NU-PATIENT FACULTY SCHOLARS PROGRAM APPLICATION GUIDELINES

(AHRQ K12HS023011, David Cella, PhD PI)

The Northwestern University-Patient-centered Intervention and Engagement Training (NU-PATIENT) K12 Faculty Scholars Training Program is an AHRQ-funded career development training grant designed to support the early research career development of junior faculty who will be engaged in comparative effectiveness (CER) and patient-centered outcomes research (PCOR) in the areas of patient-centered intervention, and patient centered engagement and activation. (For details, see scientific synopsis).

The Northwestern University-Patient-centered Intervention and Engagement Training (NU-PATIENT) K12 Faculty Scholars Training Program is an AHRQ funded career development training grant designed to support the early research career development of junior faculty who will be engaged in comparative effectiveness and patient-centered outcomes research (PCOR).

Research Themes: By learning to apply comparative effectiveness and patient-centered outcomes research methods, NU-PATIENT scholars will conduct high impact research in one or more of the following areas:

I. Patient-centered intervention
   a. Patient-centered outcomes measurement and application
   b. Clinical trials
   c. Health systems change

II. Patient engagement and activation
   a. Health Literacy and Communication
   b. Risk analysis and decision science
   c. E-health & M-health

Training Environment: Scholars will be supported in a rich training environment including a mentoring team (primary mentor, co-mentor and patient advisor), and four training cores built around existing centers of IPHAM, NUCATS and the IPR Q-Center:

- Stakeholder partnership, health equity and dissemination planning
- Comparative effectiveness methodologies
- Engineering and technology in healthcare
- Pathways to scientific independence

Support provided:

- Scholars must devote a minimum of 75% effort for two years. Up to $90,000 in salary (plus fringe). Additional salary appropriate to compensating the scholar for the amount of time protected by the grant is the responsibility of the Department and must be provided by non-federal sources.
The two year tailored training program includes didactic and experiential training and mentored independent research. Renewal of the second year is contingent on success at meeting first year goals, with the possibility of a third year of training for some scholars. Research development and training support of up to $25,000 per year for each scholar. A central goal of the award is for scholars to successfully obtain federal funding by the end of the scholar period.

Individuals are eligible if they are:

- Faculty with demonstrated commitment to career in clinical research including (a) previous research training clinical research (e.g. PhD, clinical research master’s degree or research fellowship); (b) high caliber scholarship and scientific productivity and (c) a history of academic distinction
- Faculty who are pursuing a clinical research career and who wish to acquire additional mentored research experience in comparative effectiveness and patient-centered outcomes research
- US citizens or have permanent resident status
- Have a full time faculty appointment at NU (by 9/1/16)
- Have a clinical or research doctorate
- Have been PI of an “F” grant or an R21 or R03
- Women, minorities and individuals with disabilities are encouraged to apply

Individuals are not eligible if they:

- Have a federal “K” or R01 grant
- Have a non-federal application pending or funded for research grant or contract with more than $100,000 per year
- Have been funded on any other federally funded institutional K12/KL2 or an individual K award (Note: “F” grants, R03, or R21 grantees are eligible).

K12 Leadership:

The K12 is led by an Executive Committee chaired by David Cell, PhD (PI), and including Frank Penedo, PhD, (Research Director); Jane Holl, MD, MPH (Didactics Training Director); Clyde Yancy, MD; Rowland Chang, MD, MPH; Ron Ackermann, MD, MPH; and Laurie Wakschlag, PhD (Evaluation Committee Chair), Judy Moskowitz, PhD, MPH.
APPLICATION PROCESS:

There is a two stage application process. Interested individuals should submit a letter of intent, which will by the Executive Committee. Individuals will be invited to submit a full application based on the fit of their interests with the goals of the NU-PATIENT career development program.

Letter of intent guidelines (2 page maximum):

- Due date: March 23rd, 2016
  - Submit to robert.chapman@northwestern.edu
- ~Notification date: April 12th, 2016
  - Project title
  - Brief description of candidate background/ qualifications/fit with the K12 goals, including why the candidate seeks to become a patient-centered researcher.
  - Research plan that identifies a theme(s) area of focus.
  - Training Plan
  - 2-3 potential mentors (see mentor list in overview document): potential mentors other than those on the list can be proposed.
  - Current copy of the applicant’s cv

Application Guidelines

- Due Date: May 13th, 2016
  - Upload on NUCATS NITRO
- ~ Notification Date: June 1st, 2016
- Start date: August 1st, 2016

Research Plan Guidelines: The research plan should combine the typical elements of an NIH proposal (significance, innovation, approach) with a plan that is feasible in the two year period and clearly tied to the scientific objective of the K12 training (e.g., how will this research proposal lay the foundation for the “R” grant that is the goal of the training). Candidates are strongly encouraged to refer to the PCORI methodology standards and to incorporate these into their research plan. Candidates may also refer to the RFA which describes the priorities for this AHRQ scholars training program (http://grants.nih.gov/grants/guide/rfa-files/RFA-HS-13-008.html).

Training Plan Guidelines: NUPATIENT scholars will have mentoring teams comprised of a primary mentor, a co-mentor, and a patient advisor (with the latter to be selected after the start of the fellowship). Scholars will also have access to resource faculty who can provide training and expertise in particular areas. Scholars should propose a mentor and co-mentor, and may include up to two resource faculty as needed. The training faculty represents a broad swathe of the NU PCOR scientific community. In the event that key mentoring expertise for a candidate’s
training is not represented in this group and the candidate has identified an appropriate faculty member, s/he must request approval from Dr. Cella.

Scholars must identify a mentoring team and work with them on development of the research and training plans. A letter from mentor and co-mentor affirming their support of the application and willingness to serve in the mentoring role should accompany the application. Scholars are encouraged to work with Dr. Ackermann and the Stakeholder Partnership, Health Equity and Dissemination Planning Core to develop the patient-engagement components of the application.

