Department of Veterans Affairs
Health Services Research & Development

RESOURCE GUIDE:
VA LONG TERM CARE PROGRAMS AND SERVICES
Volume 3:
HSR&D Research Project Abstracts & Articles

Development of a VA Long Term Care database
HSR&D
SDR#93-113

Frances Weaver, Ph.D
Marylou Guihan, Ph.D.
Diane Cowper, MA
Tammy Petitt, MA

HSR&D Field Program
Edward Hines, Jr. VA Hospital

August 1996

TABLE OF CONTENTS

Introduction

Volume III of this three Volume LTC Program and Services research guide is a reference tool for all HSR&D research conducted on VA LTC programs and services. It contains a list of funded projects with abstracts and any journal articles, book chapters or related publications that resulted from these grants.

Together the three volumes of the *VA LTC Programs and Services Resource Guide* provide a comprehensive understanding of VA long term care to date.

Volume III is composed of two separate sections: a section containing all VA HSR&D research (to the best of our knowledge) conducted on VA LTC programs/services and other related topics; a section containing published journal articles and book chapters regarding VA LTC programs/services and other such topics relevant to VA. The listing of abstracts is in chronological order of completion date.

The material for this Volume III was gathered using multiple strategies. The initial search was done by sifting through all the VA HSR&D Field Program annual reports from 1990 to present. Then a search was conducted via computer on the National Institutes of Health, National Library of Medicine's MEDLARS network of databases and databanks. Most abstracts were downloaded from this system; others were requested from the investigators.

Acknowledgments

The compilation of this Volume III of the resource guide would not have been possible without the assistance of a great many people both directly and indirectly involved with this project.

We would especially like to thank the VA Central Office of Geriatrics and Extended Care for their assistance and guidance. We would also like to recognize the individual members of our Steering Committee for their expertise, helpful critiques and suggestions. Special thanks are extended to the many individuals (over 100) who served on our Expert Panel throughout the course of two separate survey tasks.

A final word of thanks is extended to the many individuals (investigators and authors) who assisted the team in acquiring abstracts and other reference sources.

HSR&D Field Program Research

I. VA Nursing Home Care Units (NHCU) & Community Nursing Homes (CNH)

Patient Classification and Budgeting Staff Time in Nursing Homes
Identification Number: LIP #41-020
PI/Facility: Hogan, Andrew, PhD, & Smith, David, PhD/VAMC Ann Arbor, MI
Completion: November 1984

No abstract available.

Evaluating the Costs and Quality of Life Provided by VA & Community NHs
Identification Number: LIP #31-002
PI/Facility: Rodell, Daniel, PhD, Sullivan, James, MSW, and Rather, Walter, MSW/ VAMC Little Rock, AR
Completion: November 1984

A random sample of 270 veterans stratified by station and veteran status (service-connected, nonservice-connected) was drawn from five medical centers in order to assess the relative performance of the VA Nursing Home Care Unit (VA NHCU) and Community Nursing Home (CNH) Programs. Patients in both programs were compared in terms of their independence in activities of daily living (ADLs), adequacy of social resources, and total cost to VA for all health and income benefits provided over a ten month period.

Results indicate that veterans in CNHs are more disabled than their counterparts in VA NHCUs and are cared for at less cost to VA regardless of service-connected status. Service-connected (SC) veterans were significantly more independent in ADLs and were more costly to maintain then nonservice-connected (NSC) veterans. SC and NSC veterans with the greatest need for nursing and personal care as well as rehabilitation services are assigned to placements in CNHs that are less capable of providing these services. More costly VA NHCUs receive veterans with significantly less need for medical and rehabilitation services available in such programs. The results raise questions regarding the appropriateness

of placement criteria.

Statistical Evaluation of Nursing Home Patient Classification Systems
Identification Number: LIP #41-022
PI/Facility: Smith, David, PhD/VAMC Ann Arbor, MI
Completion: April 1985

Financial resources for patient care are increasingly allocated by patient classification systems, often based on costs of care, or their correlates. This project develops and evaluates systems for nursing home patient classification, using nursing time data from within the VA. The two systems will be compared using data from within the VA. The two systems will be compared using statistical criteria, primarily variance reduction. The results will be evaluated using sample reuse techniques, primarily bootstrapping. The impact of rater reliability on the classification systems will be evaluated.

Satisfaction with Nursing Home Care
Identification Number: LIP #31-049
PI/Facility: Linn, Margaret, PhD/VAMC Miami, FL
Completion: September 1985

No abstract available.

Patterns of Care in Nursing Homes
Identification Number: LIP #42-006
PI/Facility: Smith, David, PhD/VAMC Hines, IL
Completion: September 1985

The proposed research will quantify the weekly pattern of nursing care given in VA nursing homes, by type of nurse and kind of care given. The relationships among these types of nursing care will also be measured. The temporal patterns will be identified using mulitvariate statistical techniques: MANOVA and Profile Analysis. Relationships among the forms of care will be measured using product moment correlations and derivative methods: canonical correlations and principal components, both with rotations of axes. The research is relevant to nurse staffing decisions which control the consistent delivery of care. Some forms of nursing care, such as rehabilitation and patient education may be severely impacted by

daily variations in staffing. This impact on nursing time will be identified precisely.

Staffing in Government and Other Nonprofit Nursing Homes in Massachusetts
Identification Number: LIP #11-022
PI/Facility: Camberg, Lois, PhD, Lischko, Amy & Brandenburg, Jennifer/
VAMC Brockton/West Roxbury, MA
Completion: March 1988

We examined turnover rates among nursing personnel in nonprofit nursing homes in Massachusetts, evaluating ownership (government versus other nonprofit) and other characteristics that could influence turnover. Surveys were mailed to all nonprofit nursing homes in Massachusetts (n=72). Complete data were returned by 42 nursing homes (58%), that included 11 government sponsored (3 federal). Three nursing staff categories were examined, Rns, LPNs, and nursing assistants (NA). The mean turnover rates for Nas was 56.9 percent-more than twice that of Rns (26.8%) and almost twice that of LPNs (31.5%). RN turnover rates were three times lower and nursing assistant turnover rates were two times lower in government nursing homes than in nongovernment nursing homes. Public nursing homes tended to care for a younger population. Staff were more likely to be unionized in public nursing homes; average pay rates and paid days off were also higher; and pension and life insurance benefits were more common. Nonprofit nursing homes, and government-sponsored nursing homes in particular, experienced lower turnover rates than for-profit nursing homes. Pay and benefits were associated with lower turnover within government nursing homes. Less tangible benefits should also be explored.

Discharged Elderly Nursing Home Care Unit Patients: A Follow-up Study
Identification Number: LIP #31-032
PI/Facility: Barnes, Lori, MA, Nichols, Linda, PhD, & Ochs, Matthew, MD/
VAMC Memphis, TN
Completion: June 1988

Evaluating Effects of Rehabilitation in Long Stay Nursing Home Patients
Identification Number: LIP #31-062
PI/Facility: Gerety, Meghan, MD, & Mulrow, Cynthia, MD/VAMC San Antonio, TX
Completion: June 1989

Baseline and monthly assessments of function were conducted for 347 patients discharged from the VAMC to community nursing homes during 1986; in addition, hospital administrative , medical, and social work records were used to obtain information on age, diagnoses, level of care, and discharge disposition. Median age at discharge was 70 years; principal diagnoses were cancer (20%), stroke (17%), and dementia (24%). A fourth of the patients had died within three months; after two years, this increased to 54% (87% for cancer, 44% for dementia). In general, patient functioning remained the same (82%) or declined (15%); only a fifth could have returned to community living. Findings suggest that nursing homes are often used as sites for terminal care.

Organizational, Casemix, and Cost Differences Among State Veterans Homes
Identification Number: LIP #52-013
PI/Facility: Ludke, Robert, PhD, Knudsen, Margaret & Maas, Meridean, PhD/
VAMC Iowa City, IA
Completion: July 1989

Differences in institutional characteristics, patient casemix complexity, and casemix adjusted per diem costs were compared for 30 state veterans homes with nursing home or hospital levels of care. Based on results of mailed organizational characteristics questionnaires for each resident, organizational profiles were constructed for each state home; residents were classified according to the Resource Utilization Group (RUG-I and RUG-II) patient classification systems; and casemix indices for each facility were constructed using the scaler weighing approach. Descriptive analyses were provided for organizational characteristics by facility type-- that is, (a) hospital-nursing home- domiciliary, (b) nursing home-domiciliary, (c) nursing home, and (d) domiciliary--and for distributions of RUG-I and RUG-II residents by facility type and level of care.

Differences in Patient Program Characteristics in Academic & Community NHs
Identification Number: LIP #31-061
PI/Facility: Gerety, Meghan, MD/VAMC San Antonio, TX
Completion: May 1990

Medical record reviews, patient and employee interviews, and applications of the Multiphasic Environmental Assessment Procedure Instrument were used to compare characteristics of patients, staff, and services in a VA academic nursing home with those in three large community nursing homes. Findings indicated that the academic nursing home had: (a) younger patients who were more independent in Activities of Daily Living (ADL) and more ethnically diverse; (b) more medical/rehabilitation staff and professional nurses per 100 residents; and (c) more patients (87% versus six percent) participating in at least one rehabilitation therapy. Surprisingly, despite higher patient ADL status and greater implementation of costly therapies for improving patient function, academic nursing home residents perceived their environments as being more restrictive than did the community nursing home residents.

Outcome of a Cohort of Nursing Home Residents
Identification Number: LIP #31-067
PI/Facility: Gerety, Meghan, MD/VAMC San Antonio, TX
Completion: May 1990

This study will collect longitudinal outcome data and determine outcome predictors for a cohort of patients discharged from VAMC San Antonio to the VA Extended Care Therapy Center or to selected nursing homes. Standardized assessment tools will be used to track functional/mental status, quality of life, and various psychological parameters.

Contracting for Community Nursing Home Services by the DVA
Identification Number: IIR #86-062
PI/Facility: Camberg, Lois, PhD/VAMC Brockton/West Roxbury, MA
Completion: December 1989

The purpose of this study was to identify determinants of utilization and price of community nursing homes under contract with VA. Approximately 10,000 male, live discharges were included in the utilization analyses; 120 VA Community Nursing Home Programs were included in price analyses. Using multivariate analyses, associations between patient, market, VAMC, and CNH Program characteristics, utilization, and price were explored.

The results indicated that patient characteristics increased the likelihood of discharge to nursing homes more than other variables. No evidence was found that the studied program characteristics influenced the likelihood of discharge to community nursing homes. These included the use of incentives, negotiation training, and tenure of program coordinator.

The models of average per diem rates paid by VAMCs to community nursing homes explained about 80 percent of the variation in rates across VAMCs. Market characteristics had the largest effects on price. Experience of negotiators and percent of patients requiring heavy-care showed no significant effects. Information obtained from this study can be used for projecting future use of nursing homes by VA, exploring methods for decreasing the rate of discharges to nursing homes, as well as methods of setting per diem rates across the system.

Hospital Readmission from VA Nursing Homes
Identification Number: LIP #41-071A
PI/Facility: Fries, Brant, PhD/VAMC Ann Arbor, MI
Completion: May 1991

This project was part of a larger effort to develop a large longitudinal database of VA Nursing Home Care (NHCU) residents. The study used a retrospective cohort of all persons admitted to or in VA NHCUs between October 1986 and April 1987 (over 23,000 residents): the VA Longitudinal Geriatric Utilization Study (VALGUS). Using the VA Patient Treatment File and the Patient Assessment File, we were able to identify all VA institutional utilization for one year prior, during, and for two years subsequent to the study cohort window.

Several substudies have used these data. One considered the patterns and determinants of NHCU residents' lengths of stay, examining the 4,918 veterans admitted to VA nursing homes during the study cohort window. Brief stay (<1 month; n=1,139) residents most often had previous admissions to NHCUs and were usually discharged alive from the NHCUs. Medium stay (1-6 months; n=1.1947) residents were the least functionally impaired and most likely to receive rehabilitative services. Long stay residents (>6 months; n=1,832) were older and more functionally impaired than other residents. Medium- and long-stay residents of VA nursing homes most resembled "short" and "long-stay" residents among non-VA nursing home residents, respectively. Brief-stay residents may be persons admitted for respite services or may be serial users of both VA and non-VA health services.

A second study considered the risk factors for institutionalization and death for up to four years for the nationwide cohort (n=6,488) of males discharged alive from NHCUs. Two-year cumulative probabilities of nursing home readmission, hospitalization, and death among nursing home discharges were 0.30, 0.61, and 0.24, respectively. Using multivariate survival analyses, chronic functional impairments and past nursing home use were important predictors of nursing home readmission, whereas hospitalizations for exacerbations of chronic medical conditions were predictors of hospitalization and death. Past hospitalizations predicted all three outcomes. Differences in risk factors for nursing home readmission as compared to hospitalization or death among NHCU discharges suggest that high-risk patients can be identified at nursing home discharge, and that different types of interventions will be necessary to decrease nursing home admissions as compared to hospitalization or death.

A third study contrasted VA NHCU and other nursing home residents. The analysis used for the non-VA population both the National Nursing Home Survey (NNHS) (n=5,243) and residents assessed in New York State (NYS) nursing homes in 1988 (n=94,840). Age-stratification comparisons were made between the VA and the NNHS for gender, marital status, race, ethnicity, length of stay, activities of daily living (ADL) status, and selected diagnoses and conditions. Additionally, case-mix data were compared between the VA and the NYS population. The analysis showed that the NHCU residents are overwhelmingly men (96.1% versus 28.4% in the NNHS), and 31.2% of the VA population is under 65 years of age

compared with 11.6% in the NNHS. Young (<65) VA residents are considerably more impaired in ADL than young residents in the NNHS; differences are less pronounced in those over 65 years old. VA case mix is slightly higher than the overall NYS population through the distribution of residents into categories in the Resource Utilization Groups (RUG-II) system is somewhat different. Thus, the VA NHCUs contain a substantially distinctive population of seriously impaired residents under 65 years of age. Although differences exist, older VA residents have many similarities to residents of non-VA nursing homes and constitute a functionally impaired population that can provide insights into the status of nursing home residents generally.

Other research continues into the use of the VALGUS data to demonstrate new methods of analyzing longitudinal health care utilization data.

A Quality Assessment and Improvement System for VA Contract Nursing Homes
Identification Number: SDR #88-001
PI/Facility: Conrad, Kendon, PhD, Pope, Annie, ACSW, Spillie, Anthony, ACSW, Davis, Robin, MS, and Guihan, Marylou, PhD/VAMC Hines, IL
Completion: September 1991

Veterans organizations and the General Accounting Office (GAO) have noted deficiencies in the quality of care provided to veterans under VA contracts with community nursing homes. In response to these concerns, a survey of the inspection process was conducted in October 1987 at VA medical centers in Michigan, Ohio, Indiana, Illinois and Wisconsin. This survey found great variation in inspection procedures and instruments with a strong emphasis on structural features of facilities. As a result of these findings, the Director of VA Central Region II commissioned a study to develop a state-of-the-art quality improvement procedure to accommodate the particular needs of the VA contract nursing home program. This report describes the results of the study- the development of the instruments, the refinement of procedures, the instruments and procedures themselves, the metric properties of the instruments, and directions for future research. The VA Nursing Home Assessment Procedure (VANHAP) was designed to enable two types of quality review-- and initial, full inspection to facilitate the awarding of new contracts and annual,

follow-up reviews focusing on continuous improvement of the care processes and outcomes.

The Risk and Duration of Nursing Home Residence Among Older Veterans
Identification Number: LIP #41-054
PI/Facility: Bates, Elizabeth, PhD/VAMC Ann Arbor, MI
Completion: September 1991

This research is designed to develop preliminary estimates of the age-specific risk and duration of long-term care placement and hospitalization for veterans in Region 4. Data from a variety of sources will be analyzed, including the VA's Patient Treatment File, annual VA inpatient census files, DVB's Target File, the Harris Survey of Veterans, and the National Health Interview Surveys. Multiple decrement and increment-decrement life table analysis has been performed. The primary goal is to develop and test a methodology with which information from existing VA databases can be extracted and analyzed to derive estimates of age-specific demand for extended care and hospital services. Data extracted for Region 4 of the VA are used in order to develop and evaluate the method. Data have been extracted from all needed sources, the analyses are in the final stages of completion, and two papers are in progress (both were presented in preliminary from at the 1991 annual meeting of the Gerontological society). This project has been exempted from review by the VAMC Human Studies Committee.

