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University of Pittsburgh
Institute for Clinical Research Education
200 Meyran Avenue
Pittsburgh, PA 15213
412-586-9632

www.icre.pitt.edu
The University of Pittsburgh has a distinguished history of and established infrastructure for successfully training medical students, residents, postdoctoral fellows, and junior faculty in clinical and translational research and supporting their career development. At the heart of the training enterprise is the Institute for Clinical Research Education (ICRE).

Founded in 2006, the ICRE is devoted to the development of high-quality clinical and translational researchers throughout the schools of the health sciences: the School of Medicine, the Graduate School of Public Health, the School of Dental Medicine, the School of Health and Rehabilitation Sciences, the School of Nursing, and the School of Pharmacy. The ICRE has core faculty members and mentors from the disciplines represented in each of the six schools, and it is designed to offer opportunities in clinical and translational studies ranging from brief research experiences to doctoral degree programs. In addition to offering training programs that lead to a PhD in Clinical and Translational Science, a Master of Science in Clinical Research, and a Certificate in Clinical Research, the ICRE provides the foundation for the Multidisciplinary Clinical Research Scholars Program, the Clinical Scientist Training Program for medical students and residents, and other programs for trainees at all stages of the career pipeline.

With the advent of the Clinical and Translational Science Awards (CTSAs), the ICRE has strategically built upon its existing programs to create a strong infrastructure for the Research Education and Career Development Core of the Clinical and Translational Science Institute (CTSI), to coordinate efforts across the schools of the health sciences, to enhance existing offerings, to reduce boundaries between the schools and disciplines, and to meet the overall aims of the CTSI.
Mission of the Institute for Clinical Research Education

The ICRE is home to the University of Pittsburgh’s premier clinical and translational science training programs and to the Research Education and Career Development Core of the Clinical and Translational Science Institute (CTSI).

The ICRE’s mission is to develop, nurture, and support careers in clinical and translational research. Its ultimate goals are to advance the field of clinical and translational science and to help meet the nation’s need for researchers and leaders in this field.

New Student Enrollment by Programs

* Projected for July 1, 2008
CEED denotes Career Education and Enhancement for Health Care Research Diversity; CRHC, Center for Research on Health Care; CTSI, Clinical and Translational Science Institute; ICRE, Institute for Clinical Research Education; and START UP, Short-Term Access to Research Training Program.
Since 2005, the University of Pittsburgh’s Institute for Clinical Research Education (ICRE) has grown into one of the premier clinical and translational research training programs in the nation.

Beginning with an active master’s degree program and now offering more than 20 training and career development programs, the ICRE has established the University’s schools of the health sciences as leaders in clinical and translational science education. The ICRE is a manifestation of our strong commitment to addressing the shortage of physician and clinical investigators, a group considered an “endangered species.”

The success of the ICRE programs was instrumental in securing funding from the National Institutes of Health to establish the Clinical and Translational Science Institute (CTSI). The purpose of the CTSI is to advance the nation’s clinical research agenda by accelerating the movement of basic science discoveries from the researcher’s bench to the patient’s bedside and applying the discoveries to the prevention and treatment of disease. Through its educational offerings, the CTSI can train future investigators and reduce the critical national shortage of physicians who can be successful and independent clinical and translational researchers.

I believe that progress toward improving the health and well-being of the nation’s citizens will be achieved only through the translation of basic research findings into the clinical arena, with ongoing follow-up and rigorous evaluation of outcomes. The Rosetta stone for this translation lies at the heart of the ICRE mission in the training of the nation’s growing cadre of clinical researchers working in multidisciplinary teams.

Arthur Levine, MD
Senior Vice Chancellor, Health Sciences
Dean, School of Medicine
This past year was a time of major accomplishment for the Institute for Clinical Research Education (ICRE). From July 2007 to June 2008, we fully completed the implementation of research training programs for the pipeline of investigators from medical students to faculty, and we developed educational opportunities for the entire spectrum of training from exposure to mastery of research skills. Highlights included the following:

- Implementing the program for a PhD in Clinical and Translational Science and recruiting students into the program.
- Receiving University approval for PhD students in the schools of the health sciences to pursue a Certificate in Clinical and Translational Research.
- Initiating the Doris Duke Clinical Research Fellowship for Medical Students and recruiting students for the fellowship program from various universities.
- Witnessing the success of the Clinical Research Scholars Program, designed to support the career development of faculty who are drawn from multiple disciplines and are conducting cutting-edge translational research.
- Launching the Career Education and Enhancement for Health Care Research Diversity (CEED) Program, created to support the research careers of faculty and postdoctoral students from underrepresented minority groups.
- Offering a Web-based curriculum for all of our courses.
- Enhancing each of our existing programs, with the result that program enrollments and excitement about a career in clinical and translational research are higher than ever.

We strive for excellence in our training and educational programs. Toward this end, we continue to make changes in all of our courses, teaching formats, and program offerings. Working with a national consortium of universities that have received Clinical and Translational Science Awards (CTSAs), we have begun an intensive review of the competencies in the field of clinical and translational research. The competencies will be reviewed, evaluated, and updated on a regular basis as the science and education in the field evolve.

I am grateful to the core faculty members who created the ICRE programs and who continue to provide outstanding teaching in and leadership of these programs. I am also grateful to Dr. Arthur Levine, whose unconditional and enthusiastic support of the ICRE has contributed substantially to the ICRE’s success.
As one of the twelve initial recipients of a Clinical and Translational Science Award (CTSA) from the National Institutes of Health in 2006, the University of Pittsburgh founded the Clinical and Translational Science Institute (CTSI) to transform its research enterprise. With $83.5 million in CTSA funding over a five-year period, the CTSI serves as the academic home to integrate clinical and translational sciences across the University’s six health science schools, Carnegie Mellon University, the University of Pittsburgh Medical Center (UPMC), and the region. The CTSI’s primary focus is to develop, nurture, and support cadres of clinical and translational scientists by building on the University’s existing clinical research training programs, supporting new comprehensive training programs, and providing resources and opportunities that will facilitate the translation of research findings from the bench to the bedside to the community.