As noted in the scientific synopsis, primary emphasis of the NUPATIENT training plan is on core training activities (e.g. topical seminar), mentorship and experiential training in stakeholder engagement and the conduct of patient-centered research within a CER framework. Coursework in addition to these ongoing K12 scholar activities should only be proposed these didactics are needed to meet career development goals (i.e., scholars are free to take additional courses if these are essential to their training but should not feel that this is a required aspect of all training plans)

A. PROPOSAL

I. SPECIFIC AIMS (1 page)

• Training and research aims should be represented

II. RESEARCH STRATEGY AND TRAINING PLAN (6 pages total, not including references)

   o IIA. Research plan (3-4 pages)
   o IIB. Training plan (2-3 pages)

Note that the quality and synergy of both of these components will be weighted equally upon review.

IIA. MENTORED RESEARCH STRATEGY

• Combine scientific rigor, impact and innovation with feasibility
• Areas to address:
  • Which NUPATIENT research themes and concentrations the proposal focuses on:
    • Theme 1: Patient centered intervention
      • Patient Reported Outcome (PRO) Measurement & Application
      • Clinical Trials Research
      • Health Systems Change
    • Theme 2: Patient engagement and activation
    • Health Literacy and Communication,
    • Risk Analysis and Decision Science,
    • E-Health / m-Health
II. TRAINING PLAN AND MENTORING TEAM

- Emphasis on what skills and experience the training and mentored research plan will provide candidate
  - Include brief description of candidate background (what skills does candidate bring to the table and why is this additional training needed)
  - Training plan should be clear and practically tied to career objectives
    - e.g. what “R” grant is the scholar’s plan building towards
  - Brief description of mentoring team and why selected
    - Do not write long descriptions of mentors (these can be found in our program materials)
    - If a candidate is proposing to continue an ongoing mentoring relationship, provide justification for why this additional mentoring is needed
    - Be as clear as possible as to what the candidate hopes to achieve by the end of the two year training period (what are the deliverables)

III. LETTERS OF SUPPORT

1. Letter of support/commitment from Department chair addressing candidate qualifications and institutional commitment (including candidate commitment of a minimum of 75% effort for two years). Must specify what “additional” responsibilities will be (during the non-sponsored time) and what activities will be relinquished to ensure the dedicated protected time for the candidate.

2. Letter from mentoring team (can be co-signed by mentor and co-mentor) affirming support and willingness to mentor

3. Two additional letters of reference
IV. BUDGET

- Scholars may request up to $25,000 per year for research development support including participant costs, staff, scientific travel, equipment, supplies, analytic support, tuition/books.
- Budgets should not include compensation for mentor effort.

V. MODIFIED NIH BIOSKETCH

- Selected publications (specify the total number of peer–reviewed publications parenthetically at the top of this section)
- Ongoing Research Support and Completed Support sections
  - Include total dollars of each project
  - Include non-federal funding (including departmental, foundation and other donor sponsor funding)
- Include an additional section labeled “Grant submission history”
  - In this section list all grant submissions not covered in ongoing and completed sections (i.e. pending, submitted and not funded etc).
  - Note score (percentile), number of times grant was submitted, and status (e.g. review pending, not funded)


**NU-PATIENT K12 MENTOR OVERVIEW**

<table>
<thead>
<tr>
<th>NU-PATIENT Research Themes and Associated Faculty</th>
<th>Patient Engagement and Activation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMARY MENTORS</strong> Ackermann, Brown, Cameron, Carnethon, Cella, Chang, Dranove, Dunlop, Figlio, French, Greenland, Heinemann, Holt, Lambert, Lloyd-Jones, McDermott, Mehrotra, Manski, Mohr, Moskowitz, Mustanski, Penedo, Schanzenbach, Spring, Stewart, Wakschlag, Michael Wolf, Myles Wolf, Yancy</td>
<td><strong>PRIMARY MENTORS</strong> Ackermann, Cameron, Cella, Chang, Greenland, Heinemann, Lloyd-Jones, Mehrotra, Mohr, Mustanski, Penedo, Spring, Wolf, Yancy</td>
</tr>
<tr>
<td><strong>RESOURCE FACULTY</strong> Feinglass, Kaiser, Ladner, McColley, McHugh, Nowinski, O'Leary, Rothrock, Ruo, Smith, Van Horn, Victorson, Yount</td>
<td><strong>RESOURCE FACULTY</strong> Bentrem, French, Gupta, Kaiser, Kibbe, McKoy, Rothrock, Simon, Smith, Starren, Van Horn, Victorson, Yount, Zhao</td>
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</tbody>
</table>

**PRIMARY MENTORS**

**Ronald Ackermann, MD, MPH.** Dr. Ackermann is a leading researcher in stakeholder-engaged approaches to health-care effectiveness and implementation. He has an advanced understanding of epidemiologic and natural experimental methods, public health research, and health economic evaluation, particularly when applied to the challenging areas of healthcare-community coordination. He was the lead expert technical consultant to Medicaid policy offices and medical directors in 20 states comparing the effectiveness of various care management and coordination initiatives. As Director of the IPHAM CCH, he oversees the development and integration of resources and services to support community stakeholder engagement in a wide array of research typically designed to address social determinants of health and strategies to improve health equity. He also directs a robust portfolio of research involving quasi-experimental and pragmatic trial designs to evaluate multi-level interventions to prevent and manage type 2 diabetes and obesity. Dr. Ackermann will assist each Scholar to successfully engage primary care providers, community organizations, public health leaders, and patients in the design and conduct of their research.

