



**Northwest Center
Health Services R&D**

Northwest Center for Outcomes Research in Older Adults

A VA HSR&D Center of Excellence

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Outcomes, costs, and trends in dialysis timing in VA

Relatively little is known about the optimal timing of dialysis initiation for a patient with chronic kidney disease (CKD). We know that (1) rates of morbidity, mortality, and costs of care for patients receiving dialysis are extremely high and (2) a patient needs dialysis when his or her kidney function falls to very low levels.

There is little consensus on *how low* a patient's kidney function should be before initiating dialysis. Curiously, there is significant regional variation in dialysis initiation across the United States. Since 1995 dialysis has been initiated in patients with increasingly higher levels of kidney function, despite any evidence that this is beneficial. The timing of dialysis initiation is important as it has significant financial and quality of life implications for the patient as well as costs to the health care system and society.

A recently completed randomized trial in New Zealand (Initiating Dialysis Early and Late—IDEAL) found no mortality benefit to early dialysis, but this study was conducted in a highly select group of patients receiving mostly peritoneal dialysis, an alternative to hemodialysis.

It is estimated that 600 VA patients initiate acute or chronic dialysis each year. Among these, an estimated 36% go on to receive chronic dialysis. In 2004, there were over 300,000 visits for chronic dialysis at VA dialysis facilities. The number of VA patients who received dialysis at non-VA facilities during the same time period is not known.

Using retrospective administrative and clinical data from VA, United States Renal Data System (USRDS), and Medicare



Paul Hebert, PhD



Ann O'Hare, MD

claims, Drs. Hebert and O'Hare will examine the effects of early versus late dialysis for Veterans with chronic kidney disease receiving care at VA.

The research team will determine if national trends towards dialysis initiation at higher kidney function levels is apparent within VA; estimate the health benefits for VA patients of earlier dialysis initiation compared to later initiation; and estimate medical costs of earlier initiation.

The research will contribute to our understanding of dialysis initiation timing, including costs and benefits.

Ultimately this study will help to define a

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Center News

In March 2011 **Dr. Stephan Fihn** accepted the Director position with the new VHA Office of Analytics and Business Intelligence. **Dr. David Au** is Acting Center Director with over 14 years of experience as a NW Center Core Investigator. **Dr. Christopher Bryson** is PI for the Ischemic Heart Disease (IHD) QUERI Coordinating Center. **Drs. Bryson** and **Bessie Young** are co-directing the HSR&D Fellowship Program.

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Dr. Katharine Bradley moved to the Group Health Research Institute (GHRI). **Drs. David Au** and **Emily Williams** assumed PI responsibilities for several of Dr. Bradley's funded studies. Dr. Bradley remains active as a Co-Investigator in NW Center research.

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Dr. Ranak Trivedi received funding for her Career Development Award, *Developing a Couples' Coping Intervention for Veterans with Heart Failure*. Dr. Trivedi's CDA research will culminate in a RCT to determine whether a telephone-based couples intervention can improve couples' coping, self-management, and quality of life among Veterans with heart failure and their partners.

Improving lung cancer care coordination in VISN20

Drs. David Au, Lynn Reinke, and Steven Zeliadt are collaborating with a national systems redesign team to improve the quality of lung cancer care coordination for patients between tertiary referral centers and smaller facilities in VISN 20. The group is examining processes of care and focusing on improving care coordination between facilities and the timeliness of evaluation and care. Comprehensive templates to improve communication and care coordination have been designed to meet these goals. VISN 20 is comprised of 8 VA Medical Centers, 33 CBOCs, and provides health care and social services to Veterans in Alaska, Oregon, and Washington, and parts of Idaho, California, and Montana.

VA/DoD Collaboration Guidebook for Healthcare Research

The HSR&D funded Guidebook provides tips from experienced researchers on how to maximize available resources, and makes recommendations for future consideration. Guidebook authors, including **Dr. Gayle Reiber**, understand the difficulty in navigating the respective research systems of each agency and provide guidance on and suggestions regarding:

- ◆ Identifying collaborators with common research interests/goals,
- ◆ Summaries of administrative and funding mechanisms,
- ◆ Procedures and protocols needed for collaborative endeavors,
- ◆ Suggestions for developing and submitting a proposal,
- ◆ Examples of successful and unsuccessful research collaborations,
- ◆ List of commonly used acronyms, and
- ◆ Links to additional resources.