Evaluation of the Enhanced Prospective Payment System (EPPS) for VA Contract Nursing Homes
Identification Number:
PI/Facility: Conrad, Kendon, PhD, Weaver, Frances, PhD/VAMC Hines, IL
Completion: December 1994

The EPPS was designed by VA to improve access and quality at a reasonable cost while reducing administrative burden for contract nursing home placement. Eight hospitals with EPPS were compared to eight with the customary Medicaid+15% system. The study: 1) specified the intended and actual implementation of both systems; 2) compared EPPS and M+15 pre and post EPPS implementation and in comparison to M+15 on access, quality, cost,

and burden; and 3) established performance criteria. Logic models were developed using three focus groups at each of 16 VAMCs; measurement models using existing data and a special survey were used to cross-validate the focus group findings; and an expert panel developed performance criteria. The study found that costs increased for EPPS relative to the M+15 system as expected. However, EPPS allowed patients to be placed more quickly in CNHs with reduced hospital length of stay. The mean number of patients placed increased for EPPS sites and slightly decreased for the M+15 sites. Data on Medicare and Medicaid certification of CNHs demonstrated that the percentage of CNHs which were Medicare certified (an indicator of quality) increased for EPPS sites from 52% in FY '88 to 76% in FY '94.

A National Survey of VA Community Nursing Home Program Practices
Identification Number: LIP #42-055
PI/Facility: Weaver, Frances, PhD, and Guihan, Marylou, PhD/VAMC Hines, IL
Completion: 1994

A national survey of VA medical centers was undertaken to examine the Community Nursing Home program. Completed surveys were received from 163 VAMCs. Findings indicated that an average VAMC had 21 community nursing homes (CNHs) under contract during fiscal year (FY) 1993, and placed an average of 129 veterans in CNHs during FY 1993. The time required to place a veteran in a CNH varied greatly both within and between VAMCs from same-day placements to 30 days or more. Respondents also indicated that approximately 4% of veterans deemed appropriate for CNH placement were unable to be placed. These data were highly skewed; 31% of VAMCs were able to place all patients; whereas 12 VAMCs said that they could not place more than 25% of their patients. The most common incentives used by VAMCs to encourage CNHs to take VA patients included: developing good communication with the nursing home (99%), arranging for speciality medical care to be given at the VA (89%), and balancing the placement of heavy and light care veterans in a CNH (68%). Only 29% of VAMCs said that the Medicaid +15% rate used by VAs to determine reimbursement accurately reflected nursing home costs in the area;

however 68% said that VAMCs do offer reasonable per diem rates to community nursing homes. There was a great deal of variability in responses to these questions, suggesting that some VAMCs are having difficulties with CNH placements and reimbursement rates.

Effect of Physical Therapy on Functional Status of Nursing Home Residents
Identification Number: IIR# 88-165
PI/Facility: Mulrow, Cynthia, MD, Gerety, Meghan, MD, et al./VAMC San Antonio, TX
Completion: November 1993

OBJECTIVE: This trial specifically evaluates effects of physical therapy for frail long stay nursing home residents.

RESEARCH PLAN: The methodological design of this project is a prospective randomized controlled trial with blinded outcome assessments. Study subjects will be recruited from a cohort of long stay community nursing home residents who are aged 60 and over and are functionally dependent in at least two Activities of Daily Living. These individuals will be randomized to either receive usual care in the community nursing home or to receive physical therapy in addition to usual care. For individuals assigned to the experimental group, physical therapy will include four months of three weekly sessions with a physical therapist. Sessions will focus specifically on General Conditioning Training and Functional Activity Training.

METHODOLOGY: Individuals will receive baseline functional status evaluations and will be reassessed every two months for a one year period. Cointerventions, cross-overs, compliance, side effects of therapy, withdrawals, and drop-outs will be monitored. Outcome variables include functional status, health care costs, and mortality. Functional status will be assessed by a trained interviewer using the Sickness Impact Profile, Geriatric Depression Scale, and Folstein Mini Mental State Exam. Health care costs will be assessed by summing physical therapy, health care utilization, housing, and caregiving costs.

FINDINGS: Analyses were conducted with all 146 subjects who had completed four months of physical therapy as of April 1992. Compared to persons receiving friendly visits, the physical therapy group experienced an overall PDI score improvement of 8.4%

($p<0.01$). No change was seen in range of motion, however, a trend was seen toward improvement in strength. Significant improvements occurred in balance (14.5%, $P<0.03$), and mobility (17% $p<0.01$). SIP scores did not change. Depressed individuals had lower baseline PDI scores and did not achieve the level of physical function seen in the non-depressed. Incremental cost of physical therapy was $1,345/per person for the observed PDI improvement. As of April 1992, all subjects had been followed for a mean of 10.5 months for falls and fall-related health care utilization. 73 (50%) fell 226 times. Of 226 falls, 181 (81%) required no health care utilization; 30 (13%) resulted in minor injuries (average cost (AC) = $107); and 12 (5%) resulted in either fractures (n=11; AC= $4,249) and/or hospitalizations (n=5, AC=$9,976). There were 4 hip fractures (AC=$11,O29). 42 falls (19%) were followed only by outpatient utilization (AC=$73), including 28 physician visits, 18 ER visits and 36 X-rays. Average annual health care costs, excluding nursing home costs for 48 subjects who have completed one-year follow-up (regardless of fall status) was $3,716. Thus, the AC of a fall ($250) for this population is estimated at only 7% of annual total health care costs.

CONCLUSIONS: Physical therapy improves physical function in very frail elders, including those with mild cognitive impairment. Almost half of all enrolled subjects exhibited significant depressive symptoms upon enrollment. The impact of depression on outcome and the long-term cost effectiveness of physical therapy merit further study. Falls are common frail long-stay residents. Injury rates for falls in nursing homes are similar to those in the community. Costs of falls in the nursing home comprise a small proportion of total health care costs. In order to be cost effective therefore, fall prevention strategies must be targeted at individuals at risk of serious injury.

Patterns and Determinants of Health Service use after Nursing Home Care
Identification Number: IIR #90-096
PI/Facility: Williams, Brent, MD/VAMC Ann Arbor, MI
Completion: September 1992

The purpose of this study is to identify the longitudinal patterns of hospital and

nursing home use and survival of a nationwide cohort of patients discharged alive from VA nursing homes, and the patient-specific determinants of these patterns.

All 6,448 persons nationwide who were admitted to VA nursing homes during FY 1987 and subsequently discharged alive were identified using the VA Patient Assessment File (PAF). By combining information for this discharge cohort from the PAF, the Patient Treatment File (PTF), and the National Death Index, we constructed a longitudinal database on the functional and clinical status, use of VA nursing homes and hospitals, and mortality status of these persons for the period October 1985 through October 1989.

The nursing home cohort had a median (25th-75th percentile) nursing home length stay of 86 (31d-205) days, and total follow-up time of 712 (412-853) days. During the follow-up period, 1,804 (26.7%) persons were readmitted to VA nursing homes, 4,039 (59.9%) were hospitalized, and 1,617 (24%) died; the cohort experienced a total of 160,000 hospital and 134,600 nursing home days per year after nursing home discharge.

Three separate multivariate discrete time proportional hazards models were developed to identify risk factors for nursing home readmission, hospitalization, and death. Significant risk factors for NH readmission included advanced age, functional impairment, NH stay < one month, past hospitalizations and NH admissions, and rehospitalization. Risk factors for hospitalization and death primarily related to past hospitalizations, especially for cardiac or lung diseases, or neoplasms. Not predictive of any outcomes were race, descriptors of the discharging NH (e.g., presence of a Geriatric Evaluation Unit), and other medical diagnoses (e.g., dementia, hip fracture, movement disorder). Areas under the ROC curves for the models ranged from .650 to .800.

Two separate multivariate linear regression models were developed to predict the number of days spent in VA hospitals and NHS during the 12 month period following NH discharge, among persons admitted to each type of setting. Hospital days were positively correlated with past hospitalizations, especially for cardiac, lung, cerebrovascular, or neoplastic diseases; or hip fracture. NH days were (positively) associated only with being unmarried or having an initial NH stay greater than two weeks. Depending on model, adjusted R2 values ranged from 0.05 to 0.10. Stratified and outliers analyses are currently

underway to improve and further elucidate the models.

These results demonstrate that after discharge from nursing homes, veterans utilize substantial amounts of hospital and nursing home services, and that administrative data on the demographic, clinical, and health services utilization characteristics of these persons (e.g., number and type of past hospitalizations) should be included in attempts to predict their use of health services. These results will enhance efforts to: 1) estimate future demand for hospital and nursing home beds among veterans; 2) develop policy reforms and clinical strategies to avoid unnecessary hospital and nursing home admissions in this population; 3) identify areas of research to elucidate further the causes of early or frequent institutionalization among particularly "high risk" groups; and 4) develop improved methods to predict longitudinal health service use among the elderly.

II. Home Based Primary Care (HBPC) & Community Based Skilled Home Care

Cost Effectiveness of Home Based Primary Care
Identification Number: IIR #82-013
PI/Facility: Cummings, Joan, MD, & Hughes, Susan, DSW/VAMC Hines, IL
Completion: December 1988

This study evaluated the "Cost Effectiveness of Home Based Primary Care" This study was a randomized trial of 419 patients from the Hines VA Hospital. Patients who were either terminally ill (prognosis of 6 months or less) or severely disabled (two or more impairments in activities of daily living) were randomized to either HBPC or customary care at hospital discharge and then followed for 6 months. The results included a 13% savings in total health care costs attributable to HBPC. No differences were found in mortality or functional status between the two groups, but satisfaction with care was significantly higher in the HBPC sample.

Home Based Primary Care Groups (HCG's)
Identification Number: IIR #84-086
PI/Facility: Baker, C. Rodney, MD, Smith, Mary, DrPH, & Karklins, Judith, MSW/ VAMC Little Rock, AR
Completion: March 1990

The purpose of this study was to group Home Based Primary Care (HBPC) patients homogeneously by their characteristics with respect to their cost of care, and thereby develop alternative case mix methods for management and reimbursement (allocation) purposes. A sample of 6 of 48 VA HBPC programs existing in Fiscal Year (FY) 1986 was selected to represent VA central office guidelines, patient, program and regional variation, and all selected programs agreed to participate. All HBPC patients active in each program on October 1, 1987, plus all new admissions through September 30, 1988, (FY 1988) comprised the sample. Two replications, each of six months duration (n= 688, n'= 675), resulted in 874 unique patients for the year. Statistical methods included the use of Classification and

Regression Trees (CART software), analysis of variance, and multiple linear regression techniques. The resulting algorithm is a four-factor model which explains 51 percent of the cost variance (R^2= 51%, with a cross validation R^2 of 42%). Similar classifications, such as the RUG-II which is utilized for VA nursing home and intermediate care and the VA outpatient resource allocation model, were less adequate as home care resource allocation methods.

Adding Pre-Admission Discharge Planning to Case Management in a Geriatric Population: An Investigation of Cost-Effectiveness and Patient Satisfaction Outcomes
Identification Number: LIP #62-076
PI/Facility: Hsieh, Sandra, R.N.,M.S.
Duration: April 1995-June 1996

OBJECTIVES: The current study tests the hypothesis that discharge planning prior to hospitalization will decrease length of stay, minimize complications causing readmission, and improve patient satisfaction. In this descriptive, correlational study, the target population is the geriatric patient, sixty-five years or older, at a large urban university-affiliated Department of Veterans Affairs medical facility. Subjects must have a scheduled admission of longer than two days and need home care services upon discharge. Two convenience samples (of 40 subjects each) will be compared, as follows: 1)geriatric patients who have pre-admission discharge planning and case management prior to hospitalization; and 2)geriatric patients who have case management but no pre-admission discharge planning interview(standard care).

RESEARCH PLAN: The exploratory investigation involves the partnership between two nursing roles--that is, the Nurse Discharge Planner (NDP) and the geriatric Nurse Case Manager (NCM)--in the discharge process. During pre-admission discharge planning, the NDP or NCM will obtain information from the patient regarding health insurance, transportation needs, social and family support, equipment needs, and accessibility to the

home after discharge from the hospital. Additionally, the NDP or NCM provides appropriate patient education for post-surgical outcomes and anticipatory guidance (e.e., wound care, pain management, and use of assistive devices) for discharge. As the team coordinator, the NCM follows the patient throughout hospitalization, anticipating the patient's medical and social needs and collaborating with all multi-disciplinary members (the surgeon or attending physician, ancillary personnel). Close to the discharge date, the NCM collaborates with the NDP in the coordination of a safe and timely discharge. After discharge, the NCM provides telephone follow-up contact with the patient.

METHODOLOGY: Instruments used for this study include investigator-developed tools, which are specific to the study site. These include: a discharge readiness worksheet; a telephone assessment of satisfaction, knowledge, and confidence; and a cost-assessment which lists complications and readmissions. In addition to descriptive statistics, t-tests will be used to compare the two groups on cost and patient satisfaction variables.

NOTE: Funded at an estimated cost of $5,000.

A Multi-Site Randomized Trial of Team-Managed HBPC
Identification Number: CSHS #91-003
PI/Facility: Weaver, Frances, PhD, Cummings, Joan, MD, & Hughes, Susan, DSW/
VAMC Hines, IL
Duration: ongoing

OBJECTIVES: The primary objective of this study is to determine whether total health care and hospital costs of acute VA and private sector health care for severely disabled and terminally ill patients are less for the Team-Managed Home Based Primary Care (TM/HBPC) model compared to customary care. We hypothesize that patients who receive TM/HBPC will experience significantly lower total costs of care than control and comparison group subjects largely as a result of acute care savings. The secondary objectives are to

determine whether, in comparison to control group respondents, patients receiving TM/HBPC will experience similar or superior functional status outcomes, equal or improved perceived health, and satisfaction with care. Finally, to detect possible unintended increased burden by caregivers, the last secondary objective will determine whether informal caregivers of TM/HBPC patients experience an increase in caregiver burden.

RESEARCH PLAN: The proposed study will have two parts. The first "intervention" part will consist of a multi-site randomized trail of TM/HBPC. Fifteen hospitals with existing HBPC programs will be enrolled. Each site will identify and randomize 9-10 patients and caregivers a month to either TM/HBPC or customary care. Subjects will be stratified by diagnosis (disabled or terminally ill) an age (under 65 or 65 years and older). Each subject will have a 50-50 chance of receiving TM/HBPC. Customary care will consist of any other services for which the patient is eligible within VA and the community. Outcomes will be assessed through interviews that will be conducted four times over a 12 month period.

The second part of the study will identify a comparison group of 1,700 patients receiving customary HBPC at 15 other VAMCs matched on facility characteristics. These subjects will be matched with study patients based on age, diagnosis and functional status. Comparison group subjects' VA and private sector service use will be tracked over the same period using automated databases and primary cost outcomes will be compared across all three study groups.

METHODOLOGY: The study will use a randomized pretest-multiple posttest experimental design. Using specific inclusion criteria, a total enrollment of 3,400 patients across 15 facilities will be obtained or approximately 227 patients per site. Data on these outcomes will be compared by group (intervention vs. customary care) at four points in time to assess change as a function of the intervention. Multivariate analyses of covariance will be conducted on patient outcomes at several intervals of time. T-tests of means differences will also be employed, if appropriate.

III. Adult Day Health Care (ADHC)

Evaluation of Effectiveness and Costs of ADHC: Phase I, VA ADHC
Identification Number: SDR #85-007
PI/Facility: Hedrick, Susan, PhD, and Rothman, Margaret, PhD/VAMC Seattle, WA
Completion: September 1991

In November 1983, Congress passed Public Law 98-160, authorizing the VA to provide adult day health care and mandating a study of the medical efficacy and cost-effectiveness of this program. The law also mandated a comparison of two types of ADHC, that provided directly by the VA (VA-ADHC) and that provided by community facilities under contract to the VA (ADHC). VA-ADHC was evaluated in Phase I of this study, Project #85-007, funded in 1986. Phase II, Project #85-071, was designed to evaluate CADHC, funded in 1988.

RESEARCH PLAN & METHODOLOGY: Phase I was a randomized controlled trial in which patients at risk of nursing home placement, appropriate for ADHC, and agreeing to study participation were randomly assigned to receive ADHC services or Customary Care (n=826). Physical and psychosocial health status of patients, care giver health status, satisfaction with care, and utilization and cost of health care were assessed at intake, and 6 and 12 months after intake. Data were obtained through in-person interviews with patients and care givers, the VA's computerized patient data base, fiscal reports, ADHC personnel, and non-VA health care providers.

A detailed ADHC cost model was used to identify methods for maximizing the cost-effectiveness of the programs.

Four VA medical centers participated: Portland, OR; Minneapolis, MN; Little Rock, AR; and Miami, FL. The Northwest Regional Health Services Research and Development Field Program at the Seattle VAMC served as the study coordinating center.

RESULTS: VA-ADHC patients and their care givers had the same health status outcomes but significantly (15.5%) higher VA health care costs than those assigned to Customary Care. While certain types of patients had better health and cost outcomes when assigned to VA-ADHC, these results must be interpreted with caution. The results may

support consideration of three options: not to offer ADHC, to target ADHC to those types of patients who may benefit, and to reduce ADHC costs.

Evaluation of Effectiveness and Costs of ADHC: Phase II, Contract ADHC
Identification Number: SDR #85-071
PI/Facility: Hedrick, Susan, PhD/VAMC Seattle, WA
Completion: March 1991

OBJECTIVES: In November 1983, Congress passed Public Law 98-160, authorizing the VA to provide adult day health care and mandating a study of the medical efficacy and cost-effectiveness of this program. The law also mandated a comparison of two types of ADHC, that provided directly by the VA (VA-ADHC) and that provided by community facilities under contract to the VA (CADHC). VA-ADHC was evaluated in Phase I of this study, Project #85-007, funded in 1986. Phase II, Project #85-071, was designed to evaluate CADHC.

