2. Background
   2.a. Overview

   Preventive Cardiology, as a discipline, is concerned with the assessment and reduction of risk for cardiovascular disease and its clinical sequelae. The overall goals of this Institutional National Research Science Award are: 1) the continuation and refinement of a successful postdoctoral research training program in preventive cardiology, and 2) the modest expansion of a predoctoral training program, leading to a PhD in epidemiology focused in the epidemiology and prevention of cardiovascular disease. Investigators with appropriate methodological expertise and requisite knowledge in this field continue to be in short supply, supporting the expansion of the predoctoral component. Several developments at the University of Rochester Medical Center have created new opportunities for this program. First, the URMC received one of the first Clinical and Translational Science Awards (CTSA) from the National Center for Research Resources in October, 2006. This has allowed continuation of the Rochester Clinical Research Curriculum (K30) Program but has created several new training resources, including: 1) new Masters of Science programs in Translational Research (MS-TR) and in Clinical Investigation (MS-CI) in addition to the continuing Masters of Public Health Program; 2) additional courses in translational research; 3) access by our trainees to a number of seminars, pilot study grants, laboratory access grants, skill-building workshops, etc.; and 4) inclusion of postdoctoral fellows in a strengthened Career Development Program. Second, cardiovascular research program in the Department of Medicine have expanded with opening of a new Cardiovascular Research Institute and recruitment of a new chief of Cardiology. This has opened a number of opportunities for additional mentors and sponsored research projects. With these developments, the University of Rochester is well-positioned to support both a continued postdoctoral fellowship as well as an expanded predoctoral program consistent with the special NHLBI programmatic emphases for Institutional NRSA Awards.

   The Research Training in Preventive Cardiology (RTPC) Program therefore has the following specific aims:
   1. To continue a successful program of postdoctoral training in the theory and methods of preventive cardiology research. This is composed of three concurrent elements. The first is a one-year didactic curriculum with core elements of clinical research (e.g. epidemiology, biostatistics) but also a breadth of offerings for MS degrees in Translational Research, Clinical Investigation, or Public Health. The second is a series of skill-building workshops and research seminars tailored to the trainee’s focus of translational research. The third is a mentored research experience to apply these skills and knowledge as necessary for a career in clinical/translational research in the epidemiology and prevention of cardiovascular disease.
   2. To expand the predoctoral program, currently integrated with the now well-established PhD program in Epidemiology, to one new predoctoral fellow per year. Didactic training emphasizes multidisciplinary training in vascular biology, epidemiologic methods, and their application to dissertation research on a topic related to epidemiology and prevention of cardiovascular disease.
   3. To link both predoctoral and postdoctoral trainees with well-established research mentors and a multidisciplinary committee of experienced investigators. Mentors will be chosen from one of five multidisciplinary research clusters (Behavioral Science, Cardiovascular Clinical Trials, Epidemiology of Cardiovascular Disease and its Risk Factors, Outcomes/Cost-Effectiveness Research, and Vascular Biology/Metabolic Studies). With their advice, the trainee will design and carry out an independent research project, including the predoctoral trainee’s dissertation requiring primary data collection and the postdoctoral fellow’s research project of more limited scope.
   4. To recruit trainees from national and local pools of eligible candidates, with an emphasis of continuing to recruit members of under-represented minority groups and persons from disadvantaged backgrounds. The program will continue its linkages with the Jackson Heart Project and the Morehouse School of Medicine. One group that is uniquely and successfully targeted for recruitment will be investigators from the Deaf Community.
   5. To evaluate the program in terms of educational objectives tailored to the postdoctoral and predoctoral programs, including completion of didactic coursework and degree programs, their research project’s completion, number of publications, etc., and establishment of independent research careers, as well as attainment of recruitment goals for minority and deaf investigators. At the conclusion of the period of support, a diverse group of three postdoctoral fellows and one PhD recipient per year will have been taught and mentored in the advanced methods, fundamental knowledge, and multidisciplinary approaches necessary to further clinical research in this field.
2.b. Rationale for Research Training in Preventive Cardiology

Preventive cardiology, as a discipline, refers to the research and practice of the assessment and reduction of risk from cardiovascular disease (CVD) and its clinical sequelae. While advocates date back to the beginning of cardiology itself, preventive cardiology did not develop as a distinct subspecialty of cardiology and cardiovascular research until relatively recently. The National Heart, Lung and Blood Institute Preventive Cardiology Academic Awards charged over 60 U.S. medical schools with organization of curricula for CVD prevention and often encouraged the development of inpatient and outpatient clinical centers, research activities, and textbooks solely focused on preventive cardiology. Thus, preventive cardiology has become a recognized subdiscipline within cardiovascular medicine, allowing development within academic centers of research, teaching, and clinical programs which specialize in the assessment and management of CVD risk.

A major asset in the development of the field of preventive cardiology has been an exceptionally broad and deep base of evidence. This has enabled governmental and voluntary health agencies to issue guidelines for cardiovascular disease prevention (1-4) (Figure 1). This evidence has been generated from a range of disciplines spanning the basic biomedical sciences through health economics and policy research (Figure 2). A second area of investigation has dealt with assessment of guidelines’ effectiveness and strategies to improve their performance, often involving applications of behavioral sciences. The central principle guiding the development of this training program is that investigators with a broad range of theoretical, methodological, and technical knowledge will be required to take advantage of basic biomedical discoveries and assure their effective translation into reductions in cardiovascular disease. This is consistent with the NIH Roadmap Initiative and its Clinical and Translational Science Awards (5) and the NHLBI programmatic emphases for Institutional NRSA Awards (T32).

With this central principle in mind, the design and implementation of this Preventive Cardiology Training Program will be based on six premises which are derived from Figures 1 and 2:

**Premise #1:** Understanding of and interactions with the basic biomedical sciences will be essential to translating new knowledge into health improvement. Figure 1 correctly identifies basic biomedical research as the starting point for CVD reduction. While innumerable disciplines may be involved, training in vascular structure and function, atherosclerosis research, lipidology, hematology, and experimental pathology are legitimate areas for career focus in preventive cardiology. Preventive cardiologists involved in more clinical or population-based research still need a working knowledge of these basic biomedical sciences. This provides the rationale for a vascular biology component and involvement of basic science faculty in this training program.

