

RESEARCH AND DEVELOPMENT PROGRAM
PRINCIPAL INVESTIGATOR(S)

FIHN, Stephan D., MD MPH, VA Puget Sound Health Care System, Seattle, WA

TITLE OF PROGRAM PROJECT (Not to exceed 72 character spaces)

Northwest Center for Outcomes Research in Older Adults: A Center of Excellence

KEYWORDS (MeSH terms only; minimum three)

Health Services, Chronic Diseases, Outcome Assessment

BRIEF STATEMENT OF RESEARCH OBJECTIVES (Do not use continuation sheets)

BACKGROUND/ RATIONALE: The VA Northwest HSR&D Center for Outcomes in Older Adults was established in 1983 and is based at the Veterans Affairs Puget Sound Health Care System. The mission of the Northwest Center is to perform state-of-the-art research, generate new knowledge and research methods, provide high caliber training in health services research, and assist VA policy makers in a rapidly changing health care environment.

OBJECTIVES: The overarching objective proposed for 2007-2012 is to conduct outstanding health services research focusing on new approaches to delivery of care to veterans with chronic and disabling conditions. To achieve this objective, we propose to conduct a variety of projects that address 4 major research goals which reflect strong continuity with the Center's research over the past decade:

- Study the management of chronic disease in primary and specialty care;
- Develop strategies to preserve the independence of elderly and disabled veterans;
- Create and evaluate innovative models of care;
- Develop new methods of health services research.

Responding to major health problems in veterans, we also plan to initiate studies in two new, more highly focused areas: obesity and physical inactivity, and cancer. In addition, we propose to expand our capacity to conduct studies assessing organizational effectiveness.

METHODS: We plan to recruit two new core investigators and to maintain the outstanding infrastructure in the Center, including our high performance information system. Over the past 5 years, the Center has made major investments in information security and will continue to upgrade our system to exceed VA standards. Additional objectives of our proposed strategic plan are to enhance research collaborations with Group Health Cooperative of Puget Sound and expand our already considerable collaborations with smaller VA facilities and CBOCs.

With respect to our training mission, we plan to maintain our strong efforts to recruit medical and surgical specialists into health services research training and to continue support for research career development and research career scientist awards.

FINDINGS/RESULTS: During the most recent 5-year period of funding, the Northwest Center was highly productive. In 2002, the Center proposed an ambitious set of goals and objectives that, with few exceptions, were met or exceeded, including all goals directly related to the research. During 2002-2007, investigators from the Northwest Center conducted 143 funded projects and published 383 articles. The Center training goals during this period were also achieved with 51 physicians and PhDs enrolled into our fellowship training programs.

STATUS: Ongoing.

IMPACT: The Northwest Center has a long history of important contributions to VHA that have improved systems of care for veterans, especially those who are elderly or have chronic conditions. The strategic plan proposed for the next 5 years is designed to continue and enhance those contributions.

EXECUTIVE SUMMARY

The VA Northwest HSR&D Center for Outcomes in Older Adults was established in 1983 and is based at the Veterans Affairs Puget Sound Health Care System. The mission of the Northwest Center is to perform state-of-the-art research, generate new knowledge and research methods, provide high caliber training in health services research, and assist VA policy makers in a rapidly changing health care environment. The overarching objective proposed for 2007-2012 is:

To conduct outstanding health services research focusing on new approaches to delivery of care to veterans with chronic and disabling conditions.

To achieve this objective, we propose to conduct a variety of projects that address four major research goals which reflect strong continuity with the Center's research over the past decade:

- Study the management of chronic disease in primary and specialty care;
- Develop strategies to preserve independence of elderly and disabled veterans;
- Create and evaluate innovative models of care;
- Develop new methods of health services research.

Responding to major health problems in veterans, we also plan to initiate studies in two new, more highly focused areas: obesity and physical inactivity, and cancer. In addition, we propose to expand our capacity to conduct studies assessing organizational effectiveness.