RESEARCH PLAN AND METHODOLOGY: All patients at risk of nursing home placement, appropriate for ADHC, and agreeing to study participation were admitted to the CADHC programs (n=163). Patient outcomes were compared to those of patients assigned to VA-ADHC or Customary Care in the Phase I randomized controlled trial. Physical and psychosocial health status of patients, care giver health status, satisfaction with care, and utilization and cost of health care were assessed at intake, and 6 and 12 months after intake. Data were obtained through in-person interview with patients and care givers, the VA's computerized patient data base, fiscal reports, and ADHC personnel. A detailed cost model was used to identify methods for maximizing the cost-effectiveness of the programs.

Four VA medical centers participated: Hines, IL; Phoenix, AZ; San Diego, CA; and Seattle, WA. The Northwest Regional Health Services Research and Development Field Program at the Seattle VAMC served as the study coordinating center.

RESULTS: Contract ADHC patients were more impaired in health status than VA-ADHC patients at study intake, and at 6 months after controlling for intake differences. The intake differences, cannot, however, be ruled out as causes of the observed difference in

outcome. Contract ADHC patients had higher VA costs than Customary Care patients but not higher than those assigned to VA-ADHC.

The findings of this study provide no support for choosing to provide Contract ADHC instead of VA-ADHC system wide. The non-randomized design, smaller sample size, and large confidence intervals around mean cost differences suggest that inferences from Phase II should be drawn with more caution than those from Phase I. It may thus be appropriate for other factors, such as feasibility (e.g., the number of appropriate patients at a VAMC, or available space) to play a larger role in any choice between the two models of ADHC.

The results of Phase I and II may support consideration of three options: not to offer ADHC, to target ADHC to those types of patients who may benefit, and to reduce ADHC costs.

IV. Homemaker/Home Health Aide

The Homemaker/Home Health Aide Evaluation Project
Identification Number:
PI/Facility: Kern, Donald, MD, Hickey, Elaine, RN, Davidson, Harriet, PhD, & Davidson, Margaret, PhD/VAMC Bedford, MA
Completion: June 1995

Public Law 101-366 authorized the Department of Veterans Affairs to conduct " a pilot program to furnish medical, rehabilitative, and health-related services in noninstitutional settings..." for certain eligible veterans. The Veterans Health Administration determined that the pilot program would consist of a program of homemaker and home health aide services coordinated by VA staff. The law further required an evaluation of the program.

The objectives of this evaluation were to: 1) Assess the scope of services provided, including demographic and clinical profiles of veterans receiving services, 2) Measure veterans' satisfaction with the program, 3) Evaluate the impact of homemaker and home health aide services on veterans' quality of life, 4) Determine the costs of services, 5) Assess the key elements of implementing the program at local facilities.

The evaluation was guided by an Advisory Committee composed of VA and non-VA physicians, administrators, researchers, nurses and social workers, with nationally recognized expertise in home health care. Two methods were used to collect data for the evaluation: 1) Data were submitted by participating medical centers, 2) Data were collected during site visits.

Conclusions: Based on the results of the study, the evaluation concludes, 1) The H/HA Program was widely implemented throughout the VA system, 2) Veterans used the benefit, 3) The program provided services to veterans in need, 3) The cost of services fell within the mandated budgetary allowance, 4) Veterans were highly satisfied with the service, 5) Minor problems were identified with the provision of services, some veterans (11%) expressed dissatisfaction with the continuity of care (i.e. frequent changes in care providers), the external regulation of home health agencies and their internal procedures for quality control and staff training varied, 6) Overall, VA employees involved in implementing the program rate it highly, 7) Lack of allotted staffing to administer the program was perceived by

employees to adversely affect its implementation and management, 8) Inadequate budgetary flexibility was perceived to hinder the H/HA Program.

V. Domiciliary

A Pilot Study of Homeless Veterans in a Domiciliary Care Program
Identification Number: LIP #42-026
PI/Facility: Hendryx, Michael, PhD, Hultman, Cheryl, PhD, & Singh, Sant, MD/
VAMC North Chicago, IL
Completion: September 1989

This assessment of the domiciliary care program for 22 homeless veterans (average age, 44.8 years) at VAMC North Chicago used initial and post-discharge interview questionnaires to collect descriptive data; most were Black (64%), divorced (56%), and had been homeless less than a year (59%). After two months, eight (36.4%) had successfully completed DCP; seven (31.8%) left prematurely; and sic (27.3%) were dismissed. Findings indicated that, whereas 89% of those with medical problems improved, only 16% of those with psychiatric problems improved; housing (50%) and employment (41%) situations improved moderately. Possible process problems for the program were: (a) underserved mental health service needs, and (b) about a quarter of the patients failed to receive and x-ray or Mantoux test for tuberculosis.

The Feasibility of Evaluating Domiciliary Care for Homeless Veterans
Identification Number: LIP #42-046
PI/Facility: Hultman, Cheryl, PhD, Gola, Greg, MSW,VAMC North Chicago
Completion: Summer 1990

The purpose of this project was to determine the feasibility of conducting an experimental study on the effectiveness of the Domiciliary Care Program (DCP) in reducing homelessness and in ameliorating psychopathology. However, as the Chief of the DCP was against the randomization of homeless veterans under any circumstances, the focus of this project was changed to the development of a model to be used to predict the DCP subjects who would drop out of the program (in 1989 the dropout and dismissal rate at the North

Chicago DCP was 55%). The goal of the project was to gain an understanding of how to intervene and decrease the dropout and dismissal rates from the program by improving the program's screening procedures. The project followed 20 subjects from time of admission to time of discharge from the program. The relationships between the type and degree of psychopathology, various personality traits and program outcomes were investigated by using the Minnesota Multiphasic Personality Inventory (MMPI) and the Tennessee Self Concept Scale (TSCS). Analyses suggested that the MMPI Ego Strength Scale and the Self Esteem and General Maladjustment Scales of the TSCS may be good predictors of program outcomes. The results also showed that, with this sample, half were relatively normal in terms of psychopathology, while about 30% of the sample were extremely emotionally distressed and required a higher level of care than the DCP was meant to provide, i.e., individual psychotherapy, psychiatric nurses or psychiatric social workers, etc.

I. Community Residential Care (CRC)

Evaluating Residential Care Settings for the Elderly
Identification Number: MH-28177
PI/Facility: Moos, Rudolf, PhD, Lemke, Sonne, PhD, Brennan, Penny, PhD & Timko, Christine, PhD/VAMC Palo Alto, CA
Completion: August 1989

This research program is designed to construct methods to evaluate residential settings for older people. We have developed the Multiphasic Environmental Assessment Procedure (MEAP) which assesses the physical features, policies and services, resident and staff characteristics, and social climate of nursing homes, residential care facilities, and congregate apartments.

The MEAP has been applied to more than 250 VA and community residential settings for the elderly. Eight indices of quality of care were formulated. These indices measure the comfort and security in the facility, the staffing level and richness of staff, the services offered and the level of autonomy provided for residents, and residents' views of how influential they are in the facility and its support and organization.

New measures of older adults' and experts' preferences for physical features and policies and services have also been constructed. Congregate apartment and older community residents expressed similar preferences but experts preferred more physical features, policies, and services than older adults did. The design and service preferences of older adults can help to guide planning of new group residential facilities.

Case Managed Residential Care for Homeless Addicts: An Outcome Study.
Identification Number: IIR 92-065
PI/Facility: Conrad, Kendon, PhD, and Hultman, Cheryl, PhD/VAMC Hines, IL
Completion: 1995

BACKGROUND: In 1990, Hines VA Hospital and Northwestern University were

awarded a three year, $3.2 million research demonstration grant to study the implementation and effects of a multiphasic case management intervention for homeless veterans with chronic alcohol and/or drug dependence. One third of these veterans also have co-existing mental illness. The project, titled "Case Managed Residential Care for Homeless Addicts," is one of 14 cooperative agreement projects funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The Hines/Northwestern project is unique because it is the only project that is designed specifically for veterans. However, the NIAAA project does not assess post-treatment outcomes. Therefore, the study titled, "Case Managed Residential Care for Homeless Addicts: An Outcome Study," improves upon and maximizes the return on an already rigorous study of a state-of-the-art intervention for homeless addicted veterans. NIAAA funding supported the establishment and operation of the Case Managed Residential Care (CMRC) facility at Hines, VA Hospital and also supported the evaluation of the CMRC, using a randomized pre-test/post-test design. The CMRC is an innovative social model of care that integrates residential treatment with linkage to employment, sobriety, community housing and health services all under the guidance of a case manager.

OBJECTIVES: Six and twelve months after conclusion of treatment, as compared to a control group in customary care, clients in the case managed residential care program will demonstrate a significant: (1) decrease in their alcohol and/or drug use: (2) increase in their levels of shelter and residential stability; (3) improvement in their economic/employment status; (4) improvement in their mental health status; and (5) increased amount of treatment without.

RESEARCH PLAN: NIAAA funding covered assessments on 270 subjects, half receiving VA customary care and half receiving care through CMRC. The NIAAA project included data collection on these 270 subjects at baseline, discharge, 3, 6, 9, and 12 months. The 12 month posttest coincided with the end of the treatment period so that no assessment of post-treatment effects was obtained. Given the often observed decay of effectiveness of interventions soon after the intervention has ended, it was important to obtain follow-up data subsequent to the end of the intervention period. We therefore proposed to conduct 18 and 24 months posttests, i.e., six and twelve months after the treatment period on 360 subjects.

Originally, the NIAAA study provided CMRC treatment for all three years until August of 1993. This meant that 90 additional subjects (beyond the 270) would be treated, but would not be included in the NIAAA evaluation because data on their 9 and/or 12 month follow-up assessments could not be collected within the 3 year project. The present study was designed to include in the evaluation these 90 who subjects were treated, but were not included in the evaluation. In the VA study, these individuals will receive the baseline, discharge, 3, 6, 9, 12, 18, and 24 month assessments.

CURRENT STATUS: Data collection on 358 subjects is complete through the 24 month assessment point. Preliminary analysis using random effects regression analysis indicated that the experimental group showed greater improvement in medical status, employment, alcohol use and housing over the two year observation period. Non-significant effects were found for drug use, legal status and psychiatric status. Final data cleaning procedures are underway in preparation for final analysis which will include analysis of treatment by time interactions.

Community Residential Facilities Follow-up Evaluation Project.
Identification Number: LIP #62-014
PI/Facility: Moos, Rudolf, PhD/VAMC Palo Alto, CA
Duration: 1993 - 1994

OBJECTIVE. To conduct a congressionally mandated evaluation of the VA contract residential facilities program. This phase of the evaluation involves a prospective follow-up of patients who receive VA substance abuse treatment and are discharged to VA contract community residential facilities (CRFs). Some of the key questions are:

1. What kinds of substance abuse patients are referred to CRFs?

2. After patients are seen in CRFs, how many receive outpatient substance abuse or mental health care, and how much care do they receive?

3. Is the length of time a patient spends in a CRF and participation in CRF activities related to better outcome?

4. Do some types of substance abuse patients, such as those who have psychiatric

disorders, do better in some types of CRFs than in others?

RESEARCH PLAN AND METHODOLOGY. The project involves a nationwide sample of VA contract CRFs that vary in their policies, services, and treatment orientations. Patients are asked to complete an intake information form when they enter the CRF. This form obtains information about the patients' background, substance use and abuse, treatment history, physical and mental health, and life situation. A CRF staff member completes a Discharge Checklist describing the patient's use of services in the CRF and plans after discharge. Patients are followed one year later and are asked about their substance use, additional treatment, employment, and current life situation.

FINDINGS TO DATE. An initial survey of 268 CRFs has shown that there is considerable variation among these facilities in their services, policies, and treatment orientations. Three models of CRF care have been identified on the basis of the differential provision of health and treatment services: a psychosocial model, a supportive rehabilitation model, and an intensive treatment model.

Community Residential Facilities for VA Substance Abuse Patients
Identification Number:
PI/Facility: Moos, Rudolf, PhD/VAMC Palo Alto, CA
Source: VACO Mental Health and Behavioral Sciences Service
Duration: January 1992 - December 1998

VII. Hospice

No studies were identified.

VIII. Respite

Respite and Kin Carers of Frail Elders
Identification Number: LIP #61-048
PI/Facility: Worcester, Martha, RN, PhD/VAMC Seattle, WA
Completion:

To examine factors that facilitate using respite, 30 caregivers (i.e., 15 each caring for cognitively- or physically-impaired elders) were all interviewed in their homes three times over a six-month period. A qualitative grounded theory approach was used to generate both theses for interactive processes between caregiver, recipient, and helpers (i.e., sources of respite) and integrative core categories (e.g., "Conservation of Resources and Energy" as a screen to judge acceptability of informal/formal sources of respite). Findings indicated that: 1) quantitative measures of physical, social, an psychological health were similar for both caregiver groups; 2) potential helpers were typically unable to manage the behavior of cognitively-impaired elders; and 3) physically-impaired elders preferred receiving help from their usual caregivers instead of helpers.

IX. VA Geriatric Evaluation and Management (GEM) Unit

Effectiveness of Geriatric Evaluation and Management (GEM)
Identification Number: CSHS #92-012
PI/Facility: Rubenstein, Laurence, MD, and Hedrick, Susan, PhD/
VAMCs Sepulveda and Seattle
Completion: September 1995

Previous research has found that geriatric evaluation and management (GEM) units were associated with improved health status, and with decreased mortality and a lower likelihood of nursing home placement. In this study, frail elderly subjects at ten VA medical centers will be followed for twelve months after hospital admission. A three-group, randomized control design is planned to compare: 1) usual hospital care with the services of a mobile (inpatient) Geriatric Assessment and Intervention Team (GAIT) and outpatient geriatric follow-up; 2) usual hospital care with GAIT services and, when appropriate, transfer to an inpatient GEM unit (providing a full range of geriatric clinical care services) as soon as patients are medically stable, and outpatient geriatric outcome variables (to one year post-randomization) included mortality, physical and psychosocial health status, and VA health-care utilization and costs. This study was to comprise one of two multicenter cooperative trials of hospital-based GEM. Data collection is being completed and will be analyzed during the first quarter of FY'96.

Assessing the Process of Care in Geriatric Assessment and Intervention programs.
Identification Number: LIP #61-086
PI/Facility: Spotswood, Marilyn F., Ph.D., VA Puget Sound Health Care System; Seatle, WA
Duration: July 1995 - June 1996

Department of Veteran Affairs (VA) mandated that each of its facilities have some type of comprehensive geriatric assessment (CGA) program in place by the end of 1996. In an effort to standardize care, VA has issued basic program guidelines. This study examined the process of care in CGA programs at three VA hospitals to determine is site characteristics explained any additional variation in the process after controlling for patient case-mix and type of CGA program.

Screening and care planning data were collected on all patients who received CGA at one of three VA hospitals during a six-month period. Screening criteria were used calculate patient case-mix, and care planning data were used to calculate three measures of process: 1) number of problems per patient identified by the team; 2) number of recommendations per problem; and 3) number of recommendations per patient. Multiple linear regression was used to analyze the relationship between sites and each process measure, controlling for patient case-mix and type of CGA program.

Of the 124 patients enrolled in the study, half received CGA from a mobile geriatric assessment team (GAIT) and the other half received CGA from a unit-based geriatric evaluation and management team (GEM). In a multiple regression analysis, patient case-mix and type of CGA program explained 31 percent of the variability in the number of problems/patient. Although "study site" failed to explain additional variation in this analysis, it was a significant predictor for variation in the number of recommendations per problem and the number of recommendations per patient.

Although the detection of problems appeared relatively similar, sites varied in their decisions about managing patient problems, as indicated by the number of treatment recommendations. These findings suggest that site characteristics, such as availability of professional resources and aggressiveness of therapeutic approach, may limit efforts to implement standardized geriatric programs in the VA and other health care systems.

NOTE: Funded at an estimated cost of $7,000. Dr. Spotswood is a VA HSR&D Post-Doctoral Trainee.

A Multi-Site Randomized Trial of the Evaluation of GEM Units and GEM Clinic Follow-Up.

Identification Number: CSHS #92-006

PI/Facility: Cohen, Harvey, MD, and Feussner, John, MD/VAMC Durham, NC

Duration: February 1994 - January 2000

The overall goal of this proposal is to use a multi-site Cooperative Study to evaluate the effectiveness of inpatient Geriatric Evaluation and management (GEM) Units and post-hospital follow-up care in an outpatient Geriatric Specialty Clinic (GSC). By independently assessing the relative contribution of the inpatient and outpatient components of geriatric care, we will attempt to identify the structure and process by which geriatrics care may improve patient outcomes. By using a multi-site trial, we will assess the magnitude and generalizability of these interventions.

