

Advances in Geriatrics

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Reaching Out to Aging Veterans in Rural Areas: Innovative Use of Telehealth and Care Coordination

An 85-year-old veteran of World War II, “Bill,” lives in a small community in northern Nevada. After the war, he married his high school sweetheart, “June,” raised a family, and operated a 2,000-acre cattle ranch. Although retired now, Bill enjoys helping his son manage the family ranch.

As Bill and June age, they’ve faced the challenges of living with chronic health conditions. Bill’s health issues include diabetes and congestive heart failure (CHF), while June has severe arthritis and hypertension. Additionally, over the past year, June has noted a progressive decline in Bill’s memory—to the point where he now has difficulty remembering how to get home after a day on the range. He feels he is burdening June and voices feelings of worthlessness. He no longer wishes to visit with his family or help with the ranch.

Bill has been to the emergency department (ED) twice for symptoms of CHF but has found it difficult to get to the nearest VA medical center, which is in Salt Lake City, UT, more than 250

miles from his home, for follow-up with his primary care provider (PCP). He has canceled two appointments because he felt too fatigued to make the three-hour trip.

Bill is not alone. An estimated 38% of veterans older than age 70 live in rural areas, and a 2004 AARP survey found that almost 20% of rural patients and nearly 15% of rural caregivers were veterans.¹ Studies have shown that rural veterans are more likely to live in poverty, to be in poor health, and to have limited transportation than veterans living in urban centers. Rural veterans also may have fewer younger people in their communities to assist them and fewer options for both VA and non-VA health care and social services.²

Over the past decade, the VA has undergone a major resource shift toward primary care, emphasizing prevention, early disease detection, and chronic disease management. The intensive contacts required to deliver this style of care effectively can be challenging to achieve in rural areas,

however, and simply building more hospitals and clinics will not address the growing needs of older veterans adequately.

The VA Salt Lake City Health Care System (VASLCHCS) serves many veterans living in federally defined underserved rural and frontier areas. Since 1987, the VASLCHCS Geriatric Research, Education and Clinical Center (GRECC) has worked to improve health care access for older veterans living in the VASLCHCS catchment area. Telehealth—the use of electronic information and telecommunication technology to support clinical care, patient and professional education, and home health care delivery³—is one tool that the VASLCHCS and its GRECC are using to address challenges of health care delivery.

EVOLUTION OF VA TELEHEALTH

The concepts behind telehealth have been around since long before the advent of computers (Figure 1)^{4,5}—and have been a priority for the VA

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The VHA’s Geriatric Research, Education and Clinical Centers (GRECCs) are designed for the advancement and integration of research, education, and clinical achievements in geriatrics and gerontology throughout the VA health care system. Each GRECC focuses on particular aspects of the care of aging veterans and is at the forefront of geriatric research and clinical care. For more information on the GRECC program, visit the web site (<http://www1.va.gov/grecc/>). This column, which is contributed monthly by GRECC staff members, is coordinated and edited by Kenneth Shay, DDS, MS, director of geriatric programs for the VA Office of Geriatrics and Extended Care, VA Central Office, Washington, DC.



throughout their evolution. Historically, telehealth has focused on replicating clinic-based care, including chronic disease management. The VA, however, has been a leader in developing and testing innovative approaches that rethink traditional care delivery.

In 2003, the VHA Office of Care Coordination was established to foster programs that use technology to improve access to care, improve functional and clinical outcomes, and deliver patient-centered care in the least restrictive environment. Models that deliver this integrated, interdisciplinary care in the home are being tested.

In one such program, the Care Coordination Home Telehealth (CCHT) program, comprehensive care and ongoing follow-up of patients with complex medical, social, and behavioral conditions are managed by trained care coordinators (CCs) to ensure continuity of care. Using ordinary

technologies found in the home, along with home telehealth devices (Figure 2) and web-based programs, CCs can provide patient-centered care to elderly veterans—with the goal of helping them continue to live at home independently. Frequent monitoring of vital signs required for a veteran with CHF, for instance, can be achieved through use of a home telehealth device, which transmits information over the telephone lines to the CC at the VA facility.

IMPLEMENTING CCHT AT OUR HEALTH CARE SYSTEM

In order to help implement the CCHT program principles at VISN 19, our GRECC telehealth work group conducted a demonstration project to identify veterans with multiple health needs who were high-resource users of the VASLCHCS and, as such, would benefit from the CCHT. The work group was composed of applied clini-

cians, researchers, and students from the fields of nursing, psychiatry, social work, psychology, and geriatric medicine. In conjunction with the department of information resources management, we generated a list of the highest utilizers of our health care system across different categories (including hospitalizations, ED visits, and outpatient clinic visits), as well as those who had difficulty accessing these services. From this list, demonstration team staff selected 99 patients for CCHT enrollment, giving priority to those who had high utilization of one or more categories of services. This strategy enabled us to identify patients with multiple chronic diseases (Table).