**Premise #2:** Preventive cardiology research encompasses the entire spectrum of research translation, from basic to human (T1), human to clinical (T2) and clinical to community (T3) translational research.
The Clinical and Translational Science Award (CTSA) Program endorses the reengineering of clinical research to speed these translations (5). The Rochester CTSA Program therefore makes available Masters Degree in Translational Research (T1), Clinical Investigation (T2), and Public Health (T3). The mentored research required by these programs could entail vascular biology (T1 research); clinical trials, epidemiology/nutrition/genomics, behavioral science (T2 research); or epidemiology, health sciences/outcomes research (T3 research). Preventive cardiology postdoctoral fellows can focus on training opportunities anywhere along this spectrum. Predoctoral trainees, while training in epidemiology, can collaborate with these multiple disciplines to enrich their thesis research. This provides the rationale for a broad range of methodologic coursework in preventive cardiology training, including vascular biology, epidemiology, biostatistics, clinical trial design, behavioral science, computerized data management, and health services research as necessary competencies currently under-represented in preventive cardiology training programs.

Premise #3: Along with didactic knowledge, successful conduct of preventive cardiology research will require acquisition of a wide variety of practical skills. The theory and methods of preventive cardiology are necessary, but not sufficient, to assure a successful research career in preventive cardiology. In addition to didactic learning and mentoring from a senior researcher, the trainee needs to acquire skills in research ethics, recruitment and retention of research subjects, presentation and publication of research results, technology transfer and relating to industry, bioinformatics, and generation of competitive proposals for research support. This forms the rationale for a series of skill-building workshops which provide “survival skills” for a preventive cardiology career, as emphases of the NHLBI T32 Program and as available in the Rochester CTSA Program.

Premise #4: The interaction between a well-prepared trainee and an experienced, skillful mentor remains the cornerstone for all research training, including that in preventive cardiology. Mentored research experience should be complemented and enhanced by didactic coursework, but never replaced by it. This provides the rationale for a strengthened mentorship development component in this training program. This supports the need not only for a chief mentor, but also a multidisciplinary panel of advisors for the trainee.

Premise #5: Mentored research experiences available to trainees should include opportunities relevant to primordial, primary, and secondary prevention. Indeed, recent data support that while mortality from coronary disease continues to decline (albeit more slowly), incidence of acute myocardial infarction may have stopped declining since 1990 (5). Moreover, stroke mortality rates have ceased declining for the first time in 100 years, and congestive heart failure, in terms of incidence, prevalence, and mortality, has increased annually for the past 25 years (5). This supports the rationale to have mentors with a broad range of interests in preventive cardiology at the levels of the patient with established disease, the patient at risk for its development, and at the community level, for cardiac, cerebrovascular, and peripheral arterial diseases.

Premise #6: A strong demand for investigators in preventive cardiology has not been matched by the supply of trainees with didactic knowledge, practical skills, and mentored research experience in this growing discipline. The NHLBI Council Working Group on Epidemiology, chaired by Dr. F. Abboud (Dr. Pearson was a member), expressed strong concern in their 1999 report to the NHLBI for the undersupply of persons training in these disciplines: “There is a need to assess the current population of trainees in cardiovascular epidemiology and prevention and related disciplines, both in terms of quality and quantity. It is unclear if needs are met by current training programs. Various estimates by scientific organizations suggest that there is a deficit of formally trained epidemiologists and biostatisticians in the U.S. Those involved with recruiting and hiring these scientists concur with this conclusion.” This provides the rationale for expansion of the training program to include additional predoctoral trainees seeking the PhD Degree in Epidemiology. This training grant application then is in response to the need, both in terms of quality and quantity, for additional researchers in preventive cardiology and related disciplines.

2.c. Current Research Training at the University of Rochester Medical Center

The University of Rochester Medical Center (URMC) is deeply committed to offering graduate and postgraduate training in medicine, dentistry and nursing. The institution offers fourteen different programs leading to the PhD degree; currently, over 375 predoctoral students are enrolled. A wide variety of clinical training programs offer specialty and subspecialty training across a wide spectrum of medical, dental and nursing disciplines. Over 127 postdoctoral fellows are enrolled in ACGME accredited training programs – anesthesiology, emergency medicine, internal medicine (11 subspecialties), neurology, obstetrics and gynecology, orthopaedics, pediatrics (6 subspecialties), psychiatry, radiology and surgery. Eight subspecialty postdoctoral programs are offered in dentistry and one in nursing. The University of Rochester sponsors 28
T32 training grants supporting 105 pre-doctoral trainees and 74 post-doctoral trainees, 11 other training or career development grants (including the Education, Training and Career Development Key Function of our CTSA Program, a K-12 in Women's Reproductive Health) supporting 33 pre-doctoral and 15 post-doctoral trainees, and 43 individual K awards (including 19 K-23s and 4 K-24s). Table 3 provides full listing of those training awards relevant to the Program. The cornerstones of the institution’s clinical research training program are the MSTR/MSCI/MPH Programs supported by the Rochester CTSA. These are described below.

2.d. Research Training in Participating Units

The Research Training in Preventive Cardiology (RTPC) Program will involve faculty members (Table 2) from seven different departments (Table 1), all with rich and stimulating research training environments. The following section describes each program. Grant-supported training programs for these units are summarized in Table 3.

The Department of Community and Preventive Medicine (DCPM) is the focus of clinical research training at the URMC. It is built upon the solid foundation of the Department’s MPH program, which has been accredited since 1970 by the Council on Education in Public Health. The MPH program offersdoctorally-prepared professionals the training necessary for success as a clinic to community researcher. The program provides trainees with didactic training in the full range of disciplines relevant to clinical research. The program is designed with the flexibility to allow the scholar to choose an area of emphasis including cardiovascular epidemiology and the Department offers didactic coursework of sufficient depth and breadth to support these options.

The culmination of the program is a research project, carried out under the guidance of a faculty mentor, of such quality and scope as to merit publication in a peer-reviewed journal. Approximately 20-25 students have matriculated into the MPH Program each year over the past ten years.

Since 1999, NIH Roadmap initiatives have sponsored DCPM training programs, initially as the Rochester Clinical Research Curriculum supported by a K30 Award, and since 2006, by the Education, Training, and Career Development Key Function of a CTSA Award. David Guzick, MD, PHD is Principal Investigator of the CTSA Award and has been a staunch supporter of the RTPC Program (See letter of support). Dr. Pearson has been program director for both these training programs. To support clinical research training in the CTSA Program, two new Masters Programs were developed to complement the MPH (T3) Program, namely a Masters of Science in Translational Research (T1), and a Masters of Science in Clinical Investigation (T2). Both K30 and CTSA Programs provided two year postdoctoral fellowship training programs with didactic coursework, skill-building workshops, and seminars. The program, since 1999, 186 postdoctoral fellows have entered the program, 103 have completed the program, 55 are continuing, and 28 have withdrawn. Trainees' characteristics include: 51% female, 7% Hispanic; 11% African American; 72% with MD’s; 6% with DDS; remainder with PhD’s; from 23 Departments including the School of Nursing and the Eastman Dental Center. (See Section 3d for further evaluation of their productivity).