**C. Hendricks Brown, PhD., Professor, FSM Department of Psychiatry and Behavioral Sciences,** directs the NIDA and OBSSR funded Center for Prevention Implementation Methodology (Ce-PIM) for Drug Abuse and Sex Risk Behavior, (P30) salient to our Patient Centered Intervention Research theme. His area of research concentration is in Health Systems Change. His most recent publication focuses on using technology to deliver and improve implementation of effective interventions for minorities. He also directs an NIMH grant that synthesizes findings from 42 randomized trials for depression to ensure that there is "scientific equity" in producing and applying scientific evidence to address health and health service disparities. Dr. Brown has mentored several post-doctoral fellows and junior faculty.

**Kenzie Cameron, PhD, MPH, Research Associate Professor, FSM Department of Medicine, GIM,** has a research focus on designing health communication interventions related to promoting preventive health behaviors. She is a communication scholar and health services researcher with extensive expertise in theory-based message design, persuasion research, and innovative studies of multimedia interventions promoting behavior change. Using both quantitative and qualitative methods, she has worked in social influence and health communication for 15 years. She has mentored multiple medical and graduate fellows, and faculty. She has collaborated on numerous studies focused on: (1) message design, and (2)
instrument and protocol development, implementation, and analysis, via interviews, focus groups, in-person and on-line surveys.

**Mercedes Carnethon, PhD** is cardiovascular disease epidemiologist who directs a portfolio of research studies on the intersection among obesity, diabetes and cardiovascular disease. Most of her research has been conducted using large observational population databases, although she has expertise with clinical trials conducted in community settings. She has investigated a range of factors including physical activity, socioeconomic status, sleep and depressive symptoms in relation to cardiovascular diseases. Additionally, she has explored many physiologic pathways relating exposures to diseases including autonomic nervous system dysfunction, inflammation and cardiorespiratory fitness.

**David Cella, PhD.** Dr. Cella is Professor and Chair of MSS. He has been involved in PCOR for over 30 years. As a measurement scientist with expertise in applied health status measurement, he has led the development and validation of numerous questionnaires, item banks and other tools used to measure outcomes in both normal and clinical populations including paper-and-pencil and computer administered instruments. He is the PI of the trans-NIH PROMIS Statistical Center and the related Neuro-QoL project. Since the onset of PROMIS in 2004, he has been PI of the PROMIS Statistical Center (PSC), and chair of the PROMIS Steering Committee, which is its governing body. Under his leadership, the research team coordinated all activities of this large multicenter project and developed Assessment Center, web-based software for administering instruments and Computerized Adaptive Tests. He has also led and collaborated on work in outcome science which is designed to provide standardized measurement of health and disease processes that can be applied across a range of conditions and enables rapid, high impact translation from discovery to application. This has included extensive participation in clinical research, from observational studies of disease burden and treatment impact, to clinical trials, ranging from Phase I to Phase IV, including randomized controlled trials and pragmatic trials. For three decades, the driving theme of Dr. Cella’s research has been to ensure that the voice of the participant is reflected in study design, measurement and interpretation of results. A major focus of his work has been ensuring that measurement is sensitive to diverse populations, including low literacy and underserved populations, and developmentally-sensitive measurement across the lifespan.

**Rowland Chang, MD, MPH.** Dr. Chang has been engaged in the research training of postdoctoral fellows and junior faculty for more than 30 years. He has conducted observational studies and clinical trials, studying the effect of physical activity on health status, disability, and economic outcomes of persons with arthritis. He is also the PI on the NU MCRC in Rheumatology’s Methodology and Data Management Core, which provides teaching for and collaboration with post-doctoral fellows and faculty members engaged in rheumatic disease research. He has co-mentored several post-doctoral fellows in the FSM health services research and rheumatology training programs, and 5 junior faculty members funded by K23 awards.

**David Dranove, PhD, MacNerny Professor of Health Industry Management, Kellogg School of Management.** Professor Dranove’s research focuses on problems in industrial organization and business strategy with an emphasis on the health care industry. He has published nearly 75 research articles and book chapters and written five books, including The Economic Evolution of American Healthcare and What’s Your Life Worth? His textbook, The Economics of Strategy, is used by leading business schools around the world. His latest book, Code Red, was published by Princeton University Press in 2008. His expertise makes him well suited to serve as a mentor to the NU-PATIENT scholars.

**Dorothy Dunlop, PhD., Professor, FSM Department of Medicine (Rheumatology),** is a health services researcher with expertise in statistical methodology. Her applied research interests include the investigation of physical activity to prevent disability in older adults and consequences of arthritis and other musculoskeletal disorders. She has published and applied statistical methods for analyzing longitudinal data. Dr. Dunlop is the PI of an NIH-funded epidemiologic study on the relationship of physical activity to reduce disability, and one to
evaluate cost effectiveness of a physical activity intervention. She has served on data safety monitoring boards, and executive committees of federally funded clinical trials. She has trained 14 postgraduate trainees (9 MD; 5 PhD) on statistical issues for a range of clinical research training objectives.

David Figlio, PhD, Professor, School of Education and Social Policy and Director, Institute for Policy Research. Dr. Figlio has many years of experience in building and analyzing linked administrative data sets to evaluate the effects of education, health and early childhood policies on later outcomes. This research has been funded by a number of federal agencies, including the National Institutes of Child Health and Human Development, National Science Foundation, and the Institute of Education Sciences, as well as private foundations such as the Bill and Melinda Gates Foundation, and led the National Science Foundation to name me co-director of a major new initiative to develop a national network of scholars, policymakers and practitioners aimed at leveraging administrative data sets to improve education and health research, policy and practice.