One of the central elements of the CTSI is the CTSI Research Education and Career Development Core, housed in the Institute for Clinical Research Education (ICRE). Over the past year, the ICRE has successfully developed translational science education and training opportunities across the entire academic pipeline of investigators from medical and health science students to senior faculty investigators. The maturation and expansion of the Clinical Research Scholars Program (KL2), the launching of a new program leading to the PhD in Clinical and Translational Science, and the receipt of a Doris Duke Clinical Research Fellowship for Medical Students are highlights of the ICRE’s accomplishments during 2007–2008.

I am looking forward to the ICRE’s growth during the next year. The ICRE is clearly a national leader in clinical and translational research training.

Steven Reis, MD
Associate Vice Chancellor for Clinical Research, Health Sciences
Director, Clinical and Translational Science Institute
CTSI Research Education and Career Development Steering Committee

Cindy Bryce, PhD
Associate Professor of Medicine
Associate Director, ICRE Degree Programs
School of Medicine

Donald Burke, MD
Dean, Graduate School of Public Health
Associate Vice Chancellor for Global Health
UPMC–Jonas Salk Chair in Global Health

Lora Burke, PhD, MPH, RN
Associate Professor of Nursing
School of Nursing

Ellen Cohn, PhD
Associate Professor, Department of Communication Science and Disorders
Associate Dean for Instructional Development
School of Health and Rehabilitation Sciences

Gregory Cooper, MD, PhD
Associate Professor of Biomedical Informatics, Computer Science, and Intelligent Systems
Director, Biomedical Informatics Training Program
Vice Chair, Department of Biomedical Informatics
School of Medicine

Janice Dorman, MS, PhD
Associate Professor of Epidemiology
Associate Dean for Scientific and International Affairs
School of Nursing

Kelly Dornin-Koss, MPPM, RN
Director, Research Conduct and Compliance Office

Judith Erlen, PhD, RN
Professor and Coordinator, PhD Program
School of Nursing

Beth Fischer, PhD
Assistant Professor of Medicine
Director, Survival Skills and Ethics Program
School of Medicine

Nicole Fowler, MHSA
Assistant Director, ICRE
Research Associate
School of Medicine

Susan Greenspan, MD
Professor of Medicine
Director, Osteoporosis Prevention and Treatment Center
School of Medicine

John Horn, PhD
Associate Dean of Graduate Studies
Director, Interdisciplinary Biomedical Graduate Program
Professor of Neurobiology
School of Medicine

Said Ibrahim, MD, MPH
Associate Professor of Medicine
VA Center for Health Equity Research and Promotion (CHERP)
Director, Career Education and Enhancement for Health Care Research Diversity (CEED) Program
School of Medicine

Wishwa Kapoor, MD, MPH
Falk Professor of Medicine
Professor of Health Policy and Management and Clinical and Translational Science
Chief, Division of General Internal Medicine
Vice Chair, Department of Medicine
Director, ICRE
Director, Center for Research on Health Care (CRHC)
Co-Director, RAND–University of Pittsburgh Health Institute
Co-Director, Clinical and Translational Science Institute
School of Medicine

Robert Kraut, PhD
Herbert A. Simon Professor of Human-Computer Interaction
Carnegie Mellon University

Patricia Kroboth, PhD
Dean, School of Pharmacy
Professor of Pharmaceutical Sciences
School of Pharmacy
CTSI Research Education and Career Development Steering Committee

Joan Lakoski, PhD  
Professor of Pharmacology  
Associate Vice Chancellor for Academic Career Development  
Associate Dean for Postdoctoral Education  
University of Pittsburgh Health Sciences

Mary Marazita, PhD  
Professor and Chair of Oral Biology  
Associate Dean for Research  
School of Dental Medicine

Margaret McDonald, PhD  
Assistant Professor of Epidemiology and Psychiatry  
Associate Vice Chancellor for Academic Affairs  
University of Pittsburgh Health Sciences

Kathleen McCtigue, MD, MS, MPH  
Assistant Professor of Medicine and Epidemiology  
School of Medicine

James Osborn, PhD  
Executive Director, Healthcare Robotics Center  
Carnegie Mellon University

Samuel Poloyac, PharmD, PhD  
Assistant Professor of Pharmaceutical Sciences  
School of Pharmacy

Sandra Quinn, PhD  
Associate Professor of Behavioral and Community Health Sciences  
Associate Dean for Student Affairs and Education  
Graduate School of Public Health

James Roberts, MD  
Professor of Obstetrics, Gynecology, and Reproductive Sciences and Epidemiology  
Vice Chair of Research, Department of Obstetrics, Gynecology, and Reproductive Sciences  
School of Medicine

Mark Roberts, MD, MPP  
Professor of Medicine, Health Policy and Management, and Industrial Engineering  
Chief, Section of Decision Sciences and Clinical Systems Modeling  
School of Medicine

Howard Rockette Jr., PhD  
Professor and Chair, Department of Biostatistics  
Graduate School of Public Health

Doris Rubio, PhD  
Associate Professor of Medicine, Biostatistics, Nursing, and Clinical and Translational Science  
Co-Director, ICRE  
Director, CRHC Data Center  
Co-Director, Clinical Research Scholars Program  
CTSI Core Director, Design, Biostatistics, and Clinical Research Ethics Core  
CTSI Core Director, Evaluation Core  
School of Medicine

Deborah Seltzer  
Research Associate  
School of Medicine

Daniel Siewiorek, PhD  
Professor of Computer Science  
Director, Human-Computer Interaction Institute  
Buhl University Professor of Electrical and Computer Engineering and Computer Science  
Carnegie Mellon University

Randall Smith, PhD  
Professor of Pharmacy  
Associate Dean for Research  
School of Pharmacy