The DCPM sponsors a successful PhD program in Epidemiology. The program was organized and initiated in 2002 under the leadership of Dr. Susan Fisher, then Chief of the Division of Epidemiology and now Chair of the Department of Community and Preventive Medicine. Specific objectives of the program include:

1) educating individuals in the basic science of Epidemiology;
2) teaching the skills required to conduct population-based research;
3) providing intense mentoring to assure a successful, productive and satisfying research experience
4) preparing students to transition successfully to a career as an independent investigator;
5) providing educational role models that encourage students to cultivate their own teaching skills; and
6) nurturing a research environment in which accuracy, integrity and ethical practices are highly valued.

The first students were admitted to the program in 2002. The program admits five or six students each year, and has a total enrollment of 25 to 30 students at any one time.

The DCPM also supports a PhD program in health services research and policy. This program of study is predicated on the belief that there is a critical need in academia, government, and the private sector for health services researchers. These researchers require backgrounds in statistics, economics, and policy analysis combined with an understanding of the institutions, structure, and functioning of the U.S. health care system. They also acquire knowledge of the important issues in health services research and policy and a command of the special methods and research approaches that have been developed specifically in this field. In the PhD program offered at the University of Rochester, there are special tracks for students interested in health systems research and policy and clinical decision-making and evaluation sciences. Dr. Bruce Friedman directs
the program. Graduate students are supported in part by an AHRQ-sponsored T32 award, which has been in place since 1991 and has recently been renewed for a fourth cycle of funding.

The Department of Medicine sponsors three relevant training grants, with a total of 6 pre-doctoral slots and 12 post-doctoral slots. Two of these programs deserve particular mention. Dr. Charles Francis is the Program Director for the program: “Graduate Training in Hematology Research.” Dr. William Hall is Program Director for the program: “Research Training in Geriatrics and Gerontology.” Dr. Pearson is Co-PI for this program. This is clearly relevant to the Preventive Cardiology training program proposed herein, by providing important linkages to the basic sciences of cardiovascular medicine and gerontology. Dr. Francis is a mentor on this Preventive Cardiology Training Program. Dr. Charles Lowenstein, the newly appointed Chief of Cardiology, will represent the Department of Medicine on the Internal Advisory Committee and serve as a mentor (See letter of support).

The Department of Pediatrics sponsors 5 research training programs that involve mentors that will support the RTPC Program. These programs have a total of 16 pre-doctoral positions and 14 post-doctoral positions. Many of these trainees participate in the CTSA program.

The Department of Neurology has one training program entitled: “Experiential Therapeutics in Neurological Disease,” supporting four postdoctoral fellows per year. Drs. Benesch and Holloway participate in this program.

The Department of Biostatistics sponsors one training program supported by a T32 grant from NIEHS. Drs. Oakes and Wu also participate in the clinical trials cluster of this RTPC Program.

2.e. Relationship of RTPC Program to Other Training Activities

Table A illustrates the substantial overlap and rich interaction between the MS-TR/MS-CI and MPH Programs, Epidemiology PhD, and RTPC Programs. The many common program elements promote scholarly interchange between trainees in all programs, enriching their experiences and deepening their understanding of multidisciplinary approaches to research and their ability to take advantage of various disciplines in their own research. These interactions take place in the collaborative and multidisciplinary environment of the DCPM and the Rochester CTSA Program.

Table A. Required Elements for Related Training Programs

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<thead>
<tr>
<th>Program Element</th>
<th>MS-TR</th>
<th>MS-CI</th>
<th>MPH</th>
<th>Ep PhD</th>
<th>RTPC Pre-doc</th>
<th>RTPC Post-doc</th>
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X – indicates that element is required
O – indicates that element is one of two options
E – indicates that element is encouraged, but not required

PHS 398/2590 (Rev. 11/07)
3. Program Plan

3.a. Program Direction and Administration

3.a.1. Program Director. Dr. Thomas A. Pearson, MD MPH PhD.

Dr. Pearson will continue as Program Director. He is the Albert D. Kaiser Professor of Community and Preventive Medicine and Professor of Medicine at the University of Rochester School of Medicine. He is also the Senior Associate Dean for Clinical Research, Director of the Rochester Clinical and Translational Science Institute, and Director of the Rochester Prevention Research Center. He received his MD, MPH, and PhD (Cardiovascular Epidemiology) degrees, completed residencies and is board certified in Internal Medicine and Preventive Medicine, and completed a cardiology fellowship, all at Johns Hopkins. Since completing his training, he has held faculty appointments in Medicine and Epidemiology at Johns Hopkins and Columbia Universities.

Clinical Research Experience. Dr. Pearson brings a wide range of clinical research experience to this Program. His biosketch cites published work in basic science, patient-oriented research, epidemiology, clinical trials, health services research and clinical epidemiology. His research interests are in clinical atherosclerosis research and studies of the epidemiology and prevention of atherosclerotic cardiovascular disease. He directed an experimental pathology laboratory until 1991, developing an animal model of atherosclerosis. He has been involved with a number of studies of disease mechanisms, including Principal Investigator of NHLBI-funded studies of the role of lipoprotein(a) in coronary disease in Blacks vs. Whites (The Harlem-Bassett Study). Dr. Pearson has performed a number of epidemiologic studies. He directed the Johns Hopkins Precursors Study, a long term, NHLBI/NCI/NIA funded prospective study of medical students dating back to 1947; was Principal Investigator of the Meharry-Hopkins Study which followed a cohort of African American physicians in parallel to the Precursors Cohort, and carried out the Grenada Heart Survey for the World Heart Federation in 2006-2007. He has been the principal and collaborating investigator of a number of single and multicenter clinical trials, especially with dietary factors such as coffee, chocolate, and fatty acids, and those testing cholesterol-lowering drugs. He has served as chair or member of Data Safety and Monitoring Boards for the Veterans’ Administration HDL Intervention Trial, the PROVE-IT Study (Harvard University), and PROSPER Study (University of Glasgow). He chaired the Steering Committee for the Dietary Effects on Lipoprotein and Thrombogenic Activity (DELA) Study, and currently serves on the U.S. Dietary Guidelines Advisory Committee. He has been Principal Investigator of large multicenter studies of the clinical epidemiology of preventive cardiology care. Dr. Pearson has increasingly been involved with guideline development in Preventive Cardiology, has chaired American Heart Association guideline development committees for the Primary Prevention of Cardiovascular Disease (3), Cardiovascular Disease Prevention at the Community Level (4), and the Use of Inflammatory Markers in Clinical Practice (7), and currently chairs the Implementation Working Group for the NHLBI Guideline Development Program. In 2007-8, Dr. Pearson took a sabbatical leave as a Visiting Scientist at the National Human Genome Research Institute’s Office of Population Genomics (directed by Teri Manolio, MD, PhD) and continues to serve the PhenX Project as chair of the Cardiovascular Phenotype Working Group. Thus, Dr. Pearson has active involvement across the spectrum of clinical research, a recent enhancement in population genomics, and a deep appreciation for the knowledge and skills needed to accomplish each kind of investigation. He is still clinically active, directing a weekly Preventive Cardiology Clinic, in which fellows can participate.

