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Evaluation of a Veteran-specific Clinic Video Telehealth Pilot Project

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ABSTRACT

Clinical video telehealth (CVT) combined with telemonitoring for homebound veterans with chronic illnesses may improve outcomes for veterans with a chronic condition cared for at home. This retrospective chart review examined the number of emergency room visits, admissions, length of stay, scheduled home visits, and unscheduled home visits. An independent *t* test found fewer emergency room visits during CVT care compared with after CVT care and an increased number of unscheduled home visits after CVT compared with before CVT. As CVT expands, more research will be added to the growing body of knowledge. Positive findings indicate that CVT should be further studied in the chronically ill homebound population.

Keywords: chronic obstructive pulmonary disease, clinical video telehealth, congestive heart failure, diabetes mellitus, hospital readmission, hypertension, telehealth

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The burgeoning numbers in the aging population with multiple chronic illnesses has resulted in the need for health care facilities to strategize ways to develop innovative methods of care delivery. In 2006, the older adult population was 37.3 million or 12.4% of the United States population. This number is estimated to skyrocket to 72 million or 20% by 2030.[1]

Multiple chronic conditions (MCCs), the coexistence of 2 or more chronic conditions (where 1 is not necessary more central than the others), affect not only safety and effectiveness care but also cost, quality of life, and, ultimately, mortality. Besides physical conditions, MMCs include mental health disorders, thus increasing the number of people who are affected as well as the complexity of care.[2] The burden of MCCs is particularly acute both for the individual patient and the health care system.

People with MCCs have worse health outcomes and higher health care expenses.[3] People with MCCs are more likely to visit the emergency room (ER) and experience admission to the hospital for care. During 2009, people without an MCC spent an average of $2,367 for health care, but people with 2 or 3 MCC spent $8,478; if they had 4 or more conditions, this nearly doubled to $16,257. Overall, the cost of caring for persons with an MCC is enormous, with 66% of current health care spending applied to only 27% of Americans who fall into this category.[4]

In addition to an aging population, the US is facing a physician shortage. Before the passage of the Affordable Care Act, the Association of American Medical Colleges estimated that by 2015 the probable physician shortage would be nearly 40,000.[5] This deficit in primary care providers (PCPs) coupled with the influx of patients who have improved access to care because of the Affordable Care Act and the estimated increase in Medicare beneficiaries from the aging population will increase that physician shortage to an estimated 63,000 by the year 2015. By 2025, only 10 years later, the predicted shortage will double to an alarming 130,600.[5] Even more concerning is the fact that only 25% of medical school graduates disclose plans to practice in a primary care setting.[6]

This projected provider shortage provides a perfect opportunity for other levels of PCPs, such as nurse practitioners (NPs), to fill this gap. The implementation of advanced telehealth programs designed to enhance patient care and improve patient outcomes is 1 innovative approach to a resolution. Southern states rank very low in physician and PCP coverage per capita, with some states as low as only

8.3 doctors per 10,000 residents, far less than the national average of 12 per 10,000.[7]

This lack of health care providers may be a contributing factor to the southern region's historically dismal health outcome statistics. Available technology can provide medical care to remote communities lacking adequate provider coverage, yet more solutions are needed. Video telehealth assists providers in the care of remote patients living in rural areas. This effectively uses provider time by reducing travel yet still allows providers and patients the opportunity for real-time communication.[8]

To best address the health care of vulnerable older adults, methods must be created to manage disease processes more efficiently and better engage patients where they live rather than require difficult travel to clinics that may be far away from their residence. Telehealth supported by video technology engages patients where ever they live to closely self-monitor health data, provides clinical assessment, promotes self-care, and delivers education.[9] Clinical video telehealth (CVT) uses telemonitoring of the patient's vital signs and other video and audio capabilities to allow the NP to conduct real-time yet remote health assessments. Immediate intervention is readily available when health conditions warrant and the ability to provide out-of-hospital follow-up care is greatly improved. The purpose of this pilot study was to answer the following research question: does CVT reduce ER visits, admissions, length of stay (LOS), scheduled home visits, and unscheduled home visits?

The fiscal aspects of CVT are of much interest. A systematic review of 36 articles concluded there were conflicting data on the effects of CVT and questioned whether telehealth was truly cost-effective. In particular, the review noted that 61% of studies found telehealth was less costly, 31% found it more costly, and 9% reported mixed results. Overall, the review reported that CVT was most cost-effective for the provision of home care and use by on-call hospital specialists. The results also varied for CVT participants in rural areas. Delivery of services locally, between hospital and primary care, was not cost-effective.[10]

The Veterans Administration (VA) implemented CVT programs throughout the US for utilization by pharmacology departments for outpatient medical management of veterans living in remote areas. One site reported a decreased in no-show visits (4% vs 10% comparing post-telehealth vs pre-telehealth visits) and a saving of 26,784 miles traveled by veterans during 1 year, thus reducing travel time and fatigue. Veterans were reimbursed travel pay for mileage; therefore, a substantial cost savings also occurred. Patient satisfaction with the program was between 90% and 95%. It was posited that the use of CVT may benefit numerous services such as primary care, pain management, endocrinology, and other specialty clinics.[11]

THE CVT PROGRAM

CVT (ie, the use of real-time video and audio communication) allowed the NP to visualize the veteran, take pictures, review vital signs, and auscultate body sounds. Each CVT unit contained a blood pressure cuff, oxygen saturation monitor, and scale. Vital signs were transmitted daily and were then reviewed by the NP. The patient had a laminated card with a diagram of the chest that included landmarks clearly marked with numbers. During an examination, the veteran or caregiver was instructed to place the stethoscope on the corresponding number. Real-time video also allowed visualization of lesions and stored images for later comparison to assist in the assessment of wound health and the progression of healing. The active 2-way communication was very helpful with medication reconciliation.

This program implemented to improved outcomes was offered to all veterans (outpatient and home-base primary care [HBPC]) regardless of residential distance from the VA medical center (VAMC). Services were offered to any veteran who met specified criteria and had 1 or more of the following diagnoses: congestive heart failure, diabetes mellitus, chronic obstructive pulmonary disease, or hypertension. Additional enrollment criteria included difficulty adhering to medication regiments, 2 or more ER visits or hospitalizations in the past 6 months, and 2 or more clinic visits within 6 months for the same diagnosis. The original telehealth system captured weight, blood pressure, pulse, and respirations. The CVT component of the telehealth pilot project enhanced the telemonitoring aspect of the equipment by adding oxygen saturation and real-time video and audio capabilities.