Stephanie Studenski, MD, MPH  
Professor of Medicine  
Director, Claude D. Pepper Independence Center  
School of Medicine

Galen Switzer, PhD  
Associate Professor of Medicine and Psychiatry  
Associate Director, VA Center for Health Equity Research and Promotion  
Co-Chief, Measurement Core  
VA Pittsburgh Healthcare System

Stephen Thomas, PhD  
Professor of Behavioral and Community Health Sciences  
Director, Center for Minority Health  
Graduate School of Public Health

Robert Weyant, DMD, DrPH  
Professor and Chair  
Department of Dental Public Health and Information Management  
Associate Dean, Office of Public Health and Outreach  
School of Dental Medicine
Clinical and Translational Science Degree Programs

The Institute for Clinical Research Education at the University of Pittsburgh has developed customized courses and advanced training programs to meet the needs of clinical and translational researchers at every stage. Our courses emphasize the multidisciplinary nature of clinical and translational research and engage adult learners by focusing on applied approaches to designing and conducting sound and ethical research.

ICRE Curriculum Committee

David Barnard, PhD, JD  
Amber Barnato, MD, MPH, MS  
Cindy Bryce, PhD  
Joyce Chang, PhD  
Nicole Fowler, MHSA  
Jennifer Grandis, MD  
Wishwa Kapoor, MD, MPH  
Karen Matthew, PhD  
Kathleen McTigue, MD, MS, MPH  
Mark Mooney, PhD  
Charity Moore, PhD  
Kumaravel Rajakumar, MD  
Mark Roberts, MD, MPP  
Doris Rubio, PhD  
Kenneth Smith, MD, MS  
Stephanie Studenski, MD, MPH  
Galen Switzer, PhD

Medical Education Curriculum Committee

Rachel Bonnema, MD  
Robert Brooks, MD, PhD  
Cindy Bryce, PhD  
D. Michael Elnicki, MD  
Rosanne Granieri, MD  
Scott Herrle, MD  
Dena Hofkosh, MD  
Steven Kanter, MD  
Wishwa Kapoor, MD, MPH  
Alan Lesgold, PhD  
David Macpherson, MD, MPH  
Haruka Matsubara, MD  
J.B. McGee, MD  
Melissa McNeil, MD, MPH  
Dianna Ploof, EdD  
Jeannette South-Paul, MD  
Reed Van Deusen, MD
The PhD in Clinical and Translational Science is the newest degree offering of the ICRE and is a central component of the CTSI educational core. The PhD program is a rigorous training program designed to teach clinicians to conduct high-quality clinical and translational research.

The program provides trainees with advanced knowledge of research concepts and gives them the skills and opportunities to conduct innovative research and develop into independent investigators.

Modeled after the highly successful and individually tailored PhD curriculum in the basic sciences, the didactic curriculum in clinical and translational science offers courses in clinical research methods and analytic methods, with advanced requirements in the specific methodologies that trainees will need to complete their research specialization. Directed, mentored research begins early in the program, allowing trainees to develop expertise in planning and conducting an independent research project that will become the basis of their dissertation.

As with all of the ICRE programs, the PhD program encourages multidisciplinary work. It provides multidisciplinary mentoring and requires that dissertation committees have representation from two or more disparate disciplines.

PhD in Clinical and Translational Science

Program Leadership:
Mark Roberts, MD, MPP, Co-Director
Galen Switzer, PhD, Co-Director
Nicole Fowler, MHSA, Program Administrator
Benjamin Huffman, Program Coordinator

Program Committee:
Cindy Bryce, PhD
Institute for Clinical Research Education
Wendy Chapman, PhD
Department of Biomedical Informatics
John Horn, PhD
Associate Dean for Graduate Studies
Wishwa Kapoor, MD, MPH
Institute for Clinical Research Education
Doris Rubio, PhD
Institute for Clinical Research Education, Center for Research on Health Care Data Center
Clayton Wiley, MD, PhD
Department of Pathology, Medical Scientist Training Program
PhD in Clinical and Translational Science

Curriculum for the PhD

The July 2008 Inaugural Class

Brian Primack, MD, EdM, MS
Assistant Professor
Division of General Internal Medicine
Department of Medicine

Research Topic: The relationship between media messages (i.e., television, advertising, and popular music) and adolescent health behaviors such as smoking, alcohol use, and sexual behavior.

Ahmad Tarhini, MD, MS
Assistant Professor
Division of Hematology/Oncology
Department of Medicine

Research Topic: Translational research to test the safety and immunogenicity of a triple peptide vaccine designed to improve the efficacy of immunization and to better immunize patients with advanced melanoma.

Hussein Tawbi, MD, MS
Assistant Professor
Division of Hematology/Oncology
Department of Medicine

Research Topic: Investigating the effect of epigenetic modifications on the expression of DNA repair genes and the clinical response of patients with melanoma.
Initially funded in 1999 under the K30 mechanism of the National Institutes of Health (NIH), the program leading to a Master of Science (MS) in Clinical Research has become a national model for programs to educate clinical trainees at multiple levels, including medical students, residents, fellows, and junior faculty.

The MS curriculum provides a basic set of knowledge and skills that every clinical investigator needs, regardless of the specific field in which he or she conducts patient-oriented research. The basics include clinical research methods, biostatistics, measurement of outcomes, and ethical and regulatory principles regarding human research. The core curriculum serves as the central didactic experience for a variety of ICRE training programs and consists of a tightly integrated series of courses focusing on topics, problems, and skills acquisition across the various content areas.

The summer coursework is followed by a course in grant writing. This course is required for the MS and builds on information that is provided through two seminar series: the Research Design and Development Series and the Ethics and Regulation of Clinical Research Series. In these seminar series, students learn how to develop a research question into an NIH-style grant proposal, how to identify and deal with potential problems related to the protection of human subjects, and how to prepare a protocol for the Institutional Review Board. The final product is a completed grant application that follows the PHS-398 application format.
Specialty Tracks

Specialty tracks, distinguished primarily along methodological grounds, have allowed trainees to concentrate on the type of research that they plan to participate in during their careers.