Research Training Experience. Dr. Pearson has been active both as a classroom teacher and as a research mentor since 1983. He was the recipient of a Preventive Cardiology Academic Award from NHLBI from 1983-1998 and a Nutrition Academic Award from NHLBI from 1998-2003. At the University of Rochester, he is Course Director for “Practical Skills in Grant Writing,” one of the CTSA Skill-building Workshops. Since 1999, Dr. Pearson has directed the Rochester Clinical Research (K30) Curriculum and directs the Education, Training, and Career Development Key Function of the Rochester CTSA. Since 1983, he has served as mentor for 53 clinical research trainees, a large number who have gone on to have distinguished clinical research careers and academic leadership positions. Dr. Pearson also currently supervises four recipients of K23 Awards.

Research Administration. Dr. Pearson is uniquely positioned to provide leadership to the RTPC Program. First, he is Director of the Rochester CTSA’s Education, Training, and Career Development Key Function which supports the three Masters Programs relevant to clinical research. Second, he is a member of the Department which offers the Masters Degrees and PhD in Epidemiology Degree. Third, he directs the Rochester Prevention Research Center funded by the Centers for Disease Control which focuses on health
disparities in an underserved minority group, deaf persons. Finally, as Senior Associate Dean for Clinical Research, he directs the Office for Clinical Research which organizes and coordinates clinical research on an institutional basis. Dr. Pearson intends to commit at least 10% effort to the administration of this training program, supported by his endowed chair and his role in the CTSA Program.

3. a. 2. Program Co-Director – Dr. Susan Fisher.

Susan Gross Fisher, RN, PhD, is Professor (with tenure) and Chair of the Department of Community and Preventive Medicine at the University of Rochester. After beginning her career as a registered nurse, she proceeded to earn a masters degree in biostatistics from Georgetown University and then her PhD in Epidemiology from the University of Illinois at Chicago. She has served as a biostatistician at the NIH Clinical Center in Bethesda and at the Department of Veterans Affairs Cooperative Studies Coordinating Center in Illinois. She also served as Assistant Chief of that Coordinating Center. She has served as Assistant Professor and Director of Biostatistical Education at Loyola University Medical Center, before joining the URMC in 2001. She was named Professor in 2007 and Chair in 2008. As Director of the PhD Program in Epidemiology, she will be responsible for the predoctoral training program, requiring approximately 5% effort.

Research Experience. Dr. Fisher's research focuses on the investigation of strategies to improve the primary prevention and early detection of cancer in the community. She has completed studies related to the participation of minority women in cancer control trials and to factors associated with health behaviors of women at high risk of hereditary breast cancer. Related to her strong interest in cancer etiology, particularly in virally-induced malignancies, her research has included cervical, gastric, respiratory, and hematologic cancers. She currently holds an R01 from NCI to study the etiology of lymphoma and serves as Senior Epidemiologist on a SPORE grant to establish a center of excellence in lymphoma research. Dr. Fisher has also been involved in the development and conduct of several multi-institutional clinical trials. She maintains a strong interest in methodologic issues related to the planning, implementation, and analysis of clinical investigations. She has directed her efforts toward integrating these epidemiologic and biostatistical concepts into a comprehensive ‘evidence-based medicine’ approach to medical education.

Research Training Experience. Dr. Fisher has mentored 16 pre-doctoral, post-doctoral and junior faculty trainees. More significantly, Dr. Fisher planned and executed the initiation of the PhD program in Epidemiology at the DCPM. Under her leadership, previously existing courses in epidemiology have been strengthened and eight new courses in advanced epidemiological methods have been developed and implemented. Dr. Fisher’s successful experience with the PhD program will be applied to the RTPC Program to expand the pre-doctoral component.

Research Administration. As Chair of the Department of Community and Preventive Medicine, Dr. Fisher is uniquely positioned to provide leadership to the RTPC Program. She served as interim Program Director during Dr. Pearson's sabbatical leave. She serves as both a Basic Science Chair and Clinical Chair within URMC. DCPM sponsors all the degrees provided by both predoctoral and postdoctoral components of this training program. Dr. Fisher has also recently completed the ELAM Program, a nationally competitive program to enhance leadership potential in women in academia.

3. a. 3. Program Co-Director – Dr. Robert Block.

Robert Block, MD, MPH is Assistant Professor of Community and Preventive Medicine. He directs the Preventive Cardiology Journal Club and assists in the identification of candidates for predoctoral and postdoctoral training positions. As part of his Departmental teaching responsibilities, Dr. Block will spend approximately 5% effort on this Program.

Research Experience. Dr. Block is a graduate of this training program with an MPH (Clinical Investigation Track) in 2006. His research interest is in lipidomics – the role of lipids in human health and disease. He currently holds a KL2 Career Development Award and is Principal Investigator of a Novel Methodology Development Grant, a GCRC Pilot Study Grant, all from the Rochester CTSA, as well as a Pilot Study Award from the Upstate NY Translational Research Network. He is the 2008 recipient of the Sandra Daugherty Young Investigator Award from the American Heart Association Council on Epidemiology and Prevention.

Research Training Experience. Dr. Block has directed or co-directed the course: Epidemiology of Cardiovascular Disease for the past three years and the Preventive Cardiology Journal Club for the past two years. He also lectures in related courses in the MD curriculum.

3. a. 4. Program Evaluator – Dr. Camille Martina.
Dr. Martina is Research Assistant Professor of Community and Preventive Medicine. She has a PhD in Education from the Warner School of Education at the University of Rochester. She currently serves as educational evaluator for the Educational, Training, and Career Development Key Function of the Rochester CTSA and the educational programs of the Rochester Prevention Research Center. She will oversee the evaluation of this training program (See section 3.d), as part of her responsibilities for the CTSA Program.