Researchers and clinicians from VA and DoD will find the Guidebook valuable in collaborative research efforts for the continuing benefit of our service members, Veterans, and both healthcare systems. Access the Guidebook and learn more at <http://www.research.va.gov/va-dod/>

Evaluation of Specialty Care Transformation Initiative

Drs. David Au, Christopher Bryson, Christian Helfrich, and Fen Liu, in conjunction with Denver HSR&D, received funding to evaluate the VA Specialty Care Access Network-Extension for Community Healthcare Outcomes (SCAN-ECHO) initiative. In many rural and medically underserved areas, VA primary care providers (PCPs) do not have access to specialty care services or facilities. SCAN-ECHO aims to increase the overall knowledge base of rurally-located PCPs so that they can treat complex and chronic conditions without referring Veterans to a distant specialty care facility.

The Seattle-Denver Specialty Care Evaluation Center will carry out a number of tasks including identifying barriers and facilitators to implementation of the initiative, summarizing that information regularly to identify what is/is not working at sites, and facilitating the transfer of knowledge gained from early adopter sites to those in the implementation process and/or future sites.

Data collected by the team will be used by SCAN leadership to assess the effectiveness and reach of the initiative.

Fellows' Profiles

The Northwest Center welcomed four new VA Fellows since February 2011.

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Denise Cooper, PhD, earned her doctorate in Clinical Psychology/Behavioral Medicine at the University of Maryland and completed a Clinical Psychology/Behavioral Medicine Internship at the Palo Alto VA Health Care System. Before starting at the NW Center in November 2011, she was involved in quantitative and qualitative biobehavioral research projects on cardiovascular disease and diabetes at the University of California San Diego, Johns Hopkins Hospital, the National Institute on Aging, and the Baltimore VA Medical Center. Dr. Cooper has a special interest in health disparities (racial/ethnic, socioeconomic, gender) and this research has earned her awards from several professional behavioral medicine societies. Dr. Cooper's research within the NW Center focuses on understanding the impact of depression and post-traumatic stress disorder on cardiovascular outcomes and how this may vary among Veterans by racial/ethnic group and gender.

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Naomi G. Diggs, MD, was a pre-medical student and minored in philosophy at Seattle University. She graduated from the University of Washington (UW) School of Medicine in 2008. She continued her training in internal medicine at the UW and is completing a concurrent HSR&D and gastroenterology Fellowship. As part of her research training, Dr. Diggs is pursuing a Master's degree in epidemiology at the UW School of Public Health. Her research interests have included *Clostridium difficile* infection and gastrointestinal bleeding. She is currently investigating risk factors for inflammatory bowel disease relapse among Veterans.

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Jodie Katon, PhD, earned her BA with honors in chemistry at Boston University (2002). After working for a number of years in pharmaceutical research and development at Amgen, Inc., she returned to

school to earn her MS in epidemiology at University California Los Angeles (2008), and her PhD in epidemiology at the University of Washington (2011). Her doctoral work focused on gestational diabetes and has been published in *Obstetrics and Gynecology*, *Pediatric and Perinatal Epidemiology*, and the *Maternal and Child Health Journal*. She began her postdoctoral Fellowship at the NW Center in September 2011. Dr. Katon's research interests include diabetes and reproductive health of women Veterans. She is working with Dr. Gayle Reiber (VA Puget Sound) and Dr. Elizabeth Yano (Greater Los Angeles VA). Current projects include research on traumatic limb loss in women veterans, the distribution and determinants of availability of reproductive health services for women veterans within VA, and pregnancy among women veterans, specifically complications of pregnancy, and continuity of care during the postpartum period. On spring and summer weekends Jodie can often be found with her husband and Bocce, their 17 pound Boston Terrier, hiking in the Cascades.

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Elizabeth Parsons, MD, began her HSR&D Fellowship in December 2011. She graduated summa cum laude with a BA in biochemistry from Rice University. After receiving an MD from Duke University School of Medicine, she completed her internship and residency in the Harvard Combined Medicine and Pediatrics program based at Massachusetts General Hospital and Boston Children's Hospital. Subsequently, she began her clinical and research fellowship training in the University of Washington (UW) Division of Pulmonary & Critical Care Medicine, receiving an MSc in epidemiology at the UW School of Public Health in 2011. Dr. Parsons is mentored by NW Center PI Dr. David Au. Dr. Parsons' research focuses on improving long-term outcomes for patients surviving critical and acute illness requiring hospitalization, by identifying factors that contribute to rehospitalization and disability.

