



VA Health Services
Research & Development Service:
IMPACTS

**A summary of select
research findings and impacts from
VA's Health Services Research &
Development Service**

VA's Health Services Research and Development Service (HSR&D) works to identify and evaluate innovative strategies that lead to accessible, high quality, cost-effective care for Veterans and the nation. One of four research services within VA's Office of Research and Development, HSR&D is an intramural research program funding eligible VA clinician and non-clinician investigators to address VA healthcare priorities that ultimately help to improve healthcare for Veterans and the nation.

HSR&D pursues its goals through its key centers, including 14 Centers of Excellence that cover an array of healthcare issues such as: care of complex chronic diseases, healthcare disparities, mental illness, elder care, medical informatics, organization of care, primary care, long-term care, and others. HSR&D research also addresses critical issues for Veterans returning home from Iraq and Afghanistan with conditions that may require care over their lifetimes. In addition, HSR&D oversees and facilitates VA's Quality Enhancement Research Initiative (QUERI), designed to improve care by facilitating the adoption of new evidence-based treatments, tests, and models of care into routine clinical practice. QUERI is a central component of VA's commitment to improving the quality of Veterans' health care.

HSR&D also supports education and career development for VA clinician and non-clinician scientists through the VA Office of Research and Development's Career Development Program, which includes post-doctoral awards that provide full salary support, allowing awardees to pursue an intensive period of mentored health services research and training.

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Produced by
HSR&D's Center for Information Dissemination and Education Resources
VA Boston Healthcare System (152-C)
150 South Huntington Avenue, Building 9
Boston, MA 02130
Email: cider.boston@va.gov
www.hsr.d.research.va.gov

Preface

The Department of Veterans Affairs' Office of Research and Development (ORD) is a Veteran-centric research enterprise focused on developing and funding research that improves the lives and healthcare of Veterans and the nation. As one of the four VA research services under the umbrella of the ORD, the Health Services Research and Development Service (HSR&D) focuses on identifying, evaluating, and implementing innovative strategies that lead to accessible, high quality, cost-effective healthcare. For example, HSR&D investigators developed and implemented interventions that have increased screening rates for HIV, colorectal cancer, and alcohol abuse among Veterans, as well as interventions that have increased pneumonia and flu vaccines among Veterans with spinal cord injury. Interventions such as these help Veterans receive quality, accessible and timely care which leads to better patient outcomes.

HSR&D researchers work on numerous issues that impact the health and healthcare of Veterans, including complex chronic diseases, healthcare disparities, mental illness, elder care, and medical informatics. HSR&D research also addresses critical issues for Veterans returning from Iraq and Afghanistan with conditions that may require long-term care, such as traumatic brain injury. In addition, HSR&D oversees and facilitates VA's Quality Enhancement Research Initiative (QUERI), designed to improve healthcare by facilitating the adoption of new evidence-based treatments, tests, and models of care into routine clinical practice. For example, QUERI investigators developed and implemented a collaborative care model for the treatment of depression. Strong collaborations are necessary for the successful implementation of innovations into practice. Therefore, HSR&D maintains active collaborations and partnerships with managers and policymakers in VA Central Office, including the Office of Quality and Performance and Patient Care Services, VA's healthcare Networks, and field-based healthcare facilities across the country.

HSR&D is a key part of VA's quest for innovative solutions to the unique healthcare challenges facing our new generation of Veterans, as well as our aging Veteran population. HSR&D continues to make important contributions to VA's mission to serve Veterans by increasing their access to high quality healthcare, and by helping our Veterans become an integral part of the healthcare process. The impacts included in this booklet highlight these efforts.



Joel Kupersmith, MD
Chief Research and Development Officer

Message From The Director

Over the past five years, VA's Health Services Research and Development Service (HSR&D) has made significant strides toward improving the quality of healthcare for Veterans. With so many changes in healthcare on the horizon, we thought it would be a good time to highlight a selection of studies that have either already impacted VA healthcare or that have the potential to do so in the near future.

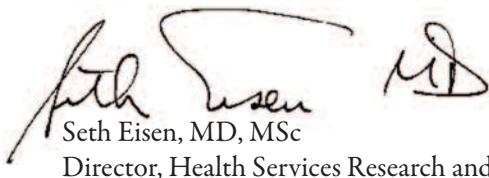
As one of the four VA Office of Research and Development services, HSR&D is an integral part of VA's quest for innovative solutions to today's healthcare challenges. HSR&D works to improve the quality of healthcare for Veterans by examining the effects of the organization, financing, and management of healthcare services. HSR&D programs span the continuum of healthcare research and delivery – from clinical research to the dissemination of research results, and ultimately to the application of these findings into clinical, managerial, and policy decisions.

HSR&D investigators target conditions of great importance to the health of Veterans returning from conflicts in Iraq and Afghanistan, including post-traumatic stress disorder (PTSD), polytrauma, and blast-related injuries such as traumatic brain injury. HSR&D also funds a broad range of research on diseases and conditions that are prevalent among Veterans, such as diabetes, heart disease, stroke, substance use disorders, and mental health disorders.

Funding emphasis is placed on research that is Veteran-centric and evaluates the effectiveness of clinical procedures and processes of care in the “real world.” In other words, we look at how interventions perform in the complex and variable context of real-world healthcare use and practice. Impacts included in this booklet represent just some of the exceptional research conducted by HSR&D's talented investigators that will contribute to improved health care for Veterans and the nation. Impacts are organized by broad categories of research:

- Access to Care,
- Care of Complex Chronic Conditions,
- Comparative Effectiveness Research,
- Equity and Health Disparities,
- Long-Term Care and Caregiving,
- Mental Health,
- Post-Deployment Health,
- Quality Improvement, and
- Women's Health

It is our privilege to continue to conduct innovative research that will advance the best quality and most cost-effective healthcare for our Veterans.



Seth Eisen, MD, MSc
Director, Health Services Research and Development Service

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Access to Care

The Veterans Health Administration (VHA) is the largest integrated healthcare organization in the country and is charged with providing medical, surgical, and rehabilitative care for our nation's Veterans. This includes Veterans living in relatively close proximity to VA healthcare facilities, as well as those who live in rural settings that may not be close to VA providers. Access to care also may be restricted for older, disabled, and/or chronically ill Veterans, who may experience difficulty traveling even relatively short distances, or Veterans living in long-term care facilities. Making sure that all Veterans eligible for VA healthcare services have accessible care is a high priority and a continuing challenge.

Over the years, VHA has implemented several initiatives to improve access to care, including the fast growing community-based outpatient clinics (CBOCs) that were designed to improve access for Veterans living long distances from VA facilities and/or in rural settings. VHA also has made advances in information technology to improve access to care, such as telehealth – the delivery of health-related electronic information and services via telecommunication technologies that may include the telephone, the Internet, and videoconferencing.

Telehealth Communication Improves Quality of Life for Veterans with Cancer

Uncontrolled symptoms experienced by cancer patients at home during chemotherapy treatment are associated with poor health outcomes, including worse health-related quality of life (HRQL). Moreover, ineffective communication between patients and their providers impedes treatment of some symptoms and has been associated with poor HRQL. This study was designed to test the feasibility of a Cancer Care Dialogues Model that incorporated daily telehealth interactions between Veterans at home and their care coordinators, who served as adjuncts to their oncologists. Study results show:

- Veterans experienced a significant increase in HRQL over the six-month treatment period, and Veterans who reported reduced nervousness/worry experienced better HRQL.

Chumbler N, Mkanta W, Richardson L, et al. Remote patient-provider communication and quality of life: Empirical test of a dialogic model of cancer care. *Journal of Telemedicine and Telecare* January 2007;13(1):20-25.

Multidisciplinary Telemedicine Consultations Benefit Veterans with Chronic Wounds

Wound care teams have had significant success in both reducing the costs and improving the outcomes of chronic wound care. This study sought to evaluate the feasibility of a web-based telemedicine program for remote wound care team consultations. Wound care nurses evaluating Veterans with chronic wounds at VA outpatient clinics used the VA Computerized Patient Record System (CPRS) and the Internet to obtain consultations and to transmit clinical data and images to a multidisciplinary wound care team located at the regional tertiary care center. Study results show:

- The mean response time for consultations was just 2.61 days.
- Overall, 98.2% of Veterans were either satisfied or very satisfied with their care, and 95.5% of Veterans found the telemedicine consultations more convenient than traveling to the tertiary care center.

Wilkins E, Lowery J, Goldfarb S. Feasibility of virtual wound care. *Advances in Skin and Wound Care* May 2007;20(5):275-78.