Dustin French, PhD, Assistant Professor of Ophthalmology and Center for Health Care Studies. Dr. French’s program of research is focused on the use of large scale data to study comparative effectiveness, health outcomes and economics. His technical expertise centers on the use of cost data in econometric and outcomes models. Dr. French is a long standing and current employee in the Veterans Health Administration (VHA) and recently joined Northwestern University after serving as faculty at Regenstrief Inc. (a leader in medical informatics) and the Roudebush VA in Indianapolis, IN where he focused health information, economics and outcomes research. Since 2001 Dr. French has been involved in “big data” projects using the national VHA data including Medicare for outcomes including hospitalization. He has been involved in projects to provide expertise in text mining the electronic health records using machine learning, and projects for approaches for hypothesis generation in the area of medication use and injuries in vulnerable patients. Prior to his academic career he worked as a consultant for Nationwide Insurance World Headquarters. There he worked with the fellow property casualty actuaries and built strategic cost models using industry shared “big data” that led to 50-60 million dollars of saving and recovery for the company.

Phillip Greenland, MD, FSM Harry W Dingman Professor, DPM (DPM), Director of the IPHAM Center for Population Health Sciences, immediate past Director (PI) of NUCATS, and former Chair of DPM (1991-2005). He has been PI or co-PI on numerous epidemiologic observational studies and preventive intervention trials. His research is in the area of risk factor identification and cardiovascular risk prediction. His most recent research has been in the area of coronary calcium measurement for CVD risk assessment. He is a member of the Board of External Experts for NHLBI and a member of the DSMB for the Framingham Heart Study. Most relevant to this K12 program, is his leadership role in several previous K12 programs, including an NCCR K12 (as PI), a vascular medicine K12 (as mentor and Advisory Committee member), and KL2 (as NUCATS PI). He also serves as co-PI of a T32 in Cardiovascular Disease Prevention.

Allen Heinemann, PhD, Professor, FSM Department of Physical Medicine and Rehabilitation, directs a rehabilitation outcomes research center at Rehabilitation Institute of Chicago. He co-chairs the executive committee of the integrated post-doctoral fellowship program in IPHAM’s CEHS. He has mentored over a dozen health services research fellows and junior faculty. He has strength in both major research themes, including intervention studies measuring patient-centered outcomes, particularly related to chronic illness and disability, and patient engagement and activation in health literacy. His relevant methodological expertise includes the use of PROs in survey development and implementation; and rehabilitation outcomes at the level of providers and patients. He leads a large, multi-site study of patient outcomes following stroke, spinal cord injury and traumatic brain injury. He is PI of the Rehabilitation Research and Training Center on Improving Measurement of Rehabilitation Outcomes and co-PI of the Midwest Regional Spinal Cord Injury Care System. He is PI of a PCORI grant (Cella, Co-I) to develop PRO quality metrics for rehabilitation treatment settings.
Jane Holl, MD, MPH. As a pediatric outcomes researcher and expert in health research training, Dr. Holl is able to offer specific research expertise in multiple clinical contexts (including obstetrics, emergency medicine, pediatrics, transplantation, and surgery), in maternal-child health services and outcomes (including asthma and food allergy, well-child care, immunizations) and for a broad range of patient safety and healthcare quality topics (including risk assessments, teamwork and communication, simulation training) and implementation science, given her substantial clinical experience as the Medical Director for Patient Safety at the affiliated Ann and Robert H. Lurie Children’s Hospital of Chicago. Her role as Co-PI of the National Children’s Study health measurement program affords her access to a wide range of maternal, infant and child health assessment opportunities for Scholars interested in research theme 1 (PRO measurement and application). She also has substantial grant writing and peer review expertise, as evidenced in her role as Chair of the Health Systems and Value Research Study Section, AHRQ.

Bruce Lambert, PhD, Professor of Communication Sciences, School of Communication Sciences. Dr. Lambert is a social scientist and health services researcher who focuses on improving the quality and safety of medical care, especially as it relates to medication use. He has been actively engaged in medication safety and patient safety research since 1996. He has led an ongoing program of research focused on predicting and preventing drug name confusions since that time. He was also part of a group led by Gordon Schiff that did seminal work on diagnosis error as part of an AHRQ-funded Developmental Center for Patient Safety. He was in the first group of recipients of the National Patient Safety Foundation’s (NPSF) research grants in 1998. He was a founding member of the Chicago Patient Safety Forum. He is the Director of the Center for Communication and Health at Northwestern and leader of the outcome measurement and data analysis core of IPSE’s AHRQ-funded Patient Safety Improvement and Medical Liability Reform Demonstration Project. From 2007-2011, he was the PI of UIC’s CERT, focused on the theme of Tools for Optimizing Prescribing, Monitoring and Education. This CERT, now at Northwestern, has been funded for another 5 years (through 2016), focusing on the theme of Tools for Optimizing Medication Safety. I have extensive background and experience in communication, psycholinguistics, computer science, medical informatics, medication safety, patient safety, pharmacoepidemiology, research design and statistical analysis. He has effectively led several large, interdisciplinary research projects, speaking with credibility and authority across disciplinary boundaries, to clinicians and social scientists alike. He has long-standing relationships with drug regulatory agencies in the US and Canada, especially related to drug name confusion, where my work has had a direct impact on regulatory policy and practice, allowing him to work at the interface of industry, government and academia on issues related to medication safety, including supply chain integrity, pharmacovigilance, and drug name confusion.