Drs. Christopher Bryson and Bessie Young co-direct the HSR&D MD Fellowship Program and the University of Washington Internal Medicine NRSA Primary Care training grant. Dr. Gayle Reiber directs the HSR&D PhD Fellowship Program and Dr. Ken Hammond directs the Medical Informatics Fellowship Program. The HSR&D and NRSA trainees currently hold joint Works in Progress Seminars, creating a more robust and diverse health services environment for our trainees and investigators in the local community.

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Past Fellows

Lynn Reinke, ARNP, PhD, was recently funded by the VA Office of Nursing Service (ONS).

The pilot, *Barriers to Accessing Care for Outpatients Newly Diagnosed with Lung Cancer*, will assess patients' perceptions of barriers to accessing lung cancer care. The study will also examine the acceptability of a nurse-led palliative care intervention delivered via telephone for Veterans newly diagnosed with lung cancer at VA Puget Sound. Information from this study will inform a future VA Nursing Research Initiative (NRI) study testing a nurse-led telephone based palliative care intervention to these patients.

The Northwest Center for Outcomes Research in Older Adults, located within VA Puget Sound in Seattle, WA, conducts innovative research to generate relevant new knowledge, develops rigorous new research methods and provides high caliber training in health services research and supports VA policy makers in a rapidly changing health care environment.

The research objectives of the Center are to provide information to improve the delivery of health services to veterans and to contribute to scientific progress in the field of health services research by focusing on four emphasis areas:

- ◆ Management of Chronic Disease in Primary and Specialty Care
- ◆ Preservation of Independence in Older Adults
- ◆ Evaluation of Alternative Delivery Systems
- ◆ Basic Methodology in Health Services Research

DIALYSIS continued from front

kidney function level at which clinical outcomes are improved with dialysis initiation. This is highly significant for Veterans with CKD and VA health care administrators. For CKD patients, the burden of dialysis is extreme. It is a life-altering event that has implications for the patient's health, lifestyle, and livelihood. If early initiation of dialysis is not beneficial to CKD patients, then discouraging early dialysis can yield substantial improvement in the Veteran's quality of life.

In contrast, study results may find extra months of dialysis are beneficial to patient survival. This raises the issue for health care administrators and policy makers of whether the costs of early dialysis are reasonable given the benefit. The study will quantify these costs to the VA.

As of June 2011, data analysis is on-going, however the research has generated preliminary findings. First, the trend towards dialysis at higher levels of kidney function in VA parallels those observed in the non-VA dialysis population. Second, the research team was curious whether economic forces were a driving force in the decision to initiate dialysis in patients with higher levels of kidney function. Because VA nephrologists are salaried employees, it was hypothesized they may be partially shielded from these economic incentives. Preliminary results have found that the absence of financial incentive did not insulate VA from the burdensome and expensive trend toward earlier dialysis initiation.

Continued careful evaluation of dialysis initiation practices among Veterans is needed.

Table 3. Variables and Data Sources (study period 2000-2009)

	Aim 1	Aim 2 and Aim 3
Dependent variables		
eGFR* at initiation of dialysis	USRDS	
Outcomes		
All cause mortality	--	VA Vital Status
Hospitalizations for angina, MI, TIA	--	MC/PTF
Complications		
infections, access revisions, hospitalization for electrolyte imbalance	--	MC/PTF, OPC
Medical Costs		
Total, inpatient, outpatient, dialysis-related, cost of complications	--	MC/DSS
Key Independent variables		
eGFR* at initiation of dialysis	--	USRDS
eGFR prior to initiation of dialysis	--	VISTA
Patient treated by VA nephrologist	V-SSN/Vista	V-SSN/Vista
Patient Control Variables		
Demographics (age, gender, race)	USRDS	USRDS
Cause of renal failure	USRDS	USRDS
Employment status	USRDS	--
Insurance status (Medicare FFS, Medicare Advantage, Commercial, uninsured)	USRDS	--
Service-connected percentage and means test variables		
Comorbid conditions (diabetes, CHF, CVD, HTN, COPD, CAD)	USRDS	NED USRDS, MC, PTF, OPC
Ever smoked	USRDS	USRDS
BMI	USRDS	CDW
Lab values (albumin, hemoglobin, HbA1c, Lipid profile)	--	DLR
First nephrologist consult <6 months	--	USRDS/OPC
Uremic symptoms: compelling, non-specific, asymptomatic	--	VISTA
Dialysis facility variables		
Ownership, quality of dialysis care (% adequate dialysis, % hemoglobin ≥10g/L and ≤12g/dL, patient survival)	--	DFC
Other Data		
Date of initiation of dialysis (first services date)	USRDS	USRDS
Patient ZIP code	USRDS	DSS
Socioeconomic data for ptn ZIP code (% poverty, % education < HS, median household income)	US Census	PSSG
Nephrologists per capita in health service area	ARF	ARF
Received kidney transplant (date)		USRDS