Better Outcomes among Veterans Using Home Care Telehealth Intervention

VA is among the largest providers of home care services, with 88 home care programs nationwide and annual costs of about \$72 million. Telehealth has the potential to positively impact home care patients, but little is known about telehealth outcomes and whether these technologies reduce the use of hospital services. This study examined outcomes associated with the provision of telehealth care (e.g., interactive voice and video technology) for Veterans receiving home care services through one VA medical center compared with Veterans receiving traditional home care services. Findings show:

- Veterans provided with telehealth care had significant improvement in the mental health component of their health-related quality of life, compared to Veterans receiving traditional home care services.
- There was a trend toward fewer outpatient visits for Veterans in the intervention group compared with the control group (mean visits = 29.06 vs. 38.89).

Hopp F, Woodbridge P, Subramanian U, et al. Outcomes associated with a home care telehealth intervention. *Telemedicine Journal and E-Health* June 2006;12(3):297-307.

Veterans Using VA Healthcare More Likely to Receive Recommended Preventive and Ambulatory Care

Using data from the 2000 and 2004 surveys of the Behavioral Risk Factor Surveillance System – nationally representative health surveys conducted by the Centers for Disease Control and Prevention (CDC) – HSR&D investigators compared self-reported use of 17 recommended ambulatory care services for cancer prevention, cardiovascular risk reduction, diabetes mellitus management, and infectious disease prevention among insured adults receiving and not receiving care at VA medical centers (VAMC).

- In both 2000 and 2004, Veterans receiving VA care reported significantly greater use of most recommended services when compared with adults not receiving VAMC care.
- Differences in the use of recommended services did not change during the four-year period, indicating that insured adults received a higher standard of care at VA medical centers compared to the private sector.

Ross J, Keyhani S, Keenan P, et al. Use of recommended ambulatory services: Is the Veterans Affairs quality gap narrowing? *Archives of Internal Medicine* May 12, 2008;168(9):950-8.

Another study used VA and Medicare data to examine self-reported use of influenza vaccination, pneumococcal vaccination, serum cholesterol screening, and serum prostate-specific antigen measurement (PSA for prostate cancer screening) among male Veterans 65 years and older. Receiving all or some healthcare through VA was associated with increased use of preventive care. These results are particularly notable in as much as the population cared for by VA is more likely to have lower socio-demographic characteristics and be in fair or poor health – groups that often receive lower-quality care in the private sector.

Keyhani S, Ross J, Hebert P, et al. Use of preventive care by Veterans receiving care through the Veterans Health Administration, Medicare FFS and Medicare HMO plans. *American Journal of Public Health* December 2007;97(12):2179-85.



VA Community-Based Outpatient Clinics Improve Access to Primary Care

Over the past decade, VA has added to the number of Community-Based Outpatient Clinics (CBOCs) to increase access to primary care for Veterans. This study compares VA inpatient and outpatient utilization and expenditures of Veterans seeking primary care in 108 CBOCs and 72 affiliated VA medical centers in FY00 and FY01. Results show:

- CBOCs provided Veterans with improved access to primary care and other services, but costs were contained because they had fewer healthcare visits and hospital stays than Veterans receiving care at VA medical centers (VAMC).
- Overall costs for CBOC patients were \$1,588 less (per year) than for VAMC patients, and these results held even after adjusting for demographics, patient risk, and distance from care.

Maciejewski M, Perkins M, Li YF, et al. Utilization and expenditures of Veterans obtaining primary care in community clinics and VA medical centers: An observational cohort study. *BioMed Central Health Services Research* April 18, 2007;7(1):56.

VA Healthcare Provides Safety Net for Vulnerable Veterans

For elderly Veterans eligible for both VA healthcare and Medicare, dual use has been estimated to be as high as 54% among surgical patients and nearly 30% among outpatients. This study examined the impact of access to care characteristics on healthcare use among 1.48 million Veterans (age 66 and older) who were dually eligible for Medicare and VA healthcare services in calendar year 1999. Findings show:

- Among the 1.47 million Veterans who used VA or Medicare outpatient services, 18% used only VA care, nearly 36% used only Medicare, and 46% used a combination of VA and Medicare services.
- Among 416,455 Veterans who used inpatient care, 24% used VA only, 69% used Medicare only, and 6% used both VA and Medicare inpatient services. Reliance on VA healthcare was greatest among “high-priority” and African-American Veterans. [High-priority Veterans were those with a service-connected condition or whose income was less than a threshold annually established by VA.]
- Veterans in the highest health risk groups are most likely to rely on both VA and Medicare, with the lowest-risk patients most likely to use VA services exclusively.

Hynes D, Koelling K, Stroupe K, et al. Veterans' access to and use of Medicare and Veterans Affairs health care. *Medical Care* March 2007;45(3):214-23.

Care of Complex Chronic Conditions

Chronic diseases and conditions are prolonged conditions that often do not improve and are rarely curable. Examples of chronic diseases and conditions include diabetes, congestive heart failure, hypertension, depression, HIV, and spinal cord injury; moreover, many people may have more than one chronic condition. These types of conditions can have a profound effect on a person's quality of life, from limiting physical function to causing serious disabilities. This can result in dramatic changes in lifestyle that affect not only the person with the chronic condition, but their family as well. Thus, those with chronic disease may require a variety of healthcare services to help with their physical, emotional, and mental well-being.

Increasing Influenza Vaccination Rates in Veterans with Spinal Cord Injuries

Individuals with spinal cord injury and disease (SCI&D) who contract influenza or pneumonia are 37 times more likely to die than those in the general population. Vaccination is effective in reducing the likelihood of contracting these illnesses, thus investigators in this study developed a quality improvement project to increase influenza vaccination rates among Veterans with SCI&D. Four multi-level (patient, provider, and system level), evidence-based interventions were implemented in 23 VA Spinal Cord Injury Centers. Interventions included: 1) patient reminder letters and education, 2) provider reminders and posters, 3) computerized clinical reminders, and 4) nurse standing orders. Findings show:

- Self-reported vaccination rates increased significantly from 62.5% in year one of the study to 67.4% in year two.
- Vaccination rates improved for all age groups, increasing from 50% to 54% for Veterans younger than age 50, 61% to 67% for Veterans ages 50 to 64, and from 76% to 80% for those 65 years and older.

Weaver FM, Smith B, LaVela S, et al. Interventions to increase influenza vaccination rates in Veterans with spinal cord injuries and disorders. *Journal of Spinal Cord Medicine* 2007;30(1):10-9.

Effective Strategies to Control Blood Pressure

More than 50 million Americans have hypertension, and 65% have poorly controlled hypertension. This study, which included 1,341 Veterans with hypertension who were treated by VA providers at two hospitals and eight community-based outpatient clinics in the VA Tennessee Valley Healthcare System, evaluated provider and patient interventions to improve blood pressure (BP) control. Investigators randomly assigned providers and patients to one of three interventions designed to lower BP: 1) provider education, 2) provider education and alert, or 3) patient education. Findings show:

- Veterans in all groups had significant reductions in BP. However, Veterans in the patient education group had greater improvement than those in the provider education group – or the provider education and alert group.
- The additional improvement in the patient education group has the potential to reduce heart failure by 50%, cerebrovascular morbidity and mortality by 42%, and coronary heart disease by 14%.

Roumie C, Elasy T, Greevy R, et al. Improving blood pressure control through provider education, provider alerts, and patient education: A cluster randomized trial. *Annals of Internal Medicine* August 2006;145(3):165-75.

Making an Impact on Glycemic and Blood Pressure Performance Measures

Hemoglobin A1c control is an important intermediate outcome for measuring the quality of care provided to about 24 million Americans with diabetes. HSR&D investigators played a leadership role in establishing the <7% A1c measure as a supporting indicator rather than a mission-critical measure for FY08. This decision was consistent with the evidence-based approach of the VHA-DoD (Department of Defense) Diabetes Guidelines. In addition,

- A body of VA/HSR&D research on this topic that indicated a “one size fits all” performance measurement approach to A1c control (i.e., all patients recommended to have <7% A1c), as advocated by the American Diabetes Association and the National Committee for Quality Assurance, could have unintended consequences was disseminated to the Under Secretary for Health and the Performance Measurement Workgroup by the Chief Consultant, Patient Care Services (November 2007).

Subsequent efforts by HSR&D investigators underscored the importance that policy decisions on quality measures should be driven by evidence and research that documents population health benefit and fairness of comparison, rather than by advocacy groups and industry.

Aron D, Pogach L. Commentary: Transparency standards for diabetes performance measures. *JAMA* January 14, 2009;301(2):210-212.

Web-Based Care Improves Poorly Controlled Diabetes

More patients are accessing medical information on the Internet, but few studies have examined the effects of web-based interventions that incorporate an interactive component requiring feedback from patients. This study tested diabetes care management using a web-based system for Veterans with poorly controlled diabetes mellitus.

