

Sonderegger Research Center Report

Celebrating 25 Years of Health Services Research in Pharmacy

1985-2010



SCHOOL OF
PHARMACY
University of Wisconsin-Madison



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SONDEREGGER RESEARCH CENTER

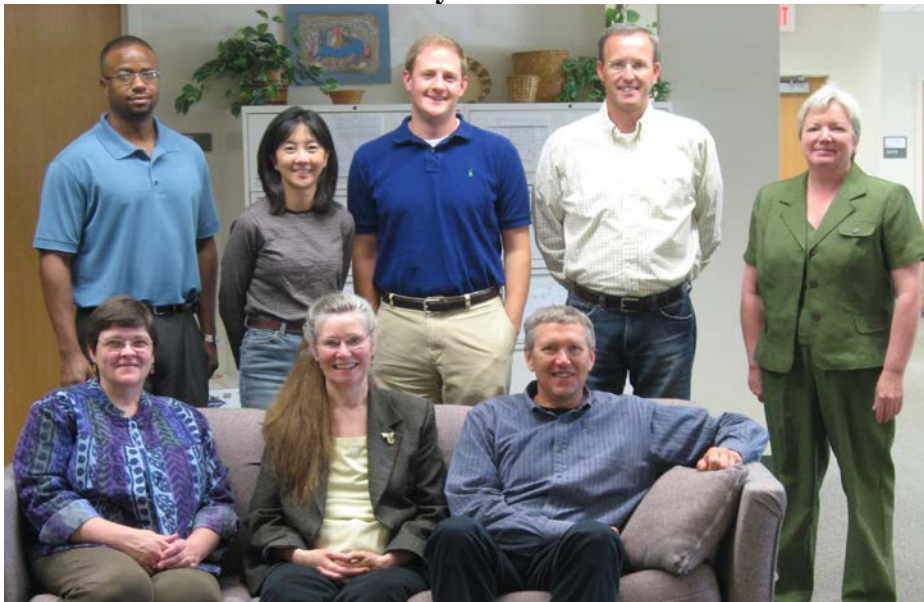
Celebrating 25 Years of Health Services Research in Pharmacy

The Sonderegger Research Center (SRC), established in 1985, was the first Center in the nation to feature health services research in pharmacy and remains a national leader. SRC is an officially recognized University of Wisconsin Madison research center.

SRC research contributes to improved health by addressing:

- Organization and financing of health care
- Policy and public health
- Quality and promotion of best practice in pharmacy
- Patient behavior and outcomes

SRC Faculty and Staff



Standing (left to right): Young, Chui, Thorpe, Mott, Dean Roberts
Seated: Wilson, Chewning, Kreling

The mission, goals and philosophy of the SRC are reflected in its core members. The Center is faculty-based, multidisciplinary and collaborative. SRC faculty have wide-ranging areas of expertise but share the overall goal of SRC to study the organization, delivery, financing, quality and outcomes of pharmacy within the broader health care system. All core faculty members serve on the SRC Board..

The SRC's core interdisciplinary faculty facilitates pharmacy practice enhancement and research through developing and collaborating with pharmacy partnerships. The SRC brings resources to help pharmacies achieve their agenda of serving the people of Wisconsin to their full capacity. The Wisconsin Idea is embodied in these and other SRC activities.

SRC serves as a research resource for the UW Institute for Clinical Translational Research-Community Academic Partnerships (ICTR-CAP), funded from a 2007 NCR/NIH Clinical and Translational Science Award. SRC joins ICTR in its goal to transform research into a continuum translating findings into practice in order to improve health.

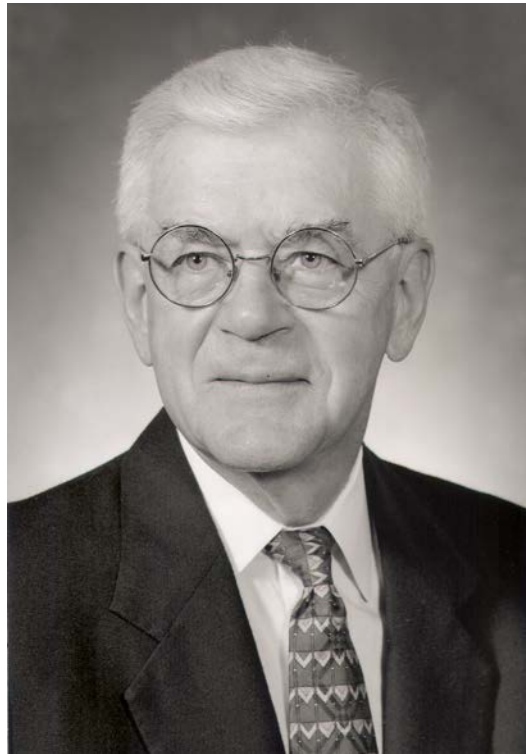
The Sonderegger Research Center values an interdisciplinary approach and collaboration in its health services research with colleagues in other UW departments as well as other universities, including the UW Center for Health Systems Research and Analysis, UW School of Medicine and Public Health (including Depts. of Internal Medicine, Pediatrics, Rheumatology, and Surgery); UW departments of Engineering, Human Ecology, Library Science, Psychology, Social Work, Sociology, Counseling Psychology; UW School of Business; VA Medical Center, Medical College of Wisconsin, University of North Carolina, University of Alabama, University of Illinois, University of Washington, University of Kansas, Research Triangle Institute, University of California Los Angeles, University of Exeter, Pharmacy Society of Wisconsin, Great Lakes Inter-Tribal Council.

In 2007, the NIH National Center for Research Resources granted UW-Madison a Clinical and Translational Science Award (CTSA) to develop infrastructure to support interdisciplinary research among investigators and scholars/trainees at UW and Marshfield Clinic and to create an environment that transforms research into a continuum from investigation through discovery and to translation into real-life community practice. The SRC is a core research resource within the Community Academic Partnership (CAP) component of ICTR.

As a core resource, SRC seeks to encourage and evaluate research designed to describe and increase patient-centered care in a variety of health systems. To accomplish this, the SRC has several subgoals: 1) to consult with investigators and facilitate submission of research proposals related to patient-centered care; 2) to acquire equipment to assist researchers in observational research; 3) to develop templates for human subject consent that may be used with both the social science and health sciences IRB review committees; 4) to establish ongoing collaborative partnerships with community pharmacies. The goal is to increase the capacity of pharmacies in collaboration with SRC to address key agendas which community pharmacists face as they seek to extend roles, improve the quality of care and achieve optimum outcomes for diverse patients.



August P. Lemberger, PhD *IN MEMORIAM*



The Faculty and Staff of the Sonderegger Research Center dedicate this report to the memory of UW School of Pharmacy Professor and Dean Emeritus “Gus” Lemberger who died February 16, 2010. Dean Lemberger, along with School of Pharmacy Professor Joe Wiederholt and William Young, Professor Emeritus, Political Science worked with the Rennebohm Foundation to establish the Sonderegger Research Center in 1985.

Dr. Lemberger was regarded as a mentor, role model, and leader by pharmacy students, practitioners, and colleagues. SRC faculty and staff remember and honor his warmth, integrity and vision.



John L. Sonderegger

IN RECOGNITION

Skilled accountant, successful manager, effective executive, honorable public servant, dedicated community supporter and insightful philanthropist, John L. Sonderegger lived several lives. In 1985, the Rennebohm Foundation established the Sonderegger Research Center in the University of Wisconsin–Madison School of Pharmacy to honor this longtime employee and friend.



John Sonderegger’s association with Oscar Rennebohm and the chain of drug stores he built began in 1936, when he was hired as a part-time clerk. Sonderegger impressed Rennebohm with his business acumen, industry, and loyalty to such an extent that in 1940 Rennebohm hired him as a full-time employee. Sonderegger rose steadily in rank and importance and eventually was made President and Treasurer of the company in 1956. There he continued as CEO until the drug stores were sold to Walgreens in 1980.

“Sondy,” as he was known to his friends and associates, was an unusually effective leader with incredible capacity for hard work and mastery of detail and grand strategy. When Rennebohm embarked on a political career in 1947, he did so with confidence that Sonderegger could manage the drug stores. Rennebohm succeeded to the governorship in 1944 and named Sonderegger to brief terms as State Treasurer and later, Insurance Commissioner. In these capacities, Sonderegger helped reform the state’s fiscal system and saved the state several millions of dollars.

Sonderegger was a consummate public servant. When Rennebohm organized the Oscar Rennebohm Foundation in 1949, Sonderegger was named one of the first directors, and he served with distinction on the Board until his death in 1992. He also served on the Boards of Directors of First Wisconsin Trust Company, Madison Gas and Electric Company, Edgewood College, and Wisconsin Life Insurance Company. After the sale of Rennebohm’s drug stores to Walgreens in 1980, Sonderegger served as President and CEO of Wisconsin Life Insurance Company until it was merged into Central Life of Des Moines, Iowa. He then served as Chairman of the Board of Central Life Insurance until his retirement. In each organization, he was respected and admired for his diligence, shrewdness and good business judgment.

Mr. John L. Sonderegger’s keen interest in tackling the tough problems, as well as his appreciation for careful work in doing so, continue to inspire the Sonderegger Research Center today.



Research Agenda

The SRC's research helps policy makers, the profession, and citizens to improve the health of our population and health care system, particularly as it relates to pharmacy. SRC investigators study the organization, delivery, financing, quality, patient perspective, and outcomes of pharmacy within the broader health care system. Since the SRC's inception, grants for this work have generated over \$10 million in external research funding beyond the original start-up gift. Researchers have conducted descriptive and intervention studies funded by federal, state, international and private agencies.

Enhancing Physician Referral and Recommendation of Pharmacist Provided MTM Services

2010-2011

Michelle A. Chui, PharmD, PhD, Principal Investigator

Awarded by: Community Pharmacy Foundation

Patient uptake and physician awareness of programs implementing pharmacist provided MTM services have not been optimal. This has limited physician referral and acceptance of pharmacist-provided recommendations, one of the identified challenges of further implementation of these programs. The objective of this project is to facilitate a structured communication between local pharmacists and physicians for purposes of enhancing and encouraging physician referral and recommendation acceptance of pharmacist services.

To accomplish the project aims, efforts will focus on:

1. Exploring facilitators and barriers (actual and perceived) of collaboration and develop strategies to overcome them
2. Identify priorities for practice agendas to improve the health of Wisconsin citizens
3. Discover projects where physicians and pharmacists already have problem-solved and addressed potential challenges and barriers

Our plan is to partner with the Wisconsin Medical Society (WMS), who will identify physicians interested in collaborating with pharmacists. Pharmacists in the same zip codes and providing MTM services will be paired with them and asked to participate in structured interviews to determine common language, values and goals related to MTM services. The interviews will be content analyzed so that the information may be synthesized into marketing tools that will help build awareness of MTM programs, lead to physician referrals, and increase acceptance of pharmacist-provided drug therapy recommendations. We hope that this project will set a foundation for a two-pronged approach to patient care with physicians, in addition to pharmacists, recommending patient centered services.

Exploring Pharmacist to Pharmacist Communication During Patient and Prescription Handoffs
2009-2010

Michelle A. Chui, PharmD, PhD, Principal Investigator

Awarded by: UW-Madison Graduate School

The goals of this project are to explore how patient and prescription information is conveyed between pharmacists and how they perceive how responsibility of a patient or prescription is handed off from one pharmacist to another. Transcribed interviews with pharmacists were analyzed. Pharmacists, similarly to other health care professionals, do hand off prescription information and responsibility to their colleagues, however, the process was unstandardized and problematic. Pharmacists indicated that problems occurred when there was incomplete or confusing information, when there was no feedback loop back to the originating handoff pharmacist, and because it contributed to workflow distractions. Pharmacists tend to focus on prescriptions as the handoff unit (rather than the patient), since each prescription may have its own problems, many of which may be non-clinical in nature.

Implications/Conclusions: This project was the first study to address handoff communication, a previously unexplored gap in the community pharmacy. It revealed the importance of studying this process and how it may be associated with medication safety. Future research needs to address multiple facets of the handoff process and pharmacist-pharmacist communication in the community pharmacy including factors that contribute to, and outcomes of poor handoffs, so that interventions can be developed to improve this process in community pharmacies.

Pharmacy Quality Alliance – Wisconsin Pharmacy Quality Collaborative Demonstration Project (Phase I)

2008-present

Dave Mott, PhD, Principal Investigator

Awarded by: Pharmacy Society of WI, Pharmacy Quality Alliance

Background: The implementation of Medicare Part D has made the Centers for Medicaid and Medicare Services (CMS) one of the largest payers for prescription drugs in the world. This role prompted CMS to support the formation of the ***Pharmacy Quality Alliance (PQA)***, a multi-stakeholder organization working to establish viable approaches for measuring and reporting pharmacy performance. The evolution of systems to report pharmacy quality is likely to quicken with the development of reliable pharmacy performance measures and establishment of mechanisms for collecting and reporting pharmacy performance. After initial work to develop a set of pharmacy quality measures, an important step in PQA's mission of improving the quality of medication use through a collaborative process was supporting five Phase 1 Demonstration Projects. Wisconsin served as one of the five projects.

This project involved SRC collaboration with the Pharmacy Society of Wisconsin (PSW) and the UW Center for Health Systems and Analysis (CHSRA). SRC coordinated pharmacist education, assisted with development of the QI report, and developing the content for a pharmacist website. The website included pharmacist education resources, a link to the PQA program, a section on defining quality indicators, a section about the reports, a FAQ section, and a performance report for each specific pharmacy. SRC also coordinated and received pharmacist feedback about the website and reports. Performance scores were calculated for all Wisconsin pharmacies serving Medicaid. A sample of participating pharmacists and payers were invited to provide feedback.

Results of the demonstration projects suggest that there is room for improvement in performance scores (as shown by the considerable variability in scores across pharmacies and projects). Additionally, future work will address pharmacists' impact on patient adherence, opportunities for pharmacists to work with patients and physicians to assure that their patients are receiving drug therapy that is consistent with accepted guidelines, and the need for development of a system that supports pharmacists in addressing their performance.

A second project under this initiative addresses pharmacists lack confidence in their ability to provide MTM services. An MTM self-efficacy scale instrument was developed and evaluated in conjunction with the Wisconsin Pharmacy Quality Collaborative (WPQC) MTM program.

Barriers to Medical Care and Medication Adherence in Persons with Alzheimer's Disease and Related Disorders

2009-2010

Joshua Thorpe, PhD, Principal Investigator

Awarded by: Wisconsin Comprehensive Memory Program

The specific aims of this research are: (1) to gather preliminary data on medication adherence levels in persons with ADRD via caregiver report; (2) to obtain information about caregiver's perceived barriers to outpatient care access in persons with ADRD and examine the relationship between access barriers and medication adherence; and (3) to test the feasibility of recruiting and retaining a sample of informal caregivers.

Suboptimal Medication Use in Persons with Dementia and Their Informal Caregivers

2008-2011

Joshua Thorpe, PhD, Principal Investigator

Awarded by: NIH, National Institute on Aging

Study period: 2008 to 2011

The specific study aims are to: (1) describe the rate and identify determinants of inappropriate medication use in community-dwelling adults with dementia; (2) describe the rate and identify determinants of inappropriate medication use in informal caregivers of dementia patients; (3) determine if suboptimal medication use impacts patient health, caregiver physical and emotional health, and the timing of care-recipient institutionalization; and (4) examine the trajectories of inappropriate medication use over time in dementia patients and their caregivers.

Medications Prescribed in Emergency Departments for Non-Traumatic Dental Conditions

2010-2011

Joshua Thorpe, PhD, Methodologist Consultant

Awarded by: NIH, National Institute of Dental and Craniofacial Research (NIDCR)

Disparities in Healthy Behaviors and Preventive Care in Adults with Elder Care Responsibilities

2010-2012

Joshua Thorpe, PhD, Principal Investigator

Awarded by: NIH Loan Repayment Award for Health Disparities Research, National Center on Minority Health and Health Disparities (NCMHD)

The Role of Pharmacist Evaluation in Activation of Adult Asthma Patients

2009-2010

Henry N. Young, PhD, Principal Investigator

Awarded by: NIH, CTSA/MERC

Optimal medication use is a vital strategy to improve patients' control over asthma. Appropriate use of prescription medications prevent exacerbations and improve patients' quality of life. Thirty to eighty percent of patients with asthma have problems adhering to prescribed treatment regimens. Nonadherence is associated with worse asthma control, poor quality of life, and increased health services utilization. Underserved, rural asthma patients may have additional barriers accessing pharmacist services that could improve their medication use and asthma control. Telepharmacy, or the provision of pharmaceutical care through the use of telecommunications and information technologies to patients at a distance, has shown promise in improving patients' access to health care services. However, asthma-related pharmaceutical care programs have not been implemented through telepharmacy, nor have they targeted rural populations in a comprehensive manner.