OBJECTIVES: The primary objectives are to determine whether: the combination of inpatient care provided by GEM Units and outpatient care provided by GSCs will reduce mortality and enhance health-related quality of life for veterans admitted to the hospital, compared with usual care provided to hospitalized veterans; inpatient GEM Units alone will reduce mortality and enhance health-related quality of life compared with usual inpatient care, but will be a less potent intervention that the combination of GEM Units and GSCs; and outpatient GSC, follow-up alone will reduce mortality and enhance health-related quality of life compared with usual outpatient care, but will be a less potent intervention than the combination of GEM Units and GSCs. Our secondary objectives are to: determine if these interventions reduce health care utilization following randomization (i.e., nursing home and hospital utilization); and; assess the costs of the interventions relative to any improvements in outcomes achieved.

DESIGN: We will conduct a multi-site, 2 X 2 factorial randomized controlled trial among hospitalized elderly veterans at increased risk for death, loss of functional capacity, or nursing home placement. Approximately 140 patients from each of 10 sites will be enrolled over a 3-year period. Patients will be randomly assigned to a control group or to one of three

intervention groups (GEM alone, GSC alone, GEM and GSC) and followed for one year.

SUBJECTS: Patients will be eligible if they are greater than 65 years old, are hospitalized on a medical or surgical ward for more than 48 hours, and are frail (explicit criteria have been developed). Patients will be excluded if they: (1) are admitted from a nursing home; (2) have previously been enrolled in the study; (3) have had an admission to the GEM with the previous two years; (4) are currently followed in the GSC; (5) cannot return for follow-up outpatient care; (6) do not speak English; (7) do not have access to a telephone; (8) are Medically unstable; (9) have severe dementia; (10) have other severe end-stage disease(s) resistant to medical management; or (11) are terminally ill.

OUTCOMES: Primary outcome variables include mortality and health-related quality of life. Secondary outcomes include functional status, health care utilization and cost.

X. LTC Assessment

Development of a Knowledge Assessment Test for Geriatric Psychiatry
Identification Number: #MH-16744 (subcontract)
PI/Facility: Sheikh, Javaid, MD, & Yesavage, Jerome, MD/VAMC Palo Alto, CA
Completion: June 1986

Functional Assessment of Nursing Home Patients: Reliability and Relevance
Identification Number: LIP #41-014
PI/Facility: Smith, David, PhD/VAMC Ann Arbor, MI
Completion: August 1986

Functional assessment of patients for resource allocation or staffing requires a higher level of inter-rater reliability than functional assessment for other purposes. While many functional assessment instruments are available, inter-rater reliability of their items has not been reported. An Assessment instrument based on the Long Term Care Minimum Data Set was used for 290 patients in six wards in two VA nursing homes. Each patient was assessed independently by two nurse care givers to obtain reliability information. Substantial variation in inter-rater reliability was found among wards and assessment items, and problems with specific wards and items were identified. Some statistical measures of reliability yielded unstable or uninterpretable results. Absolute agreement rates combined with Kendall's tau-b were most useful.

Mandatory Nursing Home Screening by a Geriatric Assessment Team
Identification Number: LIP #42-010
PI/Facility: Naughton, Bruce, MD, & Hughes, Susan, DSW/Lakeside VAMC, Chicago, IL
Completion: October 1987

This application seeks funding for the pilot phase of a randomized trial of mandatory nursing home pre-admission screening in the VA. Geriatric assessment teams are traditionally based in small inpatient units that are expensive, treat only a limited number of patients and provide limited opportunity for house staff contact. We propose to expand the role of the geriatric consultation team on the general medical ward and examine its impact on

patient hospital days and nursing home admissions.

The Elderly Compliance Screening and Monitoring Instrument (ECSMI)
Identification Number: LIP #42-013
PI/Facility: Conrad, Kendon, PhD, Budiman-Mak, Elly, MD, & Shoichet, Sandor, MD/
VAMC Hines, IL
Completion: October 1987

The investigators propose to conduct a study evaluating the Elderly Compliance Screening and Monitoring Instrument (ECSMI). The ECSMI is a set of measures designed to predict compliance to medical regimens for the elderly. In this research , the ECSMI will be applied specifically to older veterans with Osteoarthritis (OA). The ECSMI includes 10 domains: demographics, facilitating factors, habit, general intention, social influence, affect, consequences/cognition, physician/patient communication, medication usage and pain. Compliance will be measured using three variables: pill counts, self-reported medication use, and selected blood levels. Pill counts will be obtained through interviews. Blood levels will be obtained for those patients using aspirin, but will not be obtained for other medications.

A variety of different studies will be performed. First, the ECSMI will be administered to about 400 elderly patients. Multivariate studies, including exploratory factor analysis, will be conducted. Item analysis will be performed and homogenous subscales will be created. Next, predictive validity studies will be performed. The ECSMI will be correlated with measures of compliance as well as physician reports. Studies will be conducted to determine whether the ECSMI explains variance in compliance beyond what would be expected on the basis of simple physician judgement.

In another phase of the study, a pilot intervention study will be performed. Forty OA patients will be randomly assigned to either a treatment or a control group and evaluated for their compliance behavior. These patients will be selected because of a high prediction of noncompliance. The study will also pose a test of the Triandis Model of Attitudes and Behavior as it applies to compliance. Structural equation models (including LISEREL) will be used in the data analysis. The results of the study will be used to develop a profile of elderly patients with Osteoarthritis who are at high risk for noncompliance. This instrument

may be used for screening and triage purposes.

Assessing the Reliability and Validity of Resource Utilization Groups for VA Long Term Care
Identification Number: LIP #42-020
PI/Facility: Pochyly, Donald, MD, Braun, Barbara, MS, Weaver, Frances, Ph.D., & Zimmerman, Joseph, MHA/VAMC Hines, IL
Completion: March 1989

This project used three samples of raters assessing three different patient populations to assess inter-rater reliability of the Patient Assessment Instrument (PAI)-- used to determine RUG (Resource Allocation Groups) levels-- and to examine predictive ability of RUG for mortality and rehospitalization of 222 predominately white (85%), unmarried (65%) nursing home patients. (After six months, 31% had died, and 59% had been rehospitalized.) Findings indicated that: 1) although inter-rater reliability consistently exceeded chance agreement, PAI functional status items based on five-point rating scales were troublesome, suggesting that rescaling, better definitions, and more training could enhance reliability; and 2) the RUG system had good clinical predictive ability for mortality, but not for rehospitalization (possibly because RUG does not control for severity of illness). Discrepancies in RUG scores between raters suggest that estimated costs of weighted work units would have resulted in wide differences for purposes of reimbursement.

Using RUG-II Data for Quality Assurance & Program Evaluation
Identification Number: LIP #42-044
PI/Facility: Braun, Barbara, Ph.D., Flexer, Elizabeth, Ph.D., & Zimmerman, Joseph, MHA/VAMC Hines, IL
Completion: September 1989

This study investigates whether changes over time for certain items of RUG-II patient assessment forms (PAIs) could be used as patient quality indicator measures and as program goal attainment measures. Use of PAI items for quality assessment will be evaluated by comparing patient charts and PAIs on 167 patients; item changes over time for individuals will be followed at six-month intervals from admission until discharge and then correlated with actual health events (as indicated in the medical chart). Use of PAI items for program

goal attainment will be evaluated through panel study methodologies relating program goals, actual outcomes, and item changes over time for individuals.

Construct Validity of the FIM: Analysis of Uniform Data System of Rehabilitation
Identification Number: IIR #91-127R
PI/Facility: Dodds, Thomas Andrew , MD/VAMC Seattle, WA
Completion: September 1992

OBJECTIVE: The Functional Independence Measure (FIM) is a new functional status instrument for use among rehabilitation inpatients, but its validity and reliability have been only partially established. Because of its rapid dissemination, we sought further evidence concerning the FIM's internal consistency, responsiveness over time and construct validity.

RESEARCH PLAN & METHODOLOGY: We examined Uniform Data System (UDS) data on 11,102 general rehabilitation inpatients from the Pacific Northwest. Mean age was 65 and 51% were male. The most common diagnoses were stroke (52%), orthopedic conditions (10%), and brain injury (10%). Internal consistency of the FIM was calculated using Cronbach's alpha. To assess FIM responsiveness, we examined differences between admission and discharge FIM scores. For construct validation purposes, we hypothesized that the FIM would vary with age, comorbidity, discharge destination, and impairment severity. Comorbidity was quantified with the Charleson Comorbidity Index.

FINDINGS: The FIM had a high overall internal consistency (discharge FIM alpha= .93). The FIM registered significant functional gains during rehabilitation (33% FIM score improvement, $p<.001$), as do many other functional status indicators. The greatest and least functional improvements were observed for traumatic brain injury and low back pain (53% and 8% FIM score improvement, respectively). The FIM discriminates patients on the basis of age, comorbidity, and discharge destination. Severity differences could be distinguished among spinal cord injury and stroke patients. We conclude that the FIM has high internal consistency and adequate discriminative capabilities for rehabilitation patients. It is a good indicator of burden of care, and demonstrates some responsiveness, but its capacity to measure change over time needs further examination and comparison with competing scales.

The National Nursing Home Resident Assessment Instrument in the VA
Identification Number: SDR #92-001
PI/Facility: Halter, Jeffrey, MD, Williams, Brent, MD, & Fries, Brant, Ph.D./VAMC Ann Arbor
Completion: September 1995

OBJECTIVE: This project had the aim to assist the implementation of the national nursing home Resident Asssessment Instrument (RAI) in the VA, and to examine its potential use to address relevant policy issues by profiling the VA NHCU population.

RESEARCH PLAN: This project has three phases. In the first phase, the reliability of the RAI's Minimum Data Set (MDS) assessment instrument was tested for inter-observer reliability. The test involved nine VA Nursing Home Care Units (NHCUs) that had prior implemented the RAI, including computer support, on a trial basis. Second, we amalgamated assessments performed by the demonstration sites to prototype potential policy analyses with such resident-level data. This step involved developing new ways to computerize disparate data configuration and to display and contrast MDS data. An earlier plan to weight data to develop a representative national sample was abandoned as impractical due both to lack of sufficiently accurate data (outside of the RAI) on all VA NHCUs and technical problems in developing weights independent of potential analyses. The final set of activities involved support of VA NHCU sites and the VA Office of Geriatrics and Extended Care in developing an VA implementation strategy for the RAI. This included national training and research conferences, consultation on the validity of MDS items for VA, help developing computer standards for data exchange, etc.

METHODOLOGY: During the past year prior to the initiation of this project, nine VA NHCUs began pilot studies, implementing the MDS or full RAI system, funded by the VA Central Office. In this first phase of the project, facility nurses were trained by a nationally-experienced RAI trainer. These nurses then trained a second nurse in their facility and both performed assessments on 25-50% of the residents admitted to their facility over a four-month period. These data provided the basis for one study of inter-observer reliability. A second basis was data generated by outside nurses, hired by the project, who performed

redundant assessment of approximately 10 residents in each of the nine pilot sites. These assessments provided a comparison of the local assessments to a "gold-standard" assessment across all facilities. Standard tests of reliability were using, principally based on the Spearman-Brown Interclass Correlation Coefficient. For the second phase of the study, we amalgamated over 1000 assessments performed by the nine test sites to contrast the VA facilities with each other and with community nursing homes (outside of VA). The non-VA data came from states that have computerized their MDS data, including Pennsylvania, Ohio, and Washington State. The residents were contrasted on several summary measures developed under the study or prior, including the Resource Utilization Groups (RUG-III), a scale of Activities of Daily Living (ADL), the recently-developed MDS Cognitive Performance Scale, the quality measurement system developed by the University of Wisconsin (Quality Indicators-QIs), etc. Finally, project staff and consultants (members of the National RAI Development Team) evaluated new assessment areas and specific assessment items developed by VA sites, to help mold an assessment acceptable for VA use. Other activities including a national research and training conference and advising the OGEC about implementation strategies.

FINDINGS:

Reliability of the MDS in the VA The MDS achieved good reliability when performed in VA NHCUs. Reliability was measured both between two facility assessors ("within facility"- n=116) and between a facility assessor and a project-trained nurse ("across facilities"- n=85). Average measured reliability for the 250 MDS items were .69 and .59 for the within and across facility tests, respectively. For this measure, .4 reliability is considered adequate and .7 reliability is considered excellent.

For the project nurse study, out of the same 16 sections, 2 were deemed excellent and 11 were deemed adequate for project nurse reliabilities. For this latter part of the study, the sections not reliable were those recording background information, special treatments, and medications. All of these could be understood to be items which it would be more difficult for a person from outside the facility to assess, and this factor may have caused the lower reliabilities.

The sections that were the least reliable for both post training and project nurse were those that dealt with mood and behavior problems, psychosocial/well being issues, and activity pursuit. The sections that were the most reliable were ones that had questions that dealt with functioning and structuring problems, vision patterns, and disease diagnosis/health conditions. These results indicate that those sections that require the most judgement of the assessor, and especially regarding items that are complex to assess, can be expected to have the poorest reliabilities. In contrast, those with relatively standard measures (such as physical functioning and recorded diseases and conditions) achieve higher levels of reliability.

Inter-NHCU and VA/non-VA Comparisons When the residents of the nine test sites were compared, there were striking differences. With different goals and missions, different NHCUs admit and care for different types of patients. This finding contrasts with the work performed by others which considers NHCUs as relatively homogeneous. These results demonstrate that any valid description of the VA NHCU population will require careful sampling or complete enumeration. Given these findings, comparison with the non-VA population was feasible but has to be interpreted and generalized only with care. The comparison was performed with the community sample limited to males and new admissions, to make it as closely comparable as possible. Overall, the residents in the sampled VA facilities fell into two categories. The considerable population of younger residents, often requiring considerable care, are seen primarily with the VA and are relatively rare outside. Excluding these, the population of older veterans and their cohort in community nursing homes appear relatively similar in care burden (case mix), ADLs, and quality (QI).

Provider Behavior Within a Program of In-Home Comprehensive Geriatric Assessment
Identification Number: LIP #65-003
PI/Facility: Aisles, Cathy, MD, Rubenstein, Laurence, MD, and Bula, C. E., MD/
VAMC Sepulveda, CA
Completion: October 1995

The In-Home Preventive Healthcare Program (IPHP) was a recently completed randomized controlled trial of a three-year intervention of comprehensive geriatric assessment (CGA) performed by gerontologic nurse practitioners (GNPs) in the homes of community

dwelling elderly in Santa Monica, CA. A paper describing the methods of the IPHP has recently been published. The major goal of the study was to determine the effects of the intervention on major study outcomes including subject mortality, morbidity, and use of healthcare services; another paper reporting these results is in preparation. In addition, data collection was completed to address several subhypotheses related to IPHP provider (GNP) behavior, primary care physician behavior and major study outcomes. In particular, in addition to extensive documentation of the specific elements of CGA provided by the GNPs, we interviewed community physicians in their offices to study their response to this program and to identify predictors of their cooperation with recommendations generated from CGA.

All data collection has been completed. However, there is no funding available for further data management, computer programming and data analysis necessary to combine and cross-analyze the data from the main study with that of the substudies addressing provider issues.

XI. Geriatric Rehabilitation

Predicting the Attainment of Geriatric Rehabilitation Goals
Identification Number: IIR #84-136
PI/Facility: Smith, Aaron, Ph.D., & Cardillo, Joseph, Ph.D./Reno VAMC
Completion: March 1992

This study is designed to develop a practical method of predicting, from patient characteristics, the degree to which geriatric patients are likely to achieve their individual rehabilitation goals. The increase in the number of older veterans and the growth in geriatric rehabilitation programs in VA make such a selection methodology important for efficient health resources utilization.

All patients age 50 or older are evaluated on a series of health dimensions and psychological variables chosen on the basis of theory and empirical work. Individual rehabilitation goals are established for each patient with achievement at the end of the program measured by Goal Attainment Scaling. Follow-up six months later determines the stability of gains and current health status.

As a result of organic national changes in the provision of medical care at the Reno VAMC in 1987-1989, the rate of accession of appropriate research patients dropped to 25% of the original rate. Starting July 1, 1989, after appropriate administrative and R&D committee approvals, the study was expanded to include the Rehabilitation Unit of Washoe Medical Center, a private, nonprofit regional referral center in Reno. The same data are being collected for private patients (both male and female). Originally expected to end June 30, 1991, the present study has been extended through September 1991 to coincide with the start of our planned continuation study "Measuring Improvement in Geriatric Rehabilitation."

Major results include the successful extension of this study to the private sector, thus enabling the inclusion of women and non-veterans and leading to a more rigorous test of the generalizability of our findings and conclusions. Another major accomplishment has been the successful implementation of the "Reno CARE," a revised version of the original instrument that we developed in the initial stages of this project to meet the requirements of a geriatric

inpatient rehabilitation setting. We have begun the preparation of reports focusing on the characteristics of the interview process and the use of measurement instruments (especially the CARE) in these settings.