Findings show:

- Veterans participating in the web-based management program had significant improvements in HbA1c over one year compared to usual care, and persistent website users had even greater improvements compared to intermittent website users. Improvements also were seen in lipid profiles, as well as significantly greater declines in systolic blood pressure for Veterans with hypertension.
- Major advantages of a web-based care management program include the ability to post information on secure websites that are accessible 24 hours a day for Veterans from their homes.

McMahon G, Gomes H, Hickson S, et al. Web-based care management in patients with poorly controlled diabetes mellitus. *Diabetes Care* July 2005;28(7):1624-1629.

Care Coordination/Home-Telehealth Program Reduces Hospitalizations for Diabetes

Home-telehealth technologies allow Veterans and their care coordinators to maintain direct communication. One of the main goals of the VA Care Coordination/Home-Telehealth (CCHT) approach is to improve care for Veterans, thereby reducing healthcare use and hospitalizations. This two-year study compared healthcare use among 400 Veterans who were enrolled in a VA CCHT program with 400 Veterans who were not enrolled. All Veterans had type 2 diabetes and were considered to be at high risk for multiple inpatient and outpatient visits. Results show:

- Two years after enrollment, the likelihood of all-cause hospital admissions decreased significantly in the CCHT treatment group (38.8% to 29.9%), while the comparison group experienced an increase (31.2% to 33.1%).
- The CCHT treatment group also had a significant reduction in diabetes-related hospital admissions over the 24-month period – 35.3% to 26.9%, while the comparison group had very little change.

Barnett T, Chumbler N, Vogel B, et al. The effectiveness of a care coordination/home-telehealth program for Veterans with diabetes: A two-year follow-up. *American Journal of Managed Care* August 2006;12(8):467-474.

Tracking System for Veterans Undergoing Invasive Cardiac and Vascular Procedures

Ischemic heart disease (IHD) remains the single leading cause of morbidity and mortality in the United States, and among Veterans who use the VA healthcare system. Cardiac catheterization and interventional procedures are primary therapy for IHD, and increased access to this therapy may lead to improved outcomes for Veterans. The Ischemic Heart Disease Quality Enhancement Research Initiative (IHD-QUERI), working with VA's Patient Care Services, the Office of Quality and Performance, and the Office of Information, developed a national VA reporting system for procedures performed in VA cardiac catheterization clinics. The Cardiovascular Assessment, Reporting and Tracking System for Cardiac Catheterization Laboratories (CART-CL) tracks coronary procedures such as percutaneous coronary interventions, the primary therapy for IHD.

- CART-CL is installed or in the process of installation at all 75 VA cath labs, and will help to improve clinical care and patient safety.
- Data from CART-CL are reported monthly to the Chief Consultant for Cardiology and to all catheterization laboratories, and have been used to monitor the use and safety of these procedures.

Box T, et al. Strategies from a nationwide health information technology implementation: The VA CART story. *Journal of General Internal Medicine* (in press).

Improving HIV Screening with Rapid Testing

Testing for HIV is cost-effective, yet testing rates remain low. Standard screening test results are unavailable on the same day and many patients do not return for their results, but rapid HIV testing results can be available in 20 minutes. This HIV/Hepatitis Quality Enhancement Research Initiative (QUERI) study shows that administering the rapid HIV test with streamlined counseling to Veterans greatly increased both HIV testing and receipt of results. For Veterans, this results in faster treatment, better outcomes, and less risky behaviors.

- **Rapid HIV testing has been implemented in one Veterans Integrated Service Network, and if cost-effectiveness and increased testing turn out as expected, rapid testing will be implemented in VA facilities across the country.**

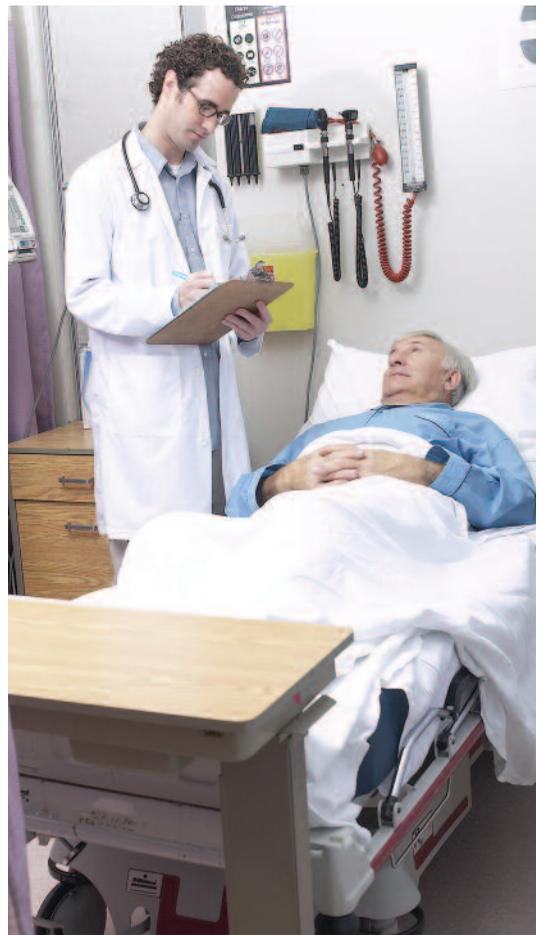
Anaya H, Hoang T, Golden J, et al. Improving HIV screening and receipt of results by nurse-initiated streamlined counseling and rapid testing. *Journal of General Internal Medicine* June 2008;23(6):800-807.

Improving Screening Guidelines for Osteoporosis in Male Veterans

Although 25% of men older than age 60 will sustain osteoporotic fractures during their lifetime, data suggest that male osteoporosis is under-diagnosed and under-treated. In order to help inform decisions about whether VA should develop screening guidelines for male osteoporosis, investigators conducted a literature review of studies from 1990-2006. Findings show:

- Strong predictors of an increased risk of osteoporosis in men include age, low body weight, physical inactivity, and weight loss.
- Certain health conditions also are strong or moderate predictors of an increased risk of osteoporosis in men (e.g., androgen deprivation).
- Spinal cord injury also is associated with an increased risk of osteoporosis and possibly osteoporotic fractures.

Shekelle P, Munjas B, Liu H, et al, Screening Men for Osteoporosis, Final Report, May 2007, Department of Veterans Affairs, Health Services Research & Development Service, Evidence-Based Synthesis Program.



Comparative Effectiveness Research

Most clinical and health policy decisions involve choices among alternatives – which treatment to prescribe, which drugs to include on a formulary, what procedures to reimburse, what technologies to invest in. Research that evaluates the clinical effectiveness, risks, and benefits of two or more medical treatments or services is referred to as Comparative Effectiveness Research (CER). CER is an essential component of providing patient-centered care because it will increase the information available to both Veterans and their clinicians to help them make well-informed decisions. CER also is critical for healthcare managers because it identifies which interventions should be promoted because they provide greater overall benefits than the alternatives. Finally, CER offers the best hope for increasing value in the healthcare system by identifying where directing care to certain alternatives can provide better outcomes at comparable costs – or comparable outcomes at lower costs. HSR&D is currently conducting CER in many areas of importance to Veterans.

Improving Treatment Adherence for PTSD

In direct costs alone, VA's provision of compensation and treatment for Veterans with post-traumatic stress disorder (PTSD) exceeds \$1.2 billion annually. Although many factors can contribute to a chronic course of PTSD, one critical factor is inconsistent treatment participation. About 75% of Veterans receiving VA outpatient treatment for PTSD participate only episodically, often with long periods between episodes of care. This ongoing study compares Veterans who stay in treatment for PTSD with those who drop out to determine whether characteristics such as race, gender, treatment preferences, social support, and PTSD symptoms make a difference in who remains in treatment.

Results of this study will help VA healthcare providers better understand how to encourage PTSD treatment participation and what may prevent Veterans from maintaining treatment.

HSR&D study IAC 06-266; Principal Investigator: Michele Spont, PhD.



Improving Hypertension Control

High blood pressure (BP) affects more than one million Veterans. Despite the relative ease and low cost of treating high BP, and despite being prescribed treatment, many Veterans remain non-adherent and have uncontrolled hypertension. This ongoing study is comparing whether Veterans with high BP who receive counseling on exercise, diet, and medication that is tailored specifically for them have lower BP and take their medication more regularly than Veterans who receive general education or standard care.

This intervention could prove to be an efficient and cost-effective way to enhance treatment adherence for Veterans with hypertension.

HSR&D study IIR 04-170; Principal Investigator: Sundar Natarajan, MD.