The goal of this study is to conduct a pilot test of a telepharmacy-based intervention to improve underserved, rural asthma patients' use of prescribed medications and asthma management. In an effort to achieve this goal, we are conducting a randomized control trial to assess the feasibility, acceptability, and effectiveness of an asthma telepharmacy program. Thus far, we have recruited 98 patients from the Family Health Center of Marshfield Pharmacy to participate in this study. Forty-seven participants were randomly assigned to the intervention. The intervention consisted of three telephonic consultations with Marshfield Clinic pharmacists regarding asthma self-management and medication use over a three month period. Following a standardized protocol, pharmacists assessed and addressed patients' barriers to managing their asthma and medication use. All of the intervention contacts have been completed. The control group received usual care, which consisted of the receipt of written medication use instructions through the mail with a prescription. We are currently in the follow-up/post-intervention survey phase of the study. We anticipate that all post-intervention surveys will be completed in November 2010.

A Team Model of Hypertension Care in African Americans

2004-2010

Bonnie Svarstad, PhD, Principal Investigator

Awarded by: National Heart Lung & Blood Institute, U.S. Department of Health and Human Services

Objective: To determine whether blood pressure (BP) control can be improved in hypertensive African Americans through the use of pharmacist-technician teams and innovative tools (compared with usual care) and assess whether BP outcomes are associated with team "fidelity" to the study protocol.

Methods: The Team Education and Adherence Monitoring (TEAM) trial is a randomized controlled trial testing organizational interventions for improving BP control in 28 corporately owned pharmacies.

Pharmacies were randomized into 14 TEAM care sites (TC) and 14 usual care plus information sites (UC+). Intervention teams received training and innovative tools for monitoring and improving patient adherence and BP control. Blinded interviewers screened 1,250 African Americans, enrolled 576 African Americans, and used standard procedures to reassess BP. In this paper, we perform an "intent-to-treat" analysis and a "per protocol" analysis examining changes in systolic and diastolic BP (SBP, DBP) and BP control (BP <140/90 mm Hg) after 6 months. We use program records to quantify

team fidelity to the monitoring protocol, with “high” team monitoring defined as completing at least 5 of 6 recommended patient consultations using certain monitoring tools over 6 months.

Results: Patients had a mean age of 53 (range 19–87) and mean baseline SBP and DBP of 152.2 and 92.5 mm Hg. Interviewers reassessed 546 patients (95%) after 6 months. Compared with UC+ patients, TC patients experienced greater reductions in SBP ($P < 0.004$) and better BP control ($P < 0.002$) after 6 months. Of 276 TC patients, 55% received “low” team monitoring and 45% received “high” team monitoring. As predicted, team fidelity to the monitoring protocol was associated with greater reduction in SBP ($P < 0.007$) and BP control ($P < 0.01$).

Conclusion: A team model using pharmacist–technician teams and innovative tools can be a powerful model for improving BP control among African Americans in corporately owned pharmacies.

Older Adults & Drug Decisions: Collaboration & Outcomes

2002-2009

Betty Chewning, PhD, Principal Investigator

Carolyn Bell, MD, and David Kreling, PhD, Co-Investigators

Betsy Sleath, PhD, University of North Carolina–Chapel Hill, Subcontract Principal Investigator

Awarded by: National Institute on Aging, National Institutes of Health

This was a two state randomized control trial of the impact of an intervention that identified pre-visit concerns of older adults with rheumatoid arthritis and then prompted both patients and physicians to address these concerns in the visit through a computer printout. Impact of the intervention on patient outcomes was evaluated longitudinally. The intervention significantly increased discussion of patient agendas and decreased reported patient pain 6 months later.

Establishing a Center to Examine the Quality of Prescription Drug Use: A Pilot Study of Non-steroidal Anti-inflammatory Drugs (NSAIDs)

2005-2006

James M. Robinson, PhD, University of Wisconsin–Madison Center for Health Systems Research and Analysis, Principal Investigator

David Kreling, PhD, Co-Investigator

Awarded by: WEA Trust

This pilot project sought to establish a research database of health insurance claim and coverage information to identify patterns and trends in prescription drug use and implications for subsequent health outcomes and service utilization. The project was undertaken in conjunction with the Center for Health Systems Research and Analysis (CHSRA). Specific objectives included conducting a descriptive study of the patterns of drug use, examining whether patterns of drug use conform to appropriate or preferred regimens for the therapeutic situation, and assessing whether other medical care use or outcomes differ when more appropriate or cost-effective drugs are used. A goal of this pilot project was to lay initial groundwork for a Center for Evidence-based Health Care Assessment and Quality that will enable better decisions about health care use that can save money on expenditures yet improve outcomes for patients.

Student Outreach to Prevent and Reduce Smoking (STOPRS)

2004–2006

Betty Chewning, PhD, Principal Investigator

David Kreling, PhD, and Beth Martin, RPh, MS, Co-Principal Investigators

Awarded by: Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment

This research project trained students and pharmacists to market, offer and document their pharmacist-based smoking cessation programs. About 50 pharmacists and students were trained to offer smoking cessation programs in community pharmacies around the state. In addition, students were trained to offer smoking prevention education in middle schools. Over 300 middle school students received smoking prevention programming from School of Pharmacy professional students enrolled in this project.

National Sample Survey of the Pharmacist Workforce to Determine Contemporary Demographic and Practice Characteristics: 2004

2004-2005

David Mott, PhD, David Kreling, PhD, Craig Pedersen, PhD, Jon C. Schommer, PhD, William Doucette, PhD, and Caroline Gaither, PhD, Principal Investigators

Awarded by: Pharmacy Manpower Project, Inc.

Developing and Validating a Measure of Patient Provider Concordance

2003-2004

Betty Chewning, PhD, Principal Investigator

Awarded by: University of Wisconsin Graduate School

This project involved development and validation of a measure and coding protocol for the interaction between a patient and health care provider. The goal is to measure the degree of concordance (agreement) sought and achieved with respect to medication regimens by the end of the encounter.

Evaluation of Participation in the Wisconsin Medicaid Pharmaceutical Care Program

2003-2004

David Mott, PhD and David Kreling, PhD, Principal Investigator

Awarded by: Community Pharmacy Foundation

Pharmacy-Based Smoking Cessation Program for Young Adults

2001

Betty Chewning, PhD, Principal Investigator

David Kreling, PhD, and Dale Wilson, MA, Co-Principal Investigators

Awarded by: Tobacco Control Board, State of Wisconsin, Department of Health and Family Services

The purpose of this pilot study was to design, implement and evaluate a pharmacy-based smoking cessation program for employees at their work site, drawing on the Transtheoretical Model. Pharmacists working in grocery stores offered tobacco cessation programs to 18-24 year old workers as a part of a major statewide initiative to decrease smoking among young adults.

Updating the Prescription Drug Trends Chartbook

2001

David Kreling, PhD, and David Mott, PhD, Principal Investigators

Awarded by: Henry J. Kaiser Family Foundation

In this project, the original chartbook on trends in the pharmaceutical industry developed for the Kaiser Family Foundation was updated. Key charts were updated with more recent data, and new charts reflecting different analyses or aspects of trends were added. The update was intended to enhance understanding of trends and factors contributing to trends related to prescription drugs. The update also is published and distributed by the Kaiser Family Foundation (www.kff.org).

Factors Associated with Academic Performance of School of Pharmacy Students

2001

David Mott, PhD, Principal Investigator

Awarded by: Assessment Council, University of Wisconsin–Madison

Prescription Drug Coverage for Older Americans: Prevalence, Type and Associated Drug Use

2001

Jon C. Schommer, PhD, and David Mott, PhD, Principal Investigators

Awarded by: University of Minnesota

Wisconsin Family Impact Seminars

2001

David Mott, PhD, and David Kreling, PhD, Speakers, Discussants, and Program Planning Committee Members

These seminars were developed in partnership with the University of Wisconsin–Madison School of Human Ecology and the Center for Excellence in Family Studies. Collaborative funding was from the Helen Bader Foundation, Lynde and Harry Bradley Foundation, Sonderegger Research Center, and Elizabeth C. Davies.

Family impact seminars were designed to bring a family focus to policy making. The series was established in 1993, and the State of Wisconsin became one of the first states to sponsor Family Impact Seminars, modeled after the seminar series for federal policy makers. Each seminar provided objective non-partisan research on current issues. Seminars included presentations, briefing reports, and follow-up activities that provide up-to-date, solution-oriented research on current issues to state policymakers, legislators and their aides, Governor’s office staff, legislative support bureau personnel, and state agency representatives. Seminar participants discussed policy options and identified common ground where it exists. The 15th seminar, “Rising Prescription Drug Costs: Reasons, Needs, and Policy Responses” (January 2001), featured David Mott; Bruce Stuart, PhD, from the Peter Lamy Center on Drug Therapy and Aging at the University of Maryland; and Tom Snedden, Director of the Pharmaceutical Assistance Contract for the Elderly in the Pennsylvania Department of Aging. The 16th seminar, “Designing a State Prescription Drug Benefit: Strategies to Control Costs” (March 2001), featured David Kreling; John Hansen, Assistant Director of Health Care Issues, U.S. General Accounting Office; and Stephen Schondelmeyer, PhD, Director of the PRIME Institute, University of Minnesota.

Evaluation of Prescription Drug Information Materials–2001

2000-2001

Bonnie Svarstad, PhD, Principal Investigator

Jeanine Mount, PhD, RPh, and Nathan Kanous, PharmD, Co-Investigators

Awarded by: National Association of Boards of Pharmacy and the U.S. DHHS PHS Food and Drug Administration

In this national study, the quality of written patient information provided with new prescriptions in community pharmacies was evaluated. Shoppers presented four prescriptions at a random sample of 400 pharmacies in 50 states during spring 2001. If pharmacy staff provided patient information leaflets, they were accepted and mailed to UW–Madison for evaluation using a national expert panel and consumer evaluators in different states. Findings were submitted to the FDA and public in spring 2002.

Pharmacy Cost of Dispensing/Acquisition Cost Study

2000-2001

David Kreling, PhD, Principal Investigator

Awarded by: State of Wisconsin, Department of Health and Family Services

This study had two objectives: To estimate the cost of dispensing a prescription and assess prescription drug acquisition costs in community pharmacies that participate in the Wisconsin Medicaid program. For the cost of dispensing component, pharmacy managers and/or chain pharmacy executives at approximately 600 pharmacies were contacted to report financial and operational data for calculating the average cost of dispensing a prescription in their pharmacy(s). For the acquisition cost component of the study, a subset of pharmacies submitted one month's prescription drug purchase invoices. Costs for selected target drugs (selected because they commonly are dispensed to Medicaid recipients) were compared with reference prices to determine the percentage of pharmacy acquisition costs relative to Average Wholesale Prices (AWPs). The costs determined in the two parts of the study were examined for differences across pharmacies associated with pharmacy characteristics (e.g., rural/urban, high/low volume, special services, etc.).

National Sample Survey of the Pharmacist Workforce to Determine Contemporary Demographic and Practice Characteristics

2000

David Mott, PhD, William Doucette, PhD, Caroline Gaither, PhD, Craig Pedersen, PhD, Jon C.

Schommer, PhD, Co-Principal Investigators

Awarded by: Pharmacy Manpower Project, Inc.

The overall objective of this study was to obtain reliable information on demographic and practice characteristics of the pharmacist workforce in the United States during 2000. The survey was designed to collect such information from a nationally representative sample of 5,000 pharmacists. Specific goals of the study included: 1) describe the pharmacist workforce in the United States in terms of demographic and practice characteristics, 2) examine factors influencing hours worked annually by pharmacists, 3) describe work patterns in terms of setting and hours worked, 4) examine job satisfaction, and 5) document job turnover intentions and pharmacist work histories. The Pharmacy Manpower Project was a consortium of national pharmacy organizations which included the APhA, AACCP, NACDS, ASHP, NCPA, AMCP, ACA, ASCP, BHP, NABP, NCSPA, NPhA, NWDA, PhRMA, and PTCB.

A National Survey of Elderly Drug Insurance and Drug Use

2000

David Mott, PhD and Jon C. Schommer, PhD, Co-Principal Investigators

Awarded by: University of Minnesota

The purpose of this study was to: 1) describe the presence and type of prescription drug coverage for older Americans (aged 65 and over), (2) describe the out-of-pocket payment level required by prescription drug plans used by older Americans, and (3) examine the association of prescription drug coverage type with the use of prescription drugs by older Americans. A randomly selected national sample of 1,300 community-dwelling older Americans were mailed a survey.

Use of Over-the-Counter Drug Products: The Role of Prescription Drug Insurance and Time Costs

2000

David Mott, PhD, Principal Investigator

Awarded by: University of Wisconsin Graduate School

The purpose of this study was to evaluate empirically the association of insurance system variables, time variables and demographic variables with the use of over-the-counter drug products. A random sample of 4,000 Wisconsin residents between the ages of 25 and 64 were mailed surveys to evaluate use and cost of non-prescription drugs, risk they associated with using over-the-counter drugs, and the time costs of obtaining prescription and over-the-counter drugs.

Chartbook on the Trends in the Pharmaceutical Industry

1999

David Kreling, PhD, Principal Investigator

Joseph Wiederholt, PhD, and David Mott, PhD, Co-Principal Investigators

Awarded by: Henry J. Kaiser Family Foundation

A compilation of charts and supporting text was developed to inform policy makers about recent trends related to prescription drugs. Data from the literature and available sources were obtained to exhibit and examine trends and related factors influencing the trends. The chartbook included trends in expenditures, insurance coverage, prices, utilization, promotion, research and development, and characteristics of firms in the channel of distribution for pharmaceuticals (manufacturers, wholesalers, and retail pharmacies). The Kaiser Family Foundation published and distributed the chartbook. It is available at www.kff.org.

Core Disease State Documents: Parkinson's Disease and ALS

1999

David Kreling, PhD, Principal Investigator

David Mott, PhD, Joseph Wiederholt, PhD, and Patrick D. Meek, PharmD, Co-Principal Investigators

Awarded by: Eli Lilly and Company

The purpose of this study was to review the literature and summarize available information about three aspects of Parkinson's disease and ALS: 1) characteristics of each disease (etiology, clinical presentation, diagnosis, disease progression, incidence, care seeking behavior, current therapy, treatment guidelines); 2) humanistic measurements (quality of life and health status); and 3) economic measurements (patient costs and resource use).

Wisconsin Pharmacist Salary Survey

1999

David Kreling, PhD, Principal Investigator

David Mott, PhD, and Joseph Wiederholt, PhD, Co-Principal Investigators

Awarded by: Pharmacy Society of Wisconsin

Early Head Start Program Evaluation

1998-2003

Betty Chewning, PhD, Director of Evaluation Subcontract

Awarded by: Administration for Children and Families, US Department of Health and Human Services

This grant supports a subcontract to conduct the evaluation of an educational intervention for poor, young families to increase their self-efficacy and access to services, including needed pharmaceutical care services and medications. In this descriptive study of the health of families in poverty with children under 3 years of age, a subset of 80 families was followed for three years to document the influence of policy changes regarding HMO enrollment and Medicaid on their access to services, including pharmacy care.

Consumer Attitudes and Behaviors Toward Pharmacist Services and Prescription Drug Plans

1998

Joseph Wiederholt, PhD, Principal Investigator

David Kreling, PhD, Co-Principal Investigator

Awarded by: Pharmacist Society of Wisconsin

Two concurrent surveys of separate samples of consumers residing in Wisconsin were conducted. One survey focused on perceptions about pharmacies and pharmacy services, including patronage motives, importance of professional pharmacist services, and working and communicating with pharmacists. The second survey assessed prescription coverage and events/concerns about that coverage, perceptions about working with pharmacists, and attitudes about two sample expanded pharmacist medication services (e.g., usefulness, appropriate price, whether should be covered by insurance).

Factors Associated with Generic Drug Use Behavior

1998

David Mott, PhD, Principal Investigator

Awarded by: American Association of Colleges of Pharmacy

The first aim of this project was to develop a comprehensive model of the characteristics—health system, physician, patient, insurance system, pharmacy and drug product—associated with generic drug use. The second goal was to use data at the pharmacy level to estimate empirically the effects of factors associated with generic drug use. A database of 7,500 prescription orders dispensed from community pharmacies was used for analysis.

Springboard to Teaching Fellowship

1997

David Mott, PhD, Principal Investigator

Awarded by: American Foundation for Pharmaceutical Education

Patients with Epilepsy

1997

James McAuley, PhD, David Mott, PhD, and Jon C. Schommer, PhD, Principal Investigators

Awarded by: Parke-Davis, Inc.

Springboard to Teaching Fellowship

1996

David Mott, PhD, Principal Investigator

Awarded by: American Foundation for Pharmaceutical Education

The Influence of Patient Out-of-Pocket Payment for Prescription Drugs on Unit Costs of Prescribed Drugs: A Case Study in Ohio

1996

David Mott, PhD, Principal Investigator

Awarded by: The Ohio State University

Aazhiganan Project

1995-1998

Betty Chewning, PhD, Grant Author

Awarded by: State of Wisconsin APPS Board to the Aazhiganan Coalition

The Sonderegger Research Center was asked to help design and evaluate an education intervention to offer prevention services to adolescents considered at high risk for sexually transmitted disease and pregnancy. The project delivered the program to 150 adolescents through education and case management approaches. This grant augmented the activities of the National Institutes of Health grant already awarded to the Sonderegger Research Center in the same community.