In a group of 133 male veterans entering a geriatric rehabilitation program, we found that Levinson's age-based adult development stages, enhanced by predictor information from psychological variables (Locus of Control, Self-Assessment of Health Status, and Self-Prediction of Outcome on Goal Attainment Scaling), could predict Goal Attainment Scores (multiple correlation of $\underline{R}$=.52 $\underline{p}$< .001). Hopefully we will be able to replicate these results for patients at Washoe Medical Center.

Measuring Improvement in Geriatric Rehabilitation
Identification Number: IIR #90-092
PI/Facility: Smith, Aaron, Ph.D., and Cardillo, Joseph, Ph.D./VAMC Reno, NV
Completion: September 1993

OBJECTIVES: This project has two distinct objectives. First is the cross-validation, in a community hospital, of the predictive relationships between certain patient variables and the outcome (as measured by Goal Attainment Scaling) of geriatric rehabilitation previously found in a male veteran population. The second component is concerned with the development, application, and testing of Improvement Scaling (IS), a more efficient and practical method of using Goal Attainment Scaling (GAS) in a clinical setting.

RESEARCH PLAN: All geriatric patients entering the rehabilitation program at Washoe Medical Center are evaluated on a series of health dimensions and psychological variables chosen on the basis of theory and empirical work as potential predictors. Individual rehabilitation goals are established for each patient with achievement at the end of the program measured both by Goal Attainment Scaling and by Improvement Scaling. Follow-up six months later determines the stability of gains observed at the end of treatment.

METHODOLOGY: Individual treatment goals are selected by the treatment team and scaled in Goal Attainment Scaling format by a research associate. At the same time, each therapist who will be working with that patient scales individualized goals using Improvement

Scaling. Assessment of each patient includes the Comprehensive Assessment and Referral Evaluation (CARE); self-prediction of goal attainment; self-report of perceived health status using the Cockerham, Sharp, and Wilcox procedure; and the Multidimensional Health Locus of Control Scales (MHLC).

FINDINGS: Data collection is proceeding as planned. The response of treatment staff to this new study has been very enthusiastic, with many participating in the development and refinement of the IS scales and implementation procedures. Already IS has become a useful and desirable tool for treatment planning, case management, and evaluation. Initial reliability and validity studies should be completed in the next few months.

Measuring Improvement and Enhancing Quality of Care in Geriatric Rehabilitation
Identification Number: LIP #62-058
PI/Facility: Cardillo, Joseph, Ph.D./VAMC Reno, NV
Completion:

To enhance measurement of the effectiveness of geriatric rehabilitation programs, this study was designed: 1) to develop and test new methods and materials that would enable development of guidelines for incorporating Improvement Scaling (IS) into current CQI (Continuous Quality Improvement) systems on rehabilitation units; and 2) to ascertain whether the integration of IS was feasible and practical.

XII. VA Databases

A Geriatric Record and Multidisciplinary Planning System (GRAMPS)
Identification Number: IIR #84-041
PI/Facility: Hammond, Kenric, MD, Date, Vishvanath, MD, King, Carol, DrPH, Prather, Robert, MS/Loma Linda VAMC & American Lake VAMC
Completion: May 1989

The project goal was to develop a computerized geriatric medical record and evaluate its fiscal and clinical impact. Consecutively enrolled geriatric outpatients were followed. 180 controls were followed with paper records and 180 experimental patients were followed with a computer record. Costs of hospitalization and outpatient services utilized were tracked. Patient responses to a health status and satisfaction questionnaire were obtained. For hypertensive subjects, quality of care was rated by criteria mapping and treatment outcome was determined from recorded blood pressures.

Use of GRAMPS system was accepted by the providers, but mean appointment length was eight minutes longer. 325 subjects qualified for analysis of costs, adjusted for age and illness severity. The mean outpatient cost per control was $638 and per experimental patient $588 (p=.009). The mean cost of hospitalization care was $901, controls, and $356, experimental (p=.007). More primary care visits and fewer unscheduled visits occurred among experimental patients. Fewer deviations from ideal hypertension care occurred at the initial visit, and blood pressure control was significantly better in the experimental group. Minor improvements in patient satisfaction were noted in the experimental group. Experimental patients were more likely to report receiving a doctor's recommendation to exercise when they said they needed to lose weight. GRAMPS offers the VA a usable provider-interactive record system and the potential for cost savings, improved quality of care and better clinical outcomes.

A General Medical Clinic Database for Health Services Research
Identification Number: LIP #61-066
PI/Facility: Fihn, Stephan, MD, and Kent, Daniel, MD/VAMC Seattle, WA
Completion: 1992

Although a MUMPS database for patient encounters, problems addressed, laboratory tests ordered, and consultations requested has been maintained at VAMC Seattle for several years, difficulties in accessing data and updating the database format have made ongoing use of the system problematic. After developing a final database format and encounter form, this project generated a comprehensive ambulatory care database programmed in PC-Focus; this database was developed for use in VA General Internal Medicine Clinics and could be maintained on a micro-computer. In addition to eventually merging older clinic data (MUMPS) with the new system, various project goals included: 1) merging the ambulatory care database with hospital laboratory data and inpatient treatment file information; and 2) enabling providers to receive summaries of their activities organized by clinically relevant subsets (e.g., how many hypertensive patients have had renal chemistries ordered).

Quality Assessment in Ambulatory Care: A Pilot Study
Identification Number: SDR #91-011
PI/Facility: Berlowitz, Dan, MD, MPH/VAMC Bedford, MA
Completion: 1994

OBJECTIVES: Health care organizations, including the VA, increasingly will be evaluated on the basis of the quality and effectiveness of their care. Central to these evaluations are the identification of a small number of reliable and valid measures of the process and outcome of care. These outcome measures should be risk-adjusted for baseline disease-severity, and processes of care should be shown to be associated with improved outcomes. The Veterans Ambulatory Care Assessment Project (VACAP) is a pilot study that intends to evaluate the feasibility and optimal means of identifying these measures using data obtained non-intrusively from medical records and existing databases. These measures may then be routinely collected and serve as the basis for ongoing quality improvement efforts.

METHODS: The study is focusing on three common ambulatory medical conditions, hypertension, diabetes mellitus, and chronic obstructive lung disease (COLD). Potentially important process, outcome, and disease-severity measures have been identified through literature reviews and expert panel meetings. These variables are being captured

through detailed chart abstractions of the medial care provided over a two year period, and are being combined with data from DHCP, the decentralized hospital computer program. The study sample consists of regular users of ambulatory medical care at three VA medical centers.

RESULTS: To date, data has been collected on approximately 500 patients with hypertension, 300 with diabetes, and 200 with COLD. For patients with hypertension, failure to achieve adequate blood pressure control was noted in 38%. Among factors associated with poor control were higher initial blood pressure, body mass index, serum creatinine, age, and non-white race. Significant differences were noted among the sites in blood pressure control, even after adjusting for baseline characteristics. For diabetic patients, poor control was evident in 48%. Factors associated with poor control included initial blood sugar, body mass index, and use of insulin. Practice patterns for patients with diabetes significantly differed from current recommendations. For example, American Diabetes Association guidelines suggest that a glycosylated hemoglobin level be performed semiannually. Yet 67% of our sample never received this test over a 2 ½ year time period, and an additional 17% had only one glycosylated hemoglobin determination during the entire study period. Factors associated with exacerbations of COLD include hospitalizations in the previous 6 months for COLD, history of steroid use, and patient reported dyspnea.

These results suggest that in comparing VA sites on outcomes for common ambulatory medical conditions, risk-adjustment for measures of disease-severity are required. The rates of performance for certain processes of care significantly differ from current recommendations. Further analyses are planned to determine whether these variations in the process of care may also explain variations in patient outcomes. Additional study is required to determine whether these findings are generalizable to other VA sites.

Predicting Pressure Ulcer Development using DVA Databases.
Identification Number: IIR #92-053
PI/Facility: Berlowitz, Dan, MD, MPH/VAMC Bedford, MA

Completion: July 1995

OBJECTIVES: To develop models for predicting the risk of developing a new pressure ulcer using existing databases. In so doing we will also generate additional information on the clinical epidemiology of pressure ulcers, including risk factors for their development and outcomes of patients with this common condition.

BACKGROUND: Quality assessment in long-term care is particularly dependent on measures of the outcome of this care. Pressure ulcers, a common medical problem that significantly contributes to the morbidity, mortality, and cost of care have been identified as an important outcome measure for assessing quality. Recognizing the potential utility of this measure, the Department of Veterans Affairs (DVA), through the Office of Quality Management, regularly provides individual facilities with incidence rates for the development of pressure ulcers in Intermediate Medicine and Nursing Home Care Units (NHCU). These data are calculated from the Patient Assessment File (PAF). A major limitation of these incidence rates is that they do not adjust for case-mix. Consequently, an individual institution with a high incidence rate cannot judge whether this rate is due to potentially poor quality of care or to a more severely impaired patient population.

METHODS: This study will utilize information from the PAF. Patients on Intermediate Medicine or the NHCU without a pressure ulcer will be monitored through the PAF for the subsequent development of an ulcer. Patient characteristics associated with the development of an ulcer will be identified on bivariate testing and entered into a logistic model. Model performance will be evaluated by comparing observed and predicted rates of pressure ulcer development and by calculating the area under the ROC curve. The model is subsequently validated in a separate sample of patients from the PAF without a pressure ulcer. Additional analyses will be performed to examine outcomes of pressure ulcer patients, including survival and healing of the ulcer.

FINDINGS: Data from three successive six month periods have been merged and 31,150 individual patients without a pressure ulcer identified. A new ulcer developed in 1,350 patients (4.3%). Eleven factors were associated with ulcer development including dependence in transferring, immobility, presence of a stasis ulcer, and terminal illness. Model

performance was subsequently validated in a separate sample of 17,946 long term care residents. Patients with pressure ulcers were also found to be more likely to die during a six month period than patients without an ulcer. The relative risk of dying was 2.4; however, after adjusting for the presence of other conditions, the relative risk decreased to 1.4. Factors associated with failure of pressure ulcers to heal include dependence in mobility, incontinence, and not receiving physical therapy.

Facilitating Access to and Use of VA Databases for Health Services Research
Identification Number: SDR #91-009
PI/Facility: Beattie, Martha, Ph.D. and Swindle, Ralph, Ph.D.,/
VAMCs Palo Alto, CA, and Indianapolis, IN
Completion: September 1995

BACKGROUND: This project was designed to facilitate VA health services researchers' awareness and utilization of VA databases. Health services researchers find it difficult to access and conduct informed analyses of the existing VA health service utilization and cost databases, which include: 1) VA databases available through the Austin Automation Center, 2) decentralized databases at the local VAMCs, and 3) specialized VA databases. This project, conducted at the Center for Health Care Evaluation, VAMC, Palo Alto, CA, is compiling and disseminating information regarding several VA databases that is of potential relevance to researchers.

A Resource Guide for health services researchers has been prepared and distributed (Beattie, Swindle, and Tomko, 1992). Volume I of the Guide includes general information about accessing and using the VA databases at Austin, describes the internal computer audits made to increase the reliability and validity of the Patient Treatment File (PTF) and Outpatient Care File (OPC) data in the files, and reports the limited research devoted to assessing the quality of the data in these files. Following the general information, the Resource Guide provides a detailed account of the PTF (Volume II) and OPC (Volume III), two of the most important Austin databases for health services research purposes. Information includes the sources, content, name and record formats of individual data elements, and information about potential biases and limits to their reliability. Relevant SAS

programs are introduced, and sample programs are made available in an account accessible by all Austin users.

Volume IV provides similarly detailed information about the major cost data files: the VA accounting system, Centralized Accounting for Local Management (CALM), and the Cost Distribution Report (CDR) files. A description of the use of these files in VA's planning, resource allocation, and budgeting is included. Currently all costing data are aggregated to the department, major medical program, or expense category level. Thus, it is not possible using VA databases to routinely relate costs for amounts of pharmacy, laboratory, or radiology use or other clinical services to specific patients. Therefore, the volume includes suggestions for and cautions about using the data for cost analyses. The volume was first distributed in September 1994.

Volume V of the Resource Guide, the current focus of attention, will provide information about accessing and using data available in the Decentralized Hospital Computer Program (DHCP) used in local VAMCs. This local information, which is more extensive than that available in Austin, often is vital to researchers' examination of health services. The investigators' initial approach was to evaluate and disseminate currently existing methods to access and to download DHCP data. As more is learned about DHCP, however, it became clear that this algorithm-oriented approach must be supplemented by a more basic understanding of the system. The decentralized nature of the DHCP means that locally-generated programs may not work at other sites due to site-specific program changes made to standard programs, lack of implementation of non-mandated packages or items, etc. In addition, system-wide updates may invalidate even the best-working program. Therefore, national VA-supported software such as Fileman, the Health Summary Package, and the Patient Data Exchange (PDX) is being investigated. Volume V includes instructions about how to use nationally-supported software to extract some of the most relevant data elements in the DHCP that are not available nationwide and to download them to personal computers for use in statistical analysis packages. In a manner similar to that used in Volumes II-IV, the sources, content, name and record formats of specific data elements, and information about potential biases and limits to their reliability, is being provided.

Volume VI of the Resource Guide will be completed by September 1995. It will document the remaining Austin databases concerning patient-specific utilization: the fee-basis system for authorized non-VA care, and the end-of-year census of institutionalized patients. These are often used in conjunction with the PTF and OPC data to provide a more complete look at VA-authorized patient care. The introduction to this volume will describe eligibility for non-VA care and non-patient-specific sources of workload information as well.

Subacute Care in the VA: Estimating Need, Availability and Cost
Identification Number:
PI/Facility: Conrad, Kendon, Ph.D./VAMC Hines, IL
Completion: December 1995

The global objectives of this study are to provide information to VA decision makers to help them determine whether VA should define a policy to place subacute patients in community nursing homes and whether VA should make better use of its own subacute resources, e.g., intermediate care and VA nursing home care units. The specific objectives are to assess: the degree to which VAMCs are providing subacute care for veterans in acute care beds and the costs of the care: the degree to which these veterans could be appropriately cared for in community nursing homes and the projected costs of the care; the degree to which these veterans could appropriately be cared for in other non-acute VA units and the costs of that care; and, the opportunities or obstacles in changing the locus of care of these patients if indicated.

The researchers experienced great difficulty in trying to match the CNH facilities file (n= 2553) to VA nursing facility vendor file (n= 8972). First, there is no unique identifier which can be easily used to match or link records. In addition, there is a great deal of duplication among facilities in terms of facility names. There is no simple way to tie facility records to those of individual veteran patients.

XIII. LTC - general

Randomized Controlled Trial of a Geriatric Consultation Team
Identification Number: LIP #21-015
PI/Facility: Becker, Peter, MD, & Feussner, John, MD/VAMC Durham, NC
Completion: January 1985

No abstract available.

Information Syntheses: Health Services and the Elderly Patient
Identification Number: SDR #85-001
PI/Facility: Petersen, Marilyn, Ph.D., & White, Diana, MS/VAMC Portland, OR
Completion: June 1986

No abstract available.

Long Term Care Institutional Environments: An Information Synthesis
Identification Number: LIP #41-015
PI/Facility: Smyth-Staruch, Kathleen, Ph.D., Hogan, Andrew, Ph.D., & Smith, David, Ph.D./ VAMC Cleveland, OH
Completion: October 1986

No abstract available.

Aging Veterans' Future Use of VA Health Care Services
Identification Number: LIP #41-026
PI/Facility: Romeis, James, Ph.D., & Coe, Rodney, Ph.D./VAMC St. Louis, MO
Completion: November 1986

No abstract available

Determinants of Long Term Care Utilization
Identification Number: LIP #62-019
PI/Facility: Garber, Alan, MD, Ph.D./VAMC Palo Alto, CA
Completion: October 1987

No abstract available

Patterns of Change in Functional Status in Extended Care
Identification Number: LIP #52-014
PI/Facility: Rohrer, James, Ph.D., Yesalis, Charles, ScD, Lauglin, Phillip & Wiley, Becky, RN/ VAMC Iowa City, IA
Completion: May 1988

No abstract available.

Oral Health Status and Treatment needs of VA Long Term Care Patients
Identification Number: LIP #41-052
PI/Facility: Weyant, Robert, DMD, Rhyne, Robert, DDS, & Seitz, Larry, Ph.D./ VAMC Ann Arbor, MI
Completion: August 1988

In a study of 650 patients residing in VA Nursing Home Care Units (NHCUs), a secondary analysis was used for 1987 data that included: sociodemographic and medical histories, caries and periodontal disease, oral soft tissue pathology, and prosthodonic needs. Findings indicated: 1) moderate needs for restorative dentistry (72%) and periodontal therapy (60%), and lesser needs for prosthodontic care (50%) and oral pathology services (under a third); 2) patient willingness for care was high (over 90%); 3) estimated total treatment time of nearly 800 hours--60% by dentists and 40% by dental hygienists--was needed to address existing oral health needs; and 4) caries were related to age, race, and education, whereas periodontal diseases were related to age, race, oral hygiene, and specific NHCU.