Clinical Trials Research Track (Charity Moore, PhD, Director)
This track provides training in the design, implementation, and analysis of experimental studies (phase 1, 2, and 3 trials) through didactic and practical experiences. Trainees are encouraged to direct a clinical trial for which they develop the protocol, manage the study, and analyze the results.

Effectiveness, Outcomes, and Quality Research Track (Mark Roberts, MD, MPP, Director)
This track provides training in health services research. The courses offer more sophisticated skills in analytic methods (especially as they relate to observational data), outcomes measurement, and cost-effectiveness studies.

Health and Behavior Track (Karen Matthews, PhD, Director)
This track focuses on behavioral factors involved in the etiology and treatment of physical illness, with an emphasis on intrapersonal, interpersonal, and sociocultural processes and how they interact.

Translational Research Track (Jennifer Grandis, MD, Director)
The trainees in this research track have previous or concurrent laboratory experience or plan to partner with a basic science investigator to implement translational research projects in the clinical setting. Trainees participate in the Translational Research Seminar Series and take courses related to T1 or T2 translational research.
Certificate in Clinical and Translational Research for Doctoral Students in the Health Sciences

Program Leadership:
Mark Roberts, MD, MPP, Director
Cindy Bryce, PhD, Associate Director
Jennifer Kush, Coordinator
Jessica Dornin, Student Services Coordinator

Starting in the fall of 2008, the ICRE will provide doctoral students in the University of Pittsburgh's schools of the health sciences with the opportunity to enroll in a program that leads to a Certificate in Clinical and Translational Research. In addition to offering courses in research methodology, the rigorous program will give students the chance to participate in collaborative research under the mentorship of translational researchers.

The goal of the certificate program is to enhance the University's doctoral training programs in various areas of basic science and health-related sciences by providing students with a new opportunity to learn the skills needed to conduct high-quality clinical and translational research.

The certificate is available to graduate students in the programs listed below.

<table>
<thead>
<tr>
<th>Graduate School of Public Health</th>
<th>School of Medicine</th>
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<tr>
<td>Behavioral and Community Health Sciences</td>
<td>Biochemistry and Molecular Genetics</td>
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<tr>
<td>Biostatistics</td>
<td>PhD</td>
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<tr>
<td>Environmental and Occupational Health</td>
<td>Biomedical Informatics</td>
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<tr>
<td>Epidemiology</td>
<td>PhD</td>
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<tr>
<td>Health Services Research and Policy</td>
<td>Cell Biology and Molecular Physiology</td>
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<td>Human Genetics</td>
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<tr>
<td>Infectious Diseases and Microbiology</td>
<td>Cellular and Molecular Pathology</td>
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<td>Public Health Statistics</td>
<td>Computational Biology</td>
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<td>DrPH, PhD</td>
<td>PhD</td>
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<td>DrPH</td>
<td>Immunology</td>
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<th>School of Health and Rehabilitation Sciences</th>
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<td>Communication Science and Disorders</td>
<td>Pharmaceutical Sciences</td>
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<td>Rehabilitation Science</td>
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The University of Pittsburgh offers a program that leads to a Master of Science (MS) in Medical Education and a Certificate in Medical Education. The program is designed to train future leaders in the field.

The program provides trainees with didactic material and precepted teaching experiences that enhance their skills in classroom and clinical instruction, curriculum development, professional leadership, medical education, and medical administration.

In addition, through the MS program in clinical research, the trainees take core courses in research and complete a mentored research or curriculum development project.

![Graph showing the number of MS and Certificate Trainees in Medical Education from 2000 to 2008. The graph illustrates an increase in the number of trainees each year, with a projected increase for July 1, 2008.](image-url)
The ICRE’s training and career development programs are customized to meet the needs of each researcher’s stage in the academic “career pipeline.”
The Clinical Research Scholars Program (CRSP) is a multidisciplinary career development program that prepares scientists from a broad range of disciplines, specialties, and subspecialties for independent careers in clinical or translational research. This program brings together the collaborative efforts of the schools of the health sciences (the Graduate School of Public Health, the School of Dental Medicine, the School of Health and Rehabilitation Sciences, the School of Medicine, the School of Nursing, and the School of Pharmacy), the Swanson School of Engineering, the many multidisciplinary research centers at the University of Pittsburgh, and the extensive clinical entities that constitute the University of Pittsburgh Medical Center (UPMC). CRSP scholars engage in diverse types of multidisciplinary clinical research, including large and small clinical trials, patient-oriented research, epidemiologic studies, health services research, and translational research. The scholars pursue educational offerings pertaining to research ethics and regulations, to best practices in clinical research, and to the development of management and leadership skills. An integral component of the program involves working in multidisciplinary teams and being mentored by a group of highly experienced, federally funded senior investigators.