Donald Lloyd Jones, MD, ScM, Eileen M. Foell Professor, and Chair, DPM, Senior Associate Dean for Clinical and Translational Research, and NUCATS PI, has a longstanding interest in mentoring and career development of clinical researchers. His research focuses on risk assessment for cardiovascular diseases (CVD) using short- and long-term risk models, and evaluating the utility of novel biomarkers and of subclinical disease imaging in refining risk estimation. He has pioneered many novel approaches to CVD risk assessment and communication. He is actively involved in the assessment of diverse approaches to promoting shared decision-making and improved patient-centered outcomes using diverse platforms for cardiovascular risk communication and decision support. He is also an expert in process-of-care and outcomes research in CVD. He has participated in numerous clinical trials in CVD prevention and treatment, and overseen many more in his former role as director of the Cardiovascular Clinical Trials Unit. He has mentored many junior investigators; in the last 5 years alone, his primary mentees have first-authored 36 original manuscripts with him, in many high profile journals. In his role as NUCATS PI, which includes KL2 and TL1 programs in clinical investigation and translational research, he will ensure alignment of NU-PATIENT with NUCATS resources.
Mary McGrae McDermott, MD., Professor, FSM Department of Medicine (GIM), focuses on lower extremity peripheral arterial disease (PAD). Dr. McDermott was the first investigator to demonstrate that patients with asymptomatic PAD and those with atypical exertional leg symptoms have significantly greater functional impairment, faster functional decline, and greater mobility loss than patients without PAD. Work led by Dr. McDermott demonstrated that the degree of functional impairment predicts mobility loss and mortality in patients with PAD. In 2009, Dr. McDermott and colleagues published the first RCT demonstrating that supervised treadmill exercise training significantly improves brachial artery flow-mediated dilation (FMD), and quality of life in PAD patients. Dr. McDermott is currently PI of four NHLBI R01s, and the NIH-funded LIFE study, a randomized controlled clinical trial that will establish whether a physical activity intervention prevents mobility loss in older frail men and women. NU is one of eight sites recruiting participants for the LIFE study. Two hundred participants will be randomized at NU. All of these projects provide opportunities for Scholars to link their research questions to in an efficient way, with modest incremental cost.

Charles Manski, PhD, Board of Trustees Professor of Economics, Department of Economics. Dr. Manski’s research spans econometrics, judgment and decision, and the analysis of social policy. He is well suited to serve as a mentor on this grant because he has devoted his research to extensive policy analysis, using an approach that takes account of uncertainty and thereby moves policy analysis away from incredible certitude and toward honest portrayal of partial knowledge. Topics examined are the effect of the death penalty on homicide, of unemployment insurance on job-seeking, and of pre-schooling on high school graduation. His research addresses key aspects of this broad question, exploring and partially resolving pervasive problems of identification and statistical inference that arise when studying treatment response and making treatment choices.

Sanjay Mehrotra, PhD. Mehrotra is well-known for his methodological modeling and solution algorithm breakthroughs in a wide span of mathematical modeling based optimization problems that involve dichotomous, discrete, continuous, and random decision variables and data; and situations that require further specification of the decision problems through mathematical constraints. One of the decision science methods for solving linear optimization problems is named after him (“Mehrotra’s Predictor-Corrector” method). Dr. Mehrotra’s decision science methodological research on linear, convex, mixed integer, stochastic, multi-objective, distributionally robust, and risk-adjusted optimization has been funded by NSF, Office of Naval Research, and Department of Energy. He has applied his methodological expertise to many problems in healthcare, from genetic modeling, to care delivery process optimization and health disparity. He has developed predictive modeling and machine learning techniques for instrumental calibration, resource demand, networks and pathway extraction from data. Application examples include his NSF-funded work on resource allocation and assigning residents to surgical rotations to achieve well-balanced and equitable training and ensure continuity of care, and health policy modeling to address geographic disparity in kidney transplant allocation within the national transplant system.

David Mohr, PhD., Professor, FSM DPM, and Director, Center for Behavioral Intervention Technologies (CBITs), conducts research at the intersection of behavioral science, technology, and clinical intervention research. He develops and evaluates interventions that harness Internet and wireless technologies to promote health and mental health, including (1) a context-sensing mobile application harnessing indwelling sensor data to identify patient states in mobile interventions; 2) integrating internet intervention and peer networking tools using principles of online collaborative learning and supportive accountability to enhance learning and adherence; 3) the development of conversational agents (virtual humans) that can be used in web-based interventions, and 4) the creation of a mobile intervention that monitors adherence to medications.

Judith T. Moskowitz, PhD, MPH, studies the unique mental and physical health effects of positive emotion and the potential physiological and psychological mediators of the association
of positive emotion with physical and psychological well-being. Following on studies demonstrating that positive emotion occurs in the context of serious health-related stress and appears to have long-term physical health consequences, her current work expands beyond HIV to other serious illnesses, explores potential psychological and physical mediators of the effect of positive emotion, and goes beyond self-reported measures of emotion to facial expressions of emotion. She currently has three NIH R01s to conduct randomized trials of a positive emotion intervention among people experiencing health-related stress (HIV diagnosis, treatment for methamphetamine abuse, dementia caregiving), an R21 from NIDDK to document the occurrence, predictors, and consequences of positive emotion among people with type 2 diabetes, and several pilot grants to test the positive emotion intervention in women with stage IV breast cancer, people with type 2 diabetes, and students dealing with the stress of high school. Of particular relevance to this K12 program, Dr. Moskowitz holds a K24 mid-career mentoring grant which provides protected time for her to mentor fellows and junior faculty in patient oriented research.

**Brian Mustanski, PhD**, Associate Professor FSM MSS and Director, MSS IMPACT Program, conducts translational research on LGBT health and development. For the past decade, a central focus of his work has been the study of HIV risk and protective factors among young gay men and translation to prevention. He has been the PI of 6 NIH grants, a site PI for 2 CDC grants, 3 foundation grants, and Co-I on many others. Several of his studies investigate the use of the Internet as an intervention setting. He received the APA award for Distinguished Scientific Contribution to LGBT Psychology (Div 44), a WT Grant Scholars Award, and is advisor to multiple NIH and CDC committees. He serves on the IRB, and has expertise in ethical and regulatory issues. He has served as a mentor on two NIH Diversity Supplements, and mentored several post-doctoral scholars, and five junior faculty (including two with ASTART grants).