Predicting Change in Health Status and Utilization of Health Services in Elderly Veterans
Identification Number: LIP #41-048
PI/Facility: Coe, Rodney, Ph.D., & Romeis, James, Ph.D./VAMC St. Louis, MO
Completion: March 1989

A secondary analysis of data from a previous study of 377 outpatient veterans was used to test the ability of the Nutritional Risk Index (NRI) to predict changes in health status and use of health services. Baseline data collection included a personal interview, physical examination, anthropometry, and laboratory assay; at six months follow-up, data on health status, morale, life events, and use of health services were collected by telephone interview

for 70% of the original sample. Hierarchical regressions indicated that the NRI was unable to predict changes in health status or use of health services.

VA and HRS Coordination of Florida's Home-Based Service to the Elderly
Identification Number: IIR #87-005
PI/Facility: Randall, J. Malcolm, MHA, and Bradham, Douglas, Ph.D./VAMC Gainsville, FL
Completion: March 1989

District 12 of the Department of Veterans Affairs, Health Services and Research Administration (VA), and the Florida Department of Health and Rehabilitation Services (HRS) engaged in a cooperative demonstration which provided home-based services to medically dependent elderly with care givers under Medicaid waiver. The VA and HRS coordinated a program to deliver nurse case management and care giver training services to elderly veterans and HRS clients as a means of preventing or delaying nursing home admissions. Cost sharing agreements between the VA and HRS were developed resulting in home-based services to nursing home eligible elderly persons in three Florida counties. The demonstration was named "TEACH"- Training the Elderly And Their Care givers at Home.

The purpose of the case study was to describe and evaluate the interagency administrative coordination through cost-sharing between the VA and the Florida HRS agencies occurring in the first 24 months of this joint venture. Three factors associated with successful coordination-- domain consensus, goal congruence, and communication-- were analyzed using data from a project chronology and in-person interviews with VA, HRS, and provider agency staff.

The case study findings indicate that the VA and HRS successfully coordinated two major public agencies and private providers in the TEACH Project, thus demonstrating that joint ventures are a viable process for the VA.

Improving Access for Elders: The Role of Case Management
Identification Number: LIP #61-029
PI/Facility: Austin, Carol, Ph.D./VAMC Seattle, WA
Completion: May 1989

An evaluation of results from a broad study on the delivery of case management services for elderly persons residing in Oregon, Washington, Idaho, and Alaska, indicated that veterans receiving VA hospital-based services were frequently ineligible for support services from significant community services. Results suggest that VA case managers should enhance community linkages.

Geriatric Health and Physical Fitness Program
Identification Number: #86F017
PI/Facility: Cohen, Harvey, MD & Feussner, John, MD/VAMC Durham, NC
Completion: June 1989

No abstract available.

Program in the Economics of Health Care of the Elderly
Identification Number: IIR #86-118
PI/Facility: Garber, Alan, MD, Ph.D./VAMC Palo Alto, CA
Completion: September 1989

This research consisted of two subprojects. The first, an investigation of determinants of utilization and demand for long-term care, sought to measure the contributions of health status, income, assets, insurance coverage, and social supports to the utilization of LTC and hospital facilities by the elderly. It did so by treating hospital admission, nursing home admission, and death as outcomes of a probabilistic process, whose parameters were estimated from longitudinal data. The goal of this subproject was to improve forecasting of future LTC needs and to assess the likely effects of interventions to reduce institutionalization. The results suggested that factors associated with heavy nursing utilization were distinct from health factors that influence survival. Insurance coverage (e.g., under Medicare or Medicaid) altered the duration of nursing home admissions.

The second subproject was a cost-effectiveness analysis of coronary artery bypass surgery (CABS) in the elderly and the development of a model that predicted outcomes of surgical and medical treatment. Efficacy of CABS, as measured by symptom relief, survival improvement, and reduction in other forms of morbidity, was estimated for specific clinical

subgroups of elderly patients, based on an analysis of data from the Coronary Artery Surgery Study register. Cost of treatment was calculated from several data sources. The findings showed that the Markov model predicted survival accurately and in accord with alternative methods, such as the Cox proportional hazards model. It indicated that for some subsets of older persons (e.g., those with severe congestive heart failure and with left ventricular wall motion abnormalities demonstrated by ventriculography) coronary artery surgery can significantly prolong survival.

Migration Patterns of the Aging Veteran
Identification Number: IIR #85-028
PI/Facility: Cowper, Diane, MS, & Friedman, Bernard, Ph.D./VAMC Hines, IL
Completion: November 1989

This project documented the mobility patterns of elderly veterans and assessed the possible impact that migration has on VA health care services. Census data, Summary of Medical Programs and the Area Resource File were used as data sources.

An origin-destination matrix was constructed to measure the size of the 2,601 possible streams between every pair of states in the US (including the District of Columbia). A Relative Acceptance (RA) score was used to identify salient (larger than expected) streams. Differences between inmigrants, outmigrants, and "aging in place" veterans were identified using difference of means tests, "t-tests," and three regression models were employed to assess the impact migration has on demand for VA care. Findings from the research indicated that: 1) certain states are more attractive than others, both in terms of sheer volume of veterans they attract and in the highly selective demographic and socio-economic types of veterans they attract; 2) the amount of migration does not appear to have an immediate effect on demand for VA health care services; and 3) the variation in admission rates across states was explained primarily by the socio-demographic profile of elderly "aging in place" veterans and VA hospital staffing ratios.

Evaluation of Personal Emergency Response System for At-Risk Veterans.

Identification Number: IIR #87-006
PI/Facility: Freedman, Jay, Ph.D./VAMC Indianapolis, IN
Completion: December 1990

OBJECTIVE: The major objective of the study is to evaluate a personal emergency response system (PERS) for a group of at-risk veterans and ascertain whether participants experience fewer institutional days (hospital and nursing home days), are less anxious, and are more satisfied with their present living situation, than a group of randomized controls. The study will also examine the effect the intervention has on the primary care providers of PERS participants/controls and their level of anxiety and perceived burden.

RESEARCH PLAN: Patients for the study were referred by clinicians from the Indianapolis and Hines VA Hospitals. Patients were selected on the basis of meeting at least one of four screening criteria: 1) A history of falling (59.6%), 2) a history of cardiac or respiratory crises (44/5%), 3) bedridden or confined to a wheelchair (34/4%), and/or 4) limited ability to communicate (10.6%). Many patients in the sample satisfied multiple screening criteria. The mean number of health problems for the overall sample is 5.9 + 2.5 problems. The mean age for the overall sample is 63.6 + 11.9 years, including 93.5% male and 26.5% black.

METHODOLOGY: The study utilized a pretest/posttest randomized control design with repeated posttest measures. Patients (n=245) and their care providers were interviewed at pretest, 3, 12 and 18 months. Eighty percent completed the 12-month interview.

FINDINGS: Multivariate logistic regression modeling of the 12-month data indicates that Lifeline patients, after controlling for baseline concerns and 12-month covariates, were 2.3 (OR) times less likely to be concerned about being alone than patients who did not have Lifeline (p=.05). Significant covariates included: ADL and IADL scores and a measure of clinical anxiety. Patients with Lifeline were on average 1.9 (OR) less likely to have greater concerns about their health and medical care than control patients (p=.0l). This effect appears to be greatest among patients with low ADL scores (p=.009). Lifeline appears to have no effect on patient depression or satisfaction with living situation. Preliminary results from the 18-month interviews indicate that Lifeline patients are very satisfied with the system (97.5%),

and the majority of those veterans who have a unit in their home would be willing to pay to continue the service (62.5%).

An Evaluation of Independent Living Services of Chronically Ill Elderly
Identification Number: IIR #82-104
PI/Facility: Rodell, Daniel, Ph.D., LCSW, & Kashner, T. Michael, Ph.D./VAMC Little Rock, AR
Completion: March 1991

This four and one-half year study tested the clinical and cost effectiveness of case management and in-home services by mobile social workers and rehabilitation medicine staff on medically frail elderly veteran patients at a large VA medical center in a small rural southern state. Two hundred and nine subjects over age 55 admitted to a comprehensive Geriatric Research, Education and Clinical Center (GRECC) were sequentially randomized to one of two treatment conditions. Experimental patients received services of a mobile outpatient Independent Living Program (ILP) treatment team in addition to all services provided by the GRECC. Control patients received the same services except those of the ILP. Clinical status, use of VA and community services, and associated costs were assessed at quarterly intervals for one year.

Patients receiving ILP experienced significantly fewer admissions to VA financed, community provided nursing home care, significantly greater utilization of selected prosthetic devices, at no significant increase in overall costs to VA. The mean cost per study patient for all VA monetary and health care benefits was $72,000 for the study period; ILP costs constituted .3 percent of the total cost. Results support the hypothesis that the provision of case management and in-home services by a mobile outpatient treatment team utilizing social work and rehabilitation medicine staff is a cost effective program for a constantly increasing frail elderly veteran population.

Cost-Effective Post-discharge Care for Elderly Veterans
Identification Number: IIR #87-137
PI/Facility: Smith, David, MD/VAMC Indianapolis, IN
Completion: June 1991

OBJECTIVE: Elderly veterans represent a growing segment of our patient population and they consume extensive resources. The largest portion of their health care costs can be attributed to hospitalization. Because high-cost patients are those with repeated admissions rather than with single, cost-intensive stays, patients discharged from the hospital are appropriate targets for cost-containment strategies. We hypothesize that intensive post-discharge care will reduce readmission hospital days and decrease overall health care costs.

RESEARCH PLAN: Patients, from the Indianapolis VAMC, are randomized to control and intervention groups. Intervention patients received an intervention packet consisting of phone calls and mailings from a nurse to alleviate any needs identified by discharge assessments. The nurse assisted with medication compliance, with access to providers, and with reminders to physicians about patient care needs. Primary outcome variables were readmissions over the year after discharge. Secondary objectives were that the intervention will improve patient compliance with visits and medications, improve functional status, increase satisfaction with care, and improve control of chronic diseases. A final objective is to develop predictive models for hospital readmission and health care costs using patients' clinical laboratory, and psychosocial characteristics.

RESULTS: Of 4,768 patients screened, for possible inclusion in the study, 668 patients were enrolled and followed for an average of 12.1 months. The nurse managers made 6,260 contacts with the 333 patients in 16 interval groups or an average of 1.6 contacts per patient per month. Analysis of the results showed no significant effect on non-elective readmissions or readmission days. Analysis for secondary objectives are nearing completion.

Work Stressors and Coping Among Staff in Long Term Care
Identification Number: IIR #86-117
PI/Facility: Moos, Rudolf, Ph.D., & Schaefer, Jeanne, Ph.D./Palo Alto VAMC
Completion: August 1991

The major goals of this research project are to identify the work stressors experienced by long-term care staff and to examine their relationship to staff morale, coping strategies,

and job functioning. The project will also analyze the influence of organizational factors on work stressors and staff morale and performance.

To achieve these aims, the investigators have constructed two inventories to measure the stressors involved in LTC and how staff members cope with them. After item development and piloting, preliminary versions of the inventories have been administered to over 400 staff in 12 representative LTC facilities. The inventories have been revised using standard test construction methods.

The Work Stressors Inventory (WSI) is composed of six subscales of nine items each; these subscales assess stressors related to general job tasks and patient care tasks, relationships with coworkers and supervisors, and workload/scheduling and facility design and maintenance. The WSI subscales have moderate to high internal consistencies, and are quite stable over time.

The Coping Responses Inventory for Work Settings (CRI- Form W) is composed of eight subscales of six items each; these subscales assess four approach coping strategies and four avoidance strategies. Health care employees select the most important problem or situation they experienced in their job during the past month, and then rate their reliance on each of the 48 coping items. The CRI- Form W subscales have moderate internal consistencies and are moderately stable over time.

Analyses will examine the relationship between organizational factors, staff characteristics, stressors, and staff coping; changes in perceived work conditions and coping responses among less experienced staff; and the association between these factors and staff morale and job functioning. The overall goal is to improve health care work environments. Information from this study is expected to contribute to better staff performance, more effective in-service education programs, and better quality LTC.

Predictors of Adverse Outcomes in Hospitalized Elderly Veterans
Identification Number: IIR #88-154
PI/Facility: Winograd, Carol, MD/VAMC Palo Alto, CA
Completion: December 1991

Predictors of Adverse Outcomes in Hospitalized Elderly Veterans was a recently completed project funded by the VA HSR&D Service. Adverse outcomes of hospitalization, e.g., longer lengths of stay, higher readmission rates, nursing home placement, decline in functional status, and death are common among elderly veterans. Predictors would better identify that subpopulation of elderly veterans who utilize higher than average health care resources, information would assist with allocation of health care services and personnel, and subsequent research could then study geriatric interventions designed to ameliorate the negative impact of these predictors. We chose functional level as the primary outcome variable because adequate functioning is important for quality of life, impaired function correlates with high utilization of health care resources, e.g., increased hospital and nursing home days, and impaired function is a final common pathway of the complex medical and social conditions seen in geriatric patients.

Objectives: Our objective was to study predictors of adverse outcomes in 521 hospitalized male and female veterans aged 65 and older (508 men and 13 women). Which combination of selected risk factors could best predict for subsequent functional level? We hypothesized that mobility (measured by the performance-based Physical Performance and Mobility Examination), serum albumin (laboratory results), depression (measured by the Geriatric Depression Scale), abnormal mental status (measured by the Folstein Mini-Mental State Examination), and heart disease on admission would predict for functional level (measured by Activities of Daily Living, Instrumental Activities of Daily Living, and the Medical Outcomes Study Physical Functioning Scales) at hospital discharge and at 3- and 12 months post-discharge.

Subjects: Our sample of 521 patients included both random sampling and oversampling of small groups to assure adequate subjects for analysis. We collected data on three subpopulations: all patients aged 80 and over; all women over age 64; and a random sample of every fourth male patient aged 65-79 admitted to the Medical, Surgical, or Neurological Services at the Palo Alto VAMC.

Methods: A cohort study assessed patients at hospital admission, discharge, 3-, and 12 months post-discharge. Outcomes included clinical status and health care utilization. Clinical

status included functional status, mobility, geriatric conditions, sensory impairment, incontinence, depression, mental status, medical conditions, and mortality. Health care utilization included length of stay (LOS), readmission rate, and nursing home placement. Results: Analyses of discharge and 3-months data began in October, 1991. As of March 31, 1992, we completed admission, discharge, and 3-months data collection for the 521 patients entered into the study. Three-month follow-up interviews have been completed for 446 patients (85.6%), 93 (17.9%) have died, 23 (4.4%) refused to participate, and we had no contact with 23 (4.4%). We continued 12-months data collection through March 31, 1992. Twelve-months follow-up interviews were completed for 360 patients (69%), 96 (18%) have died, and 67 (13%) refused to participate or we had no contact. Data for discharge, 3-, and 12-months analyses have been entered and checked for accuracy. Health care utilization data have been accessed from the Austin database. Our preliminary analyses of results suggest the Physical Performance and Mobility Examination (PPME) score, a new performance measure of mobility, together with the number of geriatric diagnoses and Mini-Mental Status Examination score, created the equation that best predicted number of hospital days from admission to 3 months follow-up (adjusted R2=.06 $p<0.0001$). Using Classification and Regression Trees (CART), subjects scoring <4 on the PPME, i.e., dependent in at least 4 of 6 functional mobility tasks, spent significantly more days in-hospital than those with PPME scores >4 (mean days, 15 and 25, respectively). Less mobile subjects (PPME score <4), also dependent in l or more ADLs, had significantly longer LOS than those independent in ADLs (mean days 32 and 20, respectively). More mobile subjects (i.e., PPME with >5 and >2 geriatric conditions) spent significantly less time in-hospital than those with >3 geriatric diagnoses (mean days II vs. 18, respectively). Preliminary Conclusions: l) patients at risk for prolonged LOS can be identified at admission to hospital, 2) mobility may predict health care utilization, and 3) PPME, significantly contributes to prediction of health care utilization over and above self-reported ADLs.

Why don't all Impaired Elderly Fall?
Identification Number: #E538-RA

PI/Facility: Studenski, Stephanie, MD, & Samsa, Gregory, Ph.D./VAMC Durham, NC
Completion: May 1992

Prediction of Functional Decline and Service Use by Frail Veterans
Identification Number: IIR #90-008
PI/Facility: Hedrick, Susan, Ph.D./VAMC Seattle, WA
Completion: May 1993

OBJECTIVES: Equitable and effective schemes for targeting health care services for the chronically-ill elderly should be based in part on predictions of those persons at risk for declining functional status, high mortality, and high levels of health care utilization. The objective of this research is to increase our knowledge of these risk factors for frail chronically-ill veterans.

RESEARCH PLAN: This study was conducted through a series of secondary analysis of the comprehensive data base developed in the Adult Day Health Care (ADHC) Evaluation Study (SDR #85-007 and 071).

METHODOLOGY: The ADHC Study data base includes multiple measures of demographic characteristics, physical and psychosocial health status, and utilization of VA and non-Va health services of a 12 month period for 990 patients and 800 associated care givers at eight VAMCs nationwide. The particular patients, variables, and analytic methods varied across the analyses.