To achieve these objectives, we plan to recruit two new core investigators and to maintain the outstanding infrastructure in the Center, including our high performance information system. Over the past 5 years, the Center has made major investments in information security and will continue to upgrade our system to exceed VA standards. Additional objectives of our proposed strategic plan are to:

- Enhance research collaborations with Group Health Cooperative of Puget Sound; and
- Expand our already considerable collaborations with smaller VA facilities and CBOCs.

With respect to our training mission, we plan to maintain our strong efforts to recruit medical and surgical specialists into health services research training and to continue support for research career development and research career scientist awards.

During the most recent 5-year period of funding, the Northwest Center was highly productive. In 2002, the Center proposed an ambitious set of goals and objectives that, with few exceptions, were met or exceeded, including all goals directly related to research. During 2002-2007, investigators from the Northwest Center conducted 143 funded projects and published 383 articles. The Center training goals during this period were also achieved with 51 physicians and PhDs enrolled into our fellowship training programs.

Leadership of the Northwest Center has been stable since 1993, and both the Director and Co-Director, Drs. Stephan Fihn and Susan Hedrick, plan to continue in those roles for the next period of funding. The Center plans to increase the relevance and applicability of its research through an increasing emphasis on studies related to innovative models of care and approaches to management of patients with multiple chronic or disabling conditions.

The Northwest Center has a long history of important contributions to VHA that have improved systems of care for veterans, especially those who are elderly or have chronic conditions. The strategic plan proposed for the next 5 years is designed to continue and enhance those contributions.

RESEARCH FOCUS AND POTENTIAL FOR FUTURE CONTRIBUTIONS

The Northwest Center for Outcome Research in Older Adults was established in 1983 and is based at the Veterans Affairs Puget Sound Health Care System. The Portland VA Medical Center was affiliated with the Northwest Center up until this past year, when their REAP application was successful. Major collaborating community institutions for this VA HSR&D Center of Excellence include the University of Washington Schools of Public Health and Community Medicine and of Medicine. Investigators in the NW Center also have a long history of close collaboration with investigators at Group Health Cooperative of Puget Sound (GHC) Center for Health Studies (CHS).

The mission of the Northwest Center is to perform state-of-the-art research, generate new knowledge and research methods, provide high caliber training in health services research, and assist 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. For the past two decades, including the period since our last renewal, we have sought to achieve these objectives by focusing our research 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.

Although the Center has grown steadily expanded its activity and focus, we have maintained a constant commitment to our original mission of studying ways to improve the health care for older patients. This remains highly relevant given that the median age of all living veterans today is 60 years, and that there are now more than one million veterans age 85 or older — a number that is projected to rise to 1.3 million by 2011. Nonetheless, more than 60% of existing veterans are younger than 65, with a large influx of OEF/OIF veterans, many of whom are already chronically disabled. In recognition of the changing demographics of veterans and the evolving mission of VHA, we have expanded our focus to include elderly and disabled veterans. Similar to our 2002 strategic plan, our *overarching objective* for the period 2007-2012 is to:

Conduct outstanding health services research focusing on new approaches to delivery of care to veterans with chronic and disabling conditions.

To achieve this objective, we will continue to conduct studies that are methodologically rigorous, clinically meaningful, and consonant with the goals of the HSR&D Service and the NW Center of Excellence. Following are our specific research goals and the VA-based projects we currently are planning in order to pursue them:

Research Goal #1: Study the management of chronic disease in primary and specialty care

- Assess the association between medication adherence and outcomes among patients with chronic obstructive pulmonary disease (COPD) (Au)
- Identify the proportion of patients who do not meet performance standards and who have truly refractory hypertension using state-of-the-art tools to calculate pharmacy-based adherence to antihypertensive medication (Bryson)
- Explain previously observed differences in the proportion of black and white patients who receive treatment for hepatitis C in VHA (Chapko)
- Develop and test approaches to providing local informatics support for collaborative care of depression in primary care (Chaney)