3.a.5(a). Administrative Structure and Management

The organizational chart (Figure 3) illustrates the administrative structure of the RTPC Program. The day-to-day activities of the RTPC Program will be managed by a Program Management Team, made up of the Program Director, the Program Co-Directors, Program Evaluator and a Program Coordinator. The team will be responsible for recruitment, preliminary review of applications to the program for the purpose of determining eligibility and suitability for the program, ensuring that trainees are appropriately linked with mentors (see below), monitoring trainee progress through the program, and taking action to ensure adequate trainee progress where appropriate. The Team will prepare progress reports and other required documents. It will also oversee record-keeping and other administrative functions. The team will meet monthly throughout the year, and more frequently as needed.

Figure 3: Organizational Chart

3.a.5(b). External Advisory Committee.

An External Advisory Committee of distinguished experts in cardiology and preventive cardiology will provide advice and guidance to the program, and bring a broad perspective to its operations. Committee members, their titles and institutions are listed in Table B below. Each member has provided a letter of support (See Section 15). The multidisciplinary nature of the group will help ensure that the Program is advised about a broad spectrum of issues and approaches in preventive cardiology research. In the past, Committee members have assisted trainees with their research (Drs. Taylor and Tracy) and play important roles in our efforts to recruit a diverse group of trainees. The Committee will meet in person once per year, and if necessary will engage in conference calls at other times.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
</table>
| Diane Becker, RN ScD   | Director, Johns Hopkins Center for Health Promotion  
Professor of Medicine | Johns Hopkins University             |
| Elizabeth Ofili, MD    | Chief of Cardiology  
Co-Principal Investigator, Atlanta CTSA  
Director of the Center for Research Excellence | Morehouse School of Medicine        |
| Herman Taylor, MD, MPH | Director, Jackson Heart Study  
Professor of Medicine | University of Mississippi           |
| Russell Tracy, MD      | Senior Associate Dean of Research and Academic Affairs  
Professor of Pathology and Biochemistry | University of Vermont               |

3.a.5(c). Internal Advisory Committee.

An Internal Advisory Committee will be responsible for final decisions regarding applications for admission to the program, for monitoring program quality and progress toward recruiting goals, and will suggest program refinements where appropriate to ensure attainment of goals and standards. The Program
Director and Co-Directors are ex-officio members of the Committee. Other members have been drawn from the ranks of the mentors who support the program. Two considerations underlie the selection of Committee members. First, the make-up of the Committee intentionally reflects the RTPC’s five clinical research program areas. Drs. Lowenstein, Moss and Zareba are translational researchers. Drs. Moss, Zareba and Fisher are experts in clinical trials. Drs. Fisher and Pearson are accomplished epidemiology researchers. Dr. Noyes’ specialty is health services research. Finally, Dr. Ossip is an expert in behavioral sciences. The multidisciplinary background of the Committee is intended to ensure that the Program remains solidly connected to faculty throughout the institution that are experts in a diversity of disciplines relevant to its purposes, and that the multidisciplinary interests of incoming fellows will be encouraged and supported.

The second consideration is to include leaders of key teaching and research programs within the institution that will support the RTPC Program. Accordingly, Dr. Pearson is Senior Associate Dean for Clinical Research, Director for the Rochester Clinical and Translational Science Institute and the Rochester Prevention Research Center. Dr. Fisher is the Chair of DCPM and the Director of the PhD Program in Epidemiology. Dr. Chin is the Director of the Masters program. Dr. Lowenstein is the new Chief of the Division of Cardiology. Dr. Noyes directs the division of Health Services Research in DCPM. Dr. Ossip directs the Division of Social and Behavioral Medicine in DCPM. Bringing together these leaders through this Committee will ensure that the RTPC Program, the supporting degree programs, and institutional resources operate with a common purpose.

3.a.5(d). Institutional Support.

The RTPC Program has full support of David Guzick, MD, PhD, Dean of the School of Medicine and Principal Investigator of the Rochester CTSA (See letter of support). Specifically, he recognizes and credits faculty effort in mentoring trainees. He also acknowledges limited institutional support in appropriate circumstances for additional stipend and other funds for trainees.

3.a.5(e). Research Clusters.

Faculty, laboratories, and other research resources are grouped by discipline into five preventive cardiology research clusters (Table C), consistent with the multidisciplinary emphasis and NHLBI-supported training. Trainees will select a cluster for identifying a mentor and a broad area of concentration, but are encouraged to involve faculty and resources from other clusters as appropriate. The five clusters are:

1. Vascular Biology. Research into the biological bases of normal cardiovascular function and cardiovascular disease lead to important insights regarding prevention and promising research pathways. Faculty at the URMC are engaged in a broad spectrum of such research, from inquiries into the basic cellular mechanisms modulating cardiovascular function, role of inflammation in vascular disease, and studies involving human metabolic syndromes. This cluster presents a valuable opportunity for interested trainees to deepen their understanding of basic mechanisms of cardiovascular disease and perform T1 Translational Research.

2. Behavioral Sciences. Cardiovascular disease often originates in or is amplified by individual and population behaviors. Behavioral science research, therefore, underpins preventive cardiology research. Examples are: research regarding smoking prevention and cessation (an area of expertise among UR researchers), compliance with interventions, and quality of life measures in clinical trials.

3. Cardiovascular Clinical Trials. Promising interventions intended to prevent cardiovascular disease must be tested for safety, efficacy, and effectiveness in clinical and community settings. The Cardiovascular Clinical Trials research cluster will provide trainees with the opportunity to participate in such research, mentored by experts with specific experience testing novel interventions.

4. Epidemiology. Epidemiology seeks to understand the burden, natural history, and causes of disease through rigorous analytical methods. It is one of the basic sciences underlying clinical research by applying epidemiologic methods to population-based studies. Special expertise exists in genomics and nutritional studies.

5. Health Services/Outcomes Research. This field of inquiry examines the use, costs, quality, accessibility, delivery, organization, financing and outcomes of cardiovascular care services in order to increase understanding of the impacts of health services on individuals and populations. An example of this sort of research relevant to preventive cardiology is the cost-effectiveness analysis of the Multicenter Automatic Defibrillator Implantation Trial.
3.B.2 Program Faculty.

The five research clusters originally organized at the time the RTPC program was initiated have stood the test of time as providing a diversity of research interests and competencies. Membership in each cluster has evolved as new faculty have joined the institution or other faculty members have retired or continued their careers elsewhere. Mentors are defined by current external grant funding or experience in training pre- or postdoctoral students in areas relevant to preventive cardiology. Note that some mentors serve multiple clusters. Adding to the depth of each cluster are preceptors who were nominated by department chairs or center directors through a process of research cluster organization to support multidisciplinary career development within URMC. These junior faculty members are recognized experts in their fields, but lack either the grant funding or training experience that would allow their recognition as mentors. Nonetheless, preceptors are recognized by institutional leadership as excellent role models and valued advisors for investigators in training. Indeed, the Program’s future mentors will likely come from these preceptors, as recognized by the NHLBI Supplemental T32 guidelines.

