older veterans requires core assessment, management, and oversight activities as well as continuous quality improvement approaches, such as those implemented in CARE. In addition, setting up a service whose responsibility is to perform standardized assessment and to improve outcomes describes a domain in which continuous quality improvement can take place, given sufficient commitment to building the skill sets of CARE teams as well as identification and removal of VA and non-VA organizational barriers to improving care overall.

In summary, the CARE program represents a model of rural longitudinal care management that incorporates *standardized* comprehensive assessment, *standardized* care plan development, patient empowerment and advocacy, and software supported longitudinal followup. The initial assessment yields and description of CARE activities suggest a rural elderly veteran population with *many* needs that are not currently being met by VA or community-based services due to inaccessibility, underdevelopment, and unavailability. Follow up of health outcomes and service utilization patterns at 2 years should indicate how CARE's long-term management is related to improvement or maintenance of veterans' health, functioning, and community tenure, further guiding program de-

velopment. The process of deploying effective and efficient community-based services for rural elderly veterans will be a long one, needing programs like CARE to lead the way.

References

- Boult, C., Dowd, B., McCaffrey, D., Boult, L., Hernandez, R., & Koulewitch, H. (1993). Screening elders at risk for hospital admission. *Journal of the American Geriatrics Society*, *41*, 811–817.
- Boult, C., Pacala, J., & Boult, L. (1995). Targeting elders for geriatric evaluation and management: Reliability, validity and practicality of a questionnaire. *Aging*, *7*, 159–164.
- Christianson, J. B., Applebaum, R., Carcagno, G., & Phillips, B. (1988). Organizing and delivering case management services: Lessons from the National Long Term Care Channeling Demonstration. *Home Health Care Services Quarterly*, *9*, 7–27.
- Coward, R., McLaughlin, D., Duncan, R., & Bull, C. (Eds.). (1994). An overview of health and aging in Rural America. In *Health services for rural elders* (pp. 1–32). New York: Springer.
- Dwyer, J., Lee, G., & Coward, R. (1990). The health status, health services utilization, and support networks of the rural elderly: A decade review. *Journal of Rural Health*, *6*, 378–398.
- Folstein, M., Folstein, S., & McHugh, P. (1975). "Mini-mental state": A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, *12*, 189–198.
- Katz, J., Chang, L., Sangha, O., Fossel, A., & Bates, W. (1996). Can comorbidity be measured by questionnaire rather than medical record review? *Medical Care*, *34*, 73–84.
- Krout, J. (1994). *Providing community-based services to the rural elderly*. Thousand Oaks, CA: Sage.
- Landi, F., Tua, E., Onder, G., Carrara, B., Sgadari, A., Rinaldi, C., Gambassi, G., Lattanzio, F., & Bernabei, R. (2000). Minimum data set for home care: A valid instrument to assess frail older people living in the community. *Medical Care*, *38*, 1184–1190.
- Lawton, M., & Brody, E. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist*, *9*, 179–186.
- Mathematica Policy Research. (2000). *Best practices in coordinated care* (HCFA Contract 500-95-0048 [040]). Princeton, NJ: Author.
- McDowell, I., & Newell, C. (1996). *Measuring health: A guide to rating scales and questionnaires*. New York: Oxford University Press.
- Morris, J., Bernabei, R., Ikegami, N., Gilen, R., Fries, B., Steel, K., & Carpenter, I. (1997). *RAI-Home Care [RAI-HC] assessment manual*. Washington, DC: InterRAI Corporation.
- Morris, J., Fries, B., Steel, K., Ikegami, N., Bernabei, R., Carpenter, G., Gilen, R., Hirdes, J., & Topinkova, E. (1997). Comprehensive clinical assessment in community settings: Applicability of the MDS-HC. *Journal of the American Geriatrics Society*, *45*, 1017–1024.
- Pacala, J., Boult, C., & Boult, L. (1995). Predictive validity of a questionnaire that identifies elders at risk for hospital admission. *Journal of the American Geriatrics Society*, *43*, 374–377.
- Pfeiffer, E. (1975). A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. *Journal of the American Geriatrics Society*, *23*, 433–441.
- Stuck, A., Siu, A., Wieland, D., Adams, J., & Rubenstein, L. (1993). Comprehensive geriatric assessment: A meta-analysis of controlled trials. *Lancet*, *342*, 1032–1036.
- Stuck, A., Walthert, J., Nikolaus, T., Bula, C., Hohmann, C., & Beck, J. (1999). Risk factors for functional status decline in community-living elderly people: A systematic literature review. *Social Science and Medicine*, *48*, 445–469.
- U.S. Bureau of the Census. (1998). *Current Population Survey, September 1997: Veteran's supplement technical documentation*. Washington, DC: Author.
- Veterans Health Administration. (1998). *National home and community-based strategy* (VHA Directive 98-022). Washington, DC: Department of Veterans Affairs.
- Ware, J. (1993). *SF-36 health survey: Manual and interpretation guide*. Boston: Health Institute.
- Whooley, M., Avins, A., Miranda, J., & Browner, W. (1997). Casefinding instruments for depression: Two questions are as good as many. *Journal of General Internal Medicine*, *12*, 439–445.

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