FINDINGS: The titles of the 9 papers presenting study results are presented below along with some preliminary findings.

1. *Self-perceived Health as a Predictor of Survival in Frail Elderly Veterans.* Previous population-based studies have found that self-perceived health, operationalized using a single item response scale ranging form 1 “excellent” to 5 “poor”, was a significant predictor of mortality. This study found, in contrast, that only mobility dysfunction and not being hospitalized in the six months prior to study enrollment predicted mortality.

2. *Decline and Improvement in Functional Status in the Frail Elderly.* Approximately equal numbers of patients in this analysis declined and improved/maintained in function over 12 months, as assessed by the Sickness Impact Profile physical and psychosocial dimension

scores. The primary predictor of later function was baseline function, accounting for between 51 and 75% of explained variance. Higher levels of function at baseline were associated with higher levels of function 6 and 12 months later, both for patients who improved and those who declined over that time. Demographic characteristics, social support, other aspects of health status, and prior health care utilization contributed small amounts of additional explained variance.

3. *Effects of the Stress of Caregiving on the Health of Care givers of Frail Elderly Veterans*. Findings showed a differential impact of caregiving on the different domains of the care giver's health status, with mental health, assessed using the Psychological Distress Scale, appearing to be most affected by caregiving.

4. *A Multi-level Assessment of Care giver Social Support Networks*.

5. *Predicting High Cost Users of Health Care in VA Facilities*. This study identified the predictors of the use of health care services and the costs of care, given use, for VA hospital care, long-term care, clinic visits, and total cost. Each type of service being predicted had a unique set of explanatory variables. Poorer physical health status, previous utilization, and care giver burden were among those variables found to best predict subsequent utilization, with modest explanatory power.

6. *Factors Associated with Utilization of ADHC Programs*.

7. *Patient and Care giver Satisfaction with ADHC*.

8. *Accuracy of Utilization Data from Interviews of Chronically Ill Older Adults*.

9. *Financial Management of Post-hospital Care Programs*.

Impacts of a Targeted Exercise Program for Fall-Prone Elderly Veterans
Identification Number: IIR #89-101
PI/Facility: Rubenstein, Laurence, MD, and Robbins, Alan, MD/VAMC Sepulveda, CA
Completion: June 1993

OBJECTIVES: Muscle weakness and impairments of gait and balance have been consistently reported in the literature to be major risk factors for falls. Rehabilitative interventions targeted to high risk elderly persons have been recommended, and some have

been tested on elderly populations; however none has yet been tested experimentally on targeted fall-prone elderly subgroups. There are thus major knowledge gaps regarding the feasibility and impacts of exercise programs for frail elderly persons. The purpose of this randomized controlled trial is to determine if a structured exercise intervention for elderly veterans at high risk for falls can impact on such factors as functional status, morale, fall rates, morbidity, and use of medical services. Secondary objectives include: 1) examining the correlations between measured improvements in strength, gait, balance and exercise tolerance with changes in physical and functional well-being, incidence of falls and use of medical services; 2) identifying elderly persons most likely to benefit from and comply with an exercise program; 3) identifying causes of muscle weakness and impairments of gait and balance; and 4) determining the utility of special diagnostic procedures and equipment to evaluate muscle strength, gait and balance.

METHODS: Subjects are being recruited among outpatients 70 years or older enrolled in the ambulatory care clinics at the Sepulveda VA Medical Center. Prior to randomization, subjects undergo a detailed quantitative and musculoskeletal examination, as well as specialized assessments of muscle strength, gait and balance using computerized diagnostic equipment. Subjects randomized to the intervention group attend one hour exercise classes three times a week for six months. The exercise protocol concentrates on strengthening muscle groups integral to normal walking, and improving flexibility, gait and balance. Both intervention and control groups will be followed for one-year and will receive follow-up reassessments (identical to the initial assessment) at 3, 6 and 12 months following randomization.

FINDINGS: To date, a total of 300 veterans have been screened for the study. Of these, 83% were found to be ineligible (38% did not have any risk factors for falls and 45% were medically inappropriate), and 6% were not interested after receiving more information about the study requirements. Ten percent (30 patients) have been enrolled thus far into the study. Subjects range in age from 70 to 92 years, with a mean age of 76 years. While they are all living independently in the community, baseline measurements for strength, gait, balance and functional abilities are much lower than similar measurements obtained from

healthy elderly veterans. Preliminary analysis of the six-month follow-up data for the first cohort of subjects (N = 15) reveals some encouraging trends. Subjects who received the exercise intervention showed greater improvement than control subjects in lower extremity muscle strength, gait, endurance and the ability to perform functional tasks. The attendance rate at the exercise classes has averaged over 90% during the six-month intervention period. In addition, 30 healthy elderly veterans without risk factors for falls have undergone evaluations of gait, balance, muscle strength and functional abilities. These data will continue to be collected throughout the project to establish normative databases for the Cybex isokinetic dynamometer, the motion analysis system, and the force plate platform.

The Quality of Geriatric Team Functioning
Identification Number: #AG-08957
Funding Source: National Institute on Aging (NIA)
PI/Facility: Schmitt, Madeline, Farrell, Micheal P., and Heinemann, Gloria D./
University of Rochester, SUNY Buffalo, and VAMC Buffalo
Completion: Novermber 1994

Because of the complex health needs of the elderly, interdisciplinary teams are becoming the preferred mode of delivering care to older persons. The quality of team functioning (QTF) may exert important influences on team members' stress and patient care outcomes, yet little is known about factors that influence QTF. Team development (TD) theory provides the theoretical basis for this study. The specific aims were: 1) to test hypotheses about the relationship of TD to QTF and team members' stress/burnout; 2) to test hypotheses about factors related to TD; and 3) to explore differences among types of teams and disciplines on team properties and stress. Moving beyond the small samples of previous team studies (usually one case in an experimental demonstration project), this study uses a national sample of 100 geriatric teams from 34 VAMCs in a cross-sectional survey design. To explore differences, these teams are drawn in equal numbers (30 each) from three programs -- Geriatric Evaluation and Management (GEM), Home-Based Primary Care (HBPC), Nursing Home Care (NHC). The remaining teams (about 12) are Adult Day Health Care (ADHC) from the sampled VAMCs. A questionnaire is administered by the

investigators to obtain perceptions of team properties from all disciplines represented on the teams (900-1200 members). Pilot work has refined both conceptualization and measurement. Structural equation modeling employing LISREL is used to test a set of hypotheses: 1) TD, as indicated by the structure of informal roles and low anomie in the team, positively affects QTF, which consists of a cluster of interrelated team properties (i.e., openness of communication, organizational efficiency, solidarity), and TD negatively affects team members' stress/burnout; 2) TD is positively affected by team stability and members' degree of embeddedness in their team is opposed to discipline-specific networks; 3) TD is negatively affected by team size, heterogeneity of demographic characteristics of team members, team work load, and physicians' attitudes toward team care. Since multiple indicators of some constructs are used, a measurement model is identified, estimated, tested and modified prior to testing the structural equation model. Exploratory analysis of differences of team type and discipline employ one-way and repeated measures ANOVA.

Implications of Care givers' Physical Health Status for Placement of Frail Elders in Long Term Care Settings
Identification Number: LIP #62-065
PI/Facility: Gallagher-Thompson, Dolores, Ph.D./VAMC Palo Alto, CA
Completion: ongoing

The Effect of Exercise Training in a Frail Group of Older Veterans.
Identification Number: IIR #91-157
PI/Facility: Meuleman, John MD/VAMC Gainesville, FL
Duration: January 1994 - December 1996

OBJECTIVE: Many elderly people suffer a decline in physical status as a result of acute and chronic illness. When the resulting functional decline is marked, these patients often are cared for either in a nursing home or geriatric evaluation and management unit (GEM). Rehabilitation of these frail elders largely revolves around physical therapy (PT), which in this patient population usually involves low-intensity strength and endurance training. Studies in young and healthy older subjects indicate that substantial gains in

strength and endurance are seen only with moderate- to high-intensity training. The goal of this study is to determine whether exercise training, when used in conjunction with usual PT, will improve the short-term physical and functional state of patients undergoing rehabilitation in a nursing home and a GEM. Additional objectives include: to determine the ability of these patients to participate in a program of moderate- to high-intensity training; to examine the effect of training on functional capacity and hospitalization in the year following the intervention; to determine the incidence of adverse effects of exercise training in this population.

VA SIGNIFICANCE: Functional decline is common when the elderly are hospitalized. Because of this, the VA has mandated that each inpatient facility operate a GEM. For GEMs and nursing homes to increase their effectiveness in restorative care, improvements in PT are essential. If high-intensity exercise training is successful in this study, this could be employed on a widespread basis in the rehabilitative process of severely deconditioned older patients.

RESEARCH PLAN AND METHODOLOGY: Patients over 60 years of age who are newly admitted to the Gainesville VA GEM or Nursing Home Care Unit and who would benefit from PT will be enrolled. They will be randomized to receive either routine PT or PT plus thrice-weekly exercise training. The training will consist of progressive resistance strength training plus endurance training using an ergometer. The training period will last for a maximum of 8 weeks. After this each subject's strength, endurance, and function will be reassessed. The patients will be reexamined 6 and 12 months after enrollment to determine persistence of any training effects as well as the rate of hospitalization and institutionalization during this period.

FICSIT Collaborative Analyses
Identification Number:
PI/Facility: Mulrow, Cynthia, MD/Audie L Murphy Veterans Hospital San Antonio, TX
Duration/Completion:

Long stay patients residing in nursing homes typically have decreased functional and

physical status, and high health care utilization and costs. It is proposed that physical therapy is beneficial for these frail debilitated long stay residents. This hypothesis will be tested in a prospective randomized trial. Subjects will be recruited from a cohort of community long stay nursing home residents who are over age 60 and functionally dependent in two or more Activities of Daily Living. Individuals will be randomized to receive usual care in the nursing home or to receive physical therapy in addition to usual care. Persons assigned to the experimental group will receive physical therapy three times per week for four months. Sessions will focus on General Conditioning and Functional Activity Training. All subjects will receive baseline functional and physical status evaluations and will be reassessed every two months for one year. Cointerventions, cross-overs, compliance, side effects, and drop-outs will be monitored. Prime outcome variables include functional status, physical status, and health care utilization and costs. Functional status will be assessed by interview using the Sickness Impact Profile. Physical status will be assessed by exam using a standardized Neuromuscular Evaluation and Balance, Gait, and Mobility Evaluation. Health care utilization will be monitored by medical record review and interview. Total costs will be calculated by summing physical therapy and utilization costs. Functional and physical status changes will be compared between groups using repeated measures analysis of covariance. Health care costs will be compared using a cost-effectiveness ratio adjusted for changes in functional status. Baseline characteristics of individuals who improve will be analyzed to develop a model expected that this study will expand the definition of physical therapy eligibility to include frail long stay nursing home residents with multiple comorbid conditions. Functional status and cost benefits of physical therapy for these individuals will be explicated and characteristics of persons most likely to benefit will be detailed. As a result, health care providers and policy makers can target nursing home resources more effectively.

VA Normative Aging Study (NAS)
Identification Number: HFP#92-012
PI/Facility: Vokonas, Pantel, MD/Outpatient Clinic VAMC Boston, MA
Duration: September 1995

OBJECTIVES: To characterize the biomedical and psychosocial parameters of normal aging and to define the incidence and precursors of the diseases of aging in an initially-healthy adult population of 2,280 men.

RESEARCH PLAN: To characterize age-related changes in clinical medicine, biochemical studies, body composition, cardiovascular and pulmonary function, personality and social functioning, work and retirement, smoking, drinking and other behaviors.

METHODOLOGY: Specific hypotheses are formulated within disciplines; statistical analyses examine age, cohort and period effects and predictive associations for specific outcomes.

FINDINGS: The NAS has contributed over 250 publications to the scientific literature. Several recently published findings are highlighted below: The relationship of obesity and diet to sympathetic nervous system stimulation was evaluated in 572 middle-aged and older men in the NAS. Increased body mass index and total caloric intake were independently associated with increased 24 hr. urinary norepinephrine (NE) secretion. Urinary NE levels were also significantly higher in hyperglycemic and hyperinsulinemic men. The relation between alcohol consumption and all-cause mortality over time was characterized in the NAS cohort. The U-shaped configuration of the relation indicated lower overall mortality in moderate drinkers as compared to both abstainers and heavy drinkers. This finding is consistent with the hypothesis of a potentially beneficial effect of moderate drinking with respect to mortality. A detailed evaluation of respiratory symptoms to various markers of atopy in the NAS cohort suggested that asthma, hay fever and phlegm production are associated with distinct patterns of allergy skin test reactivity, eosinophilia and serum IgE levels. The relation of urinary serotonin excretion to cigarette smoking and respiratory symptoms including chronic cough was examined in a related study. Changes in urinary catecholamine excretion and evidence for a transient change in resting heart rates following discontinuation of cigarettes were documented in separate studies. An in-depth review evaluated the utility of different approaches for achieving successful smoking cessation. The stressfulness of retirement both as a transitional event and as a life stage was investigated in the NAS. The experience of more stressful life events in the past year and more daily hassles

were the two most strongly associated factors in men who reported retirement to be stressful. Two NAS senior investigators co-edited a recent book on families and retirement. Separate chapters contributed to the book addressed conceptual and methodologic issues, perspectives of couples, and avenues for future research.

Longitudinal and Cross-Sectional Study of Oral Health in Healthy Veterans.
Identification Number: SDR #92-002
PI/Facility: Garcia, Raul, DMD/Outpatient Clinic VAMC Boston, MA
Completion: September 1996

BACKGROUND: The VA Dental Longitudinal Study (VA DLS) is a closed-panel longitudinal study begun in 1968 with a starting group of 1,231 men. Subjects were recruited from the larger parent study, the VA Normative Aging Study (VA NAS), of which the VA DLS is the oral health component. Study subjects are seen once every three years for comprehensive oral examinations, including tests of salivary and masticatory function, oral cytology, complete clinical dental and periodontal exams, evaluation of fixed and removable prostheses, cephalometric and full mouth intraoral radiographs, and surveys of nutritional status, food preference and food selection, and oral hygiene practices. Complete medical, psychosocial and laboratory analyses are conducted in collaboration with the VA NAS.

OBJECTIVE: The main goal of the VA DLS is to identify the determinants of oral health in aging veterans, including identification of the oral, medical, and psychosocial risk factors associated with the development of oral diseases in an aging veteran population, and provide needed data on oral health status changes in aging. In addition, the VA DLS is seeking to determine how incidence of oral diseases and the need for treatment translate into utilization of dental health care services in this cohort of older veterans, and in turn how effective various treatments are in determining oral health outcomes. Our research findings should aid in the development of effective strategies for disease prevention and in the formulation of public health

policies regarding appropriate dental care for older Americans. We have noted that loss itself

is not an inevitable consequence of aging. Rather, it represents an endpoint to a complex interaction among dental diseases (caries and periodontitis) and behavioral and attitudinal factors towards tooth retention and treatment preferences, on the part of both patient and provider. In this cohort, declining oral health is not a natural consequence of aging. Rather, disproportionate levels of oral disease or dysfunction found in elders appear related more to the presence of specific comorbid conditions rather than to normative age-related changes in the oral cavity.

FINDINGS: A major objective of the research program is to understand the role that oral conditions may play as risk markers or risk factors for specific medical outcomes. In this regard, we have begun to analyze the relationship of oral conditions to the development of coronary heart disease (CHD) in the veteran participants of the VA Normative Aging Study. A unique advantage of the NAS data set is that all participants were systemically healthy at their entry into the study in the 1960's, while their oral health status varied widely. Over the past thirty years a large number of participants have developed medical diseases and we can thus evaluate the role of pre-existing oral conditions as predictors of the incidence of specific diseases. In the case of CHD, we have found that individuals with severe periodontal disease (representing approximately the wort candela of the NAS cohort) have a significantly increased risk for developing CHD (Odds Ratio=1.5; 95% CI: 1.04; 2.14) and for stroke (OR=2.8; 95% CI: 1.45; 5.48) in multivariate models controlling for a number of recognized CHD risk factors.

Another important program goal is to determine the extent to which patients' perceptions of oral conditions affect their quality of life. Using factor analysis, we have identified a distinct domain of health-related quality of life (HRQL) that loads separately form other factors, as assessed using MOS-based HRQL instruments. We are now pursuing the development of instruments for specifically assessing oral health-related quality of life (OHRQL); this work is also funded by grants from the NIH and VA HSR&D Service.

A third program goal is to understand the factors that drive dental care utilization costs, as well as understanding how the use of dental preventive services affects oral health outcomes. This is being carried out through collaborations with the Bedford VA HSR&D

Field Program and through NIH research grants on the effectiveness of treatments for periodontal disease and on cost utility analysis of replacing missing teeth.

Further Readings/Articles

This section lists only those articles regarding VA studies. We have intentionally excluded clinical trials and other studies of a purely clinical nature.