ARF= Area Resource File. DFC=Dialysis Facility Compare, MC=Medicare claims files, PTF=Patient Treatment File, OPC=outpatient care, NED=National Enrollment Database, CDW=Corporate Data Warehouse, DLR=national laboratory result, DSS=Decision Support System, V-SSN=ViReC scrambled SSN crosswalk file, VISTA=data abstracted from medical charts through VISTA, "--"=data is not needed. * eGFR at initiation of dialysis is the dependent variable for Aim 1 and an independent variable for Aim 2

Publication Highlights

Bradley KA, Lapham GT, Hawkins EJ, Achtmeyer CE, **Williams EC**, Thomas RM, Kivlahan DR. Quality concerns with routine alcohol screening in VA clinical settings. *Journal of General Internal Medicine*. 2011 Mar 1; 26(3):299-306.

Burgess JF, Maciejewski ML, **Bryson CL**, **Chapko M**, Fortney JC, Perkins M, Sharp ND, **Liu CF**. Importance of health system context for evaluating utilization patterns across systems. *Health Economics*. 2011 Feb 1; 20(2):239-51.

Cecere LM, Littman AJ, Slatore CG, Udris EM, **Bryson CL**, Boyko EJ, Pierson DJ, **Au DH**. Obesity and COPD: associated symptoms, health-related quality of life, and medication use. *COPD*. 2011 Aug 2; 8(4):275-84.

Chen B, **Zhou XH**. Doubly Robust Estimates for Binary Longitudinal Data Analysis with Missing Response and Missing Covariates. *Biometrics*. 2011 Sept; 67(3): 830-42. epub 2011 Jan 31.

Fan VS, Bridevaux PO, McDonnell MB, Fihn SD, Besser LM, **Au DH**. Regional variation in health status among chronic obstructive pulmonary disease patients. *Respiration; International Review of Thoracic Diseases*. 2011 Jan 1; 81(1):9-17.

Fihn SD, Bucher JB, McDonnell M, Diehr P, Rumsfeld JS, Doak M, Dougherty C, Gerrity M, Heidenreich P, Larsen G, Lee PI, Lucas L, McBryde C, Nelson K, Plomondon ME, Stadius M, **Bryson C**. Collaborative care intervention for stable ischemic heart disease. *Archives of Internal Medicine*. 2011 Sep 12; 171(16):1471-9.

Hebert PL, Chassin MR, Howell EA. The contribution of geography to black/white differences in the use of low neonatal mortality hospitals in New York City. *Medical Care*. 2011 Feb 1; 49(2):200-6.

Helfrich CD, Blevins D, Smith JL, Kelly PA, Hogan TP, Hagedorn H, Dubbert PM, Sales AE. Predicting implementation from organizational readiness for change: a study protocol. *Implementation Science*. 2011

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Nelson K, Taylor L, Lurie N, Escarce J, McFarland L, Fihn SD. Neighborhood environment and health status and mortality among veterans. *Journal of General Internal Medicine*. 2011 Aug 1; 26(8):862-7.

Reinke LF, Slatore CG, Uman J, Udris EM, Moss BR, Engelberg RA, **Au DH**. Patient-clinician communication about end-of-life care topics: is anyone talking to patients with chronic obstructive pulmonary disease? *Journal of Palliative Medicine*. 2011 Aug 1; 14(8):923-8.

Trivedi RB, Nieuwsma JA, Williams JW. Examination of the utility of psychotherapy for patients with treatment resistant depression: a systematic review. *Journal of General Internal Medicine*. 2011 Jun 1; 26(6):643-50.