Assessment of the Impact of Pharmacy Benefit Managers

1995-1996

David Kreling, PhD, Co-Principal Investigator

Helene Lipton, Co-Principal Investigator and Project Director, University of California, San Francisco

Awarded by: Health Care Financing Administration, US Department of Health and Human Services

This joint project submitted under the HCFA master contract held by the UW Center for Health Systems Research and Analysis (CHSRA) sought to assess the role of pharmacy benefits managers (PBMs) in providing pharmaceutical services and study their impact on quality, costs and other providers of pharmaceutical care. A comprehensive literature review provided background about and suggested a typology of PBMs. Phone interview and site visit surveys with Medicaid Directors, Managed Care Organization (MCO) executives, and PBM executives provided information for comparing costs and quality issues related to PBMs and the potential impact of PBMs on pharmacy systems (including pharmacists, patients, manufacturers, and Medicaid programs).

Pharmaceutical Care Outcomes: The Role of the Patient

1993-1999

Betty Chewning, PhD, Principal Investigator

Carolyn L. Bell, MD, Larry E. Boh, MS, Nancy S. Nowlin, MD, David Kreling, PhD, and Joseph Wiederholt, PhD, Co-Principal Investigators

Dale Wilson, MA, Co-Investigator

Awarded by: Agency for Healthcare Research and Quality (formerly Agency for Health Care Policy and Research), US Department of Health and Human Services

This descriptive study of patients with rheumatoid arthritis and osteoarthritis documented their medication decisions and outcomes. Over a three-year period, patients' decisions to augment, substitute, adhere to, or discontinue medications were tracked with respect to both prescription and OTC drugs. Patients' quality of life and functional health status as well as clinical measures of health status were examined in relation to their prescribed regimen variations and additional OTC drug use. The findings indicate that patients play an active role in their care, and their decisions have major implications for health outcomes. The findings also affirm the importance of acknowledging the complexity of patients' medication and self-care regimens, the process and safety of patients' decisions, their priorities for symptom management and economic pressures, and the need for effective partnerships with health care providers.

Graduate Explorer Monograph Project

1993-1996

Joseph Wiederholt, PhD, Principal Investigator

Awarded by: Glaxo

A career guide was developed for pharmacy graduates entering a profession associated with Social Administrative Sciences rather than pharmacy practice. The Guide gives definitions of subdisciplines and the nature of careers available. Examples include pharmaceutical marketing, pharmacy law, and informatics. The guide was piloted-tested and evaluated in 12 Schools of Pharmacy.

Methodology for Calculating the Savings Attributable to the Medicaid Drug Utilization Program

1993-1994

David Kreling, PhD, and Joseph Wiederholt, PhD, consultants to Shepard Patterson, Inc.

Awarded by: Health Care Financing Administration, U.S. Department of Health and Human Services

The product of this effort was a document, "Guidelines for Estimating the Impact of Medicaid DUR" for use by state Medicaid officials and others to evaluate DUR programs and interventions. As written, the guidelines are targeted toward state Medicaid staff and their advisors/consultants/contractors for their drug program DUR activities. Profs. Kreling and Wiederholt were part of a core team of five researchers (also including Ted Collins and David Zimmerman at the UW Center for Health Systems Research and Analysis, and Earlene Lipowski at the University of Florida School of Pharmacy) developing the guidelines with an advisory panel of experts nationwide.

Rural Native Americans: A Minority Youth Intervention

1992-1999

Betty Chewning, PhD, Principal Investigator

Pat Kokotailo, MD, and Dale Wilson, MA, Co-Investigators

Awarded by: National Institute of Child Health and Human Development, US Department of Health and Human Services

This collaboration with the Great Lakes Inter-Tribal Council worked to reduce adolescent pregnancy, the incidence of sexually transmitted disease, including HIV, and violence. Community and school-based interventions were targeted at adolescents in the community. The intervention used video, computer and class exercises to develop increased social skills for problem-solving, accessing support and services, and reducing health risk-taking behaviors. A longitudinal design of annual student surveys was used to examine the impact of different durations of exposure to the curriculum in Grades 6 through 9. Factors significantly associated with abstention from intercourse and/or consistent use of birth control included perceived lower risk behavior of friends, higher perceived parental support, higher perceived parental knowledge and monitoring of the adolescent's activities and friends, a higher value on scholastic achievement, higher reported academic performance, and higher self-efficacy for safer sexual behaviors.

Evaluation of the Wisconsin Pharmacy Self-Inspection Project

1992-1994

Joseph B. Wiederholt, PhD, Principal Investigator

Jon C. Schommer PhD, and Thomas D. McGregor MBA, Co-Investigators

Funding from: Wisconsin Department of Regulation and Licensing and an educational grant from Schering Pharmaceuticals

To address the problems of understanding and interpreting pharmacy legal regulations (e.g., pharmacist consultation), the Wisconsin Pharmacy Examining Board (PEB) implemented a voluntary self-assessment program, the Wisconsin Pharmacy Self-Inspection Project.

Of the 1,200 pharmacies (pharmacy managers) asked to participate, 80% did, and over 75% of the participants reported they had made changes in their practices to update practice procedures and improved compliance with regulations.

Patient Gender and Psychotropic Prescribing

1992-1993

Betsy Sleath, PhD, Principal Investigator

Bonnie Svarstad, PhD, Co-Investigator

Awarded by: Agency for Health Care Policy Research, U.S. DHHS

The study examined how patient gender differences in 508 audio-taped physician-patient interactions influenced the prescribing of psychotropic medications to male and female patients in 11 different primary care settings. Seventeen percent of the patients received at least one or more prescriptions for psychotropic medications. Logistic regression techniques were used to examine how: (1) patient gender, (2) patient somatic, emotional, and social problem expression, and (3) physician perceptions of patient emotional health and social problems influenced psychotropic prescribing.

Male patients were almost twice as likely to receive a prescription. Patients who expressed more emotional complaints and patients physicians perceived as being in worse emotional health were significantly more likely to receive a prescription for psychotropic medication.

Up-to-date Immunization Evaluation Project

1992-1993

Betty Chewning, PhD, Director, in collaboration with the Dane County Head Start Program

Awarded by: U.S. Administration for Children and Families

Madison's most vulnerable population includes children under age two from the lowest income families. The Sonderegger Research Center was asked to collaborate with the Dane County Head Start Program and staff from the Madison Department of Public Health to design and evaluate an innovative program to increase immunizations to this difficult-to-reach group. This research led to a series of recommendations and a further grant submission in collaboration with the Dane County Head Start Program involving pharmacy students to help implement a comprehensive program to reach families most at risk.

Background Paper -- Alternative Payment Methods: Value and Payment of Pharmacy Services

1992

David Kreling, Co-Investigator with Michael T. Rupp, PhD, Associate Professor of Pharmacy Administration at Purdue University

Awarded by: National Association of Chain Drug Stores

A literature review of published and unpublished papers on the value of pharmacists' cognitive services was written as background for a task force assembled by NACDS intended to examine the potential of alternate payment mechanisms that could be used to recognize and reward non-dispensing cognitive services by pharmacists. The literature search was supplemented with descriptions of research projects underway at universities relative to pharmacist cognitive service activities and provision thereof, with particular focus on those valuing the services (outcomes quantification).

The studies and projects identified and reviewed support the notion that professional pharmacy services "add value to" patient care. The scope, magnitude, and cost of drug-related problems are compelling arguments that efforts to improve drug use are warranted. Although the "value" of pharmacists' professional services has yet to be quantified fully, evidence in support of the positive impact that pharmacists' efforts can have on patient health and economic outcomes is substantial.

Analysis of Prescription Marketplace Parameters and Reimbursement

1991-1992

David Kreling, PhD, Principal Investigator

Funded by: National Association of Chain Drug Stores

Reimbursement amounts that would result from different approaches for determining third-party prescription payment were compared with marketplace parameters (usual and customary prices), and with each other to examine the effects of different methods or levels of reimbursement. Payment amounts under many potential scenarios were simulated for the market mix of prescriptions dispensed in community pharmacies that was represented by audit data on cash prescriptions dispensed in the pharmacies. Payment simulations included percentile caps on U&C prices and drug cost plus dispensing fee formulas, where drug cost estimates were based on varying discounts off of Average Wholesale Price (AWP) or varying percent mark-ups added to Wholesaler Acquisition Cost (WAC). To examine additional provisions typical in public (Medicaid) prescription drug programs, drug cost limits (FFP limits) and use of the lower of the calculated formula amount or U&C price ("lower of" clause) were added to the simulations.

With a given payment level as a standard or basis, it generally was possible to match the overall outcome of that payment with alternate methods of determining payment amounts. Payment methods that

combined FFP ingredient cost payment limit and “lower of” provisions yielded the most conservative payment levels.

The Pharmaceutical Access and Prudent Purchasing Act of 1990: Estimating the Economic Impact on Institutional Pharmacy Providers

1990

David Kreling, PhD, Principal Investigator

Funded by: American Society of Hospital Pharmacy

The Pharmaceutical Access and Prudent Purchasing Act of 1990 included provisions whereby manufacturers of pharmaceuticals would be asked via a rebate mechanism to charge Medicaid programs no more than the lowest price charged to hospitals or other organizations serving the indigent. In this analysis we attempted to project, in the form of revenue shifts, the impact on hospitals that could occur by estimating potential pharmaceutical product price increases and subsequent costs of products purchased by institutional pharmacy providers as a result of the “best price” provision.

The overall impact was estimated as increases in costs for hospital pharmaceutical purchases of approximately 4 to 7 percent. The estimates depended on the discount assumed that Medicaid would achieve from the “best price” provision, the mix of single-source and multiple-source pharmaceuticals used in the hospital, and whether the revenue compensation would occur as price increases on all products or single-source products only.

The International Medication Compliance Project

1989-1991

Betty Chewing, PhD, Principal Investigator

Bonnie Svarstad, PhD, and Larry E. Boh, MS, Co-Investigators

Awarded by: APOTEKSBOLAGET, The National Corporation of Swedish Pharmacies

Consumers of prescription medications often make one or more mistakes in taking their drugs: errors with respect to dosage, duration and/or early discontinuation of the medication prescribed. This joint Swedish and American project developed and evaluated an instrument to be used cross-nationally to measure patient drug errors. The instrument also measured factors to identify whether an individual was at risk of noncompliance. The instrument became the Brief Medication Questionnaire (BMQ). Investigators also tested the use of MEMS (a computerized medication vial cap that records each time the cap is opened) to validate the BMQ.

Practice Economics in Community Pharmacies

1989

David Kreling, PhD, Principal Investigator

Funded by: Wisconsin Independent Community Pharmacists

Pharmacy providers participating in prescription drug plans of HMO and third-party insurers have been offered contracts with changes in payments for prescriptions dispensed to beneficiaries. Payments have been reduced in attempts to control costs for the drug component of coverage HMOs and insurers provide. Pharmacist costs of providing services were analyzed in relation to potential revenues from third-party reimbursements for a small, pilot sample of nine pharmacies. Cost of dispensing was estimated from data gathered from pharmacists via a brief self-report questionnaire. Revenues were estimated for 100 prescriptions [approximately 50 single source (brand) and 50 multi-source (generic)]

prescriptions] dispensed in the pharmacies. Existing and proposed reimbursement formulas were applied to the 100 prescriptions (drug cost plus fee formula) and the resulting gross margins were compared with the cost of dispensing for the pharmacies.

Demonstration and Evaluation of a Computerized Contraceptive Counseling Aid for Adolescents

1988-1991

Betty Chewning, PhD, Principal Investigator

Pat Mosena, PhD, Co-Principal Investigator for Chicago subcontract

Awarded by: Office of Family Planning, US Department of Health and Human Services

Patients' drug compliance is a critical issue in the pharmacy field. This project examined the impact of a computerized education program on subsequent oral contraception compliance of family planning clinic patients. To assist individuals in selecting and using birth control, this research developed a computerized counseling aid, using input from national and local advisory committees. The computerized contraceptive decision aid was evaluated in terms of the patient knowledge, confidence, use and discontinuance of oral contraceptives. The target audience for this research consisted of women under age 20 who were making an initial visit to a Title X family planning clinic. A longitudinal study was conducted with 950 clients in inner-city Chicago and Madison.

When clients were interviewed following their use of the computer program, none of the Madison, and only 2% of the Chicago clients reported they did not like using the computer. Sixty-seven percent of the Madison and 63% of the Chicago clients reported the program made them feel better about the method they chose. Immediately after the visit, and again one year later, there were significant gains in knowledge and confidence about oral contraceptives for the experimental group who had seen the computer program versus the control group who had not.

Estimating the Costs of Inappropriate Psychotropic Medication Use Among Nursing Home Patients

1988

David Kreling, PhD, Principal Investigator

Funded by: Graduate School, University of Wisconsin–Madison

A method was developed to estimate direct costs of potentially inappropriate medication orders. Data from a previous qualitative study investigating the appropriateness of psychotropic drug orders among 760 nursing home residents in seven long-term care facilities in Wisconsin were used to exemplify the method. Direct costs were estimated by assigning the drug product cost for the number of units billed at Medicaid reimbursement rates and adding the Medicaid dispensing fee amounts.

Overall, 80.7% of the dollars spent for psychotropic drug orders in this population of nursing home residents may have been wasted due to potentially inappropriate use. Antipsychotic orders with potential errors associated with them had both the highest estimated total monthly cost (\$2,318) and mean monthly cost (\$13.72). The type of potential error with the greatest estimated monthly cost was drugs with no indication (no corresponding diagnosis on the medical chart).

Environmental Dimensions of Consumer Choice For the Purpose of Prescription Drugs

1986-1988

PhD dissertation by Earlene Lipowski

Major professor Joseph B. Wiederholt, PhD

Partially funded by: Sonderegger Research Center

Some consumers select a pharmacy with little deliberation whereas others thoughtfully weigh multiple attributes. This study assessed the motivation and self-rated ability of consumers to select a pharmacy for the purchase of a prescription drug and examined the personal and environmental factors related to their motivation and ability.

We surveyed 757 households in three communities with different pharmacy market environments and obtained responses from 461 (61%). Motivation varied with respondents' perception of the business complexity of retail pharmacy, their familiarity with the prescription purchase task, income, product involvement, age and annual medical expenditures (R-square = 0.20). Predictors of perceived ability included familiarity with prescription purchase task and perception of interdependence among health professionals, the business complexity of retail pharmacy, conflict among health professionals, and diversity among pharmacies (R-square = 0.17). More reliable measures of consumer perceptions are needed, but market environment and individual characteristics appear to influence motivation and ability and thereby affect the choice process.

Predicting Sleep Medication Use in Nursing Homes

1985-1988

Bonnie Svarstad, PhD, Principal Investigator

Funded by: National Institute on Aging, NIH

The purpose of this study was to examine the resident, nurse, and facility factors that affect the nature and quality of sleep medication use in nursing homes. Over 2,000 residents in 18 randomly selected skilled nursing facilities were studied using medical and pharmacy records, nurse surveys, and observational data.

Findings showed that the quality of psychoactive drugs use was better in facilities with a resident-centered treatment culture and better nurse staffing. The study also found that resident depression, pain, and demand for medication played a significant role in whether or not the resident received benzodiazepine medications on a chronic basis. A follow-up study was done in the same facilities after implementation of stricter federal regulations. Results showed that antipsychotic drug use declined as a result of stricter regulations; however, stricter regulations had no effect on the prevalence or chronic use of benzodiazepines, antidepressants, or polymedicine.

Aid for Contraceptive Decision Making

1985-1987

Betty Chewing, PhD, Principal Investigator

Harold Erdman, PhD, Co-Investigator

Awarded by: Office of Family Planning, US Department of Health and Human Services

In this project investigators developed and pilot tested a computerized contraceptive counseling aid to be used in family planning clinics with adolescents.

Antecedents and Sequella of Adolescent Sexual Risk-Taking

1985-1987

Betty Chewning, PhD, Principal Investigator

Awarded by: Office of Adolescent Pregnancy Prevention, US Department of Health and Human Services

This study involved analysis of a longitudinal data set to identify the relationship between key variables and sexual risk-taking of adolescents.

The Potential Impact of Drug Reimbursement Policy Changes on Community Pharmacies in Wisconsin

1985-1986

David Kreling, PhD, Principal Investigator

Funded by: Sonderegger Research Center

This research analyzed how varying levels of reimbursement for prescription drug ingredient costs would affect community pharmacies economically. Specifically, the study evaluated whether drug cost reimbursement based on Average Wholesale Price (AWP) less 10.5% or wholesaler cost plus 5.01% would yield amounts above or below what pharmacists paid for products. Purchase costs for a large market basket of products were obtained from wholesalers serving community pharmacies throughout the state. Additional information about purchasing and pharmacy characteristics was obtained directly from pharmacists.