Providing Smoking Cessation Treatment in an Inpatient Setting

Smoking cessation programs are currently provided by VA outpatient groups, and, in some cases, Veterans' physicians prescribe medications to help them quit smoking. However, inconsistent or minimal cessation services are provided to inpatients in the VA healthcare system. This ongoing study compares hospitalized Veterans who receive a "quit-smoking" program that includes nurse counseling and educational materials, follow-up phone calls, and medication with Veterans who receive standard care to determine whether the program helps more Veterans quit smoking by bringing the program to them while they are in the hospital. The end-product will be a portable toolkit for a nurse-administered smoking cessation intervention.

If effective, this intervention has the potential to reduce both cardiovascular disease and cancer rates among Veterans.

HSR&D study SDP 06-003; Principal Investigator: Sonia Duffy, PhD.

Improving Treatment for Chronic Pain in the Primary Care Setting

Chronic pain is very common and is associated with substantial physical and psychosocial impairment and increased healthcare use. Depression is frequently comorbid with pain and limits treatment response. This study compared a primary care-based collaborative care program for Veterans with chronic pain that included education for clinicians and Veterans, symptom monitoring, and referrals to specialty care when needed versus standard pain treatment. Study findings show:

- Collaborative care for chronic pain was significantly more effective than treatment as usual across a variety of measures, such as pain disability and intensity, as well as depression severity.
- Among Veterans with chronic pain and depression, there was greater improvement in the severity of depression for those in the intervention group compared to Veterans in standard pain treatment.

Dobscha S, Corson K, Perrin N, et al. Collaborative care for chronic pain in primary care: A cluster-randomized trial. *JAMA* March 25, 2009;301(12):1242-1252.

Equity and Health Disparities

According to the National Healthcare Disparities Report, “...racial, ethnic, and socioeconomic disparities are national problems that affect health care at all points in the process, at all sites of care, and for all medical conditions...”¹

VA is committed to identifying and understanding the reasons for disparities and to developing interventions to eliminate them for all Veterans receiving care in the VA healthcare system.

Research on healthcare disparities has been and remains a priority. HSR&D research is an important part of this effort. For example, HSR&D supports the Center for Health Equity Research and Promotion (CHERP), located in Pittsburgh and Philadelphia, which is devoted to research on disparities related to race/ethnicity, socioeconomic status, and comorbid illness.

African-American Veterans have Lower Hospital Mortality Rates for Six Conditions

This study sought to determine if racial disparities in 30-day mortality exist for six specific conditions among Veterans who were in VA hospitals during FY96-FY02 (284,974 Veterans treated at 120 VA sites). Investigators focused on three conditions for which hospital admission is non-discretionary – acute myocardial infarction, hip fracture, and stroke, and three conditions for which hospital admission is discretionary – congestive heart failure, gastrointestinal bleeding, and pneumonia. Findings show:

- For each of the six conditions, unadjusted 30-day mortality rates were significantly lower for African-American Veterans compared to white Veterans.
- Among Veterans older than age 65, African-Americans consistently had significantly lower odds of risk-adjusted mortality than whites. However, among Veterans younger than age 65, African-Americans had significantly reduced risk-adjusted mortality only for chronic heart failure.

Volpp K, Stone R, Lave J, et al. Is thirty-day hospital mortality really lower for black Veterans compared with white Veterans? *Health Services Research* August 2007;42(4):1613-1631.

Assessing Disparities in VA Treatment and Outcomes for Heart Failure

Despite the fact that African-Americans have a higher prevalence of heart failure (HF) than whites, the literature shows that African-American patients receive suboptimal medical care compared with whites. This study evaluated racial differences in both the quality of care and outcomes among 18,611 Veterans (12.4% African-American and 87.6% white) treated as outpatients at VA medical centers between 10/00 and 9/02. Investigators assessed racial variations in quality of care based on recommended HF guidelines, including documentation of left ventricular ejection fraction (LVEF) measurement and the prescription of angiotensin-converting enzyme inhibitors (ACEI) and beta-blockers in patients with an LVEF of <40%. Findings show:

- Quality of care, including evaluation of LVEF and prescription of ACEI and beta-blockers, was similar or better for African-Americans compared to whites.
- Mortality did not differ significantly by race.

Deswal A, Petersen NJ, Urbauer DL, et al. Racial variations in quality of care and outcomes in an ambulatory heart failure cohort. *American Heart Journal* August 2006;152(2):348-54.

No Disparities in Care between African-American and White Veterans with HIV

HIV infection and HIV-related mortality disproportionately affect African-Americans compared to whites in the United States. Moreover, even though we now have more effective HIV treatment (e.g., highly active antiretroviral therapy), national CDC data show that mortality for African-American patients after an AIDS diagnosis is higher than for white patients who develop AIDS. This study examined the survival of Veterans with HIV who were cared for in a setting with few barriers to HIV care – the VA healthcare system (VA is the largest single provider of HIV care in the country) – in order to determine if there were any race-based disparities in survival. Findings show:

- Overall, both hospital and long-term survival rates were similar among African-American and white Veterans with HIV. However, compared to whites, African-American Veterans had more severe HIV disease and more non-HIV related comorbidities.
- African-Americans also were more likely to be diagnosed with hepatitis C, and were more often hospitalized with a psychiatric or substance use disorder as their primary diagnosis.

Giordano T, Morgan R, Kramer J, et al. Is there a race-based disparity in the survival of Veterans with HIV? *Journal of General Internal Medicine* June 2006;21(6):613-617.

Understanding VA Healthcare Use by American Indian and Alaska Native Women Veterans

American Indian and Alaska Native (AIAN) women Veterans who are members of federally recognized Tribes also may be eligible for healthcare from the Indian Health Service (IHS). This study reports on the healthcare utilization patterns of AIAN women Veterans. Investigators analyzed IHS and VA data for 5,856 AIAN women receiving outpatient care in either or both healthcare systems during FY02 and FY03. Findings show:

- VA-only users received specialty care or mental healthcare twice as frequently as IHS-only users. In addition, VA-only users received care in rehabilitation clinics or diagnostic clinics at least four times more frequently than IHS-only users.
- Veteran dual-users received two-thirds of their healthcare at VA facilities, while non-Veteran dual-users received most of their healthcare at IHS facilities.
- Results also show that PTSD was a leading reason for a healthcare visit only at VA facilities, and 25% of all Veterans who sought VA care had a spinal cord injury.

In 2003, VA and the IHS executed a Memorandum of Understanding to improve access and health outcomes for AIAN Veterans by encouraging cooperation and resource sharing. These results will help improve this process.

Kramer B, Jouldjian S, Washington D, et al. Healthcare for American Indian and Alaska Native women: The roles of the Veterans Health Administration and the Indian Health Service. *Women's Health Issues* March-April 2009;19(2):135-43.

African-American Veterans More Likely to Receive Mechanical Ventilation for COPD

African-American patients are more likely than white patients to prefer and receive life-sustaining interventions in advanced stages of disease. However, little is known about potential differences in the use of mechanical ventilation and the newer, non-invasive ventilation (NIV) in the treatment of chronic obstructive pulmonary disease (COPD). Using VA data, investigators sought to determine if rates of mechanical ventilation and NIV use differ among African-American (n=5,479) and white Veterans (n=31,537) admitted to 153 VA hospitals for COPD exacerbation. Findings show:

- African-American Veterans with COPD exacerbation in VA hospitals are more likely than white Veterans to receive mechanical ventilation, and this difference is not explained by available clinical or demographic variables.
- By contrast, African-American and white Veterans are equally likely to receive NIV when being treated for COPD exacerbation.

Authors suggest that unmeasured factors, such as patient preferences or disease severity may be affecting the use of mechanical ventilation, and thus warrant further investigation.

Cannon K, Vaughan Sarrazin M, Rosenthal G, et al. Use of mechanical and non-invasive ventilation in black and white COPD patients within the VA healthcare system. *Medical Care* January 2009;47(1):129-33.

Long-Term Care and Caregiving

Long-term care (LTC) encompasses an array of services for people who need chronic care for reasons that range from stroke to chronic illness to frailty. Individuals with unremitting and debilitating conditions require constant care that can be provided in an institutional, home, or community-based setting. Services provided for those who need LTC may include nursing home care, adult day care, hospice, or home health care. The degree of disability and dependence on daily living assistance increases progressively with age. The portion of the U.S. population who need long-term care is growing because our population is aging. The number of Veterans older than 85 will more than double in the next decade, and these are the people who will most need VA's long-term care services.²

Veterans who require long-term care may prefer not to reside in an institutional setting, thus VA seeks to provide the best cost-effective long-term care in the least restrictive environment. VA has developed a national strategy to enhance the quality of long-term health care and to improve access to LTC for all eligible Veterans. This includes an array of home and community-based extended care services, such as: nursing home care, home-based primary care, adult day health care, and community residential care.