Two geriatricians and an experienced care management nurse developed question sets, relevant across a variety of chronic physical and mental health conditions, to be programmed into the home telehealth devices.

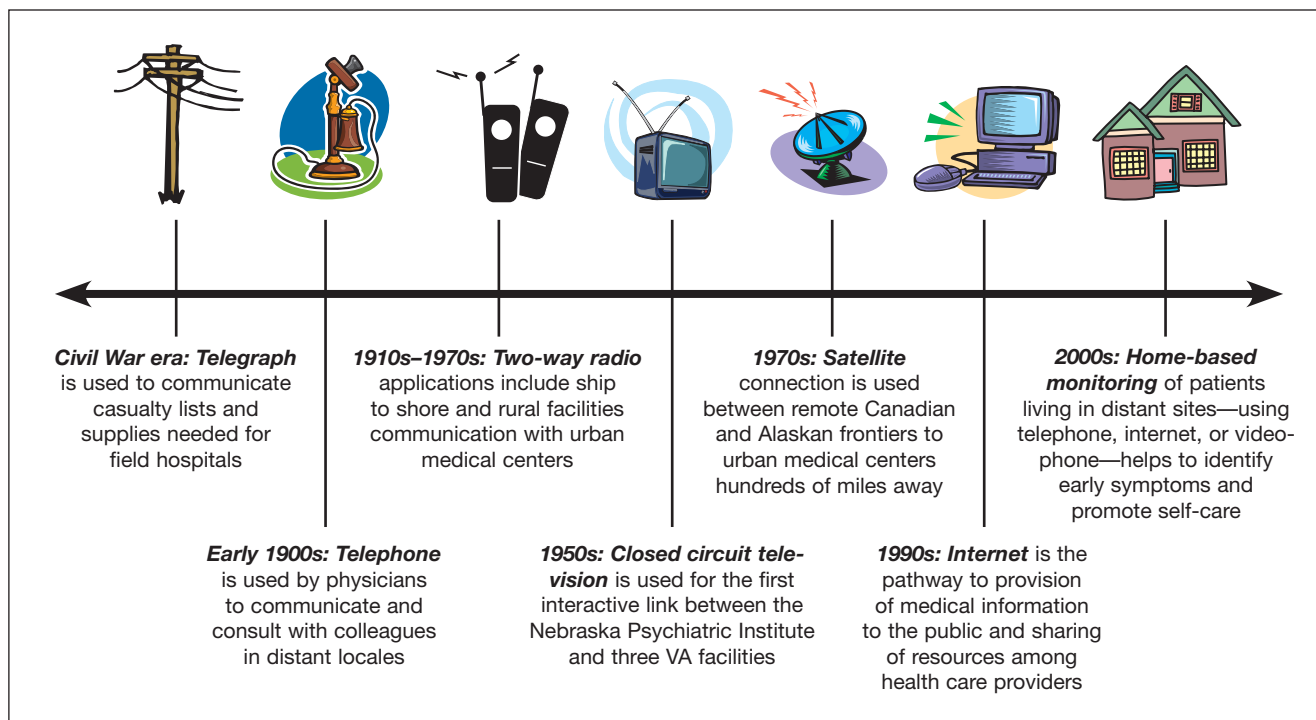


Figure 1. A view of telehealth over the past century.^{4,5}

(Example questions include, “Have you taken all prescribed medications as directed?” and “Did you check your blood pressure today?”) The work group collaborated with a commercial software programming consultant to ensure that the questions were specific to an individual’s health care concerns.

The programmed content also included educational messages that promoted preventive health practices. Because polypharmacy is a common issue for older veterans, appropriate medication use was a major focus of this education. Other messages described the benefits of preventive health activities (such as annual influenza immunization) and reinforced early detection and chronic disease self-management (such as home blood pressure monitoring). In order to maintain interest in the program, reinforce adherence, and form social support, we also incorporated a series of trivia questions—on such topics as classic movies and “oldies” songs—into the program content.

To help evaluate the demonstration project, validated, standardized health surveys—such as the SF-12⁶—and program satisfaction surveys were administered periodically through the telehealth device to program participants. Additional tracked outcomes included health care utilization and medication adherence.

