

Innovative Approaches to Healthcare Delivery at the Providence VA Medical Center

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The major goal of the VA system is cost-effective, high quality healthcare. Because VA physicians are salaried, there is no entrepreneurial incentive to bill for fee-for-service. Thus, VA healthcare providers are more likely to use physician extenders or other means of expanding outreach and have therefore developed innovative methods of delivering care to selected populations of patients. Examples of innovative modalities of care are described below.

ENHANCING PATIENT ADHERENCE TO PRESCRIBED THERAPY

Obstructive sleep apnea (OSA) is estimated to be present in 9-14% of males and 2-7% of females in the US.¹ OSA is associated with hypertension, coronary artery disease, and stroke,² as well as motor vehicle accidents resulting from excessive daytime somnolence.³ Accumulating evidence indicates that treatment of OSA with **continuous positive airway pressure (CPAP)** decreases the prevalence of cardiovascular complications.² However, although CPAP therapy is effective in reversing sleep apnea, there is a high rate of non-compliance. An estimated 29-83% of patients with OSA are non-adherent with CPAP therapy, defined as use of CPAP at least 4 hours per night.⁴ Thus, it is important to develop methods of enhancing compliance with CPAP treatment for OSA.

The VA provides CPAP therapy for veterans with proven OSA of at least moderate severity after evaluation and prescription of CPAP by a pulmonary physician. The VA requires that patients be re-evaluated periodically for need for CPAP, in addition to home visits by the CPAP vendor. We developed a novel group—CPAP Clinic—managed by a pulmonary nurse practitioner and a respiratory therapist. Veterans for whom CPAP is provided by the VA are required to attend this clinic every 12-18 months. About 10 patients attend each group clinic session. Their equipment is checked for proper function and pre-

scriptions for supplies are provided at each session. Compliance with CPAP is assessed by review of records of machine use, and patient symptoms and complications of CPAP therapy are assessed and treated. In addition, at each clinic session, a group educational session is held, with nurse practitioner and respiratory therapist plus compliant patients providing encouragement of CPAP use.

In a retrospective review, we assessed compliance with CPAP therapy between patients who attended CPAP clinic, compared with patients who did not attend the clinic. We found that compliance with therapy, as defined by 5 hours of machine use per night, improved in 29% of patients attending CPAP clinic.⁵ The success of CPAP clinic is dependent upon use of physician extenders (nurse practitioner and respiratory therapist) for patient assessment and education and upon the encouragement provided to non-compliant patients by compliant patients also attending the group clinics.

MULTIPLE CARDIOVASCULAR RISK FACTOR INTERVENTION

Control of modifiable cardiac risk factors for the prevention and treatment of **coronary artery disease (CAD)** in patients with diabetes mellitus decreases the risk of cardiovascular events. However, many patients do not achieve target goals for **low density lipoprotein (LDL)** cholesterol, systolic blood pressure, glycemic control, and tobacco cessation, despite intensive efforts. Control of multiple risk factors is expensive, requiring multiple follow-up physician visits in the traditional practice setting.

The Cardiology Section and the Pharmacy Department at the Providence VA Medical Center, in conjunction with the School of Pharmacy at the University of Rhode Island, have implemented novel pharmacist-led, multidisciplinary clinics (**Cardiovascular Risk Reduction Clinic, CRRC**) with interventions to control hyperlipidemia, hypertension, hyperglycemia, and tobacco use. The clinics are

coordinated by a clinical pharmacist, working in close collaboration with a physician cardiologist. Because clinical pharmacists have prescribing privileges in the VA system within their scope of practice, they are able to implement medication changes, in addition to providing education and advice on lifestyle modifications. Furthermore, the VA drug formulary is limited and controlled, according to results of clinical studies. Finally, treatment of cardiovascular risk can be expressed in algorithms that are strongly supported by clinical trials. Thus, cardiovascular risk reduction is well suited for a pharmacist-led clinic.

In retrospective reviews, all cardiovascular risk factors were significantly improved after attendance at CRRC programs⁶ with sustained improvements.⁷ The VA is funding a prospective study to assess the effectiveness of the pharmacist-led model CRRC clinic, under the leadership of Wen-Chih Wu, MD, VA staff cardiologist and Assistant Professor of Medicine at Brown, and Tracey Taveira, PharmD, Associate Professor of Clinical Pharmacy at the University of Rhode Island.

Because of the success of the CRRC, pharmacist-led clinics in conjunction with cardiology have also been established at the Providence VAMC for congestive heart failure, another condition for which strong evidence from clinical trials supports algorithms for clinical management.

TELEDERMATOLOGY

Workforce surveys have documented a national shortage of dermatologists.⁸ This problem is exacerbated in rural areas with long travel distances to dermatology providers. The practice of medical dermatology is well suited for telemedicine, since skin lesions are easily documented and transmitted. The availability of an electronic medical record with robust security for personal health information, such as the VistA system used by the VA, is critical for successful teledermatology.

The Dermatology Section of the Providence VA Medical Center has been providing teledermatology services to VA facilities in rural Maine since 1997, under the leadership of Dr. Martin Weinstock, MD, PhD, Chief of the PVAMC Dermatology Section. This teledermatology practice was the first in the VA system nationally. A “store-and-forward” approach is used with clinical history, physical examination, and digital photos of affected skin taken by a nurse practitioner or physician assistant in Maine, who forwards the skin photos and clinical information to the physician dermatologist in Providence. Epiluminescence microscopic images are also taken, as indicated. These data are reviewed by the dermatologist in Providence who provides an impression and plan that are transmitted electronically and implemented in Maine by the nurse practitioner or physician assistant. When necessary, in person consultation with a dermatologist can also be implemented. This “store-and-forward” approach is very economical, compared with face-to-face dermatology consultation or real-time teledermatology consultation. A review of patient satisfaction with the PVAMC teledermatology services revealed that more than half of patients were satisfied with the service and most indicated that they would not have otherwise had dermatology evaluation due to inability to travel to the nearest VA dermatology clinic. Overall, 74% of providers rated the program as excellent or good and would recommend the teledermatology program for their patients.⁹

Telemedicine approaches are economical and useful for many dermatological problems. The experience at the Providence VAMC has been an example for the VA system nationally, and implementation of teledermatology for other underserved areas is now underway. Indeed, telemedicine has been implemented by the VA for other conditions, such as “Telebuddy” home monitoring for patients with hypertension, congestive heart failure, and chronic obstructive pulmonary disease.

These examples of innovative approaches to difficult clinical problems were pioneered and implemented at the Providence VAMC. All have been assessed for effectiveness, with on-going patient satisfaction and clinical effectiveness surveys.

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The author has no financial interests to disclose.

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