### 2007–2008 CRSP Scholars

**Aletha Akers, MD**  
Obstetrics, Gynecology, and Reproductive Sciences

**Sonya Borrero, MD, MS**  
Internal Medicine

**Julie Donohue, PhD**  
Health Policy and Management

**Kerry Empey, PharmD, PhD**  
Pharmacy and Therapeutics

**Julie Fuchs, MD**  
Pediatric Surgery

**T. Clark Gamblin, MD**  
Surgical Oncology

**Mary Garza, PhD, MPH**  
Behavioral and Community Health Sciences

**Andrew Gilbert, MD**  
Psychiatry

**Steven Handler, MD, MS, CMD**  
Geriatric Medicine and Biomedical Informatics

**Samay Jain, MD**  
Neurology

**Jordan Karp, MD**  
Psychiatry and Anesthesiology

**Eswar Krishnan, MD**  
Rheumatology

**Bruce Lee, MD, MBA**  
Internal Medicine

**Steven Little, PhD**  
Bioengineering

**John McKinnon, MD, MSc**  
Internal Medicine

**Ateev Mehrotra, MD, MPH**  
Internal Medicine

**Natalia Morone, MD, MSc**  
Internal Medicine

**Smita Nayak, MD**  
Internal Medicine

**Sara Piva, PhD, PT**  
Physical Therapy

**Camille Ragin, PhD, MPH**  
Epidemiology

**Matthew Reeves, MD, MPH**  
Obstetrics, Gynecology, and Reproductive Sciences

**Jon Rittenberger, MD, MS**  
Emergency Medicine

**Matthew Rosengart, MD, MPH**  
Surgery

**Marc Simon, MD**  
Transplant Cardiology

**Jason Sperry, MD, MPH**  
Surgery

**Stasa Tadic, MD, MS**  
Geriatric Medicine

**Thankam Thyvalikakath, MDS, MS**  
Dental Informatics

**Hilary Tindle, MD, MPH**  
Internal Medicine

**George Tseng, PhD**  
Biostatistics

**Felicia Wu, PhD**  
Environmental and Occupational Health

**Leland Yee, PhD, MPH**  
Epidemiology

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**Program Leadership:**

**Wishwa Kapoor, MD, MPH,** Director

**Doris Rubio, PhD,** Co-Director

**Joan Lakoski, PhD,** Co-Director

**Heather Johnson,** Program Coordinator

**Lorraine Pollini,** Administrative Assistant
CRSP Multidisciplinary Advisory Committee

The CRSP Multidisciplinary Advisory Committee (MAC) meets every month and includes representatives from 20 disciplines and all six schools of the health sciences, faculty from the University of Pittsburgh Center for Minority Health, and the Associate Dean of Graduate Studies in the School of Medicine. The committee assists in the selection of CRSP scholars, provides guidance and direction for the scholars, monitors the program, and recommends program changes to meet the scholars’ needs.

2007–2008 Multidisciplinary Advisory Committee

Timothy Billiar, MD  
School of Medicine  
Department of Surgery

Gregory Cooper, MD, PhD  
School of Medicine  
Department of Bioinformatics

Anthony Delitto, PhD, PT  
School of Health and Rehabilitation Sciences  
Department of Physical Therapy

Jacqueline Dunbar-Jacob, PhD, RN  
School of Nursing  
Departments of Epidemiology and Occupational Therapy

Michael Fine, MD, MSc  
School of Medicine  
Departments of Medicine and Health Policy and Management

Gerald Gebhart, PhD  
School of Medicine  
Department of Anesthesiology

Susan Greenspan, MD  
School of Medicine  
Division of Endocrinology

Mary Beth Happ, PhD, RN  
School of Nursing  
Departments of Nursing, Bioethics, and Health Law

Alejandro Hoberman, MD  
School of Medicine  
Department of Pediatrics

John Horn, PhD  
School of Medicine  
Department of Neurobiology

Judith Lave, PhD  
Graduate School of Public Health  
Departments of Health Policy and Management, Economics, and Psychiatry

Mary Marazita, PhD  
School of Dental Medicine  
Departments of Oral Biology, Human Genetics, and Psychiatry

Karen Matthews, PhD  
School of Medicine  
Departments of Psychiatry, Epidemiology, and Psychology

Charity Moore, PhD, MS  
School of Medicine  
Department of Medicine

Anne Newman, MD, MPH  
Graduate School of Public Health  
Departments of Medicine and Epidemiology

Steven Reis, MD  
School of Medicine  
Division of Cardiology

James Roberts, MD  
School of Medicine  
Department of Obstetrics, Gynecology, and Reproductive Sciences

Mark Roberts, MD, MPP  
School of Medicine  
Departments of Medicine, Health Policy and Management, and Industrial Engineering

Neal Ryan, MD  
School of Medicine  
Department of Psychiatry

Charles Sfeir, DDS, PhD  
School of Dental Medicine  
Department of Oral Biology

Randall Smith, PhD  
School of Pharmacy  
Department of Pharmaceutical Sciences

Stephanie Studenski, MD, MPH  
School of Nursing  
Division of Geriatrics

Ralph Tarter, PhD  
School of Medicine  
Departments of Pharmacology and Psychiatry

Stephen Thomas, PhD  
Graduate School of Public Health  
Behavioral and Community Health Sciences

Valerie Watzlaf, PhD, RHIA  
School of Health and Rehabilitation Sciences  
Department of Health Information Management
The University of Pittsburgh is committed to becoming a leader in the national effort to encourage diversity among clinical and translational researchers. The Career Education and Enhancement for Health Care Research Diversity (CEED) Program is designed to help postdoctoral fellows and faculty from underrepresented minority groups by providing them with the mentoring and training needed for successful research careers; by helping them develop leadership and management skills; by enhancing their grant writing and other skills that will help them receive competitive career development awards; and by ensuring a supply of well-qualified investigators to carry out basic science, clinical, and translational research in the health sciences.

2007–2008 CEED Fellows

**Danielle Beatty, PhD**
Postdoctoral Fellow  
Department of Psychiatry  
School of Medicine

**Craig Fryer, PhD**
Assistant Professor  
Department of Behavioral and Community Health Sciences  
Graduate School of Public Health  
Assistant Director, Center for Minority Health

**Dorothy Hawthorne, RN, PhD**
Assistant Professor  
Department of Health Promotion and Development  
School of Nursing

**James Butler, DrPH, MEd**
Assistant Professor  
Department of Behavioral and Community Health Sciences  
Graduate School of Public Health

**Jamie Chatman, PhD**
Postdoctoral Fellow  
Kellogg Health Scholar  
Department of Biostatistics  
Graduate School of Public Health

**Besangie Sellars, PhD**
Postdoctoral Fellow  
Kellogg Health Scholar  
Graduate School of Public Health  
Center for Minority Health

**Beatrice Chakraborty, PsyD**
Postdoctoral Fellow  
Department of Psychiatry, Western Psychiatric Institute and Clinic  
School of Medicine

**Tennille Leak, DMD**
Postdoctoral Fellow  
Department of Epidemiology  
Graduate School of Public Health
The Clinical Scientist Training Program (CSTP) for residents is designed to prepare clinicians for a career in academic medicine and clinical investigation by providing them with opportunities to learn and practice clinical research skills during their residency training. The program has three main components: courses in clinical research methods, mentored research, and a longitudinal seminar.