Williams EC, **Bryson CL**, Sun H, Chew RB, Chew LD, Blough DK, **Au DH**, **Bradley KA**. Association between Alcohol Screening Results and Hospitalizations for Trauma in Veterans Affairs Outpatients. *The American Journal of Drug and Alcohol Abuse*. 2012 Jan; 38(1): 73-80. epub 2011 Jul 29.

Zeliadt SB, Hoffman RM, Etzioni R, Ginger VA, Lin DW. What happens after an elevated PSA test: the experience of 13,591 veterans. *Journal of General Internal Medicine*. 2010 Nov 1; 25(11):1205-10.

Zhou XH, Chen B, Xie YM, Tian F, Liu H, Liang X. Variable selection using the optimal ROC curve: An application to a traditional Chinese medicine study on osteoporosis disease. *Statistics in Medicine*. 2013 Mar 30; 31(7):628-35. epub 2011

A Randomized Trial to Improve Communication about End-of-Life Care Among Patients with COPD. **Au DH**, Udris EM, Engelberg RA, Diehr PH, **Bryson CL**, **Reinke LF**, Curtis JR. *Chest*. 2012 Mar;141(3):726-35. epub 2011 Sep 22

Investigators performed a randomized trial to assess whether an intervention using patient specific feedback about preferences for discussing end of life care would improve the occurrence and quality of communication between patients with COPD and their clinicians.

The investigators elicited preferences from patients about their desire for communication, life sustaining therapy, experiences important to them at the end of life.

The intervention clinicians and patients received a one-page patient specific feedback form to stimulate conversations. The control group completed questionnaires but did not receive the feedback form. 92 clinicians contributed 376 patients to the study.

Baseline end-of-life communication was found to be poor, but patients in the intervention arm reported marked improvement with nearly a 3 fold higher rate of discussions about end of life care. Patients in the intervention arm also reported higher quality end of life communication.

We concluded a relatively simple intervention, delivered in an operating clinical environment, can improve the occurrence and quality of communication about advance care planning.

Recently Funded Research

Location and Timing of Inhaler Use, Exacerbations, and Physical Activity in COPD

HSR&D PPO 10-264, Vincent Fan, MD, MPH

This study aims to 1) test the feasibility of using a GPS-enabled inhaler device to measure worsening symptoms and mild exacerbations, 2) characterize PA in patients with COPD, and 3) examine whether environmental factors can be linked to mild exacerbations as measured by GPS-enabled inhaler.

Organizational Factors Related to Hospital Readmissions

HSR&D IIR 09-354, Chuan-Fen Liu, PhD

The study will assess readmission rates and costs for heart failure (HF) and chronic obstructive pulmonary disease (COPD), two of the most common conditions for hospitalization in VA (Aim 1). The study will also identify VA hospital-level organizational factors associated with systematic variation in readmission rates using existing VA organizational and administrative data and new hospital staff survey data collected for this study (Aim 2).

Identifying VA Outpatients Who Might Not Need Annual Alcohol Screening

QUERI RRP 11-021, David Au, MD, MS

Alcohol screening followed by brief alcohol interventions is ranked the 3rd highest prevention priority for US adults. The VA requires annual alcohol screening with the Alcohol Use Disorders Identification Test Consumption (AUDIT-C), a validated three-item screen, and 91% of patients are screened annually. However, annual screening places a burden on the health care system and many patients are low risk (negative AUDIT-C screen) and may never drink above recommended limits. Yet, little is known about how to identify patients who might be at such low risk for alcohol misuse that screening could be conducted less often than annually or even stopped altogether.

Addiction Housing Case Management for Homeless Veterans Enrolled in Addictions Treatment

HSR&D SDR 11-231, Andrew Saxon, MD

The study will examine intensive case management for homeless Veterans in addiction treatment by integrating addiction/housing case managers (AHCM), operating from a Life Skills Training perspective, into an addiction specialty program. The primary aim is to determine whether the AHCM intervention increases number of days housed during the year following treatment entry. Secondary aims are to compare costs and cost-effectiveness of AHCM vs. time and attention control, determine if AHCM improves addiction outcomes and functional status, and examine treatment process variables associated with improved outcomes.

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Northwest Center HSR&D offices are located within Metropolitan Park in downtown Seattle.

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