- Conduct a randomized trial of preoperative abstinence for patients with severe alcohol misuse who are scheduled for elective surgery (Bradley)
- Develop models to predict demand for new treatments for chronic hepatitis C (Chapko)
- Develop and evaluate performance measures and decision support tools (CPRS clinical reminders) for alcohol screening and brief alcohol counseling (Bradley)
- Assess effect of anxiety and depression on self-management of COPD (Fan)
- Perform cooperative study of disease management to prevent exacerbations of COPD (Fan)
- Evaluate process of care to improve outcomes of patients with myocardial infarction (Fihn)
- Identify predictors of outcomes among veterans with chronic kidney disease (O'Hare)
- Create and evaluate a diabetes risk score using commonly available clinical and administrative data to identify patients at high risk for developing type 2 diabetes (Nelson)

Research Goal #2: Develop strategies to preserve independence of elderly and disabled veterans

- Develop and assess decision-support for patients with suspected lung cancer (Au)
- Test new models for long-term care referrals (Hedrick)
- Assess informatics needs of OIF/OEF veterans who have suffered polytrauma (Chaney)
- Evaluate new sensor technology designed to assist elders in living independently (Hedrick)
- Disseminate and test diabetic foot ulcer treatment program (Reiber)
- Test new methods for prevention of amputation (Reiber)
- Assess quality of life in patients treated for head and neck cancer (Yueh)

Research Goal #3: Create and evaluate innovative models of care

- Develop and test transportable smoking cessation program (Au)
- Conduct a trial of care management for patients with severe alcohol misuse (Bradley)
- Develop and test decision aids for black patients with hepatitis C (Chapko)
- Evaluation of advanced clinic access (Chapko)
- Test new methods of collaborative care for patients with multiple chronic illnesses (Fihn)
- Evaluate a web-based intervention (using secure messaging on MyHeath^eVet) to improve medication adherence and outcomes among veterans with type 2 diabetes (Nelson)
- Evaluate monitoring strategies for recurrent head and neck cancer (Yueh)
- Evaluate costs and outcomes of treatment for prostate cancer (Zeliadt)

Research Goal #4: Develop new methods of health services research

- Identify organizational factors associated with drug adherence in diabetic pts. (Bryson, Liu)
- Examine effect of dual use VA & Medicare services on VA performance measures (Liu)
- Develop new methods that link multiple databases through geocoding to describe and assess neighborhood characteristics affecting the health status of veterans (Nelson)
- Develop new methods for non-parametric estimators for ROC curves (Zhou)

As shown in the figure below, these projects fit comfortably with the past and future goals of the Center and are consonant with the emphasis areas of the HSR&D Service. Moreover, they are closely aligned with the overall goals of VHA (2007 VA Strategic Plan) and two in particular:

- Goal 1.1. Maximize the physical, mental and social functioning of veterans with disabilities and be a leader in providing specialized health care services.
- Goal 3.1. Provide high-quality, reliable, accessible, timely and efficient health care that maximizes the health and functional status of enrolled veterans.

HSR&D Priority Areas for Investigator-Initiated Research



Northwest HSR&D Center of Excellence Research Goals 2007-2012

Study management of chronic disease in primary and specialty care

Develop and test strategies to preserve independence of elderly and disabled veterans

Create and evaluate innovative models of care

Develop new methods of health services research

Examples of Currently Funded Projects

- AUDIT-C as marker for health risks (Bradley)
- Alcohol misuse & risk of post-surgical complications (Bradley)
- Evaluation of AUDIT-C in a primary care (Bradley)
- Expanding & testing VA Collaborative Care Models for Depression (Chaney)
- Evaluate quality of acute coronary in VA (Fihn)
- Cost of VA acute inpatient nursing services (Liu)

- Improving quality of end-of-life communication for pts w/ COPD (Au)
- Assess practice variation in long-term care referrals (Hedrick)
- Diabetic foot ulcer treatment & amputation prevention in VA non-tertiary facilities (Reiber)
- Hearing aid effectiveness after aural rehabilitation (Yueh)

- Cost & value of evidence based solutions for depression (Chaney)
- Coop study of strategy to reduce COPD flares (Fan)
- Collaborative cardiac care project (Fihn)
- Effects of practice structure on quality of care for women veterans (Liu)
- Prescription copayments & veterans with diabetes or hypertension (Liu)
- Dual use, continuity of care and duplication in VA & Medicare (Liu)