• Each resident in the CSTP completes a minimum of 9 credits of coursework over an 8-week period, typically during the summer months of the second year of residency. Generally, the time for the coursework is substituted for two electives in the residency training track in which the resident is enrolled.

• During the residency program, each resident develops and carries out a mentored research project in his or her area of interest, working with a mentor and senior researcher at the University of Pittsburgh. With guidance from the mentor and CSTP faculty, the resident is expected to present his or her research findings in a public scientific forum and to develop a manuscript to be submitted for publication.

• Throughout their medical training, the residents participate in a regular seminar series that offers lectures on topics in clinical research and provides them with opportunities to present their own research and receive feedback from peers, faculty members, and physicians involved in other ICRE programs.

After completing the CRSP requirements, the residents may pursue further coursework to obtain a Certificate in Clinical Research. This generally requires an additional year of training that can be completed after residency or as part of a postresidency fellowship at the University of Pittsburgh.
The Clinical Scientist Training Program (CSTP) for medical students is a 5-year program designed to prepare outstanding students for a career in academic medicine and clinical investigation by providing them with opportunities to learn and practice clinical research skills during medical school.

Through the CSTP, students can pursue a Certificate in Clinical Research or a Master of Science (MS) in Clinical Research. Both the certificate and the MS require an additional year of study, which is usually taken between the third and fourth year of medical school. The program consists of courses in clinical research methods, mentored research, and a longitudinal seminar.

- Students develop a plan of study to fulfill requirements for the certificate or MS. The coursework is completed during the CSTP year and during research elective months in the fourth year of medical school.

- All students conduct full-time mentored clinical research with a federally funded investigator during the summer between the first and second medical school years and during the 12 months of the CSTP year. The ultimate goals are for students to complete their research, to present one or more abstracts at regional or national meetings, and to convert the abstracts into manuscripts for publication in a peer-reviewed journal.

- During all years except the third year of medical school, students attend a semiweekly seminar that covers topics such as research ethics, career paths in clinical investigation, student research in progress, and National Institutes of Health grant writing.
In 2007, the University of Pittsburgh School of Medicine received the prestigious Doris Duke Research Fellowship Award. This program will be administered by the ICRE and will be a clinical research training program modeled after the CSTP for medical students. In July 2008, the program will enroll five medical students.

The Doris Duke Clinical Research Fellowship Program is designed to encourage exceptional medical students to pursue careers in clinical research by giving them a 1-year opportunity, generally taken between the third and fourth year of medical school, to learn and practice clinical and translational research skills. The program will include courses in clinical research methods, mentored research, and a longitudinal seminar.

The July 2008 Inaugural Class of Doris Duke Fellows

**Priya Gursahaney**  
University of Pittsburgh School of Medicine  
**Research Topic:** Partner notification practices in patients with sexually transmitted diseases

**Mari Machi**  
University of Pittsburgh School of Medicine  
**Research Topic:** Identifying cultural issues affecting communication about sexual health within African American families

**Arvind Raina**  
Case Western Reserve University School of Medicine  
**Research Topic:** Pathological mechanisms underlying idiopathic pulmonary fibrosis

**Alison Goldberg Rubin**  
University of Pittsburgh School of Medicine  
**Research Topic:** Emergency contraception in female adolescents

**Nikhil Thaker**  
University of Medicine and Dentistry of New Jersey (UMDNJ) Medical School  
**Research Topic:** Small interfering RNA-based synthetic lethal screens of glioma cells to identify novel drug combinations
As part of the Clinical and Translational Science Institute, the ICRE offers the Predoctoral Fellowship in Clinical and Translational Research. The fellowship is designed to enhance and support multidisciplinary research training in clinical and translational science throughout the University of Pittsburgh and to encourage the University’s PhD students to pursue a career in this field.

The fellowship awards are for a 1-year period and include a stipend, tuition, travel funds, and research support. The fellows are required to participate in the ICRE clinical research methods course to learn the core principles of conducting clinical research. They devote the majority of their time to research and are encouraged to pursue translational research topics.

2007–2008 Predoctoral Trainees

**Jennifer Bonner**
School of Pharmacy
Pharmaceutical Sciences
**Research Topic:** Short-term and long-term effects of small bowel transplantation on drug absorption and intestinal first-pass metabolism

**Robert Koppenhaver**
Swanson School of Engineering
Industrial Engineering
**Research Topic:** An optimization approach to care for human immunodeficiency virus infection: maximizing societal and patient benefit

**Susan Fuhrman**
School of Health and Rehabilitation Sciences
Rehabilitation Science
**Research Topic:** An investigation in a clinical setting of issues surrounding children and wheelchair seating

**Mark Miedel**
School of Medicine
Molecular and Cell Biology
**Research Topic:** The role of mucolipin-1 in the pathogenesis of the lysosomal storage disease mucolipidosis type IV
Jennifer Bonner
School of Pharmacy
Pharmaceutical Sciences
Research Topic: Evaluation of intestinal CYP3A4/5 and p-glycoprotein function in small bowel transplant recipients

Christopher Gaiteri
School of Medicine
Psychiatry
Research Topic: Gene interaction networks in a cross-species characterization of depression

Nisanne Ghonem
School of Pharmacy
Pharmaceutical Sciences
Research Topic: The use of Remodulin, a PGI2 analog, in liver grafts for the prevention of ischemic injury