**Frank Penedo, PhD**, is a leading biobehavioral and disparities researcher, Dr. Penedo has served as PI, co-PI or project leader on multiple NIH-funded studies addressing psychosocial and bio-behavioral correlates of adjustment and the efficacy of psychosocial interventions in improving HRQOL and health outcomes. He is Psychosocial Investigator for the NHLBI-funded Hispanic Community Health Study (HCHS)—a cohort study of 16,000 Hispanics across four major US cities, and the PI of an ancillary project for the HCHS evaluating the impact of psychosocial and sociocultural processes on intermediate risk factors (e.g., metabolic syndrome) for CVD. Currently, he is the PI of an NCI health disparities Community Network Program study addressing psychosocial, ethnic and bio-behavioral determinants of HRQOL and adjustment in recently treated Hispanic cancer survivors. He is lead (PI) an NCI RO1 evaluating the efficacy of a web-based psychosocial intervention on reducing hormone treatment-related symptoms via intervention-associated changes in psychological adaptation and neuroimmune regulation. Dr. Penedo has significant expertise in community based, cohort and intervention studies that target ethnic minorities and involve collection and analyses of biological mechanisms. He has served on 17 thesis committees and 39 dissertation committees, and has mentored 12 pre-doctoral and 13 postdoctoral fellows.

**Diane Schanzenbach, PhD**, Associate Professor, School of Education and Social Policy. She is an economist who studies health impacts of large scale government programs on and the interaction between public policy, education and health with an emphasis on food consumption. She has studied the impact of the food stamp program on short- and long-run health outcomes, on the impacts of the school lunch and breakfast programs, and on food insecurity and its determinants, and the impact of health insurance on education and spending.

**Bonnie Spring, PhD**, Professor FSM DPM, and Director, IPHAM Center for Behavior and Health, is recognized internationally for her research on interventions to improve risk behaviors for chronic disease. Her research on smoking, physical inactivity, and obesity has been funded continuously since 1976 primarily by grants from the NIH (NHLBI, NIDDK, NCI, NIMH), American Heart Association, American Cancer Society, and Department of Veterans Affairs.
Affairs. She has been PI of a number of clinical trials fostering smoking cessation and reduction of weight gain via pharmacological and behavioral treatments. A NIDA-funded effectiveness trial that delivers her intervention using the nationwide tobacco telephone quit lines is currently ongoing. She has also been PI of several trials using technology-supported interventions to foster change in weight loss. Her current clinical trials research implements novel research designs adapted from engineering science to optimize and increase the efficiency of behavioral intervention development. She is also a nationally-recognized expert in the science of team science, and a noted expert in translational behavioral medicine, and has mentored many pre-doctoral, post-doctoral and faculty scholars.

**Quincy Stewart, PhD, Associate Professor, Department of Sociology.** As a social demographer, Dr. Stewart examines the dynamic processes that create inequalities in socioeconomic status, health, and mortality. He has published on quantitative methods for studying inequality and estimating mortality, as well as on racial and ethnic disparities in socioeconomic status, health, and mortality. Stewart’s current work includes analyzing theories of racial inequality using agent-based models, examining the role of disease prevalence in mortality outcomes, and studying racial disparities in a range of health outcomes.

**Lauren Wakschlag, PhD, Professor and Vice Chair for Scientific and Faculty Development, MSS.** Dr. Wakschlag is developmental researcher whose work focuses on the prenatal origins of disease processes, and developmentally-sensitive measurement of early emerging mental health problems across diverse populations, with focus on neurobiological and environmental mechanisms of these pathways. In particular, her work has focused on (a) developmentally based parent-reported and direct observations of disruptive behavior from infancy through adolescence, and (b) modeling of prenatal exposure effects on disruptive behavior pathways. This work places special focus on measurement validation and risk processes in disparities populations. She also has expertise in the assessment of parents and parenting behavior. She has extensive experience in the conduct of longitudinal investigations with high risk populations, ascertainment of prenatal cohorts, and translational team science.

**Michael Wolf, PhD., Professor of FSM Department of Medicine (GIM), and Associate Division Chief for Research,** is a health services researcher and cognitive/behavioral scientist with expertise in adult literacy and learning in healthcare, patient education, medication safety and adherence, and the use of health technologies to support chronic disease self-management. Dr. Wolf founded NU’s Health Literacy and Learning Program (HeLP) - a joint entity linking FSM and the School of Education and Social Policy, whose mission is to develop innovative strategies to support patients’ in promoting, protecting, and managing health. Over the past 15 years, Dr. Wolf’s work has been funded by AHRQ, CDC, NIH and a variety of other public and private sources interested in health literacy and medication safety, receiving widespread recognition and many awards. Dr. Wolf has long studied the extent and association of limited literacy with various health outcomes, its meaning and measurement, and the development and testing of interventions to reduce literacy’s impact on health. Under his current NIA-funded work, Dr. Wolf focuses on how to deconstruct and simplify complex health tasks and offer support to patients to optimize successful engagement.

**Myles Wolf, MD, MMSc, Areas of Expertise: Translational biomedical research**

Dr. Wolf’s research team investigates disordered mineral metabolism across the spectrum of chronic kidney disease (CKD) in adults and children. His primary focus is the role of fibroblast growth factor 23 (FGF23) in normal mineral metabolism and in CKD, its adverse impact on cardiovascular health, and the molecular mechanisms that underlie these risk relationships. His overarching goal is to define fundamental mechanisms of disease that will elucidate novel therapeutic targets for interventions that can improve renal and cardiovascular outcomes in CKD. In physiological and interventional patient-oriented research, he studies small numbers of participants with intensive repeated measurements. In epidemiological research, he studies clinical outcomes in large observational cohorts. The new **Center for Translational**
Metabolism and Health (CTMH, Director: Dr. Myles Wolf), within the Institute for Public Health and Medicine (IPHAM) will unite Feinberg scientists from across multiple disciplines to develop an innovative, world-class program of translational biomedical research and research training focused on the role of nutrition in health and disease. The scope of CTMH’s scientific inquiry will span the spectrum of molecular biology, animal models, therapeutic target discovery, patient-oriented investigation, epidemiology, genetics, clinical trials, health disparities, and health policy research. The field of FGF23 biology is in the midst of major breakthroughs with far-reaching impact. Opportunities abound for scientific achievement, funding and training. The CTMH will create an environment committed to discovery and scholarship, supported by dedicated research infrastructure and resources, and fueled by a network of superb multidisciplinary collaborators.