In general, pharmacists were able to purchase drugs at the reimbursement amounts proposed. The “cost plus” reimbursement amounts tended to be more conservative, and variation between pharmacies was related to their purchase patterns, i.e. the wholesaler purchased from and percent of purchases from those wholesalers versus direct from manufacturers. The type of product involved (generic, brand, controlled substances, etc.) was also a factor.

SRC Research Projects Total Funding: \$10,469,671

FEDERAL FUNDING

Total: \$ 9,715,214

Dates	Principal Investigators	Title	Funder
2009-2010	Young	The Role of Pharmacist Evaluation in Activation of Adult Asthma Patients	NIH, CTSA /MERC
2008-2011	Thorpe	Suboptimal Medication Use in Persons with Dementia and Their Informal Caregivers	NIH, National Institute on Aging
2004-2010	Svarstad	A Team Model of Hypertension Care in African Americans	NIH, National Heart, Lung, Blood Institute
2002-2009	Chewning	Older Adults & Drug Decisions: Collaboration & Outcomes	NIH, National Institute on Aging
1998-2003	Chewning	Early Head Start Program Evaluation	US Admin for Children & Families, DHSS
2000-2001	Svarstad	Evaluation of Prescription Drug Information Materials-2001	National Assn of Boards of Pharmacy & US DHHS PHS Food & Drug Admin
1995-1996	Kreling	Assessment of the Impact of Pharmacy Benefit Managers	Health Care Financing Admin, US DHHS
1993-1994	Kreling & Wiederholt	Methodology for Calculating the Savings Attributable to the Medicaid Drug Utilization Program	Health Care Financing Admin, US DHHS
1993-1999	Chewning, Kreling, & Wiederholt	Pharmaceutical Care Outcomes: The Patient Role	Agency for Health Care Policy & Research, US DHSS
1992-1999	Chewning	Rural Native Americans: A Minority Youth Intervention	NIH, National Institute of Child Health & Human Development
1992-1993	Chewning	Up-to-Date Immunization Evaluation Project	US Admin for Children & Families
1992-1993	Sleath	Patient Gender and Psychotropic Prescribing	Agency for Health Care Policy & Research, US DHHS
1988-1991	Chewning	Demonstration and Evaluation of a Computerized Contraceptive Counseling Aid for Adolescents	Office of Family Planning, US DHHS
1985-1988	Svarstad	Predicting Sleep Medication Use in Nursing Homes	NIH, National Institute on Aging

STATE FUNDING**Total: \$484,902**

Dates	Principal Investigators	Title	Funder
2009-2010	Thorpe	Barriers to Medical Care and Medication Adherence in Persons With Alzheimer's Disease and Related Disorders.	Wisconsin Comprehensive Memory Program
2009-2010	Chui	Exploring Pharmacist to Pharmacist Communication During Patient and Prescription Handoffs	UW-Madison Graduate School
2004-2006	Chewning	Student Outreach to Prevent and Reduce Smoking (STOPRS)	UW-Madison Baldwin WI Idea Endowment
2000-2001	Chewning & Kreling	Pharmacy-based Smoking Cessation Program for Young Adults	WI Tobacco Control Board, DHFS
2000-2001	Kreling	Pharmacy Cost of Dispensing/Acquisition Cost Study	State of WI, DHFS
2000	Mott	A National Survey of Elderly Drug Insurance and Drug Use	University of Minnesota
2000	Mott	Use of Over-the-Counter Drug Products: The Role of Prescription Drug Insurance and Time Costs	UW-Madison Graduate School
1995-1998	Chewning	Aazhiganan Project	State of WI APPS Board
1992-1994	Wiederholt	Evaluation of the Wisconsin Pharmacy Self-Inspection Project	WI Dept of Reg & Licensing and Schering Pharm.
1988	Kreling	Estimating the Costs of Inappropriate Psychotropic Medication Use Among Nursing Home Patients	UW-Madison Graduate School
1986-1988	Mount	Consultant Pharmacy Study	UW-Madison Graduate School and Sonderegger Research Center
1986-1988	Lipowski & Wiederholt	Environmental Dimensions of Consumer Choice for the Purpose of Prescription Drugs	Partial funding by Sonderegger Research Center
1985-1988	Kreling	The Potential Impact of Drug Reimbursement Policy Changes on Community Pharmacies in Wisconsin	Sonderegger Research Center

PRIVATE FUNDING**Total: \$269,555**

Dates	Principal Investigators	Title	Funder
2008-2009	Mott	Pharmacy Quality Alliance - Wisconsin Pharmacy Quality Collaborative Demonstration Project (Phase I)	Pharmacy Society of WI, Pharmacy Quality Alliance
2004	Mott & Kreling	2004 National Pharmacist Workforce Survey	Pharmacy Manpower Project, Inc.
2001	Kreling, Mott, & Wiederholt	Updating the Prescription Drug Trends Chartbook	Kaiser Family Foundation
2000	Mott	National Sample Survey of the Pharmacist Workforce to Determine Contemporary Demographic and Practice Characteristics	Pharmacy Manpower Project, Inc.
1999	Kreling, Mott, & Wiederholt	Prescription Drug Trends – A Chartbook	Kaiser Family Foundation
1998	Mott	Factors Associated with Generic Drug Use Behavior	American Association of Colleges of Pharmacy
1998	Wiederholt & Kreling	Consumer Attitudes and Behaviors Toward Pharmacist Services and Prescription Drug Plans	Pharmacist Society of WI
1993-1996	Wiederholt	Graduate Explorer Monograph Project	Glaxo
1992	Kreling	Background Paper – Alternative Payment Methods: Value And Payment of Pharmacy Services	National Assn of Chain Drug Stores
1991-1992	Kreling	Analysis of Prescription Marketplace Parameters and Reimbursement	National Assn of Chain Drug Stores
1989-1991	Chewning & Svarstad	The International Medication Compliance Project	APOTEKSBOLAGET (National Corp of Swedish Pharmacies)
1990	Kreling	The Pharmaceutical Access and Prudent Purchasing Act of 1990: Estimating the Economic Impact on Institutional Pharmacy Providers	American Society of Hospital Pharmacists
1989	Kreling	Practice Economics in Community Pharmacies	WI Independent Community Pharmacists



Looking Ahead

Twenty-five years ago, the SRC became the first U.S. center to feature social science-focused research in pharmacy. Today it remains a national leader. We are pleased to describe a research agenda focused on strengthening partnerships with pharmacies in Wisconsin, expanding resources that SRC can provide for researchers, and providing information to inform policy and improve practice. To this end, we announce plans for a new report series honoring Dean Gus Lemberger.

Lemberger Report

Findings from research conducted through the SRC have provided critical data and related recommendations to improve healthcare and enhance the effectiveness of pharmacy services. The SRC now plans to launch a new, ongoing report that would provide trends and insights for policy and practice drawing on key findings from SRC analyses.

To honor the memory and accomplishments of August (Gus) Lemberger, former dean of the UW School of Pharmacy, the Sonderegger Research Center wishes to name this new publication the “Lemberger Report” as a fitting tribute to one of the Sonderegger Research Center’s founders and a true pharmacy legend in Wisconsin.

A vital step needed to improve health care models and reduce health care disparities is the systematic collection and analysis of existing health services data with an eye toward pharmacy. These data will help health care providers, policymakers and researchers discern the areas in Wisconsin of greatest need, monitor trends over time, and identify successful programs for addressing those needs. To commemorate its 25th anniversary, the Sonderegger Research Center would establish a biennial research report that will provide this kind of valuable data related to pharmacy care and public health in Wisconsin.

The Lemberger report will examine existing data sets as well as provide a set of baseline data from the SRC’s research to assist in measuring whether we are making progress in pharmacy care and improving the health quality of life in Wisconsin. This will include patient and pharmacy-sensitive data indicators to help policy-makers and researchers identify disparities in health status and pharmacy care within various populations in Wisconsin. Reports will address access, practice and outcomes based on statistically relevant research findings.

Our goal is to make the Lemberger Report available to a range of groups who may use the information to help inform policy, practice and budgetary decisions. These include pharmacy and other health care providers and organizations, community leaders, policy makers, educators and researchers.



SRC Services and Resources

A range of resources are available to support work of SRC investigators, from grant proposal development to use of equipment.

Space is available in SRC for use by SRC project staff. Four private rooms are available for conducting telephone interviews, listening/viewing audio and video recordings, and storage of project supplies and equipment. In addition, the SRC is fully equipped with PC workstations and software for data entry and statistical analysis.

Data collection equipment is available for researchers to use, including digital voice recorders, tablet computers, and video cameras.

Grant proposal assistance includes development of budgets, justifications and other proposal sections as needed, assistance with submission process (assembling materials, ensuring completeness, routing through UW system,

Research project support includes help with IRB approval process, monitoring budget and administrative support to projects, data collection, data set construction, documentation and management., and assistance with reports. Staff are experienced in large dataset management and file manipulation, including file translation, file conversion, and readying data for transport over multiple-platform computing environments and across diverse operating systems. Programmers are also familiar with a wide variety of secondary data including Census, Vital Records, National Health Survey, Medicaid and Medicare cost data.

Manuscript formatting includes checking journal formatting requirements for researchers and ensuring that manuscripts are formatted correctly, ensuring compliance with NIH publication public access policy requirements.

The data repository is a growing collection of de-identified digital audio recorded patient-provider encounters that are available for research use.

Technical support is provided by the UW School of Pharmacy Instructional and Information Technology Group (IIT). The UW School of Pharmacy maintains state-of-the-art computing services and support infrastructure. The IIT staff provide daily administration and technical support for personal computers and servers, as well as expertise in graphic design, advanced programming, instructional technology, web and server support, and computer application development. The IIT director is a faculty member and a pharmacist.

Protection of data is a key SRC resource. SRC preserves the privacy, confidentiality, and security of protected health information that may be part of research datasets. PC workstations are equipped with headphones for coders to listen to audio recordings privately, rooms are available for private coding of video recordings, locked cabinets are available to researchers for data storage, and secure backup storage of computer files is provided on dedicated servers.

Protected Health Information (PHI) is handled according to appropriate Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy and Security Regulations. Research staff who work with PHI are required to complete appropriate HIPAA training and periodic updates. All personal computers and servers are located in lockable offices. The server room is accessible only to designated systems administrators. Original data tapes and backup tapes are stored in locked offices with copies secured in at least one other off-site location. All computer printouts resulting from analysis of data are stored in locked offices and shredded to dispose. All employees receive training in data confidentiality and are required to sign a confidentiality agreement prior to beginning any research.



Educational Mission

In addition to its primary research goal, the SRC also has an educational mission. The SRC engages graduate students as research assistants and facilitates submission of students' research proposals. The SRC also supports young investigators through its dissertator grant award program, the recipients of which are listed below.

Dissertator Awards

Since 1999, the SRC has provided 14 graduate students from the Social Administrative Sciences Division with dissertator awards of up to \$3,500. These funds have enabled students to expand the scope of their dissertation work, resulting in greater impact. Several of the dissertator award recipients went on to receive national recognition for their work, receiving awards for exceptional presentations made at the annual meeting of the American Pharmacists Association (indicated with * below).

Year	Dissertator	Title of Project
2010	Audrey Hung	Examining Pharmacist-Technician Teams Providing an Innovative Hypertension Care Program in Community Settings
2010	Bobby Sanchez	Factors influencing decisions to use medications perceived to attenuate the progression of Alzheimer's disease: a study using the Health Belief Model
2008	* Pallavi Patwardhan	Implementation and Evaluation of the AAR Model Program of Tobacco Cessation in Community Pharmacies Serving Low Income Clients
2006	* Lisa Guirguis	A Randomized Controlled Trial to Evaluate the Impact of Structured Patient Interactions on Student Pharmacists' Beliefs About Counseling: Impact of the Diabetes Check Intervention
2004	Jessie Dzvimbo	The Effect of Insurance Coverage on Zimbabwean Physicians' Treatment Decisions for HIV and AIDS Patients
2003	Salisa Chamnanmoh Westrick	Adoption of Immunization Delivery Services in Pharmacies

Year	Dissertator	Title of Project
2003	Nisa Sangasubana	Consumers' Risk Perceptions of Over-the-Counter Drug Products: Concept and Measure Using Quantitative and Qualitative Methods
2002	Mary Gurney	A Study of Community Pharmacy Practice Sites: Patient Care and Management Activities
2002	Timothy Lobner	Investigating Drug Coverage Among an Elderly Population
2001	* Nate Rickles	A Randomized, Controlled Study Evaluating the Impact of an Antidepressant Monitoring Program on Consumer Outcomes
2001	Burin T. Sriwong	Consumers' Perceptions of General Pharmacy Patronage and Pharmacist Consultation Service Activities Offered by Demonstration Pharmacies in Thailand
2001	* Rick Cline	The Demand for a Medicare Prescription Drug Benefit: Exploring Consumer Preferences in a Hypothetical Managed Competition Environment
2001	Piyarat Nimpitakpong	Effect of Pharmacist Intervention on Medication Adherence and Rehospitalization in Patients with Congestive Heart Failure in Thailand
2001	* Carol Hermansen Kobulnicky	Patients Monitoring Chemotherapy Side Effects
1999	* Julie Ganther Urmie	Prescription Drug Utilization: Moral Hazard, Adverse Selection, and the Role of Consumer Medical Preferences



Faculty & Staff Biosketches

Betty A. Chewning, PhD, Director Dr. Chewning (Professor) is Director of the Sonderegger Research Center. She completed her PhD in Educational Psychology and a post-doctoral program in Industrial Engineering at the University of Wisconsin. She is a fellow in the APhA APRS and has served on several NIH study section review committees and the Institute of Medicine committee evaluating Title X. Dr. Chewning serves on the steering committee for the NIH funded ICTR-CAP. Her research, teaching and publications address patient and health care provider communication and its impact on a person's health. She studies their perceptions, regimen decisions as well as health outcomes. She also studies expanded pharmacist roles with respect to public health agendas and other community based interventions.

Dr. Chewning conducts multi-site longitudinal, descriptive and intervention studies to identify how patient management of their conditions/health can be improved. Her most recent NIH randomized controlled trial of an intervention to increase patient-provider communication of patient agendas documented its significant impact on topics discussed and reduced pain 6 months later. A major translation question she explores is how to use practice based evidence about communication to improve pharmacist patient communication. To this end, she seeks to facilitate more research on patient provider communication by others as well. She is directing the development of a HIPPA/ IRB compliant repository of shared health encounter tapes within SRC for researchers.

With support of the NIH ICTR-CAP, Dr. Chewning and others in the Sonderegger Research Center are exploring ongoing collaborative partnerships with community pharmacies. The goal is to increase the capacity of pharmacies in collaboration with SRC to address key agendas which community pharmacists face as they seek to extend roles, improve the quality of care and achieve optimum outcomes for diverse patients. Dr. Chewning has worked with pharmacists to implement and evaluate pharmacy based interventions for smoking cessation in the state of Wisconsin. She has studied how to prepare pharmacists and their systems for expanded roles. She also has a longstanding interest in how to raise patient expectations of pharmacists through her teaching and research.

Michelle A. Chui, PharmD, PhD Dr. Chui received her B.A. in Biological Sciences, her PharmD. from Creighton University in Omaha, NE, and her M.S. and Ph.D. in Pharmacy Administration from Purdue University in West Lafayette, IN. For her M.S. degree, she conducted an empirical evaluation of the benefits and burden that computer-generated drug utilization review alerts contributed to community pharmacy practice. Her focus of study for her PhD degree was patient adherence, quality of life, and outcomes research. Dr. Chui practiced pharmacy in community settings during her graduate studies. Before joining the University of Wisconsin School of Pharmacy faculty in 2008, Dr. Chui was on the faculty at Midwestern University College of Pharmacy - Glendale in Arizona, where she taught Behavioral Medicine and Ethics, and Health Economics and Outcomes Assessment Courses.

Dr. Chui's research centers on contributing to community pharmacy practice and its practitioners. Specifically she has three primary goals: to provide necessary evidence to policy makers and the lay population for advanced care in the community pharmacy setting, facilitate communication and

networking among community pharmacists, and improving workflow so that community pharmacists can provide effective and efficient pharmaceutical care to their patients.

David H. Kreling, PhD, RPh Dr. Dave Kreling (Professor) received his BS degree in 1978 in pharmacy from Ferris State University (1978) and his MS and PhD in pharmacy administration from Purdue University (1981) and the University of Texas at Austin (1984), respectively. Dr. Kreling is a fellow in the APhA APRS. He has a rich background of research and teaching in pharmacy economics and policy, primarily finance and reimbursement issues in community pharmacy. He has published on topics including formularies; drug coverage; prescription costs, pricing and reimbursement; pharmacy benefit managers; pharmacist salaries; and general trends related to prescription drugs. In addition, he has a record of research on a variety of pharmacy-related topics from the consumer perspective.

