

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Smith, Carol E. csmith@kumc.edu	POSITION TITLE Professor Nursing, Preventive Medicine & Public Health		
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Purdue University, West Lafayette, IN	AD	1969	Nursing
University of Iowa, Iowa City, IA	BSN	1972	Nursing
Wayne State University, Detroit, MI	MSN	1976	Primary Care Practitioner
University of Minnesota, Minneapolis, MN	PhD	1982	Nursing Research

A. Personal Statement

I have a sustained record of research, with 27 years of consecutive funding from NIH Institutes of NINR, Aging, HLBI and NIDDK including grants for conducting technology evaluations of telehealth and internet for various treatment approaches and health care program comparisons. My research has been to develop, pilot and then to conduct clinical trials of approaches to support patients and family caregivers in managing complex home Care. My NIH research funding also includes grants where I served as mentor (Minority Supplement) or sponsor (K99/R00) for ongoing studies in my area of clinical, research methods or technological devices and health care delivery systems expertise (AHA). I mentor a Google Initiative project using home monitoring of elders with Alzheimer's. In this study, multiple professionals meet simultaneously from their own offices with the caregiver at home to advice and coordinate home-care plan, using the audio-visual technology bridge.

Further I have published many cost analyzed patient-family approaches and support program results and the cost efficiencies of these for clinical home-care. The outcomes of experimental subjects in my clinical trials range from significant reduction in costs related blood stream infections to the meta-synthesis identifying reduction in depression in both patients and caregivers. The worldwide use of the evidence-based data from my clinical trials is, in part, due to the cost and in-home data determining efficiency of use. I have over 180 peer-reviewed data-based articles in interdisciplinary research journals. For the past 5 years, the KUMC medical students have been assigned to complete their research requirements with my multidisciplinary research teams. Thus, I am experienced in leading research teams with multidisciplinary members and will be able to conduct this important project. And lastly, I am the Director for the Heartland Frontier CTSA Research Career Awards at KUMC.

B. Positions and Honors

Professional Experience

1975-1976 Curriculum Coordinator, Critical Care Grant, School of Nursing, Health Sciences Center, Univ. of Oregon.

1977-1983 Assistant to Associate Professor, Nursing, Winona State (Univ. of MN), Rochester, MN.

1984-1987 Associate to Professor in Nursing, University of Kansas Medical Center, Kansas City, KS.

1987-Pres Tenured Professor & Mentor for Faculty Research, University of Kansas Medical Center, Kansas City, KS.

2005-Pres Professor Preventive Medicine & Public Health, University of Kansas, School of Medicine, Kansas City, KS.

2011-Pres. Director for the Heartland Frontier CTSA Research Career Awards at KUMC.

Honors, Awards, and Memberships

1977-1989 Natl. Board of Accreditation, American Nurses Assoc, Site Visitor Research Evaluation Panel

1981 Fulbright Exchange Scholar for Nursing Science to Iceland, (Invited to return, 5/99)

1983-1995 Federal Public Review Committee Member, Fulbright Scholar Awards, Life Science Research

- 1988 & 1998 Developing Investigator Award 1988 & Investigator Awardee 1998, U. of Kansas Medical Center
 1993-2009 Visiting Professor, University of Canberra, Australia in 1993, 1998 and at The University of
 Turku, Finland (2000, 2003 2005, 2007, 2009, 2011)
 1996 Invited to give testimony & data, on complex home care by Natl. Academy of Science,
 Washington, DC
 2000 Invited testimony for NIH to HCFA for Home Ventilators & Economical Care, Washington, DC
 2001-2010 Selected by U.S. Army as grant mentor for PhD's Tri-Military in Informatics, Sleep Medicine &
 Caregiving.
 2002 American Heart Association, Regional Keynote Speech, "Sleep Apnea and Cardiac Disease."
 2002 Featured in "Research: Making a Difference," *Nursing Outlook*, 50 (6) 233-35 by Dr. Grady, NIH.
 2003 State of Kansas Regent Universities, Higuchi Science Research Achievement Award, \$10,000.
 2003 Chancellor's Distinguished Teaching Award, University of Kansas
 2003 Member various NIH Study Sections to Review Caregiving RFP's, P20 Program Evaluation
 Panels and Technology Based SBIRs & Reviews
 2004 PEW Foundation Multidisciplinary Panel for Research on Internet Health Care.
 2005 Invited to give an address on "Patient-Centered Outcomes: Defined and Measurable" to the
 AHA Scientific Forum on Quality of Care Research in Washington D.C. May 2005.
 2007 Invited Panel for State of Science in Caregiving by AARP & Hartford Foundations
 2008 Invited member of Capitol Hill panel, Technology to Support Family Caregiving presented to the
 21st Century Healthcare Caucus Patrick Kennedy, Chair
 2010 Fellow in the American Academy of Nursing & STTI Hall of Fame Researcher
 2011 Honorary Doctorate of Medicine, University of Finland, Turku Finland