- Develop & evaluate performance measures for alcohol screening and brief counseling (Bradley)
- Develop measures of cost & satisfaction with long-term care referrals (Hedrick)
- New statistical methods to analyze VA Health Care Costs (Zhou)

Projects Planned for 2007-12

- Assess association of adherence & outcomes in pts w/COPD (Au)
- Trial of preoperative abstinence for pts. w/ severe alcohol misuse (Bradley)
- Test decision support for brief alcohol counseling (Bradley)
- Identify refractory hypertension using pharmacy-based adherence (Bryson)
- Explain different hepatitis C treatment rates between black & white pts (Chapko)
- Assess IT support for collaborative care of depression (Chaney)
- Predict demand for new hepatitis C therapies (Chapko)
- Explain different hepatitis C treatment rates between black & white pts (Chapko)
- Assess effect of anxiety & depression on self-management of COPD (Fan)
- Define outcome predictors of in chronic kidney disease (O'Hare)
- Develop and evaluate a risk score for developing type 2 diabetes (Nelson)

- Assess decision support for suspected lung cancer (Au)
- Assess informatics needs of OIF/OEF veterans who have suffered polytrauma (Chaney)
- Test new models for long-term care referrals (Hedrick)
- Evaluate new sensor technology designed to assist elders in living independently (Hedrick)
- Disseminate & test diabetic foot ulcer treatment program (Reiber)
- Test new methods for prevention of amputation (Reiber)
- Assess quality of life in pts treated for head & neck cancer (Yueh)

- Develop & test trans-portable smoking cessation program (Au)
- Trial of care management for pts. w/ severe alcohol misuse (Bradley)
- Decision aids for black pts. w/ hepatitis C (Chapko)
- Evaluation of advanced clinic access (Chapko)
- Test disease management strategy to reduce exacerbations of COPD (Fan)
- New methods of collaborative care for pts with multiple chronic illnesses (Fihn)
- Evaluate monitoring strategies for recurrent head & neck cancer (Yueh)
- Evaluate costs & outcomes of treatment for prostate cancer (Zeliadt)

- Identify organizational factors associated with drug adherence in diabetic pts. (Bryson, Liu)
- Longitudinal study of nurse staffing, outcomes, and costs, (Li, Liu)
- Examine effect of dual of use VA & Medicare services on VA performance measures (Liu)
- Develop methods to link multiple databases through geocoding to assess neighborhood characteristics affecting the health of veterans (Nelson)
- Develop new methods for non-parametric estimators for ROC curves (Zhou)

**Research Goal #5: Initiate studies related to obesity and physical inactivity; and
Research Goal #6: Initiate studies related to cancer in veterans.**

Research goals #1-4 represent a continuation of work by investigators over the past decade. In recognition of the changing nature of illnesses affecting veterans, we will also initiate studies to address the risk factors that lead to chronic illness such as obesity and lack of physical activity. In addition, because cancer is such a major cause of chronic illness and disability among VA patients, we will all expand our studies in this area as well.

Research Goal #7: Conduct studies assessing organizational effectiveness.

Given the increasing importance of implementation, a final research goal will be to expand our capability to design effective interventions to improve organizational effectiveness and assess their outcomes. For this reason, we intend to enhance to the Center's expertise in this area.

Research Capacity Goal: Recruit two additional HSR&D investigators.

To achieve our research goals, we will continue to enlarge the pool of investigators working within the Northwest Center. Presently there are 18 core and 13 affiliate investigators with a total staff of 125 individuals. Since our last competitive renewal, the Center has added 4 new core investigators and 3 affiliate investigators. During that cycle, however, two core investigators (Drs. Anne Sales and Matt Maciejewski) accepted positions at other institutions. In response to these departures and anticipating expansion of our research activities, we have recruited four additional core investigators: Ann O'Hare MD, a National Institute of Aging Beeson Career Development Awardee who studies patients with chronic kidney disease; Dariush Mozzafarian MD MPH, a former HSR&D fellow who is nationally recognized for his work in primary prevention of heart disease and who is being recruited back to Seattle from Harvard Medical School; Steven Zeliadt PhD, who is trained in decision sciences and studies the costs and benefits of various approaches to cancer screening; and Christian Helfrich PhD, who has expertise in implementation science and organizational measurement. We are in the process of recruiting an additional health economist and another investigator with expertise in organizational measurement.