Recent work includes a compilation of prescription drug trends, analyses of cost parameters in community pharmacies, and examination of participation in the Wisconsin Medicaid pharmaceutical care reimbursement program. He also has been involved in surveys of compensation, work activities and other labor market characteristics among pharmacists nationally and in Wisconsin.

Professor Kreling's main research interests are in what often is referred to as traditional pharmacy administration, marketing and economics. Much of his research is in the area of pharmacy economics and policy, primarily finance and reimbursement issues in community pharmacy. Other research activities have spanned a variety of topics generally related to pharmacy, practice, and consumers.

The interplay of economics, markets/marketing, and policy provides a dynamic mix of issues and research questions for study. It also is exciting because such research often can have broad ranging implications for pharmacy, pharmacists, consumers, and society.

David A. Mott, PhD, RPh David received his BS (1988) in pharmacy, and his MS (1992) and PhD (1995) in pharmacy administration, all from the University of Wisconsin-Madison. His minor fields of study for his PhD degree were economics and public policy analysis. Dr. Mott practiced pharmacy in community settings. Before joining the University of Wisconsin School of Pharmacy faculty in 1998, Dr. Mott was on the faculty at the Ohio State University College of Pharmacy. He was named Teacher of the Year in 1999 and 2001 by first year doctor of pharmacy students at the University of Wisconsin-Madison. He has published widely in pharmacy journals and outside of pharmacy. He currently teaches courses in the health care system, pharmacy marketing and policy, pharmacy economics, and pharmacy service, program and policy evaluation.

Dr. Mott has two primary areas of research: the pharmacy labor market and economic factors associated with drug utilization. His research of the pharmacist labor market has investigated trends in the supply and demand of pharmacists, factors associated with the number of hours worked by pharmacists, and trends in turnover rates, and reasons pharmacists leave jobs. In 2000 he worked on the National Pharmacist Workforce Survey. His research of economic factors associated with drug utilization has examined the role of types of prescription drug insurance on the cost of drugs used. A recent study examined how patient and insurance variables influenced the opportunity for generic drug use by prescribing physicians and generic substitution by pharmacists. Recent studies examined prescription drug insurance choice by elderly consumers, the role of patient and insurance variables on drug use by the elderly, the use of new drug products, and the use of non-prescription drug products. Additionally, Dr.

Mott has been working with the Pharmacy Quality Alliance and the Wisconsin Pharmacy Quality Collaborative on measures of pharmacy performance.

Joshua Thorpe, PhD, MPH Dr. Thorpe is currently an Assistant Professor in the Social and Administrative Pharmacy Division of the School of Pharmacy at the University of Wisconsin - Madison. Dr. Thorpe received his BA in Neuroscience from Hamilton College, Master of Public Health degree (Epidemiology) from George Washington University, and his Doctoral degree in Pharmaceutical Outcomes and Policy from the University of North Carolina - Chapel Hill School of Pharmacy. Prior to joining the faculty at UW-Madison in 2008, he was an Assistant Research Professor at Duke University and Adjunct Assistant Professor at UNC-Chapel Hill School of Pharmacy for two years. Dr. Thorpe is a pharmaceutical health services researcher whose research program aims to improve older adults' access to high quality medical care and adherence to treatment regimens.

Dr. Thorpe's research primarily examines issues of access to medications and outpatient care in persons living with chronic conditions such as diabetes, asthma, spinal disorders, and dementia. Recently, his publications have focused on two areas of inquiry: issues of adherence and access in persons with dementia and their informal caregivers; and psychological distress as a risk factor for poor adherence. He is currently Principal Investigator on two grants. One is an R03 from the National Institute on Aging to study inappropriate medication use in both dementia patients and caregivers. The other is a two-year pilot grant from the Wisconsin Comprehensive Memory Program to examine barriers to medical care and medication adherence in persons with Alzheimer's Disease and their informal caregivers.

Methodologically, he has expertise conducting secondary data analyses using a wide range of existing Federal and administrative databases, and works to develop ways to exploit existing data to measure quality of care and identify inequities in access to services. For example, he and colleagues have used the Healthcare Cost & Utilization Project (HCUP) datasets to examine in-hospital complications for low back surgery; Veterans Health Administration data to study poor performance on preventive care indicators; the Medical Expenditure Panel Survey (MEPS) data to examine primary care quality indicators; and the National Hospital Ambulatory Medical Care Survey to study both potentially avoidable emergency room visits and potentially inappropriate antibiotic prescribing. Dr Thorpe is also currently working on several projects that apply second-generation analysis techniques such as structural equation modeling and latent class analysis to health services research projects.

Henry N. Young, PhD Dr. Henry Young (Assistant Professor) received his PhD at the University of Florida in Pharmacy Health Care Administration (2002). Dr. Young has served as a postdoctoral researcher in Health Communication and Health Services Research at the University of California, Davis School of Medicine located in Sacramento, CA. He also served as a Lecturer in the UC-Davis Department of Communication.

Dr. Young's expertise in the behavioral sciences underpins his work in four main areas: consumer/patient behavior in the medications use process, marketing and health outcomes research, health communication, and health services research. Dr. Young's more specific research and teaching interests address: 1) psychological theoretical/foundations of research on the patient's role in health care and drug use, 2) social, economic, and political issues related to U.S. health care system (in general) and profession of pharmacy (in particular), dynamics of drug use process, illness behavior, and health care utilization, 3) prescribing and medication use processes from perspectives of health professionals (e.g., sources of professional information decision making, assessment of quality), 4) the pharmaceutical industry, public

policy, prescription drug products, pricing, promotion, and distribution, and 5) adapting techniques from the social sciences for research in the field of social and administrative pharmacy.

Dr. Young is currently collaborating with researchers at Marshfield clinic on a study of underserved rural asthma patients. Using a telepharmacy-based intervention, the goal of the project is to improve prescribed medication use and asthma management.

Dale Wilson, MA Ms. Wilson received her MA from the UW-Madison Programs in Health Services Administration (1982) and has been the SRC Research Program Manager since 1989. Prior to joining SRC, she was a Research Analyst at the Wisconsin Division of Health Center for Health Statistics, responsible for the Wisconsin Ambulatory Medical Care Survey (WAMCS). The WAMCS collected outpatient visit data from a sample of physicians, and was based on a similar survey (NAMCS) conducted on a national level.

Ms. Wilson provides administrative support to SRC researchers, assisting with grant proposal submissions, funded research projects, data set management, manuscript support and development/maintenance of the digital audio data repository.



Past Board Members and Contributors

Joseph B. Wiederholt, PhD, RPh



With School of Pharmacy Dean “Gus” Lemberger and William Young, Professor Emeritus of Political Science, Dr. Wiederholt worked with the Rennebohm Foundation to give birth to the Sonderegger Research Center in 1985. He was a driving force behind the SRC from its inception until his death in May 2001.

His positive outlook and selfless contributions to faculty colleagues, graduate students and research at the SRC are a continuing inspiration.

Dr. “Joe” Wiederholt (Professor) received his BS degree in pharmacy from Creighton University and his MS and PhD degrees in pharmacy administration from the University of Georgia-Athens. He was a licensed pharmacist in Wisconsin and Nebraska. He also practiced in community and hospital pharmacy in Texas and Georgia. Before joining the University of Wisconsin-Madison School of Pharmacy in 1981, Dr. Wiederholt taught at Creighton University and at the United States Army’s Academy of Health Sciences, Fort Sam, in Houston Texas, with an adjunct faculty appointment at Baylor University. He earned the rank of Captain in the U.S. Army Medical Service Corps. He received the Rufus A. Lyman Award for the best paper published in the American Journal of Pharmaceutical Education, Teacher of the Year, and Teaching Excellence honors from the University of Wisconsin School of Pharmacy. He was named APRS Fellow and was awarded the Distinguished Pharmacy Educator Award from the AACP and the President’s Award from Creighton University.

Dr. Wiederholt published widely in numerous national pharmacy reviews and sat on a number of professional and governmental advisory boards and committees at state and federal levels. He taught courses in pharmacy management, pharmacy law, pharmaceutical marketing, and pharmaceutical marketing research at the University of Wisconsin-Madison. Dr. Wiederholt’s primary research interests were the investigation of consumer attitudes, behaviors, and environments regarding purchase decisions for prescription and nonprescription drugs and services.

August P. Lemberger, PhD

Dr. “Gus” Lemberger (Professor and Dean-Emeritus) was the former Dean of the School of Pharmacy, University of Wisconsin-Madison. After receiving his BS (1948) and PhD (1952) from the UW, he joined Merck and Company as a senior chemist in pharmaceutical research. In 1953, he returned to the UW as an instructor, moving up through the academic ranks to full professor in 10 years. In 1969 he accepted appointment as Professor of Pharmacy and Dean of the University of Illinois College of Pharmacy, holding that post until returning to the UW-Madison in 1980.

Dr. Lemberger was active in national professional and scientific organizations and held a number of elective offices. He served on the Executive Committee of the American Association of Colleges of Pharmacy (1971-74), as Vice President (1976-77) and President (1982-84) of the American Council on Pharmaceutical Education. Dr. Lemberger served as a member of the American Pharmaceutical Association Board of Trustees from 1985-1989, Treasurer of the American Pharmaceutical Association, and chaired the national commission jointly sponsored by the AACP and the AFPE to study graduate education in the pharmaceutical sciences (1986-88). Among his many honors are the Distinguished Service Award of the Wisconsin Pharmacists Association (1969), the Kiekhofner Memorial Teaching Award of the University of Wisconsin (1957), a citation of Merit from the University of Wisconsin (1977), the Meritorious Award of the Wayne State Pharmacy Alumni Association (1984), the Rho Chi Lecture Award (1988), and the American Foundation for Pharmaceutical Education Distinguished Service Award (1990). He was a Fellow of the American Foundation for Pharmaceutical Education, the Academy of Pharmaceutical Research and Science, and the American Association for Advancement of Science. He authored well over 65 scientific and professional articles.

Robert W. Hammel, MBA, PhD

“Doc” Hammel (Professor-Emeritus) received his BS in pharmacy, MBA and PhD degrees from the University of Wisconsin-Madison. He had extensive experience in pharmacy and was a teaching assistant in the School of Business for two years before joining the UW-Madison pharmacy faculty in 1958. Dr. Hammel, an APS fellow, received the APS Research Achievement Award in Economics and Administrative Sciences, the Reed Peterson Award, Wisconsin Pharmacists Association Distinguished Service Award, a University of Wisconsin School of Pharmacy Citation, and a Citation from the Wisconsin Legislature in recognition of his professional achievements. His research interests included economic, legal and professional aspects of pharmacy practice.

Bonnie L. Svarstad, PhD

Dr. Svarstad (Professor Emerita) received her MA (1966) and PhD (1974) degrees in sociology from the University of Wisconsin-Madison. Before joining the UW-Madison faculty in 1975, she worked as a medical sociologist at the Dr. Martin Luther King Jr. Health Center and Albert Einstein College of Medicine in New York City. Prof. Svarstad has served on the American Pharmaceutical Association's Task Force on Women in Pharmacy and the National Academy of Sciences - Institute of Medicine Committee to Evaluate Patient Package inserts. From 1985-89 she served on the National Advisory Council on Health Professions Education. In 2003, she was appointed a Special Government Employee to assist the Drug Safety and Risk Management Committee, U.S. Food and Drug Administration. Dr. Svarstad received the American Pharmacists Association Foundation Research Achievement Award in Economic, Social and Administrative Sciences in 1988 and the Pinnacle Award in 2004. She has been cited for developing the Health Communication Model and the Brief Medication Questionnaire, tools for understanding and improving professional - patient communication and patient adherence with drug regimens.

Dr. Svarstad and her co-workers completed a national, FDA-funded study examining the quality of oral and written prescription information provided in U.S. community pharmacies. She also collaborated with other social pharmacy researchers in an international study of written information provided by pharmacists in the U.S., U.K., and Australia.

In fall 2004, Svarstad and her co-workers were awarded a 5-year NIH grant to examine the impact and cost-effectiveness of a pharmacy-based, team-oriented model of care designed to improve pharmacist-patient communication, patient adherence, and hypertension control in over 500 African American patients with uncontrolled hypertension. This randomized controlled trial was conducted in 28 community pharmacies (14 intervention, 14 control) in Wisconsin. Dr. Svarstad is currently analyzing results of the study.



Affiliate Members

The Sonderegger Research Center faculty work on research projects with a variety of valuable SRC Affiliate members. These affiliate members have included the following:

Connie K. Kraus, PharmD, BCPS, RPh

Connie earned her B.S. in Pharmacy in 1975 and her PharmD in 1993. She joined the faculty of the University of Wisconsin School of Pharmacy where she serves as a Clinical Professor and the Director of the Office of Global Health. Dr. Kraus teaches women's health in the required pharmacotherapy sequence and evidence-based practice principles across the curriculum. She also coordinates the DPH-3 introductory pharmacy practice experience course as well as an international, public health course entitled, "Health and Disease in Thailand".

Dr. Kraus works as a member of a health care team at Wingra Family Medical Center. Some of her unique contributions to this practice include: implementation and maintenance of a diabetes registry for previewing diabetes visits, co-management of care for patients using warfarin, and active participation in managing a prescription assistance program as well as providing information related to pharmacotherapy to family practice residents and faculty. Connie has served on a number of university-wide committees including the steering committee of the UW Center for Global Health which is developing international and domestic, interprofessional networks to facilitate teaching, practice, and research collaborations.

Beth Martin, PhD MS, RPh

Beth was the Director of the Pharmacotherapy Labs for the entry-level Doctor of Pharmacy degree program from 1998 - 2005 and currently coordinates the new DPH-1 IPPE. Her research emphasis has been on assessment and evaluation of professional education programming. Her practice experience is in community and managed care pharmacy and she also served as the Director of Educational Affairs for the Pharmacy Society of Wisconsin.

Dr. Martin has provided state and national presentations on implementing a pharmaceutical care practice, tobacco cessation counseling and services, developing/implementing clinical skills exams, and applying motivational interviewing techniques to promote health behavior change. She continues to be interested in facilitating the advancement of pharmaceutical care and provision of medication therapy management services as the standard of pharmacy practice. She encourages students to make a professional pledge to serve their patients through the application of pharmaceutical care principles and to motivate change within the profession of pharmacy.

Beth's research interests include pharmacy services implementation and sustained provision, as well as the evaluation and assessment of educational programs.

Beth Martin's honors include being named an AFPE 2004-05 Fellow, the APhA-APRS ESAS postgraduate officer for 2004-05, receiving the 1998-99 Teaching Excellence Award, the 1995 Young Pharmacist of the Year Award, and being a 1994 graduate of the SKB/APhA Community Pharmacy Management Program.

Beth's professional affiliations include: PSW, the American Pharmacists Association, the Academy of Managed Care Pharmacy, the American Association of Colleges of Pharmacy, Rho Chi, and Phi Lambda Sigma Pharmacy Leadership Society.

Work-Related Interests/Research: Pharmacy services implementation and the evaluation and assessment of educational programs

Eva M. Vivian , PharmD, BCPS, CDE

Dr. Vivian is currently Clinical Associate Professor at the University of Wisconsin School of Pharmacy. She received her doctor of pharmacy degree from the University of Illinois College of Pharmacy. She is certified in diabetes education and advanced diabetes management. She currently maintains a clinical practice at Access Community Health Center. Dr. Vivian's research interest focus on identifying disparities in the treatment of hypertension, diabetes, and other chronic diseases among ethnic minorities, particularly African American and Latino patients and developing and implementing strategies to reduce and eliminate them. Recently, her research has sharpened its focus in response to heightened awareness of the great numbers of children and adolescents who are at special risk of diabetes. Dr. Vivian currently serves on the Editorial Board of the Merck Manuals and is a peer reviewer for the Annals of Pharmacotherapy, Clinical Therapeutics, Current Medical Research and Opinion, and Diabetes Educator. Dr. Vivian has lectured at medical meetings, conferences, and symposia across the United States. Dr. Vivian has held numerous leadership positions within professional associations. She currently serves on the Board of Directors of the American Association of Diabetes Educators. She is also a member of the American Diabetes Association, American Society of Health Systems Pharmacists and American College of Clinical Pharmacy.



Publications

2010

Johnson JL, Duick DS, **Chui MA**, Aldasouqi SA. Identifying prediabetes using fasting insulin levels. *Endocr Pract.* 2010 Jan-Feb;16(1):47-52.

Martin BA, Bruskiwitz RH, **Chewning BA**. Effect of a tobacco cessation continuing professional education program on pharmacists' confidence, skills, and practice-change behaviors. *J Am Pharm Assoc.* 2010 Jan-Feb;50(1):9-16.

Martin BA, **Chui MA**, **Thorpe JM**, **Mott DA**, **Kreling DH**. Development of a Scale to Measure Pharmacists' Self-Efficacy in Performing Medication Therapy Management Services. *Res Soc Admin Pharm* 2010 Jun;6(2):155-61.

Mott DA, **Thorpe JM**, Thorpe CT, **Kreling D**, Gadkari AS. Effects of Medicare Part D on Drug Affordability and Utilization: Are Seniors with Prior High Out-of-Pocket Drug Spending Affected More? *Res Social Adm Pharm* 2010 Jun;6(2):90-9.