Guidebook for Caregivers of Veterans with Stroke

A "Guidebook for Caregivers of Veterans with Stroke" was developed by an HSR&D nurse investigator in response to the VHA Clinical Practice Guidelines for the Management of Stroke Rehabilitation recommendation to increase guideline compliance in family education. (The content of the guidebook was partially based on findings from another HSR&D study). Providing caregivers with information about stroke survivors' needs following discharge can promote positive health outcomes and prevent stroke recurrence. To provide culturally sensitive information, one version of the Guidebook was developed in Spanish for caregivers of Veterans in Puerto Rico and one version in English for caregivers of Veterans on the Mainland. The Guidebooks are being disseminated across VHA.

HSR&D study NRI 05-246; Principal Investigator: Maude Rittman, PhD.

Geriatric Evaluation and Management Units Decrease Nursing Home Placement but Do Not Increase Cost

A Geriatric Evaluation and Management (GEM) study analysis assessed the cost and clinical impact of inpatient units and outpatient clinics for geriatric evaluation and management. Findings show:

- **Veterans treated in inpatient geriatric units were significantly less likely to have any long-term care admissions following their initial discharge from the hospital. As a result, the average number of nursing home days and nursing home costs were lower for Veterans treated in the inpatient units.**
- **Inpatient and outpatient geriatric evaluation and management units did not increase costs of care.**

Phibbs C, Holty J, Goldstein M, et al. The effect of geriatrics evaluation and management on nursing home use and health care costs: Results from a randomized trial. *Medical Care* January 2006;44(1):91-95.

Promoting Hospice Care Improves End-of-Life Care

Hospice care is provided for terminally ill patients and may include in-home care, grief counseling, and pain management. This study examined an intervention promoting information about hospice care to see if it would increase enrollment and improve the quality of end-of-life care for nursing home residents. Nursing home residents at three different nursing homes, including one VA nursing home, received a hospice informational visit. Results show:

- **Among Veterans who participated in the informational visit, hospice referral rates were significantly higher, they received more days of hospice care, and their families' ratings of their care in the last week of life were significantly higher.**

Casarett D, Karlawish J, Morales K, et al. Improving the use of hospice services in nursing homes: A randomized controlled trial. *JAMA* July 13, 2005;294(2):211-217.



Mental Health

The Veterans Health Administration operates the largest mental health care system in the country, providing services to more than 500,000 Veterans. A health survey of 1.5 million Veterans enrolled in VA healthcare found that 36% had at least one mental disorder, with depression being the most common diagnosis, followed by anxiety disorders, including post-traumatic stress disorder (PTSD), and schizophrenia.³

Many mental disorders, including depression, anxiety disorders, and schizophrenia, can be treated by a combination of medication to relieve symptoms, and psychotherapy to help cope with effects of the illness. In addition, many people with anxiety disorders also will benefit from joining a self-help or support group. Treatment choice will depend upon several things such as a diagnostic evaluation, reaction to medications, and patients' personal preferences.

Primer on Collaborative Care for Depression as an Educational Tool for Managers

The Mental Health Quality Enhancement Research Initiative (MH-QUERI) developed Translating Initiatives for Depression into Effective Solutions (TIDES) — an evidence-based collaborative approach to depression management that has proven successful in the VA healthcare system. “Collaborative Care for Depression in the Primary Care Setting: A Primer on VA’s Translating Initiatives for Depression into Effective Solutions TIDES Project” is now available online at www.hsrp.research.va.gov/publications/primer/. This Primer discusses several collaborative care models for the treatment of depression, focusing on VA’s TIDES project.

This Primer can help managers make informed decisions about what care model is best for their facilities. It also can be used as a training tool for staff in facilities that plan to implement this model of depression care.

Monitoring the Use of Pharmacotherapies for Addiction

Investigators with the Substance Use Disorder Quality Enhancement Research Initiative (SUD-QUERI) worked with VA Pharmacy Benefits Management and the Program Evaluation and Resource Center to monitor use of pharmacotherapies for addiction, including buprenorphine, naltrexone, acamprosate, and disulfiram, across the VA healthcare system. During FY08, this project put particular emphasis on supporting and encouraging buprenorphine uptake via two initiatives: a formative evaluation at the 14 sites that obtained funds to recruit new staff to provide buprenorphine, and the establishment of a buprenorphine help-line to answer provider and administrator questions about how to set up a program, obtain training certification or a clinical mentor, and address barriers to care. As a result of these efforts:

- The use of buprenorphine increased from 234 providers at 82 VA facilities prescribing to 1,406 Veterans, to 333 providers at 114 VA facilities providing prescriptions to 2,091 Veterans.

Gordon A, Liberto J, Granda S, et al. Outcomes of DATA 2000 certification trainings for the provision of buprenorphine treatment in the Veterans Health Administration. *The American Journal on Addictions* November-December 2008;17(6):459-462.

Telemedicine Technology Improves Depression Collaborative Care

The Telemedicine Enhanced Antidepressant Management (TEAM) study evaluated a collaborative care model that was adapted for smaller clinics without onsite psychiatrists. It included the use of telemedicine technology (e.g. telephone, interactive video) to facilitate communication between primary care and an off-site depression care team. The TEAM study targeted 395 Veterans with depression who received care in seven smaller VA outpatient clinics. Findings show:

- Telemedicine technologies can be used successfully to adapt the collaborative care model for implementation in smaller primary care clinics that lack onsite psychiatrists.
- Veterans who received the telemedicine intervention were more likely to adhere to depression treatment compared to Veterans in usual care. They also were more likely to respond to treatment by 6 months and to remit by 12 months.
- Veterans who received the telemedicine intervention reported larger gains in mental health status and health-related quality of life, and reported higher satisfaction with care.

Fortney J, Pyne J, Edlund M, et al. A randomized trial of telemedicine-based collaborative care for depression. *Journal of General Internal Medicine* August 2007;22(8):1086-93.

Improving Schizophrenia Care

Annually, VA treats more than 100,000 people with schizophrenia, which accounts for nearly 12% of all VA healthcare costs. Outcomes for schizophrenia are good when appropriate medication and psychosocial treatments are received; however, rates of appropriate care nationally are moderate to low. This study developed and evaluated a chronic illness care model for schizophrenia that resulted in significant improvements in medication treatment quality for psychosis, as well as improved management of side effects and weight gain among Veterans.

Brown A, Cohen A, Chinman M, et al. EQUIP: Implementing chronic care principles and applying formative evaluation methods to improve care for schizophrenia: QUERI Series. *Implementation Science* February 2008;15:3:9.

Smoking and Diabetes: Creating New Knowledge of Tobacco Risk

An HSR&D investigator published a landmark manuscript in the *British Medical Journal* that was the first to link active or passive tobacco smoke exposure with increased risk of incident diabetes. In December 2007, data from this landmark study were incorporated into a definitive meta-analysis of studies assessing the association between active smoking and incidence of type 2 diabetes. This analysis, which included a literature search of two sources – MEDLINE (1966-2007) and EMBASE (1980-2007), was published in *JAMA* and confirmed the association of smoking and type 2 diabetes. Investigators suggest future research should attempt to establish whether this association is causal and to clarify how they are related.

Willi C, Bodenmann P, Ghali W, et al. Active smoking and the risk of type 2 diabetes: A systematic review and meta-analysis. *JAMA* December 2007;298(22):2654-64.

Community Care Yields Better Outcomes for Veterans with Substance Use and Psychiatric Disorders

Individuals with both addiction and psychiatric disorders (dual-diagnosis patients) use more health services compared to those with either disorder. In an effort to reduce the burden on healthcare systems for dually-diagnosed patients, there has been a shift in acute treatment from hospital-based inpatient to community residential care. This study evaluated the effectiveness and cost-effectiveness of community-based and hospital-based acute residential treatment for Veterans with both addiction and psychiatric disorders. Findings show:

- Veterans had better substance use outcomes when they were initially assigned to community rather than to hospital acute care.
- Veterans assigned to hospital care had more mental health follow-up outpatient visits and more costly mental health follow-up inpatient stays.

Investigators conclude that hospital care was more expensive without yielding better outcomes, suggesting cost-savings can be achieved without loss of benefit to most dually-diagnosed Veterans by shifting the locus of treatment from hospital to community care.

Timko C, Shuo C, Sempel J, Barnett P. Dual diagnosis patients in community or hospital care: One-year outcomes and health care utilization and costs. *Journal of Mental Health* April 2006;15(2):163-77.

Telephone Care Coordination Increases Treatment for Smoking Cessation

VA has done an excellent job of identifying Veterans who smoke and advising them to quit, with rates for asking and advising exceeding 90% nationwide. However, the prevalence of smoking has remained high, in part because treatment rates have remained low. This HSR&D study tested the effectiveness of the Telephone Care Coordination Program (TCCP) in raising referral and treatment rates for smoking cessation. The TCCP incorporated a simple computerized referral designed to help increase patient referrals to telephone counseling. The TCCP generated a large number of referrals to telephone counseling for smoking cessation (nearly 3,000), and providers at TCCP sites reported referring many more Veterans to telephone counseling than providers at the control sites (15.6 vs. 0.7).