C. Selected peer-reviewed publications

INVITED RESEARCH REVIEW ARTICLES WITH ECONOMIC ANALYSES INCLUDED:

- Smith, C.E.** (2001). DEA: Cost Efficiency Evaluation of Home CPAP ventilation presented to CMS Panel in
 Washington, DC report published in *Neurorehabilitation and Neural Repair*, 15:159-166. By M. Stuart & M.
 Weinrich.
 Winkler, M. Ross, V. Piamjariakul, U., Gajewski, B., **Smith, C.E.** (2006). Impact of Medical Technology on
 Patients and their Family Caregivers, *Nutri in Clinical Practice*, (21), 544-56. PMID 17119161
Smith, C.E. (2007). Midrange Empirically Verified Model: Caregiving and Efficiency in Theoretical Basis for
 Nursing, (2nd ed.), pp. 90-94 Lippincott, Williams, & Wilkins.
Smith, C.E. (2008). State of the Science of Technology Assistance and Web Based care Services for Home
 Caregiving. *American Journal of Nursing*, 108(9), 64-69.
<http://www.nursingcenter.com/library/static.asp?pageid=809507>
Smith, C.E. (2010). Empirically Verified & Cost Efficiency Tested Music-Based Health Interventions for Family
 Caregivers Health Promotion. Hauppague, NY: NOVA Science Publishers. 41-53.

Data based peer-reviewed publications:

- Smith, C.E.**, Curtas, S., Kleinbeck, S.V.M., Werkowitch, M., Mosier, M., Seidner, D.L., & Steiger, E. (2003).
 Clinical Trial of Interactive and Videotaped Educational Interventions to Reduce Catheter-Related Infection,
 Reactive Depression, and Rehospitalizations for Sepsis in Older Patients Receiving Home Parenteral
 Nutrition. *JPEN*, 27(2):137-145. PMID 12665170
Smith, C.E., Leneerts, M., & Gajewski, B. (2004). A Systematically Tested Intervention to Manage A Common
 Adverse Reactive Depression, *Nursing Research*, 52(6), 401-409.
 Moore, J., **Smith, C.E.**, & Spaniol, R. (2004). DEA: Cost Efficiency of CPAP Treatment. *Advances for
 Managers of Respiratory Care*. 13(6):50-54. Cover article featured at the National Sleep Science Society.
Smith, C.E., Puno, F., Werkowitch, M., Cofer, A., Whitman, R., Pingleton, S. (2005). Website Algorithms for
 Home Nursing Care & Physiologic Measures via the Internet. *Gerotechnology Journal*, 3(4), 195-10.
 Kelly, K., **Smith, C. E.**, & Eskenazi, L. (2007). Technology and family caregiving: Advantages and challenges
 for delivering education, training, and support. *Gerontologist*. Vol 47, No. 1, p 272-273.
 Fitzgerald SA, Yadrich, DM, Werkowitch M, Piamjariyakul U, & **Smith CE.** (2012). Creating patient and family
 education websites: Design and content of the Home Parenteral Nutrition Family Caregivers website. & Part 2
 Technical Assuring accessibility and usability standards *Computers Informatics Nursing*. (In press)

- Smith, C.E.**, Piamjariyakul, U., Yadrach, D., Ross, V.M., Gajewski, B., Williams, A.R. (2010). Part I: Complex Home Care: Utilization Costs to Families for Health Care Services Each Year. Part II: Complex Home Care: Family Annual Income, Insurance Premium and Out-of-Pocket Expenses. Part III: Complex Home Care: Economic Impact on Family Caregiver Quality of Life and Patient's Clinical Outcomes. *Nursing Economic\$*. 286, 393-399, 414. (PMCID:3075108)
- Smith, C.E.** & Blanchard, E. (2011). NIH SBIR Project Outcomes: Home Care Self-management DVD series wins the international health media education award. *Western Journal of Nursing Research*. 33(14), 109-13. (PMCID: not available).
- Piamjariyakul, U., **Smith, C.E.**, Werkowitch, M., & Elyachar, A. (In Press). Part II: Complex home management: integrating patients', professionals', and caregivers' recommendations. *Applied Nursing Research*. [(PMCID: PMC3088424)].
- Ross, V., & **Smith, C.E.** (2011). Comparing National Clinical Guidelines Across Two Decades of Home Parenteral Nutrition (HPN) Patient Data. *Nutrition in Clinical Practice*. (PMCID: not available).