I. VA Nursing Home Care Unit (NHCU) & Community Nursing Homes (CNH)

Beck, CK, & Vogelpohl, TS. Strategies for enhancing autonomy in long term care facilities. In Gamrath, L, et al., (Eds.) *Meaningful Living in Nursing Homes: Enhancing Resident Autonomy*, New York: Springer Publishing, 1994.

Chappell, H, and Dickey, C. Decreased rehospitalization costs through intermittent nursing visits to nursing home patients. *J Nurs Adm* 23(3):49-52, Mar 1993.

Conrad, K, Weaver, F, and Guihan, M. *Evaluation of the Enhanced Prospective Payment System (EPPS) for VA contract Nursing Homes*, Final Report, Hines HSR&D Field Office, 1994.

Downes, G, Hamilton, L, and Fletcher, NC. The emphasis here is on home. *Hospitals* 55(4):81-3, Feb 16, 1981.

Epstein, WM. A comparison between the VA's long-term nursing home care program and three examples of similar care outside of the VA. *Int J Aging Hum Dev* 13(1):61-9, 1981.

Hickam, DH, & Hedrick, SC. Clinicians' predictions of nursing home placement for hospitalized patients. *J AM Geriatric Society* 39(2):176-80, Feb 1991.

Joseph, CL, Ganzini, L, and Atkinson, RM. Screening for alcohol use disorders in the nursing home. *J AM Geriatric Society* 43(4):368-73, April 1995.

Mehr, DR, Fries, BE, and Williams, BC. How different are VA nursing home residents? *J Am Geriatric Society* 41(10):1095-101, Oct 1993.

Rudman, D, Alverno, L, and Mattson, DE. A comparison of physically aggressive behavior in two VA nursing homes. *Hosp Community Psychiatry* 44(6):571-5, June 1993.

Rudman, D, et al. Comparison of clinical indicators in two nursing homes. *J Am Geriatric Society* 41(12):1317-25, Dec 1993.

Rudman, D, et al. A simple method to quantify the changes in activities of daily living of long-stay nursing home populations. *Am J Phys Med Rehabil* 72(5):276-80, Oct 1993.

Timko, C, et al. Quality of care and outcomes of chronic mentally ill patients in hospitals and nursing homes. *Hosp Community Psychiatry* 44(3):241-6, Mar 1993.

Williams, BC, Fries, BE, and Mehr, DR. Length of Stay in VA Nursing Homes: Comparative Characteristics of Brief-, Medium-, and Long-Stay Residents. *J Aging and Health* 5(2):208-228, May 1993.

Williams, BC, Fries, BE, and Mehr, DR. Patterns and Determinants of Health Services Use and Mortality after VA Nursing Home Care. in review for *J Aging and Health*.

II. VA Home Based Primary Care (HBPC) & Community Based Skilled Home Care

Baker, CR, et al. *Hospital-based Home Care Groups (HCGs)* Final Report, Little Rock, Arkansas: Department of Veterans Affairs/Health Services Research and Development Service, 1988.

Cummings, J, et al. Cost effectiveness of VA hospital based home care. *Archives of Internal Medicine* 150:1274-1280, 1990.

Cummings, J, & Weaver, F. Cost effectiveness in home care. *Geriatric Clinics of America* 7(4):865-874, 1991.

Cummings, J, et al. Cost effectiveness and hospital based home care. In *Quality and Cost Containment in Care of the Elderly*, J Romeis & R Coe (Eds.), Springer Publishing Co., New York, 1991.

Gabe, M, and Gill-Forney, B. Reaching for the ideal in home care. *Home Health Nurse* 11(6):30-4, Nov-Dec 1993.

Hughes, SL, et al. The cost-effectiveness of a hospital based home care program for the severely disabled Veterans. *Med Care* 28(2):135-45, 1990.

Hughes, SL, et al. A Randomized Trial of the Cost Effectiveness of VA Hospital-based Home Care for the Terminally Ill. *Health Services Research* 26(6):801-817, 1992.

Smith, ME, et al. Case-mix Groups for VA Hospital-based Home Care. *Med Care* 30(1):1-16, 1992.

Weaver, F, et al. A profile of Veterans Affairs hospital based home care programs. *Home Health Care Services Quarterly*, (accepted for publication).

III. Adult Day Health Care (ADHC)

In the same *Medical Care* volume:

Capitman, JA. Program implications of the Veterans ADHC studies. *Med Care* 31(9 Suppl):SS122-4, Sept 1993.

Chapko, DC, et al. Data collection in the adult day health care evaluation study. *Med Care* 31(9 Suppl):SS15-25, Sept 1993.

Chapko, DC, et al. Effects of the adult day health care on utilization and cost of care for subgroups of patients. *Med Care* 31(9 Suppl):SS62-74, Sept 1993.

Connis, RT, et al. The adult day health care organizational and program characteristics. *Med Care* 31(9 Suppl):SS26-37, Sept 1993.

Ehreth, JL, et al. Comparison of utilization and cost among contract adult day health care, VA adult day health care and customary care. *Med Care* 31(9 Suppl):SS84-93, Sept 1993.

Ehreth, JL, et al. Cost of VA adult day health care programs and effect on utilization and cost of care. *Med Care* 31(9 Suppl):SS50-61, Sept 1993.

Hedrick, SC, et al. Implications of the adult day health care evaluation study for program revision and research. *Med Care* 31(9 Suppl):SS104-15, Sept 1993.

Hedrick, SC, et al. Overview and patient recruitment in the adult day health care evaluation study. *Med Care* 31(9 Suppl):SS3-14, Sept 1993.

Hedrick, SC, et al. Summary and discussion of methods and results of the adult day health care evaluation study. *Med Care* 31(9 Suppl):SS94-103, Sept 1993.

Kelly, JR. The ADHC Evaluation Study- impact on VA programs. *Med Care* 31(9 Suppl):SS116-8, Sept 1993.

Rothman, ML, et al. Effects of contract adult day health care on health outcomes and satisfaction with care. *Med Care* 31(9 Suppl):SS75-83, Sept 1993.

Rothman, ML, et al. Effects of VA adult day health care on health outcomes and satisfaction with care. *Med Care* 31(9 Suppl):SS38-49, Sept 1993.

Weissert, WG. One more battle lost to friendly fire- or if you spend too much it's hard to save money. *Med Care* 31(9 Suppl):SS119-21, Sept 1993.

Hedrick, SC, et al. Adult Day Health Care Evaluation Study: Methodology and Implementation. Adult day health care evaluation group. *Health Services Research* 25(6):935-60, Feb 1991.

IV. Homemaker/Home Health Aide

Kern, DC, Hickey, EC, Davidson, H, and Davidson, MB. *The Homemaker/Home Health Aide Evaluation Project*. Final Report, HSR&D Field Program Bedford VAMC, June 1995.

V. Domiciliary

Berman, S, Barilich, JE, Rosenheck, R, and Koerber, G. The VA's first comprehensive homeless center: a catalyst for public and private partnerships. *Hosp Community Psychiatry* 44(12):1183-4, Dec 1993.

Dent, OB, and Aaronson, AL. Judged levels of success upon discharge from Department of Veterans Affairs domiciliaries. *J Clin Psychol* 49(1):117-20, Jan 1993.

Leda, C, and Rosenheck, R. Mental health status and community adjustment after treatment in a residential treatment program for homeless veterans. *Am J Psychiatry* 149(9):1219-24, Sep 1992.

Rosenheck, R, and Leda, C. Who is served by programs for the homeless? Admission to a domiciliary care program for homeless veterans. *Hosp Community Psychiatry* 42(2):176-81, Feb 1991.

VI. Community Residential Care (CRC)

Huffman, RW. Transitional housing for veterans with a psychiatric diagnosis. *J Psychosoc Nurs Ment Health Serv* 31(1):11-4, Jan 1993.

Lemke, S, and Moos, RH. Measuring the Social Climate of Congregate Residences for Older People: Sheltered Care Environment Scale. *Psychology and Aging* 2(1):20-29, 1987.

Moos, RH., and Lemke, S. *Group Residencies for Older Adults: Physical Features, Policies, and Social Climate.* New York: Oxford University Press, 1994.

Moos, RH, and Lemke, S. Supportive Residential Settings for Older People. In, Altam, I, Lawton, MP, and Wohlwill, JF (Eds.), *Elderly People and the Environment.* New York: Plenum, 1984.

Moos, RH, and Moos, BS. Stay in Residential Facilities and Mental Health Care as Predictors of Readmission for Patients with Substance Use Disorder. *Psychiatric Services* 46(1):66-72, January 1995.

Moos, RH, Pettit, B, and Gruber, V. Characteristics and Outcomes of Three Models of Community Residential Care for Substance Abuse Patients. *Journal of Substance Abuse* 7:99-116, 1995.

Moos, RH, Pettit, B, and Gruber, V. Longer Episodes of Community Residential Care Reduce Substance Abuse Patients' Readmission Rates. *Journal of Studies on Alcohol* 56(4):433-443, July 1995.

Rosenheck, R, Gallup, P, and Frisman, L. Health Care Utilization and Costs After Entry into an Outreach Program for Homeless Mentally Ill Veterans. *Hosp Community Psychiatry* 44(12):1166-71, Dec 1993.

Rosenheck, R, Neale, M, Leaf, P, Milstein R, and Frisman L. Multi-site experimental cost study of intensive psychiatric community care. *Schizophr Bull* 21(1):129-40, 1995.

Timko, C, and Moos, RH. A Typology of Social Climates in Group Residential Facilities for Older People. *Journal of Gerontology: Social Sciences* 46(3):S160-169, 1991.

Timko, C, Nguyen, AQ, Williford, WO, and Moos, RH. Quality of Care and Outcomes of Chronic Mentally Ill Patients in Hospital s and Nursing Homes. *Hospital and Community*

Psychiatry 44(3):241-246, March 1993.

VII. Hospice

Dukes, CS, Turpin, BA, and Atwood, JR. Hospice education about people with AIDS as terminally ill patients: Coping with a new epidemic of death. American Journal of Hospice & Palliative Care, 25-31, Jan/Feb 1995.

Kane, RL, Bernstein, L, Wales, J, and Rothenberg, R. Hospice effectiveness in controlling pain. JAMA 253(18):2683-6, May 10, 1985.

Kane, RL, Klein, SJ, Bernstein, L, Rothenberg, R, and Wales, J. Hospice role in alleviating the emotional stress of terminal patients and their families. *Medical Care* 23(3):189-97, March 1985.

Kane, RL, Wales, J, Bernstein, L, Leibowitz, A, and Kaplan, S. A randomized controlled trial of hospice care. *Lancet* 1(8382):890-4, April 21, 1984.

Mathew, LM, et al. Attitudes of house officers toward a hospice on a medical service. *J Med Educ* 58(10):772-7, Oct 1983.

Wales, J, Kane, R, Robbins, S, Bernstein, L, and Krasnow, R. UCLA hospice evaluation study. Methodology and instrumentation. *Medical Care* 21(7):734-44, July 1983.

VIII. Respite

Berman, S, et al. Respite Care: A Partnership Between a Veterans Administration Nursing Home and Families to Care for Frail Elders at Home. *The Gerontologist* 27(5):581-584, Oct 1987.

Chang, JI, Karuza, J, Katz, PR, and Klingensmith, K. Patient outcomes in hospital-based respite: a study of potential risks and benefits. *J Am Board Fam Pract* 5(5):475-81, Sep-Oct 1992.

Ellis, V, and Wilson, D. Respite Care in the nursing home unit of a veterans hospital. *American Journal of Nursing* 1433-1435, Oct 1983.

Geiser, R, Hoche, L, and King, J. Respite care for mentally ill patients and their families. *Hosp Community Psychiatry* 39(3):291-5, March 1988.

Hirsch, CH, Davies, HD, Boatwright, F, and Ochango, G. Effects of a nursing home respite admission on veterans with advanced dementia. *Gerontologist* 33(4):528-8, Aug 1993.

Larkin, JP, and Hopcroft, BM. In-hospital respite as a moderator of care giver stress. *Health Soc Work* 18(2):132-8, May 1993.

Scharlach, A, and Frenzel, C. An Evaluation of Institution-Based Respite Care. *The Gerontologist* 26(1):77-82, Feb 1986.

IX. GEM

Boult, C, et al. A controlled trial of outpatient geriatric evaluation and management. *J Am Geriatric Soc* 42(5):465-70, May 1994.

Keller, BK, and Potter, JF. Predictors of mortality in outpatient geriatric evaluation and management (GEM) clinic patients. *J Gerontol* 49(6):M246-51, Nov 1994.

Lavizzo-Mourey, RJ, Hillman, AL, Diserns, D, and Schwartz, JS. Hospitals' motivations in establishing or closing geriatric evaluation management units: diffusion of a new patient-care technology in a changing health care environment. *J Gerontol* 48(3):M78-83, May 1993.

Rubenstein, LZ, et al. The Sepulveda VA geriatric evaluation unit: Four-year outcome data and predictors of improved patient outcome. *Journal of the American Geriatrics Society* 32(7):503-12, 1984.

Rubenstein, LZ, Josephson, KR, Wieland, GD, and Kane, RL. Differential prognosis and utilization patterns among clinical subgroups of hospitalized geriatric patients. *Health Services Research* 20(6 Pt 2):881-95, Feb 1986.

Stuck, AE, Siu, AL, Wieland, GD, Adams, J, and Rubenstein, LZ. Comprehensive geriatric assessment: a meta-analysis of controlled trials. *The Lancet* 324:1032-36, Oct 1993.

Weiland, D, Hedrick, SC, Rubenstein, LZ, Buchner, DM, Reuben, DB, and Harker, JO. Inpatient geriatric evaluation and management units: Organization and care patterns in the Department of Veterans Affairs. *Gerontologist* 34(5):652-7, Oct 1994.

Weiland, D, Rubenstein, LZ, Hedrick, SC, Reuben, DB, and Buchner, DM. Inpatient geriatric evaluation and management units (GEMs) in the veterans health system: Diamonds in the rough? *J Gerontol* 49(5):M195-200, Sept 1994.

Weinberger, M, et al. Compliance with recommendations from an outpatient geriatric consultation team. *Journal of Applied Gerontology* 1994 (in press)

X. VA Database Development/Information Systems

Fleming, C, Fisher, ES, et al. Studying Outcomes and Hospital Utilization in the Elderly: The Advantages of a Merged Data Base for Medicare and Veterans Affairs Hospitals. *Med Care* 30(5):377-391, May 1992.

Hammond, K, and Date, V.V. *Clinical content of the Geriatric Record and Multidisciplinary Planning System (GRAMPS)*, #IIR 84-041, 6-4-89.

Hammond, K, et al. *HSR&D Technical Report: A Geriatric Record and Multidisciplinary Planning System (GRAMPS)*, #IIR 84-041, May 12, 1989.

Hammond, K, et al. A Provider-Interactive Medical Record System can Favorably Influence Costs and Quality of Medical Care. *Comput Biol Med*, Vol 20(4):267-279, 1990.

Hammond, K. Treatment Planner: A VA blueprint for Managed Mental Health Care. In, *Computers in Mental Health*. Miller, M, Hile, M, and Hammond, K (eds.) Springer-Verlag, Inc., 1996.

Williams, BC, Mehr, DR, and Fries, BE. Use of Administrative Records to Describe Longitudinal Patterns of Health Services Use Among Veterans. *J Am Medical Informatics Assoc* 1(4):325-7, July-Aug 1994.

XI. Assessment/RUGs

Baker, FM, and Miller, CL. Screening a skilled nursing home population for depression. J Geriatric Psychiatry Neurol 4(4):218-21, Oct-Dec 1991.

Braun, B, et al. RUG II: Reliability and Reimbursement in a Long Term VA Setting. *VA Practioner*, 47-50, Dec 1993.

Burns, R, Nichols, LO, Graney, MJ, and Cloar, FT. Impact of continued geriatric outpatient management on health outcomes of older veterans. *Arch Intern Med* 155(12):1313-8, Jun 26, 1995.

Calvani, D, and Douris, K. Functional Assessment: A Holistic Approach to Rehabilitation of the Geriatric Client. *Rehabilitation Nursing* Vol 16(6):330-335, Nov-Dec 1991.

Cournoyer, P. The Veterans Administration's Resource Allocation System. *Nursing Clinics of North America*, Vol 23(3), Sept. 1988.

Fabacher, D, et al. An in-home preventive assessment program for independent older adults: a randomized controlled trial. *J Am Geriatric Society* 42(6):630-8, June 1994.

Report of the Secretary's Advisory Panel on the Development of Uniform Needs Assessment Instrument(s). Executive Summary, Department of Veterans Affairs,

Rudman, D, Bross, D, Mattson, DE. Clinical indicators derived from the patient assessment instrument in the long-stay residents of 69 VA nursing homes. *J Gen Intern Med* 9(5):261-7, May 1994.

Voeks, SK, et al. Hearing loss in the nursing home: An institutional issue. J Am Geriatri Soc 38(2):141-5, Feb 1990.

XII. VA LTC- general

Index of Principal Investigators