Increased telephone counseling should result in increased numbers of Veterans who quit smoking, resulting in lower rates of smoking-related illness. Telephone counseling is particularly helpful for Veterans who live in rural settings and have difficulty accessing care.

Sherman S, Takahashi N, Kalra P, et al. Care coordination to increase referrals to smoking cessation telephone counseling: A demonstration project. *American Journal of Managed Care* March 2008;14(3):141-148.

National Dissemination of a Clinical Reminder for Brief Alcohol Counseling Increases Counseling Rates

Brief alcohol counseling has been shown to be effective in reducing hazardous drinking. With a goal to improve rates of brief alcohol counseling in VA, the Substance Use Disorders Quality Enhancement Research Initiative (SUD-QUERI) developed a clinical reminder for brief alcohol counseling for implementation in VA's computerized patient record system (CPRS). The clinical reminder was pilot-tested at an 8-site facility, underwent evaluation, and was revised based on user feedback. The reminder was then recommended for use to meet new 2008 performance measures for follow-up patients screening positive for alcohol misuse and was disseminated nationally in the fall of 2007.

Evaluation of VA data shows there was a substantial increase in rates of brief alcohol counseling for eligible patients during the 2nd and 3rd quarters of FY2008 (19% and 37%, respectively).

Bradley K, Williams E, Greiner G, et al. Use of electronic reminders and a performance measure to increase brief alcohol counseling by primary care providers in VA. Annual Meeting of the Research Society of Alcoholism, Washington, DC: July 15, 2008.

Alcohol Screening Scores Help Identify Patients at Risk of Medication Non-Adherence

Alcohol misuse is common, and may be a significant risk factor for non-adherence to medications. This study examined the association between scores on a brief alcohol screening questionnaire – the Alcohol Use Disorder Identification Test-Consumption (AUDIT-C) – and medication non-adherence for patients in general internal medicine clinics at seven VA medical centers nationwide. Medication adherence was calculated for 90-day and 1-year periods; Veterans were considered adherent if they had medication available for at least 80% of the observation period. Findings show:

- **Approximately 20% of participants overall had AUDIT-C scores of 4 or more, signifying positive screenings for alcohol misuse.**
- **For both the 90-day and 1-year observation periods, increasing AUDIT-C scores were associated with decreasing medication adherence.**

This is the first study to show that a validated, clinically practical alcohol screening questionnaire can identify patients with alcohol misuse who are at risk for poor medication adherence, independent of other patient characteristics.

Bryson C, Au D, Sun H, et al. Alcohol screening scores and medication non-adherence. *Annals of Internal Medicine* December 2008;149(11):795-804.

Using the VA Depression Registry to Identify Predictors of Suicide among Veterans

The largest and most up-to-date study of suicides among depressed Veterans provides important new data that may help guide screening and treatment for all Veterans. The study finds that the predictors of suicide among Veterans in depression treatment differ from those seen in the general population, with younger, white, non-Hispanic men having the highest risk among Veterans. Veterans with substance abuse issues, and those who had been hospitalized for psychiatric reasons in the year before their depression diagnosis also had a higher suicide risk. Surprisingly, older Veterans who had been diagnosed with post-traumatic stress disorder (PTSD) in addition to depression had a lower overall rate of suicide than those without a PTSD diagnosis, perhaps because they were more likely to receive care through VA PTSD programs.

HSR&D study IIR 04-211; Principal Investigator: Marcia Valenstein, MD.



PTSD Strongly Associated with Increased Risk for Dementia

Some studies have shown that chronic post-traumatic stress disorder (PTSD) is related to an “accelerated aging” process. This HSR&D study sought to determine if PTSD is associated with an increased risk of developing dementia among older Veterans. Using VA data, investigators conducted a study of 181,093 Veterans aged >55 without dementia from 1997 to 2000. Of these Veterans, 53,155 were diagnosed with PTSD. During the follow-up period from 2001-2007, investigators gathered data on newly diagnosed dementia. Findings show:

- Veterans with a diagnosis of PTSD were twice as likely to develop dementia, even after accounting for other medical and psychiatric conditions.
- Veterans with PTSD had a dementia rate of 10.6% over the seven years of follow-up, whereas those without PTSD had a rate of 6.6%.

While this is early emerging evidence, investigators believe it is critical to follow Veterans with PTSD, and to screen them early for dementia.

Yaffe K, et al. Alzheimer's Association International Conference on Alzheimer's Disease, Vienna, Austria, July 13, 2009.

Engaging Veterans and Families in Psychoeducation to Improve Treatment for Mental Illness

Family psychoeducation is widely considered an evidence-based practice in the treatment of psychotic disorders that results in reduced risk of relapse, remission of residual psychotic symptoms, and enhanced social and family functioning. Recently, VA funded 19 initiatives to implement family psychoeducation. One of these initiatives – Reaching out to Educate and Assist Caring, Healthy Families (REACH) is a family psychoeducation program for Veterans with serious mental illness or post-traumatic stress disorder (PTSD). Findings show:

- REACH has had notable success in engaging Veterans and their families. Of the 1,539 Veterans told about the program over one year, 41% had a family member who was willing to meet with a provider to learn more.
- REACH providers then met with 505 Veterans to explore family participation. Of those, 28% of Veterans with PTSD, 34% of Veterans with affective disorders, and 25% of Veterans with schizophrenia went on to participate in the REACH Program.

These rates suggest that the REACH engagement strategy may be a promising tool in recruiting Veterans and their families into family psychoeducation.

Sherman M, Fischer E, Bowling U, et al. Effectiveness of new engagement strategies in a VA-based family psychoeducation program. *Psychiatric Services* February 2009;60(2):254-57.

Post-Deployment Health

Veterans returning from Iraq and Afghanistan come home with a broad range of injuries and illnesses that present new challenges for Veterans and the VA healthcare system. For example, thousands of Veterans are returning with blast-related injuries from mortar shells, rocket-propelled grenades, and improvised explosive devices (IEDs). Many have complex medical problems that include: traumatic brain injury (TBI), traumatic or partial limb amputation, nerve damage, vision and hearing loss, pain, as well as mental health and adjustment issues.

VA has a collaborative relationship with the military, working together to provide a seamless continuum of care for returning OEF/OIF soldiers. VA's Office of Research and Development encourages innovative research on an array of topics important to the healthcare of these Veterans, and researchers are dedicated to improving the quality of their care by discovering solutions to this new generation of Veterans' unique injuries and problems. HSR&D is an important part of this effort.

Assessing Impairments and Outcomes for Veterans with Blast-Related Injuries

VA designated four Polytrauma Rehabilitation Centers (PRCs) to provide specialized rehabilitation treatment and to expand clinical expertise in polytrauma throughout VA. This study sought to describe characteristics and rehabilitation outcomes among 188 OEF/OIF Veterans who received inpatient rehabilitation for blast and other injuries at a PRC from 10/01 through 1/06. Findings show:

- Penetrating brain, eye, skin and soft tissue, and oral maxillofacial injuries, as well as auditory impairments and post-traumatic stress disorder symptoms are more common among Veterans exposed to blasts relative to other sources of injury in a war zone.
- Veterans with blast-related injuries had more impairments related to Veterans with other injuries. Type of injury did not predict functional outcomes among these Veterans; however, earlier acute rehabilitation intervention, higher education, and, surprisingly, the presence of psychiatric symptoms were positively associated with gains in cognitive function scores.

These findings will help healthcare providers to develop more effective treatments to improve functional outcomes for Veterans with blast-related injuries.

Sayer N, Chiros C, Sigford B, et al. Characteristics and rehabilitation outcomes among patients with blast and other injuries sustained during the global war on terror. *Archives of Physical Medicine and Rehabilitation* January 2008;89(1):163-170.

Polytrauma Rehabilitation Centers' Family Care Map

To address the high-priority need to standardize and improve services for family members of polytrauma inpatients, the Polytrauma/Blast-Related Injuries Quality Enhancement Research Initiative (PT/BRI-QUERI) led the development of a web-based tool for staff and family caregivers that describes the inpatient rehabilitation process and how family members can help their loved ones during their inpatient stay.

The web-based 'Family Care Map' has been incorporated into the nurse training programs and interdisciplinary plans on the polytrauma inpatient units. It also has been recognized as a valuable resource by the Polytrauma Action Committee and the Center for Ethics within VA, as well as the Government Accountability Office (GAO).

HSR&D study PLY 05-184; Principal Investigator: Carmen Hall, PhD, RN.

