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Research & Education News

From the Academic Excellence Council
Minneapolis VA Medical Center



VAMC Researcher: Early Diagnosis of People with Dementia May Reduce Healthcare Costs

Early diagnosis of cognitive impairment can produce significant savings in medical costs for Alzheimer's patients, according to a new study led by a Minneapolis VAMC researcher.

Patients often aren't diagnosed until they are in the late stages of the disease, when their day-to-day functioning is affected. Meanwhile, as they try to manage on their own, many fail to take medications for such chronic conditions as diabetes, or experience falls and accidents leading to costly hospitalizations.

Simple techniques are available to screen for memory problems but many doctors don't routinely use them. Increasingly, however, efforts are underway to diagnose patients' cognitive impairment earlier to improve the treatment and management of the disease.



DR. MCCARTEN

According to principal investigator, **J. Riley McCarten, MD**, dementia is common, costly, and under-recognized. "We know dementia affects over 5 million Americans age 65 and older. But in fact most people [with dementia] don't have a diagnosis. It's a looming crisis, and a big part of that crisis is due to a lack of recognition which leads to poor quality care and more costly care," said McCarten, medical director of the Geriatric Research, Education and Clinical Center at the Minneapolis VAMC.

The study was conducted in Minneapolis and six other VA sites.

Patients with Alzheimer's, the most common form of dementia and the seventh-leading cause of death in the U.S., are becoming more numerous and cost three times as much to treat as elderly patients without the disease. While screening for Alzheimer's runs about \$800 a person, early testing may more than pay for itself, as people diagnosed with the malady may be less likely to be treated for other illnesses, researchers said. Patients diagnosed with dementia through screening reported 13 percent less in health costs in the first year of treatment.

"The most important goals of the program were making sure that all family members understood the disease and were on the same page, that patients remained physically active and socially engaged, and that caregivers had the support they needed," McCarten said.

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Minneapolis VA Research Centers

The Research Service Line at the Minneapolis VA Medical Center is among the largest and most active in the VA system. There are currently 160 scientists and investigators. The work includes the following research groups:



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WEBSITE: www.brain.umn.edu/index.html



PHONE: 612/725-1979

WEBSITE: www.hsrd.minneapolis.med.va.gov



PHONE: 612/467-2785

WEBSITE:

<http://www.minneapolis.va.gov/services/grecc/index.asp>

The **Brain Sciences Center** is an interdisciplinary research institute, and training center, that focuses on the mechanisms underlying the active, dynamic brain in both health and disease. It is affiliated with the University of Minnesota Health Sciences Center. Since it began in 1991 with staff of three, it has grown to more than 50 researchers, students and staff. The Center's neuroinvestigators collaborate on a wide variety of research studies including: schizophrenia, Alzheimer's Disease, alcoholism, mechanisms of cognitive function, memory and learning, control of movement, and musical analysis of brain signals.

The **Center for Chronic Disease Outcomes Research** is an interdisciplinary community of professionals conducting methodologically rigorous research intended primarily to improve the health care of veterans. Research areas include PTSD, blast injuries, substance use disorders, prostate and urological disease, and colorectal cancer screening. The core investigators include 7 clinically active physicians, most with advanced training in research methodology and a substantial amount of protected time for research. The non-physician core investigators include biostatisticians, behavioral scientists, clinical psychologists, and pharmacologist.

The **Minneapolis Geriatric Research, Education and Clinical Center** integrates high-quality, cost-effective models of clinical care, basic and applied research, and geriatric education with existing Department of Veterans Affairs and community programs and resources. Clinical research focuses primarily on patients with Alzheimer's disease, and includes: Drug studies with cognitive enhancers and drugs to modify problem behaviors; Behavior modification using applied behavior analysis; Driving safety issues in dementia; Brain imaging studies using PET scanning; and Biochemical studies of CSF.

Research & Education News

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Combat Veterans Face Reintegration Issues

A recently published study in *Psychiatric Services* by a Minneapolis VAMC research team headed by clinical psychologist **Nina Sayer, PhD**, reported that 25 to 56% of combat veterans had “some” to “extreme” difficulty in social functioning following return to civilian life. The national study of 754 veterans indicated the need for more community-and family-based programs to address the adjustment issues.



DR. SAYER

The study was based on responses to a mailed questionnaire. More than half of veterans reported problems with anger-control. Nearly one-third said they had engaged in risky behaviors such as dangerous driving or drug or alcohol use. An estimated 40 percent of the veterans who had used VA medical services within 30 days of answering the questionnaire expressed difficulty in readjustment. Their problems included difficulty in social relations such as confiding in others and getting along with their spouses, children, and friends. An estimated 41% screened positive for PTSD, and probable PTSD was associated with reporting more readjustment difficulties.

The most commonly preferred ways to receive reintegration services or information were at a VA facility, through the mail, and over the Internet. Ninety-seven percent indicated they had Internet access and 70% reported using the web on a daily basis. “We can focus on symptoms at the expense of focusing on function,” Sayer told the Star Tribune newspaper. “When you talk to people it's how they are getting along, whether they are successful in their day to day. What we are interested in doing is looking at how people are doing in their home communities.”