Faculty providing teaching and mentorship in the RTPC include Directors of courses required for the Master’s and PhD Degrees, as well as mentors and preceptors for supervision of the trainees’ research project. As trainees can elect all courses within DCPM Programs, Program Faculty have been limited to faculty in management and advisory committees, and those who serve as mentors or preceptors. The Mentors and Preceptors of the RTPC are listed in Table C, including their % effort per trainee, and their cluster.

The University of Rochester boasts a prestigious group of faculty with proven skills and experience in disciplines relevant to preventive cardiology and with a demonstrated record of developing new independent investigators. The tables included with this application (immediately following this Research Training Program Plan) amply demonstrate the capacity of the faculty to train the next generation of researchers in preventive cardiology. Table 2 provides name, primary appointment, rank, role, and research interests of each mentor. This information demonstrates the depth and diversity of research experience from which trainees will draw. Table 4 provides grant support for each mentor, again organized by cluster. This demonstrates that faculty members have achieved recognition in their careers and will have ongoing research and research resources available for trainees. Table 5 summarizes the training record of each mentor for the previous ten years. Trainees in the Preventive Cardiology Research Training Program have their publications listed in Table 6.
This information demonstrates that faculty have indeed exercised their capacity to train new investigators; and that prior trainees have advanced to successful research careers at prestigious institutions.

3.C Proposed Training
3.C.1. Post-Doctoral Fellowship Program in Preventive Cardiology.
3.C.1.(a) Overview

The components of the postdoctoral fellowship (3 fellows each for two years of training) include didactic coursework leading to a Master’s Degree (MS-TR, MS-CI, MPH), a series of Skill-building Workshops, several seminars and journal clubs, and a mentored research experience. These components constitute the core curriculum that all fellows should complete. This core curriculum, in turn, is based on a series of educational objectives and competencies which are considered essential for the preparation of the competent preventive cardiology researcher. The curriculum, therefore, is based on 25 educational objectives, including 12 knowledge, 9 skill, and 4 attitudinal objectives (Table D), which vary slightly depending on the Master’s Degree Program. Since this curriculum is competency-based, it provides flexibility for fellows from a variety of backgrounds to receive credit for prior courses or experiences, so that time and effort might instead be spent acquiring new knowledge and skills. Each educational objective/competency has a measurable outcome, facilitating evaluation of the fellow’s progress (See section 3.d.). The postdoctoral fellowship continues to emphasize multidisciplinary instruction. An innovation in this proposal is the opportunity to enroll in additional coursework and seminars to fulfill elective requirements in other disciplines relevant to preventive cardiology (e.g. basic science, clinical, or population-based research).

With these refinements and enhancements, a two-year curriculum is again proposed to achieve the Program’s learning objectives, core competencies and measurable outcomes (Table D). Table E shows the trainee’s courses for the three Masters Programs. Note the considerable overlap in Masters Programs in which all trainees complete a core curriculum. Figure 4 illustrates a two-year curriculum for an MSCI Degree with required coursework largely in the first year followed by a mentored research experience, elective coursework, and skill-building workshops in the second year. It must be emphasized that the curriculum is flexible enough to allow required courses to be distributed between Year I and Year II, to accommodate the individual trainee’s mentored research experience. However, it is expected that the fellow matriculating at the beginning of Year I should have met all requirements for the coursework by the end of Year II, if not before.

Table E. Didactic Coursework for Masters Programs

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Semester</th>
<th>MSTR</th>
<th>MSCI</th>
<th>MPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>BST 463: Introduction to Biostatistics</td>
<td>4</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PM 415: Introduction to Epidemiology</td>
<td>3</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pathways to Disease</td>
<td>3</td>
<td>Summer</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BST 525: Introduction to Health Informatics</td>
<td>3</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Introduction to Translational Research Methods</td>
<td>3</td>
<td>I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM 426: Social and Behavioral Medicine</td>
<td>3</td>
<td>I</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PM 421: Introduction to US Healthcare System</td>
<td>3</td>
<td>I</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>I</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PM 410: Introduction to Data Management and SAS</td>
<td>2</td>
<td>II</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BST 464: Statistical Methods for Biomedical Applications</td>
<td>3</td>
<td>II</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>BST 465: Design of Clinical Trials</td>
<td>3</td>
<td>II</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>PM 484: Cost Effectiveness Analysis</td>
<td>4</td>
<td>II</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PM 470: Environmental Health</td>
<td>2</td>
<td>II</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PM 450: Management and Evaluation of Health Services Organizations</td>
<td>3</td>
<td>II</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PM 416: Advanced Epidemiologic Methods</td>
<td>3</td>
<td>II</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PM 418: Cardiovascular Disease Epidemiology and Prevention</td>
<td>3</td>
<td>II</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PM 488: Experimental Therapeutics</td>
<td>4</td>
<td>II</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM 417: Molecular Epidemiology</td>
<td>3</td>
<td>II</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>1-9</td>
<td>II</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Total Credits: 32, 32, 45
Table D. Educational Objectives/Measurable Outcomes for Postdoctoral Program in Preventive Cardiology Research