Examining Unique Needs of Soldiers with SCI Results in Increased Funding for Equipment

This VA/HSR&D Spinal Cord Injury Quality Enhancement Research Initiative (SCI-QUERI) study examined the characteristics and needs of soldiers returning from the Iraq and Afghanistan conflicts with spinal cord injuries (SCI). These soldiers are transferred from military facilities to VA SCI Centers with multiple other problems in addition to spinal cord injury, including mild traumatic brain injury, PTSD, fractures, pressure ulcers, and other conditions that often delay the start of rehabilitation. These patients are younger than the typical SCI veteran and have a greater desire to obtain and use technology, and to return to active lives in the community. This information was presented to the VA Under Secretary for Health as part of a presentation by the VA SCI and Disease (SCI&D) Service Chief and SCI-QUERI Co-Clinical Coordinator, Dr. Margaret Hammond.

As a result, SCI&D Services has received funding to purchase exercise and sports equipment, as well as telehealth equipment to support the needs of our new Veterans.

Weaver F, Burns S, Evans C, et al. Provider perspectives on soldiers with new spinal cord injuries returning from Iraq and Afghanistan. *Archives of Physical Medicine and Rehabilitation* March 2009;90(3):517-521.

Identifying OEF/OIF Veterans with Mental Illness Can Lead to More Targeted Care

This study describes the proportion of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) Veterans seen in VA facilities who received single or multiple mental health and/or psychosocial diagnoses, and also examined the subgroups of Veterans at high risk for mental health problems. Findings show:

- Nearly one-third of the 103,788 OEF/OIF Veterans were classified as having either mental health diagnoses and/or psychological problems, with more than half diagnosed with PTSD.
- Investigators suggest that targeted early detection and intervention beginning in primary care settings can help prevent chronic mental illness and disability.

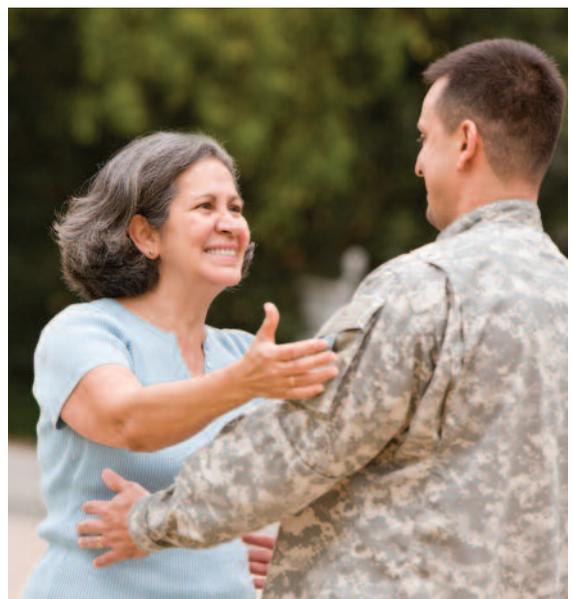
Seal K, Bertenthal D, Miner C, et al. Bringing the war back home: Mental health disorders among 103,788 U.S. Veterans returning from Iraq and Afghanistan seen at VA facilities. *Archives of Internal Medicine* March 12, 2007;167(5):476-82.

Examining Virtual Reality Therapy for Veterans with PTSD

Early treatment is critical to improving outcomes for both active duty military and Veterans with PTSD, and research suggests that virtual reality exposure (VRE) therapy is an effective new therapy for treating Veterans with PTSD. An HSR&D investigator, working on a study funded by the Department of Defense (DoD), is comparing the effects of virtual reality graded exposure therapy (VRGET) with cognitive behavioral group therapy on active-duty personnel. Preliminary findings show:

- Virtual reality graded exposure therapy led to measurable reductions in reported difficulties with PTSD and was well-tolerated.

Wood D, Murphy J, Center K, et al. Combat-related post-traumatic stress disorder: A case report using virtual reality exposure therapy with physiological monitoring. *Cyber Psychology & Behavior* April 2007;10(2):309-315.



Mental Health Diagnoses among OEF/OIF Veterans Increased Rapidly Following Invasion of Iraq

This study investigated trends and risk factors for mental health diagnoses among Veterans from Operation Enduring Freedom (OEF) in Afghanistan and Operation Iraqi Freedom (OIF) in Iraq. Using VA data, investigators identified 289,328 OEF/OIF Veterans who were first-time users of VA healthcare between 4/02 and 3/08. Investigators examined new mental health diagnoses, as well as two-year prevalence rates, focusing on four mental health disorders associated with military service: PTSD, depression, alcohol use disorders, and drug use disorders. Finding show:

- The prevalence of new mental health diagnoses among OEF/OIF Veterans using VA healthcare increased rapidly following the Iraq invasion.
- Among the 289,328 Veterans in this study, new mental health diagnoses increased 6-fold from 6.4% in April of 2002 to 36.9% by March 2008: 21.8% of Veterans were diagnosed with post-traumatic stress disorder (PTSD), and 17.4% with depression.
- Two-year prevalence rates of PTSD increased 4-7 times after the invasion of Iraq.
- The youngest active duty OEF/OIF Veterans (< 25 years) were at nearly twice the risk for PTSD, more than twice the risk for alcohol use disorders, and at a nearly 5-fold risk for drug use disorders than older active duty Veterans (> 40 years).

Authors suggest that early targeted interventions may prevent chronic mental illness.

Seal K, Metzler T, Gima K, et al. Trends and risk factors for mental health diagnoses among Iraq and Afghanistan Veterans using Department of Veterans Affairs health care, 2002-2008. *American Journal of Public Health* September 2009; 99(9): 1651-1658.

Traumatic Brain Injury and PTSD: A Synthesis of the Evidence

HSR&D's Evidence-Based Synthesis Program (ESP) recently produced an important report on traumatic brain injury (TBI) and post traumatic stress disorder (PTSD). Investigators at the Minneapolis VAMC and HSR&D's Center for Chronic Disease Outcomes Research conducted a literature review to answer key questions regarding TBI and PTSD. Findings show:

- The reported prevalence of comorbid TBI and PTSD varies widely; for example, from 0% among medical patients recruited from a single neurology department to 70% in a clinical sample of patients with obsessive-compulsive disorder.
- There is no information on the relative diagnostic accuracy of commonly used tests to assess history and symptoms of mild TBI or PTSD when the conditions are co-occurring.
- There is no information on the effectiveness and harms of therapies in adults with these comorbid conditions.

The topic is important and timely because both VA and DoD are serving a significant number of Operation Enduring Freedom and Operation Iraqi Freedom Veterans with TBI, PTSD, or both. Therefore, long-term prospective observational studies are needed that use validated measures of both history and symptoms of TBI and PTSD, in order to determine prevalence, severity, and long-term outcomes.

To read the full report, go to www.hsrd.research.va.gov/publications/esp/.

Carlson K, Kehle S, Meis L, et al. The Assessment and Treatment of Individuals with History of Traumatic Brain Injury and Post-Traumatic Stress Disorder: A Systematic Review of the Evidence. Final Report, August 2009. Department of Veterans Affairs, Health Services Research & Development Service, Evidence-Based Synthesis Program.

Quality Improvement

Providing quality healthcare to Veterans is paramount in the VA healthcare system – the largest integrated healthcare system in the country.

Over the past decade, VA has undergone a dramatic transformation and has emerged as a nationally and internationally known leader in quality improvement efforts.

VA supports a powerful electronic medical record, sophisticated systems of performance measurement and patient safety—all of which contribute to quality of care. VA also supports a vibrant health services research program that works to discover new knowledge to improve quality and patient outcomes.

A cornerstone of this work is the Quality Enhancement Research Initiative (QUERI), which works to accelerate the implementation of new research findings into routine clinical practice, thereby improving the quality of Veteran care and outcomes.

HSR&D Improves Performance Monitoring

This study explored the impact of an electronic medical record, routine performance monitoring, and other quality-related system changes. In order to analyze performance in the years after the institution of these system changes, investigators compared the quality of outpatient and inpatient care across 26 conditions among two populations: 1) a national sample of 992 patients drawn from 12 communities, and 2) 596 VHA patients from 26 facilities in 12 health care systems located in the Southwest and Midwest. Findings show:

- VHA performed consistently better across the entire spectrum of quality indicators for care, including screening, diagnosis, treatment, and follow-up.
- VHA patients were more likely than patients in the national sample to receive care specified by the indicators (67% vs. 51%). Performance in VHA outpaced that of the nation for both chronic care (72% vs. 59%) and preventive care (64% vs. 44%), but not acute care (53% vs. 55%).
- VHA patients received significantly better care for depression (80% vs. 62%), diabetes (70% vs. 57%), hyperlipidemia (64% vs. 53%), and hypertension (78% vs. 65%).