Christi Kolarcik
School of Medicine
Pathology
Research Topic: Characterization of retinoid signaling proteins in amyotrophic lateral sclerosis

Robert Koppenhaver
Swanson School of Engineering
Industrial Engineering
Research Topic: An optimization approach to care for human immunodeficiency virus infection: maximizing societal and patient benefit

Scott Langevin
Graduate School of Public Health
Epidemiology
Research Topic: Promoter methylation and clinical outcomes in squamous cell carcinoma of the head and neck

Gaurav Shukla
Swanson School of Engineering
Bioengineering
Research Topic: Multimodal image registration of 2D ultrasound and 3D MRI for image-guided intervention reperfusion

Laura Voeghtly
School of Medicine
Pathology
Research Topic: MMP activation peptide detection in biological samples as a predictor of acute exacerbations in idiopathic pulmonary fibrosis
The Clinical and Translational Science Institute and ICRE have designed a summer research program for students enrolled in clinical doctoral programs in the schools of the health sciences at the University of Pittsburgh. The summer program lasts for 8–12 weeks and combines an individualized mentored research experience with group sessions that are focused on multidisciplinary translational research. Students work directly with an NIH-funded investigator to develop an initial research plan and an implementation plan.
Short-Term Access to Research Training Program (START UP) (TL1 Program)

2007–2008 START UP Fellows

Joseph Rybny  
School of Pharmacy  
Research Topic: The effect of therapeutic hypothermia on the cytochrome P450 enzyme system

April Scott  
School of Health and Rehabilitation Sciences  
Research Topic: The perception of facial emotion in individuals with brain injury

Marilyn Torch  
School of Pharmacy  
Research Topic: Optimization of the pharmacotherapy of hydroxyprogesterone caproate in pregnant subjects

2008–2009 START UP Fellows

Ida Anjomshoaa  
School of Dental Medicine  
Research Topic: The association of aquaporin-5 with caries and the impact of cardiovascular disease on susceptibility to caries

Tanner Bartholow  
School of Medicine  
Research Topic: Analysis of potential immunohistochemical markers for prognosis correlation in patients with prostate cancer metastasis

Tiffany Behringer  
School of Medicine  
Research Topic: Understanding contraceptive decision making in women who seek to avoid pregnancy

Nicholas Callahan  
School of Dental Medicine  
Research Topic: Human tooth agenesis and cancer susceptibility with AXIN2

Luis Duran  
Graduate School of Public Health  
Research Topic: Embodiment and the social-ecological framework: potential application as a bridge between levels of analysis

Pieter Heemstra  
School of Dental Medicine  
Research Topic: The isolation and characterization of stem cells from the periodontal ligament

Andrew Martin  
School of Dental Medicine  
Research Topic: Evaluation of decision-making activities using a 3D charting interface

Jonathan Misner  
School of Dental Medicine  
Research Topic: Evaluating the effectiveness of modeling principles for data models

Neil Robertson  
School of Dental Medicine  
Research Topic: Quantitative study of human stem cell differentiation using proteomics

Dana Roman  
School of Pharmacy  
Research Topic: Biomarker assessment of free fatty acid metabolite biomarkers of complications and outcomes in patients with subarachnoid hemorrhage

Carolyn Schroeder  
School of Health and Rehabilitation Sciences  
Research Topic: The use of neuromuscular electrical stimulation (NMES) to reverse muscle atrophy in patients with rheumatoid arthritis

Michael Smith  
School of Pharmacy  
Research Topic: The localization of UC781, a nonnucleoside reverse transcriptase inhibitor (NNRTI), in excised human tissues
The goal of the common core curriculum in the Clinical and Translational Science Institute (CTSI) is to provide doctoral-level graduate students with the knowledge and critical thinking skills they need to engage in clinical or translational research.

To introduce students to the objectives, concepts, models, and processes of this research, the CTSI Education Core designed a Web-based and in-class hybrid course titled Introduction to Translational Research in the Health Sciences. This course, which will be offered for the first time in the fall of 2008, will provide students with a comprehensive survey of the processes involved in translating research discoveries into practices that promote health and prevent disease. The specific topics to be covered are listed in the lecture schedule and include the implementation of new therapies as standards of care and the application of innovative preventive services. Various research methodologies, including those encompassed in the drug, therapeutic, and device development process, will be discussed. The course will offer lectures via electronic media and will use a collaborative learning approach to classroom activities.
Competencies in Clinical and Translational Science

Competencies

The ICRE has created over 50 new courses in clinical and translational science and medical education. It has developed programs leading to a PhD in Clinical and Translational Science, a Master of Science in Clinical Research, a Master of Science in Medical Education, a Certificate in Clinical Research, a Certificate in Medical Education, and a Certificate in Clinical and Translational Research (the newest certificate, designed for PhD students enrolled in programs at the University of Pittsburgh). The ICRE has also created a concentration in health sciences for PhD students enrolled in computer sciences at Carnegie Mellon University.

During the past 9 years, the ICRE has experienced tremendous growth in its degree programs and in course enrollments of nondegree students from throughout the University of Pittsburgh. The growth has been accompanied by a recognition of the need to develop competencies and assessment criteria for advanced degree (MS and PhD) programs. At the national level, the movement to develop competencies has been organized by the National Center for Research Resources (NCRR), the Education Steering Committee of the Clinical and Translational Science Awards (CTSAs), the Association for Clinical Research Training (ACRT), and the Association of American Medical Colleges (AAMC). At the University of Pittsburgh, the movement has been led by the Office of the Provost.

In an effort to validate and maintain the quality of our degree programs in clinical and translational science, the ICRE has formed work groups to establish and assess competencies. In recognition of the work that has already been done on a national scale, we have organized the work groups around the following themes established by the NCRR and Education Steering Committee of the CTSAs:

- The identification and definition of important public health and clinical problems and of relevant translational research issues associated with these problems.

- Research methods.

- Data measurement, management, and analysis.