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Measurable Outcomes</th>
<th>Degree Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Learn the principles and theories which serve as the basis of</td>
<td>1 Completion of Introduction to Biostatistics or equivalent course.</td>
<td>TR  CI  MPH</td>
</tr>
<tr>
<td>2 Understand the ways to measure the distribution of traits and</td>
<td>2 Completion of Principles of Epidemiology or equivalent course.</td>
<td></td>
</tr>
<tr>
<td>3 Be able to design and analyze studies relevant to patient oriented</td>
<td>3 Completion of an Advanced Epidemiology course or equivalent.</td>
<td></td>
</tr>
<tr>
<td>4 Appreciate study designs, settings, and databases available to</td>
<td>4 Completion of Clinical Evaluative Sciences or equivalent course.</td>
<td></td>
</tr>
<tr>
<td>5 Comprehend the concepts underlying the quantitative analysis of</td>
<td>5 Completion of Medical Decision and Cost Effectiveness Analysis or equivalent.</td>
<td></td>
</tr>
<tr>
<td>6 Understand the design and conduct of human experiments.</td>
<td>6 Completion of Clinical Trials or equivalent course.</td>
<td></td>
</tr>
<tr>
<td>7 Identify social and behavioral factors which impact on human health and</td>
<td>7 Completion of Social and Behavioral Medicine or equivalent course.</td>
<td></td>
</tr>
<tr>
<td>8 Know the role of environmental factors in health</td>
<td>8 Completion of Course on Environmental Health</td>
<td></td>
</tr>
<tr>
<td>9 Understand basic pathophysiological mechanisms leading to human disease</td>
<td>9 Completion of Pathophysiology course or equivalent.</td>
<td></td>
</tr>
<tr>
<td>10 Know the theory and application of major new methodologies to measure</td>
<td>10 Completion of Translational Technologies course or equivalent.</td>
<td></td>
</tr>
<tr>
<td>11 Appreciate the development and evaluation of therapies for treatment</td>
<td>11 Completion of course in Experimental Therapeutics or equivalent.</td>
<td></td>
</tr>
<tr>
<td>12 Understand the structure and function of the U.S. Healthcare System</td>
<td>12 Completion of course on U.S. Healthcare System</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skill</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 a. Identify a hypothesis, select the appropriate dataset or collect</td>
<td>1 a. Carry out a clinical research project under the supervision of a mentor or</td>
<td>TR  CI  MPH</td>
</tr>
<tr>
<td>data to test the hypothesis.</td>
<td>mentorial committee, including proposal development, data collection, data</td>
<td></td>
</tr>
<tr>
<td>2 b. Perform appropriate statistical tests of the hypothesis.</td>
<td>analysis, and data analysis.</td>
<td></td>
</tr>
<tr>
<td>3 c. Acknowledge and be able to use resources for evaluation of a</td>
<td>2 b. Carry out hypothesis test within pre-existing data set.</td>
<td></td>
</tr>
<tr>
<td>diagnostic and therapeutic agent.</td>
<td>3 c. In Experimental Therapeutics course, develop protocol for</td>
<td></td>
</tr>
<tr>
<td>2 Use multiple types and sources of medical informatics to facilitate</td>
<td>evaluation of a diagnostic and therapeutic agent.</td>
<td></td>
</tr>
<tr>
<td>research.</td>
<td>2 c. Completion of Bioinformatics course or equivalent.</td>
<td></td>
</tr>
<tr>
<td>3 Use database management and statistical software to organize and analyze data.</td>
<td>3 Analysis of trainees' data using computers with SAS or equivalent software under supervision.</td>
<td></td>
</tr>
<tr>
<td>4 Gain skills in communicating results of research in abstract and</td>
<td>4 a. Write and submit at least two abstracts of trainees' work to regional/national meetings.</td>
<td></td>
</tr>
<tr>
<td>presentation forms.</td>
<td>4 b. Present research findings at a minimum of one Clinical Research Seminar or</td>
<td></td>
</tr>
<tr>
<td>5 Acquire skills in writing and critiquing research manuscripts.</td>
<td>Departmental Research Conference.</td>
<td></td>
</tr>
<tr>
<td>6 Develop abilities in writing and critiquing of research grant</td>
<td>5 a. Critique at least one manuscript submitted to mentor or advisor for review.</td>
<td></td>
</tr>
<tr>
<td>proposals.</td>
<td>5 b. Publish at least two manuscripts in peer-reviewed journals within two years of training.</td>
<td></td>
</tr>
<tr>
<td>7 Manage the fiscal, personnel, facilities and regulatory assets of a</td>
<td>6 a. Write at least one complete research grant suitable for submission.</td>
<td></td>
</tr>
<tr>
<td>funded clinical research program.</td>
<td>6 b. Critique at least one research grant and write-up comments for peer review.</td>
<td></td>
</tr>
<tr>
<td>8 Identify institutional resources needed to carry out high quality</td>
<td>7 Complete a Clinical Research Skills workshop on Research Project Management and receive a Research Project Administration Compliance Number.</td>
<td></td>
</tr>
<tr>
<td>research.</td>
<td>8 Use the Clinical Research Resource Inventory to identify and access collaborative resources available for clinical research.</td>
<td></td>
</tr>
<tr>
<td>9 Develop abilities to manage and evaluate a Health Service Organization</td>
<td>9 Completion of course on Health Service Organization Management</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitudes</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Appreciate ethical issues involved with research in human subjects.</td>
<td>1 a. Completion of Ethics and Professional Integrity in Research Workshop.</td>
<td>TR  CI  MPH</td>
</tr>
<tr>
<td>2 Understand the regulations and rationale for inclusion of women,</td>
<td>1 b. Complete instruction on protection of human subjects in research to qualify for an HSPP Number.</td>
<td></td>
</tr>
<tr>
<td>minorities, and children research.</td>
<td>1 c. Completion of IRB application and section in research grant application.</td>
<td></td>
</tr>
<tr>
<td>3 Comprehend the types of clinical research which offer career</td>
<td>2 a. Completion of Clinical Research Skills Workshop on Recruitment and Retention of Research Subjects.</td>
<td></td>
</tr>
<tr>
<td>opportunities.</td>
<td>2 b. Completion of section of research grant application on inclusiveness.</td>
<td></td>
</tr>
<tr>
<td>4 Appreciate the opportunities and challenges of multidisciplinary</td>
<td>3 Completion of field visits to observe research in each of five types of clinical and translational research.</td>
<td></td>
</tr>
<tr>
<td>research involving two or more basic, clinical, or population sciences.</td>
<td>4 Inclusion of two or more disciplines as mentors or members of the MPH-CI Thesis committee.</td>
<td></td>
</tr>
</tbody>
</table>
The fellow will usually enter the Program in July or August, having applied the previous Spring (Figure 4). Some flexibility for newly arrived fellows and faculty is built in to the orientation to DCPM Programs and Research Mentors. A three-week workshop introduces the trainee to clinical research at URMC. A series of visits to local Clinical Research Resources and mentors will complete the orientation. During this time, the Trainee is encouraged to: 1) explore research opportunities using our Clinical Research Resource Inventory, 2) to develop an area for research focus and 3) to identify potential research mentors. During the first semester of Year I, a series of courses required for the Master’s Degree may be taken. Complementing these courses, a mandatory 6 week module on Ethics and Professional Integrity in Research (IND 503) can be taken in September - October of Year I. A 12-week RCRC workshop, taken in the first semester and dovetailing with the Ethics Workshop, is entitled: “Recruitment and Retention of Research Subjects”. During the second semester of Year I, additional required courses and elective courses can be taken.

This curriculum is consistent with NHLBI Programmatic Emphases for multidisciplinary training, inclusion of necessary competencies, while retaining flexibility to meet trainee’s individual needs.