Clyde Yancy, MD, MSc. In his role as a mentor for this K-12 application, Dr. Yancy will bring decades of experience in cardiology clinical trial design and operation, health disparities in cardiovascular diseases, quality of care in heart failure, evaluation of evidence, and generation of clinical practice guidelines. His major recent research focus has been sharply attuned to quality of care in heart failure. Having led and/or participated in several major national registries/performance improvement initiatives, he has generated seminal data to demonstrate that performance improvement interventions are associated with better quality of care and improved outcomes for patients with heart failure. His work has led to an incorporation of Bayesian methodology in the evaluation of evidence needed to inform clinical practice guidelines. His varied experiences in registry data, performance improvement, quality of care, health care disparities, evidence evaluation and clinical practice guideline generation have created a repository of experiences to serve as models for Scholars who wish to acquire the skills to achieve best outcomes in human health and disease. Via his participation in the PCORI Methodology Committee, he has developed a deeper awareness and operational skill-set in CER, patient engagement, shared decision making and qualitative methodology. These collective experiences will inform his mentorship of incipient clinical researchers.

Co-Mentors

James G. Adams, MD, is the Chief Medical Officer for Northwestern Medicine, overseeing quality and safety for the health system. Dr. Adams has a background in medical ethics, previously chairing national committees related to ethical dilemmas in emergency medicine, including issues of informed consent in emergency research. He is a national academic leader in emergency medicine education.

Estella Alonso, MD, is the medical director of the Pediatric liver transplant program at Northwestern University. Dr. Alonso is a widely recognized expert in the medical management of children with liver disease including those who have received liver transplantation.

Pedro Avila, MD, is a clinical researcher who conducts clinical research in airway diseases where there are many needs for development of new tools to assess PCO.

Jeffrey Barsuk, MD, has investigated the use of mastery learning with simulation-based technology to improve trainee skills in performing thoracentesis, paracentesis, lumbar puncture, central venous catheter insertion, advanced cardiac life support, patient “hand-offs,” and end of life discussions.

Karl Bilimoria, MD, is a surgical oncologist focused on the quality cancer care delivered in the U.S. and on providing hospitals with their risk-adjusted surgical outcomes to spur quality
improvement when performance is suboptimal compared to other hospitals, and hospitals have shown improvement.

Zeeshan Butt, PhD, a licensed clinical psychologist whose research focuses on the development and application of patient reported outcomes (PROs) in the post-surgical context, with specific emphasis on organ donation and transplantation.

Karon Cook, PhD, most recent work has focused on identifying, from the patient’s perspective, different magnitudes of outcome.

Tom Cook, PhD, is a sociologist interested in social science research methodology, program evaluation, whole school reform, and contextual factors that influence adolescent development, particularly for urban minorities.

Linda Emanuel, MD, is the founder and principal of the Education in Palliative and End-of-life Care (EPEC) Project, its adaptations, and the Patient Safety Education Project (PSEP). She is a widely recognized leader in palliative and end-of-life care research.

Craig Garfield, MD, is a practicing pediatrician and health services/outcomes researcher who uses mhealth/ehealth to support parents in caring for themselves and their children during the transition to parenthood, a particularly vulnerable but highly motivational developmental stage in which to create change.

Richard Gershon, PhD, is a leading expert in the application of Item Response Theory (IRT) in individualized and large scale assessments. He has developed item banks and Computerized Adaptive Testing (CAT) for educational, clinical, and health applications - including cognitive, emotional, and motor applications.

Elisa Gordon, PhD, MPH. Dr. Gordon’s research interests include: ethics of organ transplantation and donation, determinants of disparities in access to health care and health outcomes, health literacy, human subjects research ethics, self-care & chronic illness management, and qualitative research & mixed methods. Dr. Gordon received a Career Development Award from the NIDDK to examine self-care and outcomes among kidney transplant recipients.

Beth Hahn, MS, is a medical sociologist whose research primarily involves patient-reported outcomes (PRO) in chronic illnesses, with a focus on underserved populations and health disparities.

Gordon Hazen, PhD, is an industrial engineer with research interests in medical decision analysis and comparative effectiveness.

Larry Hedges, PhD, is a mathematician who is devoted to developing statistical methods for social science research, representing the results of research findings on comparable effect size metrics and combining and analyzing effect size data in meta-analysis.
Arun Jayaraman PT, PhD, is a research scientist at the Rehabilitation Institute of Chicago. His research focuses on developing quantitative clinical outcome measures for validating the use of rehabilitation technology.

Neil Jordan, PhD, is a health services researcher and health economist, and his research focuses on care outcomes associated with high value services and systems of care for persons with chronic illness. He directs the Health Sciences Integrated PhD Program at Northwestern.

Abel Kho, MD, is an internist with training in biomedical informatics. Dr. Kho’s work is focused on developing electronic data infrastructure to enable faculty and trainees to conduct community-based and multi-institutional research.

Jin Shei Lai, PhD, is an occupational therapist and a psychometrician with extensive experience in patient-reported outcomes, psychometric analyses and measurement, quality of life and symptom management for people with a chronic illness across the lifespan.

David Liebovitz, MD, is an internal medicine physician who has experience in methods of care management, staffing, clinical integration, IT structures, and alignment of incentives for IT in healthcare.