Asch S, McGlynn E, Hogan M, et al. Comparison of quality of care for patients in the Veterans Health Administration and patients in a national sample. *Annals of Internal Medicine* December 2004;141(12):938-945.

Improving Bar Code Medication Administration

Medication errors are the most common cause of adverse events in hospitals. To reduce these types of errors, VHA pioneered the development of a bar code medication administration (BCMA) system. Nurses access BCMA software by using a laptop computer attached to a wheeled medication cart and linked by a wireless network to electronic databases. If the scanned medication bar code data does not match the patient's bar-coded wristband, the BCMA software alerts the nurse. BCMA is currently used in all VHA facilities, but it is a relatively new technology. Investigators in this study collected data on potential problems in using BCMA within VHA, and proposed 15 practices to maximize the effective use of BCMA, including:

- Put into place a standing interdisciplinary committee that would conduct continuous improvement on the use of BCMA;
- Train all nurses on BCMA software, and cross-train pharmacists and select physicians; Alert nurses to new STAT orders; Scan patients' wristbands and medications prior to administration to verify patient identity; and
- Replace missing, inaccurate, or worn wristbands, especially for those in long-term care.

Patterson E, Rogers M, Render M. Fifteen best practice recommendations for bar-code medication administration in the Veterans Health Administration. *Joint Commission Journal on Quality and Safety* July 2004;30(7):355-65.

Primary Care Characteristics that Result in Improved Colorectal Cancer Screening Rates

VA has increased colorectal cancer (CRC) screening rates to 68% through several methods, including a focus on primary care screening efforts. This study explored VA primary care practice-level characteristics associated with CRC screening, while controlling for patient-level factors.

Investigators analyzed survey data for 155 VA primary care clinics, as well as administrative and chart review data for 38,818 Veterans. Findings show:

- Overall, VA facilities in this study achieved a 62.2% CRC screening rate – ranging from 29.1% to 89.3%.
- Veterans who received their care at primary care practices with higher levels of autonomy (i.e., authority over operations) and greater clinical support resources were more likely to receive CRC screening.

Yano E, Soban L, Parkerton P, Etzioni D. Primary care practice organization influences colorectal cancer screening performance. *Health Services Research* June 2007;42(3 Pt 1):1130-49.

Preoperative Antibiotics: Influencing the Standard of Care

HSR&D investigators collaborated with VA's Office of Quality and Performance (OQP) on the rapid-response project 'Timely Prophylactic Antibiotic Administration for Major Surgical Procedures.' The results of their work have transformed the manner in which prophylactic antibiotics are given. The standard both in VA and the private sector is now for antibiotics to be given in the operating room by the anesthesia provider, resulting in a substantial improvement in timely administration of prophylactic antibiotics.

Hawn M, Itani K, Gray S, et al. Association of Timely Administration of Prophylactic Antibiotics for Major Surgical Procedures and Surgical Site Infection. HSR&D 2009 National Meeting, Baltimore, MD.

Advancing Implementation Science to Improve Quality of Care

This *Implementation Science* Editorial offers a perspective from implementation researchers outside the U.S. about VA/HSR&D's Quality Enhancement Research Initiative (QUERI) and its impact on and contributions to implementation science. This involved factors such as:

- QUERI serving as the change agent;
- Designing guiding frameworks (i.e., six-step QUERI process);
- Producing mechanisms to increase opportunities for service providers and researchers to develop meaningful and sustained interactions and collaborations;
- Focusing on changing attitudes and cultures; and
- Developing methods and tools.

The authors suggest that other health systems and health research funders carefully consider what aspects of QUERI they could and should emulate or adapt, since much can be learned from this comprehensive approach to bringing about health system change to nurture and support evidence-based quality improvement and implementation research.

Graham I and Tetroe J. Learning from the U.S. Department of Veterans Affairs Quality Enhancement Research Initiative. *Implementation Science* March 6, 2009;4:13.

This article was part of a special QUERI Series featured in the online journal, *Implementation Science*. VA's Quality Enhancement Research Initiative (QUERI) is managed through HSR&D.

Women's Health

The number of women Veterans is growing rapidly. Due to the increasing number of women on active duty (currently 14% of active duty deployed forces) and those entering military service, the percentage of female Veterans is expected to increase from 7.7% in 2008 to 14.3% in 2033. In addition, of the more than 102,126 Operation Enduring Freedom/Operation and Operation Iraqi Freedom women Veterans, 44.2% are enrolled in VA healthcare.⁴

In response to the changing demographic in the Veteran population and the specialized healthcare needs of women, VA has established women's health as a research priority. Areas of particular research interest include redesigning primary care service delivery for women, and understanding post-deployment health issues unique to women. In addition to expanding the research portfolio, the Center for Women Veterans was established to ensure that women Veterans have access to VA benefits and services, and that VA health care and benefits programs are responsive to the gender-specific needs of women. For more information about healthcare for women Veterans, go to www.va.gov/WOMENVET/.

Evaluating VA Healthcare for Women Veterans

VA research is evaluating the impact of VHA practice structures and primary care delivery models on the quality of care for women Veterans, which will inform VA policymakers about the best ways to organize care and optimize the outcomes and satisfaction of women Veterans. The initial phase of this research focused on service availability, staffing, and resources of VA women's healthcare, and is now examining possible quality of care differences. The second phase of this research will evaluate environmental, organizational, and resource determinants of changes in the delivery of VA women's healthcare over the last five years – a time of growth in the number of women using VA.

Ongoing and planned research also will shed light on the health consequences of sexual assault, military sexual trauma, and other military traumas affecting women Veterans. This research will help VA to better tailor necessary healthcare services for women Veterans.

Bean-Mayberry B, Yano E, Bayliss N, et al. Federally funded comprehensive women's health centers: leading innovation in women's healthcare delivery. *Journal of Women's Health* November 2007;16(9):1281-90.

Bean-Mayberry B, Yano E, Caffrey C, et al. Organizational characteristics associated with the availability of women's health clinics for primary care in the Veterans Health Administration. *Military Medicine* August 2007;172(8):824-8.

Planning VA Healthcare to Meet the Needs of Women Veterans

Historically, men have been the predominant users of VHA care. In response to more women entering the system, HSR&D investigators provided a needed assessment of female Veterans' health care use and costs. They examined how utilization and costs of VHA care differ in women Veterans compared to male Veterans and found that women had:

- 11.8% more outpatient encounters,
- 25.9% fewer inpatient days, and
- 11.4% lower total cost than men.

After adjusting for age and medical comorbidity, these differences were less pronounced. VHA's efforts to build capacity for women Veterans must account for their relatively high use of outpatient services, which is especially prominent in women who have both medical and mental health conditions. Meeting their needs may require delivery systems integrating medical and mental health care.

Frayne S, Yu W, Yano E, et al. Gender and use of care: planning for tomorrow's Veterans Health Administration. *Journal of Women's Health* October 2007;16(8):1188-99.

Breast Cancer Screening Mammography More Common among Wealthy Women

This study examined the relationship between wealth and screening mammography use in 4,222 women aged 65 years and older. All women in this study had Medicare and participated in the Health and Retirement Survey – a nationally representative, population-based, longitudinal study of older adults. Results show:

- Screening mammography was more common among wealthy women than poor women, no matter their prognoses.

Authors suggest that attention should be focused on two groups: Poor women with good prognoses who are at risk of low screening rates, and wealthy women with limited prognoses who have high rates of screening when they are unlikely to benefit.

Williams B, Lindquist K, Sudore R, et al. Screening mammography in older women: Effect of wealth and prognosis. *Archives of Internal Medicine* March 2008;168(5):514-520.



Women Veterans' Perceptions about – and Experiences with VA Healthcare

The growth in the number of women in the military is reshaping the Veteran population, and thus, VHA priorities. Currently there are 1.7 million women Veterans, and 1 in 7 VA outpatients under the age of 50 are women. Compared with male Veterans, women have unique needs with respect to gender-specific care, the VA environment, and privacy. This study sought to describe women Veterans' perspectives, experiences with, and decision-making about VA health care use. Findings show:

- Despite system-wide advances in VA health care for women, gender-related barriers remain, such as lack of information about eligibility and available services.



Washington D, Kleimann S, Michelini A, et al. Women Veterans' perceptions and decision-making about VA health care.

Military Medicine August 2007;172(8):812-17.

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2003; Washington, D.C.
- 3) Mental Disorders in the Veterans Health
Administration: The 1999 Health Survey of
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- 4) Hayes P. The changing face of VA: Opportunities
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Department of Veterans Affairs
Office of Research & Development
Health Services Research and Development Service (124)
810 Vermont Ave., NW
Washington DC 20420
www.hsrdr.research.va.gov

For further information or additional copies:
Email: cider.boston@va.gov



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