Emerging *E. coli* Strain Causes Many Antimicrobial-Resistant Infections

A new drug-resistant strain of *E. coli* is causing serious disease, according to a new study, in the August 1, 2010 issue of *Clinical Infectious Diseases*. The new strain, ST131, was a major cause of serious antimicrobial-resistant *E. coli* infections in the United States in 2007, researchers found. This strain has been reported in multiple countries and encountered all over the United States. In the study, researchers analyzed resistant *E. coli* isolates collected during 2007 from hospitalized patients across the country. They identified 54 ST131 isolates, which accounted for 67 percent to 69 percent of *E. coli* isolates exhibiting fluoroquinolone or extended-spectrum cephalosporin resistance.



DR. JOHNSON

“If we could discover the sources of this strain, the transmission pathways that allow it to spread so effectively, and the factors that have led to its rapid emergence, we could find ways to intervene and possibly slow or halt this strain’s emergence,” said study author **James Johnson, MD**, of Minneapolis VAMC.

In the past, highly virulent *E. coli* strains usually have been susceptible to antibiotics, while highly resistant strains have been fairly weak in terms of their ability to cause disease. The susceptible strains were easily treated even though they caused serious infections, while the resistant ones tended mostly to affect only weakened or vulnerable individuals. Now, the study’s findings suggest, the ST131 strain has appeared with a high level of virulence and antimicrobial resistance. “If this strain gains one additional resistance gene,” Dr. Johnson added, “it will become almost untreatable and will be a true superbug, which is a very concerning scenario.”

COPD Education Management Reduced Hospital Visits



Dr. Rice

Kathryn L Rice, MD, of the VAMC Pulmonary Section, is lead author of “Disease Management Program for Chronic Obstructive Pulmonary Disease: A Randomized Controlled Trial” in the January 14 2010 *Respiratory and Clinical Care Medicine*. The study determined whether a simplified disease management program reduces hospital admissions and emergency department (ED) visits due to COPD. Intervention group patients received a single 1-1.5 hour education session, an action plan for self-treatment of exacerbations, and monthly follow-up calls from a case manager. After 1 year the mean cumulative frequency

of COPD-related hospitalizations and ED visits was 0.82 per patient in usual care and 0.48 in disease management. Disease management reduced hospitalizations for cardiac or pulmonary conditions other than COPD by 49%, hospitalizations for all causes by 28%, and ED visits for all causes by 27%.

Significant Reductions in Drinking After Alcohol Treatment



Dr. Dieperink

Eric Dieperink, MD is lead author of “Significant Reductions in Drinking Following Brief Alcohol Treatment Provided in a Hepatitis C Clinic” in the March-April issue of *Psychosomatics*. Although the hepatitis C virus (HCV) alone increases the risk of cirrhosis, alcohol use is thought to act synergistically with HCV to significantly hasten the development of fibrosis. The study assessed the impact of brief medical counseling or integrated-care approaches to lessen or eliminate alcohol use in these vulnerable patients. The study concluded that brief treatment addressing heavy drinking delivered by hepatitis clinicians with psychiatric-specialist follow-up was associated with abstinence or a significant reduction in alcohol consumption in over 50% of patients.

Physician Preferences for Effective Consultations



Dr. Filice

Gregory A. Filice, MD, of Infectious Disease service, is co-author with University of Minnesota colleagues of an article in January 2010 issue of *Journal of General Internal Medicine* on effective consultations between clinicians. 651 physicians at four Minnesota teaching hospitals completed a 16-question questionnaire about inpatient consultations. The study concluded that physicians agree on many essential elements for effective consultations. Results should guide efforts to improve communication in the consultation process and design electronic medical record systems.

Psychiatric Diagnoses Among Combat War Veterans



Dr. Carlson

Kathleen F. Carlson, PhD, is lead author of “Psychiatric diagnoses among Iraq and Afghanistan war veterans screened for deployment-related traumatic brain injury” in the February 2010 *Journal of Traumatic Stress*. The study examined psychiatric diagnoses in records of 13,201 veterans screened for traumatic brain injury (TBI). Over 80% of the veterans with positive TBI screens had psychiatric diagnoses. Compared to veterans with negative TBI screens, those with positive screens, but without confirmed TBI status, were three times more likely to have a PTSD diagnosis and were two times more likely to have depression and substance-related diagnoses.

Tanning Beds Linked to Deadly Skin Cancer

There is no safe way to tan, according to research conducted by University of Minnesota and Minneapolis VA researchers. They reported in the May 27 journal of *Cancer Epidemiology, Biomarkers* a definitive link between tanning beds and melanoma, the deadliest form of skin cancer. A healthy dose of sunlight can boost mood, increase vitamin D production and fight off several skin maladies. But too much sun can cause skin cancer even when the “sun” shines from a tanning bed. Melanoma is the most serious type of skin cancer.