Patwardhan PD, **Chewning BA**. Tobacco users' perceptions of a brief tobacco cessation intervention in community pharmacies. *J Am Pharm Assoc.* 2010 Sep-Oct;50(5):568-74. PubMed PMID: 20833613.

Thorpe JM, Van Houtven CH, Sleath BL, Thorpe CT. Rural-urban differences in preventable hospitalizations among community-dwelling veterans with dementia. *Journal of Rural Health.* 2010;26(2):146 - 155

2009

Chan MR, **Young HN**, Yevzlin AS (2009). The effect of in-stent restenosis on hemodialysis access patency. *Hemodialysis International.* Jul;13(3):250-6. July 15[Epub ahead of print]

Chui MA. An elective course in personal finance for health care professionals. *Am J Pharm Educ.* 2009 Feb 19;73(1):6.

Chui MA. Improving the Health of Wisconsinites through greater collaboration between community pharmacists and faculty researchers. *Journal of the Pharmacy Society of Wisconsin.* 2009; March/April.

Chui MA, Halton K, Peng J. Exploring Patient-Pharmacist Interaction Differences between the Drive-Thru and Walk-in Windows. *J Am Pharm Assoc.* 2009 May-Jun; 49(3): 427-31.

Dilworth T, **Mott DA**, **Young HN** (2009). Analyzing pharmacist communication with Spanish-speaking patients: a review of the literature. *Research in Social and Administrative Pharmacy.* 5(2):108-20.

Gadkari AS, **Mott DA**, **Kreling DH**, Bonnarens JK Pharmacy characteristics associated with the provision of drug therapy services in nonmetropolitan community pharmacies. *J Rural Health,* 2009 Summer 25(3):290-5.

Guirguis LM, **Chewning BA**, Kieser MA. A randomized controlled trial to evaluate the impact of structured patient interactions on pharmacy students' counseling behaviours and attitudes. *Int J Pharm Pract.* 2009 Feb;17(1):53-60.

Guirguis LM, **Chewning BA**, Kieser MA. Predictors of pharmacy students' intentions to monitor diabetes. *J Pharm Sci.* 2009;12(1):33-45.

Patwardhan PD, **Chewning BA**. Ask, advise and refer: hypothesis generation to promote a brief tobacco-cessation intervention in community pharmacies. *Int J Pharm Pract.* 2009 Aug;17(4):221-9.

Rakel DP, Hoeft TJ, Barrett BP, **Chewning BA**, Craig BM, Niu M. Practitioner empathy and the duration of the common cold. *Fam Med.* 2009 Jul-Aug;41(7):494-501.

Svarstad BL, Kotchen JM, Shireman TI, Crawford SY, Palmer PA, Vivian EM, Brown RL. The Team Education and Adherence Monitoring (TEAM) trial: pharmacy interventions to improve hypertension control in blacks. *Circ Cardiovasc Qual Outcomes.* 2009 May;2(3):264-71.

Tafreshi J, **Chui MA**, Riley AB. Implementation of an amiodarone ambulatory care clinic. *Am J Health Syst Pharm.* 2009 Nov 15;66(22):1997-8, 2000-1.

Thorpe JM, Van Houtven CH, Sleath BL, Clipp, EC. Barriers to Outpatient Care in Community-Dwelling Elderly with Dementia: The Role of Caregiver Life Satisfaction. *Journal of Applied Gerontology.* 2009;28: 436-460

2008

Beeber AS, **Thorpe JM**, Clipp EC. Community-based service use by elders with dementia and their caregivers: A latent class analysis. *Nurs Res.* 2008 Sep-Oct;57(5):312-21.

Brock J, **Chui MA**. Bilingual Communication Strategies and Attitudes in Counseling Spanish-speaking Patients in Arizona. *Arizona Pharmacist.* Summer 2008, 20-23, 27.

Chan MR, **Young HN**, Becker YT, Yevzlin AS (2008). Obesity as a predictor of vascular access outcomes: analysis of the USRDS DMMS Wave II study. *Seminars in Dialysis.* 21(3): pp. 274-9.

Chui MA. Evaluating the Outcomes of Value-Added Services. In: Zgarrick D, Desselle S, ed. Pharmacy Management. 2nd Ed. New York, NY: McGraw Publishing, 2008.

Craig BM, Kraus CK, **Chewning BA**, Davis JE. Quality of care for older adults with chronic obstructive pulmonary disease and asthma based on comparisons to practice guidelines and smoking status. *BMC Health Serv Res.* 2008 Jul 8;8:144.

Gadkari AS, **Mott DA**, **Kreling DH**, Bonnarens JK. Characteristics of unmet demand for pharmacists: a survey of rural community pharmacies in Wisconsin. *J Am Pharm Assoc.* 2008 Sep-Oct 48(5):598-609.

Gadkari AS, **Mott DA**, **Kreling DH**, Bonnarens JK. Pharmacy characteristics associated with the provision of drug therapy services in nonmetropolitan community pharmacies. *J Rural Health.* 2009 Summer;25(3):290-5.

Gaither CA, Kahaleh AA, Doucette WR, **Mott DA**, Pederson CA, Schommer JC. A modified model of pharmacists' job stress: the role of organizational, extra-role, and individual factors on work-related outcomes. *Res Social Adm Pharm.* 2008 Sep;4(3):231-43.

Goode JV, **Mott DA**, Chater R. Collaborations to facilitate success of community pharmacy practice-based research networks. *J Am Pharm Assoc*. 2008 Mar-Apr;48(2):153-62.

Guirguis LM, **Chewning BA**. Development of a measure to assess pharmacy students' beliefs about monitoring chronic diseases. *Res Social Adm Pharm*. 2008 Dec;4(4):402-16.

Mott DA, Cline RR, **Kreling DH**, Pedersen CA, Doucette WR, Gaither CA, Schommer JC. Exploring trends and determinants of pharmacist wage rates: evidence from the 2000 and 2004 National Pharmacist Workforce Survey. *J Am Pharm Assoc*. 2008 Sep-Oct;48(5):586-97.

Payne J, Held J, **Thorpe JM**, Shaw H. Effect of exercise on biomarkers, fatigue, sleep disturbances, and depressive symptoms in older women with breast cancer receiving hormonal therapy. *Oncol Nurs Forum*. 2008 Jul;35(4):635-42.

Yevzlin AS, Conley EL, Sanchez RJ, **Young HN**, Becker BN (2006). Vascular access outcomes and medication use: a USRDS study. *Semin Dial*. Nov-Dec;19(6):535-539.

Young HN, Bell RA, Epstein RM, Feldman MD, Kravitz RL (2008). Physicians' Shared Decision-Making Behaviors in Depression Care. *Archives of Internal Medicine*. 168(13): pp. 1404-1408.

2007

Gaither CA, Nadkarni A, **Mott DA**, Schommer JC, Doucette WR, **Kreling DH**, Pedersen CA. Should I stay or should I go? The influence of individual and organizational factors on pharmacists' future work plans. *J Am Pharm Assoc*. 2007 Mar-Apr;47(2):165-73.

Goode JV, **Mott DA**, Stanley DD. Assessment of an immunization program in a supermarket chain pharmacy. *J Am Pharm Assoc*. 2007 Jul-Aug;47(4):495-8.

Guirguis LM, Kieser MA, **Chewning BA**, Kanous NL. Recall of A1C, blood pressure, and cholesterol levels among community pharmacy patients with diabetes. *J Am Pharm Assoc*. 2007 Jan-Feb;47(1):29-34.

Raynor DK, **Svarstad B**, Knapp P, Aslani P, Rogers MB, Koo M, Krass I, Silcock J. Consumer medication information in the United States, Europe, and Australia: A comparative evaluation. *J Am Pharm Assoc* 2007; 47:717-724.

Rickles NM, **Svarstad BL**. Relationships between multiple self-reported nonadherence measures and pharmacy records. *Research in Social and Administrative Pharmacy* 2007; 3:363-377.

2006

Chewning B, Kobulnicky C. Concordance in cancer related encounters between consumers and providers. In: Handbook of Communication and Cancer Care. O'Hair D, Kreps GL, Sparks LD, eds. Cresskill, NJ: Hampton Press; 2006:351-371.

Chewning B. The healthy adherer and the placebo effect [invited commentary]. *British Medical Journal*. 1 Jul 2006;333:18-19.

Doucette WR, **Kreling DH**, Schommer JC, Gaither CA, **Mott DA**, Pedersen CA. Evaluation of community pharmacy service mix: evidence from the 2004 national pharmacist workforce study. *Journal of the American Pharmacists Association*. 2006;46:348-355.

Guirguis LM, **Chewning BA**, Kieser MA, Kanous NL. Evaluation of structured patient interactions: the Diabetes Check. *Am J Pharm Educ.* 2006 Jun 5;70(3):56.

Kreling DH, Doucette WR, **Mott DA**, Gaither CA, Pedersen CA, Schommer JC. Community pharmacists' work environments: evidence from the 2004 national pharmacist workforce study. *Journal of the American Pharmacists Association.* 2006;46:331-339.

Mott DA, Doucette WR, Gaither CA, **Kreling DH**, Pedersen CA, Schommer JC. Pharmacist participation in the workforce: 1990, 2000, 2004. *Journal of the American Pharmacists Association.* 2006;46:322-330.

Mott DA, **Kreling DH**. 2005 Wisconsin pharmacist compensation survey: summary of pay, hours, hours worked, and fringe benefits for practicing pharmacists. *Journal of the Pharmacy Society of Wisconsin;* May/June 2006:36-41,46.

Rickles NM, **Svarstad BL**, Statz-Paynter JL, Taylor LV, Kobak KA. Improving patient feedback about and outcomes with antidepressant treatment: a study in eight community pharmacies. *J Am Pharm Assoc* 2006 Jan-Feb;46(1):25-32.

Schommer JC, Pedersen CA, Gaither CA, Doucette WR, **Kreling DH**, **Mott DA**. Pharmacists' desired and actual times in work activities : evidence of gaps from the 2004 national pharmacist workforce study. *Journal of the American Pharmacists Association.* 2006;46:340-347.

Schommer JC, Pedersen CA, Worley MM, Brown LM, Hadsall RS, Ranelli PL, Stratton TP, Uden DL, **Chewning BA**. Provision of risk management and risk assessment information: the role of the pharmacist. *Res Social Adm Pharm.* 2006 Dec;2(4):458-78.

Shah B, **Chewning B**. Conceptualizing and measuring pharmacist-patient communication: a review of published studies. *Research in Social and Administrative Pharmacy.* 2006;1:153-185.

Shrank WH, Joseph GJ, Choudhry NK, **Young HN**, Ettner SL, Glassman P, Asch SM, Kravitz RL (2006). Physicians' perceptions of relevant prescription drug costs: Do costs to the individual patient or the population matter most? *The American Journal of Managed Care.* 12: pp. 545-551.

Shrank, W.H., Asch SM, Joseph GJ, **Young HN**, Ettner SL, Kholodenko Y, Glassman P, Kravitz RL (2006). Physicians' perceived knowledge of and responsibility for managing patients' out-of-pocket costs for prescription drugs. *Annals of Pharmacotherapy.* 40(9): p. 1534-40.

Svarstad BL, Sitter DC. The patient: Behavioral determinants, In: Gennaro AR (ed), Remington: The Science and Practice of Pharmacy (21st Ed). Baltimore, MD: Lippencott Williams and Wilkins, Chap. 113, 2006.

Young HN, Bell RA, Epstein RM, Feldman MD, Kravitz RL (2006). Types of information physicians provide when prescribing antidepressants. *Journal of General Internal Medicine.* 21(11): pp. 1172-1177.

2005

Cline RJW, and **Young HN** (2005). Direct-to-consumer print ads for drugs: do they undermine the physician-patient relationship? *Journal of Family Practice.* 54(12): pp. 1049-57.

Guirguis L, **Chewning B**. Role theory: literature review and implications for patient-pharmacist interactions. *Research in Social and Administrative Pharmacy.* 2005;1:483-507.

Kreling DH, Donatelle RA, Porter JL, Schwartz SM. A guide to drug coverage under the Medicare Modernization Act (MMA): key components for pharmacists to know [continuing education monograph]. *National Community Pharmacist Association*. Feb 2005.

Lacourt J, St Clair D, Kokotailo P, **Wilson D**, **Chewning B**. Know your roots: development and evaluation of an oral history curriculum for Native American middle school students. *American Indian Culture and Research Journal*. 2005;29:59-74.

Mott DA. More research needed to better understand what contributes to job satisfaction. *Journal of the American Pharmacists Association*. 2005;45:122-124.

Mott DA, Doucette WR, Gaither CA, **Kreling DH**, Pedersen CA, Schommer JC. Final report on the 2004 national sample survey of the pharmacist workforce to determine contemporary demographic and practice characteristics. *Pharmacy Manpower Project, Inc*. 1 Sep 2005.

Mott DA, **Kreling DH**, Hermansen-Kobulnicky C, Chou C-H. Medicaid pharmaceutical care program: pharmacy participation and the characteristics of claims submitted. *Journal of the Pharmacy Society of Wisconsin*. Mar/Apr 2005:12-16.

Mott DA, **Kreling DH**, Hermansen-Kobulnicky C, Chou, C-H. Report on the Wisconsin Medicaid pharmaceutical care program: survey of pharmacy provider participation. *Community Pharmacy Foundation*. 31 Mar 2005.

Rickles NM, **Svarstad BL**, Statz-Paynter JL, Taylor LV, Kobak KA. Pharmacist telemonitoring of antidepressant use: effects on pharmacist-patient collaboration. *J Am Pharm Assoc*. 2005 May-Jun;45(3):344-53.

Shrank WH, **Young HN**, Ettner SL, Glassman P, Asch SM, Kravitz R (2005). Do the incentives in three-tier, incentive-based pharmaceutical benefit plans operate as intended? Results from a physician leadership survey. *The American Journal of Managed Care*. 11: pp.16-22.

Svarstad BL. Using Medicaid claims and dosing guidelines to assess the prescribing and outcomes of conventional antipsychotics. *J of Pharmacy Technology* 2003; 19:146-53.

Svarstad BL, Mount JK, Tabak ER. Expert and consumer evaluation of patient medication leaflets provided in U.S. pharmacies. *J Am Pharm Assoc*. 2005 Jul-Aug;45(4):443-51.

Young HN, and Cline RJW (2005). Textual cues in direct-to-consumer prescription drug advertising: Motivators to communicate with physicians. *Journal of Applied Communication Research*. 33(4): pp. 348-369.

Young HN, Lipowski EE, and Cline RJW (2005). Using social cognitive theory to explain consumers' behavioral intentions in response to direct-to-consumer prescription drug advertising. *Research in Social and Administrative Pharmacy*. 1(2): pp. 270-288.

Young HN, Paterniti DA, Bell RA, and Kravitz RL (2005). Do prescription drug ads educate the public? The consumer answers. *Drug Information Journal*. 39: pp. 25-33.

2004

Chewning B, Guirguis LM. Patient preferences [commentary]. *Canadian Pharmacist Journal*. 2004;137:20.

Curtin R, Sitter D, Schatell D, **Chewning B**. Self-management, knowledge, and functioning and well-being of patients on hemodialysis. *Nephrology Nursing Journal* 2004;31:378-386.

Hermansen-Kobulnicky C, **Wiederholt J**, **Chewning B**. Side effect monitoring: opportunity for patient care and pharmacy practice. *Journal of American Pharmacists Association*. 2004;44:75-88.

Mott DA, Doucette WR, Gaither CA, Pedersen CA, Schommer JC. Pharmacists' attitudes toward worklife: results from a national survey of pharmacists. *Journal of the American Pharmacist Association*. 2004;44:326-336.

Mott DA, **Kreling DH**. 2003 Wisconsin pharmacist salary survey: compensation, hours worked, and fringe benefits for practicing pharmacists. *Journal of the Pharmacy Society of Wisconsin*. May/June 2004;58-64.

Mott DA, **Kreling DH**, Hermansen-Kobulnicky C, Chou, C-H. Report on the Wisconsin Medicaid pharmaceutical care program: pharmacy provider participation and pharmaceutical care claims. *Community Pharmacy Foundation*. Jul 2004.

Sriwong BT, **Kreling DH**. Application of Levitt's total product concept to pharmacist services development. *Journal of Pharmaceutical Marketing and Management*. 2004;16(4):47-64.

Svarstad BL, Bultman DC, Mount JK. Patient counseling provided in community pharmacies: Effects of state regulation, pharmacist age, and busyness. *J of American Pharmaceutical Association*, 2004; 44:22-29

Svarstad BL, Draugalis JR, Meyer SM, Mount JK. The status of women in pharmacy education: Persisting gaps and issues. *Am J Pharm Educ* 2004; 68(3): Article 79.

2003

Chewning B, **Wiederholt J**. Concordance in consumer-provider communication regarding cancer. *Patient Education and Counseling*. 2003;50:75-88.