Research Infrastructure Goal: Continue to provide the highest level of informatics support to investigators including information security that meets or exceeds VA standards.

To support and facilitate the work conducted in the Center, we maintain a rich infrastructure that includes administrative, biostatistical and informatics cores, including a state-of-the-art computer network. We plan to continue to invest in the network to enhance its capabilities and ensure it serves the needs of our investigators and provides a secure research environment.

Collaboration Goal #1: Enhance research collaborations with the Group Health Cooperative of Puget Sound (GHC) Center for Health Studies including projects that involve the HMO Research Network.

In pursuing the goals described above, a major strategic initiative will be to examine how other research centers located within other health care systems have pursued studies of innovative approaches to providing care to individuals with chronic illness and disability. We believe that high caliber health systems such as Kaiser Permanente and GHC have much to offer investigators in VHA and vice versa. It was, in large part, for this reason that the Northwest Center relocated to the same campus as the Center for Health Studies. We presently have multiple collaborative links with the GHC and plan to substantially enhance these ties as part of this strategic plan. We anticipate this will involve planning for collaborative projects that examine and compare clinical programs within VA and GHC. Moreover, we hope to develop projects that will enable

comparisons of VA data and data from the HMO research network. This would provide a powerful resource to address important clinically and policy relevant questions using data on over 20 million individuals.

Collaboration Goal #2: Expand involvement of unaffiliated centers and CBOCs in research projects.

Proposal development within the Northwest Center is facilitated by an extensive network of collaborators throughout VHA that provides a substrate for conducting clinical research at a broad cross-section of facilities. Presently there are numerous studies being conducted by Seattle-based investigators that involve more than 80 different VA hospitals and many community based outpatient clinics (CBOCs). These include, for example:

- Evaluation of a clinical reminder for brief alcohol in 8 nonacademic facilities in VISN 19;
- A trial of collaborative care for angina in 4 academic centers and 5 CBOCs;
- A study of acute coronary syndromes in 4 larger VAs and 4 smaller referring VA facilities;
- A study of care for diabetic foot ulcers at a rural VA hospital without medical specialists.

Experience with these and other studies has demonstrated that inclusion of smaller, unaffiliated centers and CBOCs represents a major resource for evaluating new approaches to care, and we plan to expand our efforts to incorporate these sites into our studies.

Training Goal #1: Continue to recruit medical and surgical specialists into fellowship training

The Northwest Center has a longstanding commitment to training new investigators in health services research. Our fellowship and postdoctoral training activities furnish an additional source of creativity and energy to our research program. There are presently 12 physician fellows, 4 postdoctoral trainees, and 5 predoctoral trainees within the Northwest Center. All trainees are closely mentored by Core Investigators and are required to develop independent research projects. We have recently concentrated on training individuals from medical and surgical specialties and will continue with these efforts during our next funding cycle.

Training Goal #2: Submit at least one RCD or RCS application annually.

Our training programs have been the major pipeline for the Research Career Development (RCD) program, which, in turn, has been an essential avenue for developing new investigators. To date the Center has sponsored 9 successful applications for RCD awardees and four core investigators are present or former RCD recipients. The Research Career Scientist program has also been a key mechanism for supporting and retaining outstanding investigators. We plan to submit at least one RCD or RCS application annually over the next five years.

Dissemination Goal: Provide technical assistance and consultation to leaders at all levels of VHA.

Our final goal is to apply the expertise of our investigators and the results of our research by assisting VA leadership to effectively manage and improve the health care system. Many of our investigators work closely with leadership at our facility, in VISN 20 and other VISNs, and in VA Central Office to assist with policy and program development. We will continue these activities.

In summary, the Northwest Center has a solid track record of consistent contributions to VA research and health services research in general. The Center has reliably achieved its strategic goals and is well positioned to meet the ambitious goals set forth for the coming five years.