

**QUERI currently focuses on nine conditions that are prevalent and high-risk among veterans: Chronic Heart Failure, Diabetes, HIV/Hepatitis, Ischemic Heart Disease, Mental Health, Polytrauma and Blast-Related Injuries, Spinal Cord Injury, Stroke, and Substance Use Disorders.**

Type 2 diabetes affects nearly 20% of veterans who use the VA health care system, or more than one million veterans at any given time. Diabetes is a leading cause of blindness, end-stage renal disease, and amputation in the US, with at least three-quarters of non-traumatic amputations in VA involving patients with diabetes. Further, up to 80% of patients with diabetes will develop or die from macrovascular disease, such as heart attack and stroke. While there is a growing array of therapeutic options and efficacious treatment strategies to prevent or delay some of the most severe diabetes-related complications and enhance quality of life, there remain significant gaps in the use of these treatments. Consequently, the Diabetes Mellitus-QUERI (DM-QUERI) is committed to research and collaborations with key VA and non-VA partners to promote the use of effective care strategies that will decrease the number of patients who experience complications of diabetes, thereby helping veterans with diabetes live longer and better lives.

The work of DM-QUERI and other essential VA offices and programs, such as Patient Care Services, the Office of Quality and Performance, and the VA Healthcare Analysis and Information Group, have led to significant improvements in VA diabetes care quality over the past 5-10 years. These improvements are known to translate into fewer deaths and serious complications. Nonetheless, more needs to be done. Blood pressure control remains suboptimal, preventable instances of visual loss and amputations occur too frequently, and patients

need more help with self-management and dealing with co-morbid chronic conditions.

**Diabetes Mellitus Quality Enhancement Research Initiative**

The Diabetes Mellitus Quality Enhancement Research Initiative (DM-QUERI) uses the QUERI process (see back page) to improve the quality of care and health outcomes of veterans with diabetes, and to produce information on disseminating and implementing practices that are deemed essential for effective diabetes care. The overarching goal for DM-QUERI is reducing preventable morbidity and mortality among veterans with diabetes. Specific priority areas include:

- Optimizing management of cardiovascular risk factors,
- Decreasing rates of diabetes-related complications (i.e., visual loss, lower-extremity ulcers and amputation, and kidney disease),
- Improving patient self-management,

- Enhancing management of patients with diabetes and other chronic co-morbid conditions, and
- Advancing clinically meaningful quality/performance measurement to promote quality improvement and assess the results of quality improvement interventions.

**DM-QUERI Projects and Findings**

DM-QUERI conducts a diverse portfolio of projects to facilitate the implementation of research findings and evidence-based recommendations within routine clinical practice. The following projects are examples of how DM-QUERI is addressing the above priority areas.

**Adherence and intensification of medications (AIM) implementation study**

Blood pressure control is a critical component of diabetes care. Poor blood pressure control leads to serious and preventable complications, and results in higher rates of

**The DM-QUERI Executive Committee**

Each QUERI Executive Committee is co-chaired by a research expert and a clinician. The research coordinator for DM-QUERI is **Eve Kerr, MD, MPH**, and the clinical coordinators are **Leonard Pogach, MD** and **David Aron, MD, MS**. Other DM-QUERI staff include: **Sarah Krein, PhD, RN** (co-Research Coordinator); **Julie Lowery, PhD** (Implementation Research Coordinator); **Laura Damschroder, MS, MPH** (co-Implementation Research Coordinator); and **Leah Gillon, MSW** (Administrative Coordinator). The Executive Committee includes other experts in the field of diabetes mellitus: Paul Conlin, MD; Fran Cunningham, PharmD; Linda Haas, RN, CDE, PhD Candidate; Linda Kinsinger, MD, MPH; Susan Kirsh, MD; Gayle Reiber, PhD, MPH; Anne Sales, PhD, RN; Allan Shirks, MD; and Ruth Weinstock, MD, PhD.

morbidity and mortality. Both poor patient adherence to anti-hypertensive medications and clinicians' failure to initiate or intensify medications contribute significantly to these adverse outcomes. To address this problem, DM-QUERI is implementing an intervention that proactively identifies and targets patients with high blood pressure and poor medication adherence, and combines two effective approaches to improving blood pressure control: tailored adherence counseling and medication management by a clinical pharmacist.

#### Telephone peer support for insulin management

VA diabetes patients often have difficulty managing their self-care and accessing clinic-based services; many also lack social support to help them meet the demands of their illness. Enhanced support is very important for patients who are undertaking and sustaining new challenging self-care tasks, such as initiating or intensifying insulin treatment regimens. DM-QUERI investigators are implementing and evaluating an intervention that uses a low-cost interactive voice response (IVR) exchange system to promote peer-to-peer communication among veterans with diabetes who are initiating or increasing insulin therapy under medical guidance.

#### Diabetic foot ulcer treatment and amputation prevention

Data (2003) from the Walla Walla, WA, VAMC were reviewed to develop a wound care program for improving healing rates and reducing amputations. Program components included wound care team education and training, standardized good wound care practices, a CPRS wound care template, a strategy for off-loading weight, case management, consultation via telemedicine, and emergency assistance. Accounting for competing risks, the intervention group had significantly shorter times to healing and a greater percentage of healed ulcers ( $p=0.002$ ) comparing the 2003 to the 2007 period. The amputation rate was 23.4% in 2003 and 12.5% in 2007.

#### Physical activity interventions

The burden of obesity-related chronic illness is high in the veteran population. DM-QUERI identified opportunities for enhancing the effectiveness of VHA's MOVE! Program. As part of a QUERI Rapid-Response Project, we interviewed MOVE! program staff at five different VA medical centers. Based on these efforts, we are piloting a telephone intervention emphasizing small improvements in dietary and physical activity behavior for overweight or obese patients and plan to submit an IIR. In addition, one of our investigators has demonstrated the benefits of an Internet-mediated program for promoting walking in patients with chronic illness. There are plans for a cross-QUERI proposal to test the effectiveness of an Internet-mediated intervention for promoting walking and diet, with the goal of improving blood pressure control in VA patients at risk for cardiovascular disease.

#### What information do providers need for managing the care of their diabetes patient population?

While VHA databases like the Diabetes Cube offer access to enormous amounts of patient data, the increased availability of information is not always associated with improved performance. DM-QUERI Clinical and Research Coordinating Centers, in collaboration with colleagues from the University of Michigan Schools of Information and Public Health, are examining how best to integrate data from the Diabetes Cube and other VHA databases into clinicians' day-to-day practice to improve the management of their diabetes patient population. The study involves an observational phase delineating the current use of aggregated information in diabetes care; semi-structured interviews to determine information needs; then a participatory design process to identify how best to present the data. The study is being conducted in the primary clinics at the Ann Arbor, Battle Creek, and Cleveland VA medical centers, and will involve the participation of primary care providers,

including physicians, nurse practitioners, RNs, LPNs, physician assistants, and pharmacists.

## THE QUERI PROCESS

QUERI utilizes a six-step process to diagnose gaps in performance and identify and implement interventions to address them:

- 1) Identify high-risk/high volume diseases or problems;
- 2) Identify best practices;
- 3) Define existing practice patterns and outcomes across VA and current variation from best practices;
- 4) Identify and implement interventions to promote best practices;
- 5) Document that best practices improve outcomes; and
- 6) Document that outcomes are associated with improved health-related quality of life.

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**For more information about the QUERI program in general, and to link to all of the individual QUERI Centers, please go to [www.queri.research.va.gov](http://www.queri.research.va.gov)**