Cline RR, **Mott DA**. Exploring the demand for a voluntary Medicare prescription drug benefit. *AAPS PharmSci*. 2003;5(2):E19.

Cline RR, **Mott DA**. Demand for a Medicare prescription drug benefit: exploring consumer preferences under a managed competition framework. *Inquiry*. 2003;40:169-183.

Cline RR, **Mott DA**. Use of antiresorptive drugs among older women: a case study in Wisconsin. *American Journal of Health-System Pharmacy*. 2003;60:453-463.

Craig BM, **Kreling DH**, **Mott DA**. Do seniors get the medicines prescribed for them? Evidence from the 1996-1999 Medicare current beneficiary survey. *Health Affairs*. May/June 2003;22:175-182.

Rickles NM, **Svarstad BL**. Using Medicaid claims and dosing guidelines to assess the prescribing and outcomes of conventional antipsychotics. *J of Pharmacy Technology* 2003; 19:146-53.

Schommer JC, **Mott DA**, Hansen RA, Cline RR. Selected characteristics of senior citizens' prescription drug payment and procurement in 1998 and 2001. *Journal of Managed Care Pharmacy*. 2003;9:408-415.

Svarstad BL, Bultman DC, Mount JK, Tabak ER. Evaluation of written prescription information provided in community pharmacies: An 8-state study. *J of American Pharmaceutical Association*, 2003; 43:383-393.

Svarstad BL. Measuring adherence in community pharmacies: opportunities and challenges. *J Am Pharm Assoc* . 2005 Mar-Apr;45(2):127-9.

2002

Bultman DC, **Svarstad BL**. Effects of pharmacist monitoring on client satisfaction with antidepressant medication. *Journal of the American Pharmacists Association*. 2002;42:36-43.

Cody M, Beck C, **Svarstad BL**, Challenges to the integration of psychopharmacologic and behavioral interventions in nursing homes, *Psychiatric Services*. 2002; 53:1402-1406.

Krass I, **Svarstad B**, Bultman D, Using alternative methodologies for evaluating patient medication leaflets, *Patient Education and Counseling*. 2002; 47:29-35.

Kreling DH. Pharmacy cost of dispensing/acquisition cost study: final report. Wisconsin Department of Health and Family Services, Bureau of Health Care Finance. 6 Mar 2002.

Kreling DH, Mott DA. 2001 Wisconsin pharmacist salary survey: compensation, hours worked, and fringe benefits for practicing pharmacists. *Journal of the Pharmacy Society of Wisconsin*. Jul/Aug 2002:13-19.

Mott DA, Cline RR. Exploring generic drug use behavior: the role of prescribers and pharmacists in the opportunity for generic drug use and generic substitution. *Medical Care*. 2002;40:662-674.

Mott DA, Doucette WR, Gaither CA, Pedersen CA, Schommer JC. A ten-year trend analysis of pharmacist participation in the workforce. *American Journal of Pharmaceutical Education*. 2002;66(3):223-233.

Mott DA, Schommer JC. Exploring prescription drug coverage and drug use for older Americans. *Annals of Pharmacotherapy*. 2002;36:1704-1711.

Schommer JC, Pedersen CA, Doucette WR, Gaither CA, **Mott DA**. Community pharmacists' work activities in the United States during 2000. *Journal of the American Pharmaceutical Association*. 2002;42:399-406.

Svarstad BL and Mount J. Effects of resident depression, sleep, and demand for medication on benzodiazepine use in nursing homes. *Psychiatric Services*, 2002; 53:1159-1165.

Schmidt I, **Svarstad BL**, Nurse - physician communication and quality of drug use in Swedish nursing homes, *Social Science and Medicine*. 2002; 54:1767-1777.

2001

Chewning B, Douglas J, Kokotailo PK, Lacourt J, St Clair D, **Wilson D**. Protective factors associated with Indian adolescents' safer sexual patterns. *Journal of Maternal and Child Health*. 2001;5:273-280.

Chewning B, Wiederholt J, Bell C, Boh D, Boh L, Douglas J, Kreling D, Van Koningsveld R, Wilson D. Does the concordance framework serve medicine management? *International Journal of Pharmacy Practice*. 2001;9:71-79.

Ganther JM, **Wiederholt JB, Kreling DH.** Measuring patients' medical care preferences: care-seeking versus self-treating. *Medical Decision Making*. 2001;21:133-140.

Kreling DH. Imperfect data [letter]. *Health Affairs*. Nov/Dec 2001;20:1063.

Kreling DH. Pricing responses related to a Medicare prescription drug benefit: a thought paper. Prepared for the Congressional Budget Office. Jan 2001.

Kreling DH. What strategies can states use to control costs and how effective are they? Briefing paper for the 16th Wisconsin Family Impact Seminar on Designing a State Prescription Drug Benefit: Strategies to Control Costs. University of Wisconsin–Madison School of Human Ecology. Mar 2001.

Kreling DH, Mott DA, Wiederholt JB. Why are prescription drug costs rising? Briefing paper for the 15th Wisconsin Family Impact Seminar on Rising Prescription Drug Costs: Reasons, Needs, and Policy Responses. University of Wisconsin–Madison School of Human Ecology. Jan 2001.

Kreling DH, Mott DA, Wiederholt JB, Lundy J, Levitt L. Prescription drug trends: a chartbook update, November 2001. Menlo Park, CA: Kaiser Family Foundation.

Mott DA. Use of labor economic theory to examine hours worked by male and female pharmacists. *Pharmaceutical Research*. 2001;18:224-233.

Mott DA, Pedersen CA, Doucette WR, Gaither CA, Schommer JC. A national survey of U.S. pharmacists in 2000: assessing non-response bias of a survey methodology. *AAPS PharmSci*. 2001;3(4):article 33.

Mott DA, Sorofman B, Kreling DH, Schommer JC, Pedersen CA. A four-state summary of the pharmacy workforce. *Journal of the American Pharmaceutical Association*. 2001;41:693-702.

Mott DA, Wattanapitayakul S. High-cost antibiotic prescribing for the elderly: the influence of prescription drug insurance type and cost information on physician antibiotic selection. *Journal of Research in Pharmaceutical Economics*. 2001;11(3/4):87-103.

Schommer JC, **Mott DA, Schneider PJ, Knoell KR.** Performance management of a pharmacist-directed anticoagulation management service. *Hospital Pharmacy*. 2001;36:1164-1169.

Svarstad BL and Mount JK. Chronic benzodiazepine use in nursing homes: Effects of federal guidelines, resident mix, and nurse staffing. *J of American Geriatrics Society*, 2001; 49:1673-1678.

Svarstad BL, Mount JK, Evaluation of written prescription information provided in community pharmacies, 2001. Final Report to US DHHS and FDA. Available at: <http://www.fda.gov/cder/reports/prescriptionInformation>

Svarstad BL, Mount JK, Bigelow W. Variations in treatment culture and nursing home response to drug regulations. *Psychiatric Services*. 2001;52:666-672.

Svarstad BL, Shireman TI, Sweeney JK. Using claims data to assess medication adherence and its effects on hospital use and costs in severe mental illness. *Psychiatric Services*. 2001;52:805-811.

2000

Bultman DC, **Svarstad BL**. Effects of physician communication style on client medication beliefs and adherence with antidepressant treatment. *Patient Education and Counseling*. 2000;40:173-185.

Chewning B, Yu T, Johnson J. T'ai chi: An evaluation of health outcomes. *Health and Fitness Journal*. 2000;4:21-26.

Cline RR, **Mott DA**. Job matching in pharmacy labor markets: a study in four states. *Pharmaceutical Research*. 2000;17:1537-1545.

Ganther JM, **Kreling DH**. Consumer perceptions of risk and required price savings for generic prescription drugs. *Journal of the American Pharmaceutical Association*. 2000;40:378-383.

Kreling DH. Cost control for prescription drug programs: pharmacy benefit manager (PBM) efforts, effects, and implications. Background paper prepared for U.S. DHHS Office of the Assistant Secretary for Planning and Evaluation conference on pharmaceutical pricing practices, utilization and costs. 9 Aug 2000.

Kreling DH, Mott DA, Wiederholt JB, Lundy J, Levitt L. Prescription drug trends—a chartbook, July 2000. Menlo Park, CA: Kaiser Family Foundation; 2000.

Kreling DH, Mott DA, Wiederholt JB. 1999 pharmacist salary survey: compensation, hours worked, and fringe benefits for practicing pharmacists. *Journal of the Pharmacy Society of Wisconsin*. Jan/Feb 2000;17-23. Moore JL,

McAuley, JW, **Mott DA**, Reeves AL, Bussa B. Referral characteristics of primary care physicians for seizure patients. *Epilepsia*. 2000;41:744-748.

Mott DA. Pharmacist job turnover, length of service, and reasons for leaving, 1983-1997. *American Journal of Health-System Pharmacy*. 2000;57:975-984.

Mott DA, Meek P. Evaluating prescriptions for the elderly: drug-age criteria as a tool to help community pharmacists. *Journal of the American Pharmaceutical Association*. 2000;40(3):417-424.

Nimpitakpong P, **Svarstad BL**, Zimmerman MH. Patient participation in a callback program for home delivery patients in HMO pharmacies. *Journal of Social and Administrative Pharmacy*. 2000;17:159-168.

Palm J, Schommer JC, **Mott DA**, McAllister DL. Acceptance and cost-impact of Timoptic XE vs. Timoptic use in long term care facilities. *The Consultant Pharmacist*. 2000;15:637-643.

Pedersen CA, Doucette WR, Gaither CA, **Mott DA**, Schommer JC. Final report of the national pharmacist workforce survey: 2000. Pharmacy Manpower Project, Inc.; 2000.

Shireman TI, **Kreling DH**. Impact of third party penetration and competition on community pharmacies' profits. *Journal of Research in Pharmaceutical Economics*. 2000;10(1):7-28.

Sleath BL, **Chewning BA, Svarstad BL**, Roter D. Patient expression of complaints and adherence problems with medications during chronic disease medical visits. *Journal of Social and Administrative Pharmacy*. 2000;17:71-80.

Svarstad BL, Bultman DC. The patient: behavioral determinants. In: Gennaro AR, ed. Remington: The Science and Practice of Pharmacy. 20th ed. Baltimore, MD: Lippincott Williams & Wilkins; 2000:1948-56.

1999

Bultman DC, **Svarstad BL**. Physician and pharmacist communication, consumer beliefs, and outcomes of antidepressant therapy. *Journal of Social and Administrative Pharmacy*. 1999;16:76.

Chewning B, Mosena P, **Wilson D**, Erdman H, Potthoff S. Evaluation of a computerized contraceptive decision aid for adolescent patients. *Patient Education and Counseling*. 1999;38:227-239.

Cline R, **Mott DA**, Schommer JC. Relationship between attitudes, demographics, and application decisions among pre-pharmacy students: an exploratory investigation. *American Journal of Pharmaceutical Education*. 1999;63:394-401.

Curtin RB, **Svarstad BL**, Keller T. Hemodialysis patients' noncompliance with oral medications. *ANNA Journal*. 1999;26:307-316.

Douglas J, Kosorov M, **Chewning B**. A latent variable model for multivariate psychometric response times. *Psychometrika*. 1999;64:69-82.

Franic D, Pathak DS, **Mott DA**. Pharmaceutical care and health outcomes in community settings: a matched pair analysis of perceptions of hypertensive patients versus pharmacists. *Pharmacy Practice Management Quarterly*. 1999;19(2):1-17.

Ganther JM, **Kreling DH**. The effect of a change in third party reimbursement rate on prescription gross margin. *Journal of the American Pharmaceutical Association*. 1999;39:346-352.

Lipton HL, **Kreling DH**, Collins T, Hertz KC. Pharmacy benefit management companies: dimensions of performance. *Annual Reviews of Public Health*. 1999;20:361-401.

McAuley JW, **Mott DA**, Akers A. Assessing the impact of a substance abuse educational program on pharmacy students' knowledge base: a controlled study. *American Journal of Pharmaceutical Education*. 1999;63:309-314.

McAuley JW, **Mott DA**, Schommer JC, Moore JL, Reeves AL. Assessing the needs of community pharmacists and primary care physicians in providing care to patients with epilepsy. *Journal of the American Pharmaceutical Association*. 1999;39:499-504.

Mott DA, Vanderpool WH, Smeenk DA. Ohio technicians' demographics and attitudes toward national voluntary technician certification. *Journal of Pharmacy Technology*. 1999;15:18-24.

Shireman TI, **Svarstad BL**, Sweeney JK. Validity of claims data for long-acting injectable medications. *Journal of Pharmacoepidemiology*. 1999;7:41-54.

Sleath B, Roter D, **Chewning B**, **Svarstad B**. Asking questions about medication: analysis of physician-patient interaction and physician perceptions. *Medical Care*. 1999;37:1169-1173.

Sleath B, Roter D, **Chewning B**, **Svarstad B**. Question asking exchanges about medication in medical visits: what they are and how they are perceived. *Medical Care*. 1999;37:1169-1173.

Svarstad B, Chewning B, Sleath B, Claesson C. The brief medication questionnaire: a tool for screening patient adherence and barriers to adherence. *Patient Education and Counseling*. 1999;37:113-124.

Svarstad BL, Shireman TI, Sweeney JK. Using claims data to assess medication adherence and its effects on hospital use and costs in severe mental illness [abstract]. *Journal of Social and Administrative Pharmacy*. 1999;16:108-109.

1998

Chewning B, Van Koningsveld R. Predicting adolescents' initiation of intercourse and contraceptive use. *Journal of Applied Social Psychology*. 1998;28:1245-1286.

Kreling DH, Wiederholt JB. 1997 Wisconsin pharmacist salary survey part 2: part time and other pharmacists, pharmacist schedules, and work activities. *Journal of the Pharmacy Society of Wisconsin*, Sep/Oct 1998;1:15-21.

Mott DA, Collins T. Comparison of targeting a DUR letter intervention at pharmacists separate from and in addition to physicians. *Journal of the American Pharmaceutical Association*. 1998;38:325-332.

Mott DA, Kreling DH. The association of insurance type with costs of prescribed drugs. *Inquiry*. 1998;35:23-35.

Mott DA, Rothermich E. Age of dispensed drug products: the role of insurance type, physician characteristics, and physician practice systems. *Journal of Research in Pharmaceutical Economics*. 1998;9(3):5-19.

Mott DA, Schommer JC, Doucette WR, Kreling DH. Agency theory and decisions within the pharmaceutical utilization system: implications for public policy. *Journal of Public Policy and Marketing*. 1998;17(2):1-8.

Mott DA, Schommer JC, Doucette WR, Kreling DH. Agency theory, drug formularies, and drug product selection: implications for public policy. *Journal of Public Policy and Marketing*. 1998;17(2):277-285.

Mott DA, Vanderpool WH, Smeenk DA. Perceptions of national voluntary certification for pharmacy technicians in institutional settings. *American Journal of Health-System Pharmacy*. 1998;55:1799-1803.

Mott DA, Vanderpool WH, Smeenk DA. Attitudes of Ohio hospital pharmacy directors toward national voluntary pharmacy technician certification. *American Journal of Health-System Pharmacy*. 1998;55:1799-1803.

Roter, DL, Hall JA, Merisca R, Ruehle B, Creten D, Svarstad BL. Effectiveness of interventions to improve patient compliance: a meta-analysis. *Medical Care*. 1998;36:1138-1161.

Schmidt I, Claesson C, Westerholm B, Svarstad BL. The impact of regular multidisciplinary team interventions on psychotropic prescribing in Swedish nursing homes. *Journal of American Geriatrics Society*. 1998;46:77-82.

Schmidt I, Claesson C, Westerholm B, Svarstad BL. Resident characteristics and organizational factors influencing the quality of drug use in Swedish nursing homes. *Social Science and Medicine*. 1998;47:961-971.

Sleath B, **Svarstad BL**, Roter D. Patient race and psychotropic prescribing during medical encounters. *Patient Education and Counseling*. 1998;34:227-238.

Sutter TL, Wellman G, **Mott DA**, Schommer JC, Sherrin T. An evaluation of access discrepancies associated with an automated storage and distribution cabinet. *American Journal of Health-System Pharmacy*. 1998;55:1924-1926.

1997

Chewning B. Patient involvement in pharmaceutical care: a conceptual framework. *American Journal of Pharmaceutical Education*. 1997;61:394-401.

Collins TM, **Mott DA**, Bigelow WE, Zimmerman DR. A controlled letter intervention to change prescribing behavior: results of a dual-targeted approach. *Health Serv Res*. 1997 Oct;32(4):471-89.

Curtin RB, **Svarstad BL**, Andress D, Keller T, Sacksteder P. Differences in older versus younger hemodialysis patients' noncompliance with oral medications. *Geriatric Nephrology and Urology*. 1997;7:35-44.

Doucette WR, **Wiederholt JB**. Cooperation in pharmacy-drug wholesaler relations. *Pharmaceutical Research*. 1997;14:976-983.