- Scientific writing and communication.

- Ethical conduct of research.

- Scientific leadership, management, and cross-disciplinary teamwork.

We have begun the process of establishing competencies by identifying a leader for each work group and asking the groups to meet from May 2008 to September 2008 to refine the wording of the themes; to revise and refine the competencies for the themes; to determine the appropriateness of competencies for the PhD, MS, and certificate programs; to define where in the ICRE curriculum the competencies are addressed; and to define how the competencies are assessed.
Mentoring Program

The ICRE has developed a formal program to train team mentors and to monitor the success of mentoring for all of the ICRE programs. The mentoring program provides the best possible opportunity for developing research careers that span multiple disciplines, specialties, and subspecialties.

Scholars, fellows, and trainees in ICRE programs are mentored by accomplished investigators who are actively involved in clinical or translational research, have research funding from the National Institutes of Health or other federal institutions, have established track records of mentoring and providing research training, and are committed to the career development of trainees. The following are the main components of the mentoring program:

• Mentor selection—The ICRE program directors, with assistance from the faculty or program committees, help select mentors for ICRE trainees after meeting individually with the trainees and assessing their career goals and interests.

• Mentor and mentee contracts—The ICRE mentors provide written commitments to meet regularly with the trainees throughout the duration of the training program and to help design the research plans, to discuss progress in research, and to develop solutions to problems that may arise. The ICRE uses learner-centered contracts that allow the trainees to focus on the research areas of greatest interest to them and to create educational objectives consistent with these interests. The contracts serve as a formal mechanism for ensuring that feedback is given and that progress is being made in achieving the educational objectives.

• Mentor and mentee training—The goals of mentor-mentee training are to provide a clear understanding of the purpose of mentoring, to delineate the expectations of the trainees, to develop consistent implementation of mentoring, and to develop mentoring skills. The training activities take place during an annual retreat at the beginning of the program. The retreat brings together the trainees and mentors to allow them to become acquainted, to help them establish a sharing environment, to define their roles and responsibilities, to develop agreements regarding the details of mentoring and the nonnegotiable aspects of the mentoring contract, and to provide professional skills training.

• Ongoing support and evaluation of the mentoring relationship—The leaders of each training program monitor the mentoring relationships and provide the support needed to accomplish the program goals. Through an early evaluation process, they determine if a mentoring relationship is not working. If there are problems with the relationship, the program directors collaborate with the mentors and trainees to solve problems and develop alternatives.

• Mentoring resources—Additional information about mentoring is available on the ICRE Web site: http://www.icre.pitt.edu/mentoring.
ICRE Collaborative Programs in Clinical and Translational Science

Collaboration within the University of Pittsburgh

Design, Biostatistics, and Clinical Research Ethics (DBE) Core of the Clinical and Translational Science Institute (CTSI)

Doris Rubio, PhD, Core Director

In collaboration with the DBE core, the ICRE encourages all of its trainees to work with experienced statisticians for their research. The DBE core offers education, consultation, and training in research design, biostatistics, and data management. With experts in these fields, the DBE core provides the trainees with a unique opportunity to improve the science of their research and become better researchers.

Education and Information Technology in Clinical and Translational Science

Doris Rubio, PhD, Director
Donna Minsterman, MEd, Instructional Designer

The ICRE is committed to expanding the availability of its educational offerings through advanced information technology. The CTSI has enabled the formation of the Web Teaching Laboratory, designed to help faculty transition their classroom-based clinical and science teaching to the Internet. The ICRE has accumulated a multitude of capabilities for distance education. The goals are to provide information technology for education and to enhance course offerings and distance education.

Office for Evaluation

Doris Rubio, PhD, Director
Sunday Clark, ScD, Assistant Director
Tina Petrusic-Cooper, MPA, Program Coordinator

The Office for Evaluation has highly experienced professionals who develop and implement evaluation plans for various training programs. The office also has a sophisticated tracking system to help the programs track the success of their trainees. The office serves as the home to the CTSI Evaluation Core.

Research on Research Education

Doris Rubio, PhD, Committee Chair

With support from the CTSI, the ICRE has spearheaded an initiative to carry out research on research education. The committee involved in this initiative is currently focusing on tracking and evaluating the career development and success of CTSI and ICRE trainees. Partnering with the Office for Evaluation, the committee has developed a rigorous tracking and follow-up mechanism to accomplish its objectives.
ICRE Collaborative Programs in Clinical and Translational Science

Collaboration with Carnegie Mellon University

Wishwa Kapoor, MD, MPH, Co-Director of the Collaborative Program and Director of the Institute for Clinical Research Education, University of Pittsburgh

Robert Kraut, PhD, Co-Director of the Collaborative Program and Herbert A. Simon Professor of Human-Computer Interaction, Carnegie Mellon University

Nicole Fowler, MHSA, Coordinator of the Collaborative Program

In collaboration with Carnegie Mellon University (CMU), the Clinical and Translational Science Institute and the ICRE provide a program for PhD students who are enrolled in CMU’s School of Computer Science and have an interest in applying technology to the problems of health care.

The program consists of five courses (two or three of which can be used to fulfill CMU’s requirements for the PhD) and a research project that is co-advised by a faculty member from the student’s home department at CMU and a clinical researcher from the schools of the health sciences at the University of Pittsburgh. The program allows CMU students to gain access to the courses in clinical and translational science and receive mentorship in this field. If they wish, they can declare a concentration in health sciences within their PhD program.
ICRE Core Faculty

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Division of General Internal Medicine  
Chief, Section of Palliative Care and Medical Ethics  
Director, Institute for Doctor-Patient Communication

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Section of Palliative Care and Medical Ethics  
Director, Institute to Enhance Palliative Care

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Center for Research on Health Care Data Center

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Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System (VAPHS)

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Director, Teaching Evidence-Based Medicine  
Co-Director, Mentorship Program for Internal Medicine Residents

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Director, Center for Research on Health Care  
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