During content development, we learned that questions offering multiple-choice answers resulted in better response rates than those requiring manual input using controls. When it was not possible to offer multiple-choice answers, such as when asking for blood pressure measurements, answers were entered numerically using up and down arrows. The work group agreed on the frequency with which specific messages would be delivered. For example, we asked for updated immunization and preventive care information on a quarterly

basis. Consensus also was reached on the thresholds for triaging responses as high, medium, or low risk. The CC (usually a registered nurse) received the triaged responses from his or her case-load of patients electronically, through an internet interface, and determined the appropriate interventions. These interventions included assessing patients who reported symptoms related to possible adverse effects of medication, providing patient education on symptom management, and notifying the prescribing provider as necessary.

Veterans enrolled in the demonstration project received orientation either through a group visit or a telephone call from the CC. During orientation, baseline information relevant to care management was collected, and the veteran received technical instructions on operating the telehealth device. Veterans who did not respond to their device’s questions, or whose responses were triaged as high risk, were contacted immediately. The CCs and PCPs communicated with one another through the VA’s computerized patient record system and by telephone.

Formative data for future efforts, informed by the larger framework of disease prevention, detection, and management, is forthcoming. The CCHT program was found to be highly attractive to the enrollees, however, and the majority of patients responding to the satisfaction surveys included in the question sets reported that the program improved communication with their PCPs.

LESSONS AND FUTURE APPLICATIONS

We currently maintain an active telehealth enrollment of more than 500 veterans. Since launching the CCHT program in November 2003, we’ve learned that the usefulness of telehealth hinges on its ability to enhance communication and the patient-provider



Figure 2. Example of a home telehealth device (Health Buddy, Health Hero Network, Palo Alto, CA), used by the VA as part of its Care Coordination Home Telehealth program. Image courtesy of Health Hero Network.

relationship. Although we’ve only surveyed patients thus far, we feel that measuring the effectiveness of such interventions also should involve documenting whether providers feel that communication is enhanced. We hope to get the opportunity to survey VASLCHCS providers in the future.

We also have found that, for veterans with profound physical and cognitive dysfunction, caregivers are the ones most likely to interact with CCs through telehealth. Therefore, we are developing content specifically aimed at the caregiver, including educational and decision support content.

Challenges in evaluating telehealth interventions in the homes of older patients do remain. For example, the CCHT program often has been considered a quality improvement activity rather than a research project, which makes it difficult to provide adequate experimental control. Selection bias may exist if participants are sought through referrals. Because eligibility criteria often require a participant to exceed some clinical or utilization threshold, outcome data are influenced by such factors as regression toward the mean and inflated estimates of effect size. Randomized evaluations may be better suited to testing efficacy,

but effectiveness and generalizability are on the minds of funders and policy makers for extending the system to the widest possible patient population.

In spite of these challenges, home telehealth holds great promise as a delivery system that facilitates improvements in patient and health care provider interaction, access to timely medical interventions, and enhanced clinical outcomes for older veterans living in remote, rural areas.

WHAT HAPPENED TO BILL?

Recognizing that Bill had CHF and more than one visit to the hospital or ED in the past year, a discharge coordinator referred Bill to the CCHT program following a recent hospitalization for CHF. Prior to discharge, the program and its objectives were explained to Bill and June; the telehealth device, a scale, and blood pressure monitor were delivered to them; and they were given written instructions for setting up the equipment at home. A follow-up telephone call was planned to confirm equipment setup after discharge.

Bill has now been a participant in the CCHT program for more than two years and has not had a CHF exacerbation or any diabetes-related problems since. His cognitive status has declined slightly, but he is using memory prompts and visual tools suggested by his CC. The CC also has provided Bill and his family with resources for transportation to the VA medical center for his routine appointments and continues to monitor his weight, blood pressure, and glucose levels. Bill's PCP has access to his biometric readings prior to clinic visits and intermittently upon request. Bill is back to feeding the cows and enjoying time with his family. ●

Author disclosures

The authors report no actual or potential conflicts of interest with regard to this column.

Table. Characteristics of the initial enrollees (n = 99) to the Care Coordination Home Telehealth program at the VA Salt Lake City VA Health Care System

Characteristic ^a	No. of patients
Age	
60–64	2
65–69	15
70–74	19
75–79	26
80–84	30
85–89	4
90–94	3
Gender	
Male	93
Female	6
Service era	
World War II	50
Korean War	31
Post-Korean War	10
Vietnam War	9
No. of active health problems	
0–4	2
5–9	5
10–14	25
15–19	23
20–24	29
25–29	10
30–34	3
35–39	2

^aDetermined by the patients' electronic medical records.

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