“We found that it didn’t matter the type of tanning device used; there was no safe tanning device,” said **DeAnn Lazovich**, from the University of Minnesota and lead researcher. “We also found that the risk of getting melanoma is greatly associated more with how much a person tans and not the age at which a person start using tanning devices.” The study found that risk rises significantly with frequency of use, regardless of age, gender or device. Researchers reported results recently in the. Investigators followed a group of 1,167 people who were diagnosed with melanoma and 1,101 people in the control group did not have melanoma. 62.9 percent of the melanoma group tanned indoors and 51.1 percent of the control group tanned indoors. **Erin Warshaw, MD**, VAMC’s head of dermatology, was a member of the study team.

Wrist Fractures Have Important Public Health Impact

Wrist fractures have an important personal and public health impact and may play a role in the development of disability in older people, according to a study published on the *British Medical Journal* website July 9. Wrist fractures are the most common upper extremity fractures in older adults and can affect everyday tasks like carrying heavy objects, opening doors, cutting food and turning a key. But their precise impact on functional decline (ability to carry out usual daily activities) has not been well studied. So a team of U.S. researchers (including **Howard Fink, MD**, of Minneapolis VAMC) set out to quantify the clinical impact of wrist fractures in a group of older women. They identified 6,107 healthy women, aged 65 years and older, without prior wrist or hip fracture. Five activities of daily living were used as a measure of functional decline (meal preparation, heavy housekeeping, ability to climb 10 stairs, shopping, and getting out of a car). Participants were examined approximately every two years for an average of 7.6 years. During the study period, 268 women had a wrist fracture. They were 50% more likely to experience clinically important functional decline compared to women without a wrist fracture.

Doctors Author #1 Downloaded Article on *Diabetes*

The Editorial Board of the journal *Diabetes* reports that the #1 article downloaded from its website in the past year was authored by two Minneapolis VAMC researchers **Drs. Mary C. Gannon** and **Frank Q. Nuttall**. The article, “Effect of a High-Protein, Low-Carbohydrate Diet on Blood Glucose Control in People With Type 2 Diabetes,” and published in 2004 was downloaded 7,769 times between May 2009 and June 2010.



Dr. Nuttall

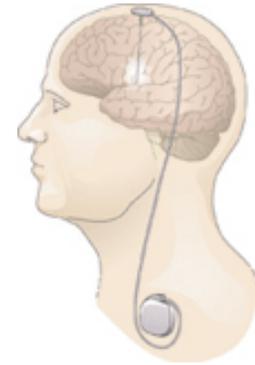
Dr. Gannon

VA Research Offers Insight on Parkinson's Disease

Veterans and others with Parkinson's disease who undergo deep brain stimulation (DBS) may benefit from research co-sponsored by the Department of Veterans Affairs and published in the June 3, 2010 issue of the *New England Journal of Medicine*.

VA cares for about 40,000 Veterans with Parkinson's disease. Parkinson's disease, a progressive neurological disorder, affects some 1.5 million Americans, with 50,000 new cases diagnosed annually.

DBS is often recommended for people who no longer respond well to medication alone. The new report shows DBS is equally effective at either of two sites in the brain. Earlier results from the landmark study appeared last year in the *Journal of the American Medical Association*, indicating that DBS overall is somewhat riskier than carefully managed drug therapy but may hold significant benefits for appropriate patients. In DBS, surgeons implant electrodes in the brain and run thin wires under the skin to a pacemaker-like device.



An NIH illustration of DBS for Parkinson's disease. Fine wires are im- planted within brain regions involved in motor control, and stimulation is controlled by a pacemaker-like device under the skin.

Electrical pulses from the battery-operated device jam the brain signals that cause motor symptoms such as stiffness and tremors. Thousands of Americans have seen successful results from DBS, but questions have remained about which of two stimulation site in the brain yields better outcomes. The new analysis finds both sites roughly equal for patient outcomes relating to movement symptoms. There were subtle differences between the sites in terms of cognitive skills and mood, but the clinical significance of the differences is not clear.

In Robotics Study, Gains Seen Even Years After Stroke

A VA study that used robots to deliver high-intensity therapy has provided strong new evidence that people can gain back function even years after a stroke. The study appeared online April 16 in the *New England Journal of Medicine*.

"There are nearly six million stroke patients in the U.S. with chronic deficits. We've shown that with the right therapy, they can see improvements in movement, everyday function and quality of life," said study chairman **Albert Lo, MD, PhD**, a neurologist at the Providence (R.I.) VA Medical Center. The three-year study enrolled 127 Veterans at four VA sites. All had suffered a stroke at least six months earlier and had moderate to severe impairment of an arm. In most cases, the strokes had occurred several years beforehand. Patients typically get rehabilitation therapy only during the first six months or so after a stroke.

Conventional thinking has been that further therapy offers little benefit. Studies in recent years, though, have begun to suggest otherwise. The therapy in the VA study was repetitive, guided movement, three times a week for three months.