Kreling DH. Basic bibliography: cognitive sciences reimbursement. *Hospital Pharmacy*. 1997;32:1063.

Kreling DH. A brief look at the 1997 salary survey results. *The Wisconsin Pharmacy Graduate*. Fall 1997;1.

Kreling DH, Wiederholt JB. 1997 Wisconsin pharmacist salary survey: practicing pharmacists salary survey. *Wisconsin Pharmacist*. Nov/Dec 1997;66:10-22.

Mott DA. Economic issues of pharmaceutical care: the patient's perspective. *American Journal of Pharmaceutical Education*. 1997;61:407-410.

Mott DA, Collins T, Bigelow W, Zimmerman D. A controlled letter intervention to change prescribing behavior: results of a dual-targeted approach. *HSR: Health Services Research*. 1997;32:471-489.

Mott DA, Jambulingam T. Path model of Wisconsin pharmacists' hours supplied to the labor market. *American Journal of Health-System Pharmacy*. 1997;54:558-563.

Mott DA, Kreling DH. The influence of therapeutic category and insurance type on generic substitution of drug products. *Journal of Research in Pharmaceutical Economics*. 1997;8(3):3-22.

Rupp, MT, **Kreling DH**. The impact of pharmaceutical care on patient outcomes: what do we know? *Drug Benefit Trends*. 1997;9(2):35-47.

Schommer JC, **Wiederholt JB**. The association of prescription status, patient age, gender and patient question asking behavior with the content of pharmacist-patient communication. *Pharmaceutical Research*. 1997;14:145-151.

Sleath B, **Svarstad BL**, Roter D. Physician vs. patient initiation of psychotropic prescribing in primary care settings: a content analysis of audiotapes. *Social Science and Medicine*. 1997;44:541-548.

Wiederholt JB, Wiederholt PA. The patient: our friend and teacher. *American Journal of Pharmaceutical Education*. 1997;61:415-473.

1996

Chewning B, Sleath B. Medication decision-making and management: a client-centered model. *Social Science & Medicine*. 1996;42:389-398.

Chewning B, Schommer J. Increasing clients' knowledge of community pharmacists' roles. *Journal of Pharmaceutical Research*. 1996;13:1299-1304.

Doucette WR, **Wiederholt JB**. Contextual factors and cooperativeness of conflict resolution strategies in interfirm relationships. *Journal of Marketing Channels*. 1996;5(2):1-24.

Lipton HL, **Kreling DH**, Collins TM, Hertz K. Assessment of the impact of pharmacy benefit managers. Report to HCFA. Contract HCFA-95-023/PK. 30 Sep 1996.

Svarstad BL. Using patient input to improve pharmacy practice. *International Pharmacy*. 1996;10(Suppl D):SI/20.

1995

Hermansen CJ, **Wiederholt JB**. 1995 Wisconsin pharmacists salary survey results, an economic analysis of the salaried pharmacist labor market in Wisconsin, compensation, duty hours, and fringe benefits. *Wisconsin Pharmacist*. Nov/Dec 1995;64:5-18.

Jambulingam T, **Kreling DH**. Relationship between the number of firms and generic price competition. *Journal of Research in Pharmaceutical Economics*. 1995;6(3):39-60.

Khandker RZ, Simoni-Wastila LJ, Cromwell J, **Kreling DH**. Issues related to the federal government drug payment policies in the reformed health care environment. Report to HCFA. Contract 500-92-0020. 13 Oct 1995.

Kokotailo P, LaCourt J, St Clair D, **Chewning B**. A pilot video intervention to promote health careers among Native American youth. *Journal of School Health*. 1995;65:113-114.

Mott DA, **Kreling DH**, Cain GC. The relationship between internal rates of return, pharmacist supply and applications and admissions: a case study in Wisconsin. *American Journal of Pharmaceutical Education*. 1995;59:59-66.

Nowlin N, Bell C, **Chewning B**, **Wilson D**, Chappell R, Boh L, Boh D. A comparison of physician and patient global ratings of health in rheumatoid arthritis (RA) and osteoarthritis (OA). *Arthritis and Rheumatism*. 1995;38(Suppl):R-15.

1994

Adams EK, **Kreling DH**, Gondek K. State Medicaid pharmacy payments and their relation to estimated costs. *Health Care Financing Review*. 1994;15(1):25-42.

Chewning B, Bell CL, Nowlin NS, **Wilson DA**, Chappell R, Boh LE, Boh DM. A comparison of AIMS2 and SF-36 for measuring arthritis patients' quality of life and functional health status. *Arthritis and Rheumatism*. 1994;37(Suppl):R-13.

Mott DA, Kreling DH. An internal rate of return approach to investigate pharmacist supply in the United States. *Health Economist*. 1994;3:373-384.

Mott DA, Wiederholt JB. Wisconsin pharmacy salary survey results: an economic analysis of the salaried pharmacist labor market in Wisconsin, part 2: factors influencing the supply and demand of pharmacists. *Wisconsin Pharmacist*. Jan/Feb 1994;63:7-12.

Nowlin NS, Bell CL, **Chewning B, Wilson DA**, Boh DM, Boh LE, Chapell R. Non-drug alternative therapy for arthritis. *Arthritis and Rheumatism*. 1994;37(Suppl):R-14.

Rupp MT, **Kreling DH.** The impact of pharmaceutical care on patient outcomes: what do we know? In: Patient Outcomes of Pharmaceutical Interventions: A Scientific Foundation for the Future. Invitational Conference Papers. American Pharmaceutical Association. Nov 1994.

Schommer JC, **Wiederholt JB.** Patients' satisfaction with pharmacist consultation services: application of a model of service encounter evaluation. *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior*. 1994;7:74-86.

Schommer JC, **Wiederholt JB.** Pharmacist conceptual views of patient counseling. *American Pharmacy*

Schommer JC, **Wiederholt JB.** Pharmacists' perceptions of patients' needs for counseling. *American Journal of Hospital Pharmacy*. 1994;51:478-485.

Svarstad BL. Development of behavioral science curricula and faculty in pharmacy: some issues requiring attention. *American Journal of Pharmaceutical Education*. 1994;58:177-183.

Zimmerman DR, Collins TM, Lipowski EE, **Kreling DH, Wiederholt JB.** Guidelines for estimating the impact of Medicaid DUR. Final report to HCFA Medicaid Bureau. Contract 500-93-0032. Aug 1994.

1993

Adams EK, Gavin N, **Kreling DH.** Assessment of adequacy of reimbursement rates to pharmacies and its impact on the access to medication and pharmacy services by Medicaid recipients. Report to HCFA. Contract 500-92-0024. 25 Aug 1993.

Chewning B. Evaluating the computer as a data camera in family planning research. In: Severy LJ, ed. *Advances in Population: Psychosocial Perspectives*. London: Jessica Kingsley Publishers; 1993:85-101.

Doucette WD, **Wiederholt JB.** The effect of consumer characteristics and drug use process variables on consumers' meaning of prescribed medication. *Journal of Pharmaceutical Marketing and Management*. 1993;7(4):85-95.

Kreling DH, Mott DA. The cost effectiveness of drug utilization review in an outpatient setting. *PharmacoEconomics*. 1993;4:414-436.

Mott DA, Wiederholt JB. Wisconsin pharmacy salary survey results: an economic analysis of the salaried labor market in Wisconsin, part 1: compensation, duty hours and fringe benefits. *Wisconsin Pharmacist*. Nov 1993;62:5-10,12-13,23-24.

Page C, **Kreling DH**, Matsumura EM. Comparison of the mean per-unit and ratio estimators under a simple applications-motivated model. *Statistics & Probability Letters*. 1993;17:97-104.

Paulson LD, **Wiederholt JB**. Analysis and implications of pharmacy product information in community pharmacy newspaper advertisements. *Journal of Pharmaceutical Marketing and Management*. 1993;7(4):59-83.

Svarstad BL. Communication education: reflections on the iceberg effect. In: Proceedings of USP Conference on Patient Education. 1993.

Wiederholt JB, Schommer JC, Lobner TL. Endorsing accuracy in consultant pharmacy. *The Consultant Pharmacist*. 1993;8:115-116.

1992

Doucette WR, **Wiederholt JB**. Measuring product meaning for prescribed medication using a means-end chain model. *Journal of Health Care Marketing*. 1992;12(1):48-54.

Kreling DH, Mucha RE. Drug product management in health maintenance organizations. *American Journal of Hospital Pharmacy*. 1992;49:374-381.

Mount JK, **Svarstad BL**. Using the Wisconsin psychotropic screening protocol to assess the quality of nursing home residents' psychotropic drug orders. In: Portella E, Via JM, eds. Proceedings of SYSTED '91: 4th International Conference on Systems Science in Health and Social Services for the Elderly and the Disabled. 1992.

Mount JK, Tesdahl EL, **Svarstad BL**. Using published criteria to assess psychotropic drug use in elderly nursing home residents. In: Portella E, Via JM, eds. Proceedings of SYSTED '91: 4th International Conference on Systems Science in Health and Social Services for the Elderly and the Disabled. 1992.

Rupp MT, **Kreling DH**. Alternative payment methods: value and payment for pharmacy services. Background paper prepared for National Association of Chain Drug Stores. Oct 1992.

Schommer JC, Doucette WR, **Mott DA**. Wisconsin pharmacists compound. *American Pharmacy*. 1992;NS32(1):7.

Svarstad BL, Mount JK. The social systems perspective on patient care. In: Brown TR, Smith MC, eds. *The Handbook of Institutional Pharmacy Practice*. 3rd ed. Bethesda, MD: American Society of Health-System Pharmacists. 1992.

Wiederholt JB, Clarridge BR, Svarstad BL. Verbal consultation for prescription drugs: findings from a statewide study. *Medical Care*. 1992;30:159-173.

1991

Kreling DH. A comparison of pharmacists' acquisition costs and potential Medicaid prescription ingredient cost reimbursement in Wisconsin. *Journal of Research in Pharmaceutical Economics*. 1991;3:25-53.

Kreling DH, **Mott DA**. Potential economic impact of changes in Medicaid drug program purchasing. *Am J Hosp Pharm*. 1991 Apr;48(4):678, 680.

Lobner TL, **Wiederholt JB**. Importance of criteria used in selecting pharmaceutical services in Wisconsin skilled nursing facilities: an exploratory study. *The Consultant Pharmacist*. 1991;6:919-925.

Schommer JC, **Wiederholt JB**. The elderly's perspective of the relative importance of pharmacy selection factors for long-term care facility residents. *Journal of Pharmaceutical Marketing and Management*. 1991;6(2):63-80.

Schommer JC, **Wiederholt JB**. Long-term care facility residents rights: an elderly population perspective. *The Consultant Pharmacist*. 1991;6(11):1-7.

Svarstad BL. Sleep medication use in skilled nursing facilities: effects of nurse beliefs and norms. *The Gerontologist*. 1991;31:90.

Svarstad BL, Mount JK. Nursing home resources and tranquilizer use among the institutionalized elderly. *Journal of the American Geriatrics Society*. 1991;39:869-875.

1990

Kreling DH, Schommer JC. Costs of potentially inappropriate psychotropic drug orders for nursing home residents: method and estimation. *The Consultant Pharmacist*. 1990;5:166-172.

Kreling DH, Dzvimbo WJ. Drug information sources used by physicians and pharmacists: a study of public hospitals in Zimbabwe. *Journal of Social and Administrative Pharmacy*. 1990;6:197-207.

Martin M, **Svarstad B**. Gender, employment, and women's reproductive role: testing their effects on legal drug use. *Social Science and Medicine*. 1990;31:971-978.

Schommer JC, Doucette WR, **Mott DA**. Prescription drug compounding in Wisconsin pharmacies. *Wisconsin Pharmacist*. Dec 1990;59:24-25.

Schommer JC, **Wiederholt JB**, **Hammel RW**. Pilot study of the Wisconsin pharmacy self-inspection project. *Wisconsin Pharmacist*. 1990;59:18-20.

Sullivan SD, **Kreling DH**, Hazlet TK. Noncompliance with medication regimens and subsequent hospitalizations: a literature analysis and cost of hospitalization estimate. *Journal of Research in Pharmaceutical Economics*. 1990;2:19-33.

1989

Kreling DH. Assessing potential prescription reimbursement changes: estimated acquisition costs in Wisconsin. *Health Care Financing Review*. 1989;10:67-75.

Kreling DH, Knocke DJ, **Hammel RW**. The effects of an internal analgesic formulary restriction on Medicaid drug expenditures in Wisconsin. *Medical Care*. 1989;27:34-44.

Kreling DH, Paulsen EK. Medicare supplement insurance: a primer for pharmacists. *The Wisconsin Pharmacist*. 1989;58:15-17.

Ranelli P, **Svarstad B**, Boh L. Factors affecting outcomes of medication history interviewing by pharmacy students. *American Journal of Hospital Pharmacy*. 1989;46:267-281.

Robers P, **Svarstad B**. Resident characteristics and sleep medication use in nursing homes. *Journal of Geriatric Drug Therapy*. 1989;4:87-111.

Svarstad B. The sociology of drugs in health care. In: Wertheimer AI, Smith MC, eds. *Pharmacy Practice: Social and Behavioral Aspects*. 3rd ed. Baltimore, MD: Williams and Wilkins; 1989:197-211.

1988

Fuhs DW, **Wiederholt JB**, Sorkness CA, Pitterle ME. The use of serum drug concentrations in a private ambulatory clinic and its affiliated health maintenance organization. *Topics in Hospital Management*, 1988, 8:43-54.

Hammel RW, Wiederholt JB. Biennial survey: Pharmacists' salaries, duty hours and fringe benefits in Wisconsin. *Wisconsin Pharmacist*, 1988, 57(1):14-22.

Kreling DH, Knocke DJ, Hammel RW Changes in market shares for internal analgesic products after a Medicaid formulary restriction. *Journal of Pharmaceutical Marketing and Management*, 1988, 3:65-75.

Robers P, Moore T, **Svarstad B.** Nurse administration of sleep medication: A comparison of registered nurses and licensed practical nurses. *American Journal of Public Health*, 1988, 78:1581-3.

1987

Boh LE, Pitterle ME, **Wiederholt JB**, Tyler L. Development and application of a computer simulation program to enhance the clinical problem-solving skills of students. *American J of Pharmaceutical Education*, 1987, 51:253-61.

Hammel RW. Pharmacy graduate internships. *Wisconsin Pharmacist*, 1987, 56(8):12-14.

Hammel RW, Lobner TL. Pharmacy practice profile – Part I. *Wisconsin Pharmacist*, 1987, 56(8):14-16.

Hammel RW, Lobner TL. Pharmacy practice profile – Part II. *Wisconsin Pharmacist*, 1987, 56(9):8-10.

Hawkins R, Gustafson D, **Chewning B**, Bosworth K, Day T. Reaching hard to reach populations: Interactive computer programs as public information campaigns for adolescents: The BARN Project. *Journal of Communications*, 1987, 36:8-28.

Kreling DH. Direct price reimbursement: Can pharmacists buy from wholesalers at direct prices? *Wisconsin Pharmacist*, 1987, 56(10):8-10.

Kreling DH. Pharmacists' use of average wholesale price in pricing prescriptions. *Journal of Pharmaceutical Marketing and Management*, 1987,2(1):97-113.

Kreling DH, Doucette WR. Relief pharmacists in Wisconsin: Use, unmet need, and potential supply. *Wisconsin Pharmacist*, 1987; 56(11): 18-21.

Kreling DH, Wiederholt JB. Selecting health insurance: The importance of prescription drug coverage and pharmacy factors in consumer decision making. *Journal of Pharmaceutical Marketing and Management*. 1987, 1:3-18.

Kreling DH, Witzany CJ. Direct price reimbursement: Does the Medicaid policy reflect pharmacists' purchase patterns? *Wisconsin Pharmacist*, 1987, 56:10-12.

Kreling DH, Witzany CJ. Direct purchase patterns among pharmacists in Wisconsin. *Wisconsin Pharmacist*, 1987,56(6):10-12.

Lipowski EE, **Wiederholt JB.** Developing a measure of retail pharmacy image. *Journal of Pharmaceutical Marketing and Development*, 1987;1:149-57.

Svarstad B, Cleary P, Mechanic D, Robers P. Gender differences in the acquisition of prescription drugs: an epidemiological study. *Medical Care*, 1987,25:1089-98.

Vejraska MT, **Wiederholt JB,** Zilz DA. Qualification of future hospital pharmacy directors from the perspective of pharmacy directors and administrators of Wisconsin hospitals. *American Journal of Hospital Pharmacy*, 1987, 44:1606-14.

Wiederholt JB. Development of an instrument to measure evaluative criteria that patients use in selecting a pharmacy for obtaining prescription drugs. *Journal of Pharmaceutical Marketing and Management*, 1987,1(4):35-60.

Wittenberg JA, **Wiederholt JB, Hammel RW.** Pharmacists' opinions about pharmaceutical manufacturers: A follow-up study in Wisconsin. *Journal of Pharmaceutical and Marketing Management*, 1987, 2:131-46.