D. Research Support

Ongoing Research

- | | | |
|--|-----------------|--------------------------|
| U54 RR031295 | Barohn (PI) | 07/01/2010 -- 06/30/2015 |
| National Institute of Health
Heartland Frontier Institute for Clinical and Translational Research
Major Goals: Create a new academic home with training programs for clinical and translational investigators, provide an enhanced translational research infrastructure, and actively engage the community in developing, testing, and disseminating translational research.
Role: Director of the CTSA Faculty Research Career Awards | | |
| R01 HL085397 | Smith (PI) | 07/01/2006–06/30/2012 |
| National Institutes of Health
HF Clinic Appointments: Self-Management & Care of Heart Failure (SMAC-HF)
Major goals: Test the magnitude of effects of group clinic appointments on the primary composite endpoint of HF rehospitalization or death and secondary endpoints of functional health status, quality of life and use of and costs of their health care services. | | |
| R01 HL08539s | Smith (PI) | 07/01/2006–06/30/2012 |
| National Heart Lung & Blood
Minority Supplement to HF Clinic Appointments: Self-Management & Care of Heart Failure (SMAC-HF)
Major Goals: To Develop Independent Minority Researchers by involvement in the testing the effects of group clinic appointments on the primary composite endpoint of HF rehospitalization or death and secondary endpoints of functional health status, quality of life and use of and costs of their health care services.
Role: Mentor | | |
| 5K99NRR012217 | (K Reeder) PI | 08/15/10-07/31/15 |
| National Institutes of Health
Timeliness of Symptom Recognition, Interpretation, and Reporting in Heart Failure
Major Goals: In the K99, to explore how patients recognize, interpret, and report heart failure symptoms and to verify the content and construct validity of an instrument used to assess heart failure symptom self-monitoring, both of which will form the basis for developing an intervention study during the R00 award
Role: Sponsor | | |
| | (K Williams) PI | 09/15/11-02/31/13 |
| National Institutes of Health CTSA KUMC
Home Monitoring and Feedback for Family Caregivers of Persons with Dementia.
Major Goal: Use In-home monitoring for multiple professional feedback for guiding home care plan.
Role: Consultant | | |

Completed Research

NINR 5 R01 NR009078-A1 Smith (PI) 09/29/2005 - 06/30/2011

Technological Home Care: Improving HPN Caregiving.

Major goals: Specific aims of this study are to test the effects of a nursing intervention delivered by in home land line Picture Phone and Personal Computers Web site on family caregiving procedures to improve HPN patients' infection, depression, quality of life and their health care services costs.

Bernard Saperstein Caregiver Grant Smith (Co-PI) 09/01/2010 - 09/30/2011

National Association of Heart Failure Nurses

Major Goals: To Test a Telephone Coaching Program for family members (caregivers) of older adults with Heart Failure. This 4 week intervention will be studied for effect on outcomes of patient rehospitalization and costs of health care. The cost efficiency of the intervention was reported.

AHA # Smith (Mentor to Kochinda) 07/01/2006–05/09/2011

American Heart Association Midwest Affiliate, Mentored Clinical Research Grant: Patients' Use of Heart Failure (HF) Self-Management Behaviors: Effect on HF Outcomes Using Smith R01 HL085397 Data.

Role: Mentor

NRO1 NIH#04828 Smith (PI) 04/01/2000–03/31/2006

National Institutes of Health

Rural Dwelling Older Adults: CPAP Adherence Support

Major Goals: The primary aim of this randomized clinical trial is to test the effects of intervention on long-term adherence to CPAP ventilation in rural dwelling adults (>60 years). The long-term goal of this study was to validate a CPAP adherence support system with increasing steps of intervention intensity that will ultimately improve patient quality of life and comorbidity. Efficiency and costs of this system are tested.

NIA #AG17007 Smith (Co-PI) 06/01/2003-05/31/2006

SBIR Blanchard (PI)

Phase 1 & 2 Heart Failure: DVD Education per National AHA/ACC Clinical Guidelines

Major Goals: The Specific Aims of this study were to test knowledge and rehospitalization care costs from patients who had teaching by. Videotapes illustration of elder patients/professionals addressing HF problems according to national guidelines for care. This DVD series was given the 2007 International Medical Media Patient Education Medal.

Smith CE (PI) 01/02/2004-12/30/2006

University of Kansas, Interdisciplinary Biomedical Grants

DEA Data Envelopment Analyses

Major Goals: The specific aims were to test use of DEA across several health care disciplines to determine cost professional time use, clinical outcomes and efficiency comparisons among treatments used. Measures of patient outcomes per treatments were also included in cost analyses.

Smith CE (PI) 01/02/2004-12/30/2006

University of Kansas, Interdisciplinary Biomedical Grants

Sleep Apnea Chest Measurement and Reaction Time Technology

Major Goals: The specific aims were to test use of these technologies across several health care populations to determine cost professional time use, clinical outcomes and efficiency comparisons among treatments used. Measures of patient outcomes per treatments were also included in cost analyses.