Lee Lindquist, MD, MPH, MBA, is a geriatrician with research interests in health literacy, transitional care/medication understanding, and improving the home care of seniors by paid caregivers.

Lei Liu, PhD, is a biostatistician with a broad interest in longitudinal data analysis, survival analysis, and smoothing regression methods, with applications to clinical and health services studies.

Kelly Michelson, MD, MPH. Dr. Michelson’s research interests include end-of-life decision making, palliative care, and ethics. Currently, her research focuses on communication and decision making in end-of-life care among patients, family caregivers, and professional caregivers in the pediatric intensive care unit.

Dan Mroczek, PhD, is a developmental psychologist whose expertise includes using existing databases for health-related investigations, individual differences research, and quantitative techniques.

Stephen Persell, MD, MPH, is a health services researcher and internist whose research focuses on intervention studies of how to best use care team redesign, health information technology, provider feedback, and patient directed interventions to improve the quality of care delivered in routine practice.

Melissa Simon, MD. Dr. Simon’s primary research interests are aimed at eliminating health disparities among low income, medically underserved women across the lifespan. Integrating health services research with social epidemiologic models, Dr. Simon’s research focuses on interventions (such as patient navigation and community health outreach workers) that aim to reduce and eliminate such disparities.
Darius Tandon, PhD. Dr. Tandon’s research focuses on the prevention of mental disorders and promotion of positive mental health among vulnerable populations. He recently received funding from the CDC and NIH to examine the efficacy of embedding mental health services and supports into employment training programs serving low-income African American adolescents and young adults.

Alexis Thompson, MD, MPH, is a pediatrician with clinical interest on non-malignant hematology. Her expertise fill existing gaps in well-designed approaches to truly and fully integrate the patient’s perspective into the interpretation of clinical trial data and the implementation of improvements in health care delivery.

Donna Woods, PhD, is a health policy research whose research in healthcare quality and patient safety spans several high priority contexts and populations: pediatrics; ambulatory care; chronic disease care; use of disease registries and self-management; surgical safety; transplantation; and use of Health Information Technology.

Resource Faculty

David Bentrem, MD, has a focused interest in the development of quality measures in cancer surgery and is on the senior staff of the Center for the Management of Complex Chronic Care, Hines VA Medical Center.

Bernard S. Black, JD, MS, His principal research areas are law and finance, international corporate governance, health care and medical malpractice, and corporate and securities law.

Joe Feinglass, PhD, is a health services researcher. He has over 20 years of experience in health policy, quality improvement, health disparities, medical informatics, patient safety, and social epidemiology research with over 120 peer reviewed publications.

Mihai Gheorghiade, MD, is a cardiologist with research interests in clinical trials and CER methodologies.

Ruchi S Gupta, MD, MPH, is a board certified pediatrician and a health services researcher. My research has focused on childhood asthma, childhood food allergy and community-based participatory research with an emphasis on school-based research.

Hongmei Jiang, PhD, is a statistician interested in multiple testings, microarray data analysis, and computational biology and bioinformatics.

Karen Kaiser, PhD, is a medical sociologist with training in cancer control. Dr. Kaiser applies a social ecological framework to examine individual, interpersonal, organizational, social, and policy influences on health behaviors and health outcomes. I

Warren Kibbe, PhD, is a bioinformatics researcher. Dr. Kibbe currently leads the informatics program at Northwestern University (NU), where he has been the driving force behind the development of the informatics infrastructure for clinical research.

Daniela Ladner, PhD, is a surgeon who focuses on the examination of safety vulnerabilities in kidney and liver transplantation.
Susanna McColley, MD, is a pediatrician with professional interests in clinical trials in cystic fibrosis, health care outcome disparities in low socioeconomic status and ethnic minority populations, and quality improvement.

Megan McHugh, PhD, is a public policy researcher whose research examines quality of care for vulnerable populations; crowding in emergency departments; and the impact of Medicare’s value-based purchasing programs.

June McKoy, MD, MBA, JD, is a geriatrician interested in clinical cancer/cancer health disparities research with focus on improving patient safety for older individuals with cancer.

Cindy Nowinski, MD, is a clinical psychologist whose research has focused on improving health and healthcare quality through the development and application of outcomes and outcome measures to clinical research and care.

Kevin O'Leary, MD, is a board certificated in hospital medicine and is interested in healthcare quality, patient safety, and interdisciplinary team work.

Nan Rothrock, PhD, is a psychologist by training. Her research interests include psychosocial aspects of chronic illness, psychosocial oncology, quality of life, patient-provider communication, and distress and symptom management.

Bernice Ruo, MD, is a general internist with advanced training in clinical epidemiology, biostatistics, and health services research.

Lewis Smith, MD, is an internist with certification in pulmonary disease. Dr. Smith has studied various aspects of asthma pathogenesis including the role of leukotrienes, oxidants, and diet.

Justin Starren, MD, PhD, is a biomedical informatics researcher who focus on new ways to make health care computing more useful.

Dr. Linda Van Horn, Phd, research focuses on benefits derived from a lower fat diet that is rich in fruit, vegetables, protein and whole-grain fiber.

David Victorson, PhD, is a licensed health psychologist. His clinical and research pursuits have focused on measuring and improving health-related quality of life in people with cancer and other chronic medical conditions through mixed-methods & patient-centered methodologies, as well as psychosocial, bio-behavioral and mind-body approaches.

Ji-Ping Wang, PhD, is a statistician whose research has two areas: (1) mixture model, computing algorithms and applications; (2) bioinformatics and computational biology.

Susan Yount, PhD, is a psychologist who focus on the development, validation and application of measures of quality of life, symptoms, and health status in chronic illness.

Lihui Zhao, PhD, is a biostatistician with expertise in the design and analysis of clinical trials, longitudinal data analysis, and survival and event history analysis.