**Figure 4: Month-by-Month Course of Study / Master of Science – Clinical Investigation, RTPC Program**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
</table>

**LEGEND:**
- **Required for MS in Clinical Investigation (MS-CI) Only**
- **Required for both Rochester Clinical Research Curriculum (RCRC) and MS-CI**
- **Required for RCRC Only**

This coursework is complemented by the RCRC Workshop for Scientific Communication to train fellows to present scientific work effectively. From September through May, a Clinical Research Seminar Series will be held weekly and a Preventive Cardiology Journal Club will be held monthly. The summer months of Year II will be spent on the mentored research project. Year 2 can be used for mentored research or for up to 2 elective courses relevant to the trainee. RCRC workshops continue, with a unique workshop: “Technology Transfer/Working with Industry” offered in the first semester. In Semester 2 of Year 2, the RCRC Workshop, “Practical Skills in Grant Writing,” provides the opportunity for the trainee to write a grant application as a culminating experience. The Master’s Project will be presented in a Seminar in Year 1 or 2. In Year 2, the fellow is expected to attend the weekly Clinical Research Seminar and monthly Preventive Cardiology Journal Clubs. While this is the usual sequence of didactic training, trainees with special timelines or needs can, with permission of their mentors and the Program Director, take courses and workshops at other points in their curriculum.
3.c.(1)(b). Didactic Coursework for the Postdoctoral Program

(a) Introduction

The postdoctoral fellow will be required to complete didactic courses listed in Table E, the RCRC Skill-building Workshops, and the majority of the Clinical Research Seminars and Preventive Cardiology Journal Clubs. Since the curriculum is competency-based, trainees with prior credentials or experience in specific areas may have the requirements for courses or workshops waived, with consent of the Program Director and mentor. This curriculum can be completed on a full time basis in one year, as illustrated in Figure 4, or part time over the two years to provide flexibility in coordination with the mentored research experience. The courses are clustered in time, when possible, to free up blocks of time for study or research.

(b) Required Courses for Masters Degree Program

Course syllabi for all courses required for the RTPC Program are enclosed in Appendix I. The content of the courses and their role in the training program will be briefly summarized here.

1) Principles of Epidemiology (PM415). Faculty: D. Fernandez, MD, PhD. This course provides an introduction to epidemiologic concepts of disease, and discusses population-based aspects of disease and its transmission, morbidity and mortality statistics, basic study designs (cross-sectional, case-control, cohort and clinical trials), and the use of epidemiologic data to draw conclusions about disease causation. At the end of the course, trainees should have a broad view of denominator-based medicine and be prepared for higher-level courses in epidemiologic methods.

2) Introduction to Biostatistics (BST463). Course Director: Christopher Beck, MA, PhD. This course provides basic statistical and data-analytic methods in clinical research. Topics include summarizing and displaying data, elements of probability, estimation, confidence intervals, hypothesis tests, methods for comparing means and proportions, and regression analysis. The course is strongly user-oriented, stressing practical understanding and interpretation.

3) Social and Behavioral Medicine (PM 426). Faculty: D. Ossip, PhD, N. Chin, PhD. Topics covered are the associations between health and social stratification; income inequality; race, gender, and social networks; the diffusion of medical innovations; doctor-patient relationship; international health; health-seeking behavior. The course emphasizes the acquired nature of human disease and opportunities for disease prevention and treatment by modification of behaviors of individuals and social groups.

4) Advanced Statistics Course. The fellows will complete one of the two courses in advanced statistics. Each trainee will therefore have a second semester of biostatistics with a focus on the application most likely used in their careers.

   a) Statistical Methods for Biomedical Applications (BST 464). Director: S. Thurston, PhD. Content includes: statistical analysis of clinical trials and observational studies, analysis of covariance, multiple regression, logistic regression, log-linear analysis, and survival analysis (Kaplan-Meier curves and the Cox models), and measurement error.

   b) Design of Clinical Trials (BST 465). Director: M. McDermott, PhD. This course focuses on design, conduct, and analysis of clinical trials. This includes sample size, power, and randomization, as well as coordination, data management, compliance, interim analysis, and reporting procedures in clinical trials.

5) Cost Effectiveness Research (PM 484). Faculty: R. Holloway, MD, K. Noyes, PhD. Decision analysis is increasingly used to evaluate alternative choices in clinical practice and to enlighten and inform health policy determinations. In this course, trainees will be introduced to the concepts underlying the quantitative analysis of medical decisions. They will be provided with the basis to understand decision and cost-effectiveness analyses.

6) Introduction to the US Health Care System (PM 421). Director: H. Tempkin-Greener, PhD. This course is intended to provide an overview of the US health care system. This includes a description of the major components such as hospitals, physicians, managed care plans and long term care institutions; finance and reimbursement processes such as DRGs and RBRVUs; and system outcomes such as quality and access.

7) Public Health & the Environment (PM 470). Director: J. Tacci, MD, JD, MPH. The objective of this course is to present an overview of public health issues that are associated with the environment. Fellows complete an abbreviated version of a larger course which includes weekly field trips to environmental control facilities.

8) Management and Evaluation of Health Services Organizations (PM 450). Course Director: Thomas Toole, MBA. This course provides an understanding of executive level management and leadership
in non-profit health and human services organizations. In addition, fellows study organizational context, program design and implementation, and the evaluation of health services.

9) Pathways to Disease (PTH 509/510). Course Director: Therese Wiedmer. This course provides an overview of the biological basis for disease, reviewing the pathophysiological mechanisms that need to be understood for translational research.

10) Introduction to Translational Research Methods. Course Director: Stephen Welle, PhD. Contemporary methods to measure biologic parameters important in translational research will be described, including genomics, proteomics, biomedical imaging, etc.

11) Experimental Therapeutics. Director: K. Kieburtz, MD, MPH. This course describes the scientific basis for drug development, testing for safety and efficacy, and the regulation of drug approvals.

12) PM 416: Advanced Epidemiologic Methods. Director: S. Fisher, PhD. This course provides coverage of quantitative methodologic issues associated with epidemiologic research, including study design, data collection, confounding, and multivariate analytic techniques.

13) PM 418: Cardiovascular Disease Epidemiology and Prevention. Director: R. Block, MD, MPH. This course provides a comprehensive overview of cardiovascular epidemiology and prevention including epidemiology of major cardiovascular diseases (including stroke), the cardiovascular risk factors, preventive therapeutics and clinical trials supporting their use, genomics, etc.

14) BST 525: Introduction to Health Informatics. Director: D. Wang, PhD. This course describes various sources for health information and their potential uses in biomedical research.

15) PM 417: Molecular Epidemiology. Director: J. Adams, MD, MPH. This course describes the measurement of increasingly powerful molecular markers of exposure, disease, and susceptibility that may be related to disease, etiology and prognosis, including biomarkers and genomics.

3.c(1)(c) Skill-Building Workshops

The didactic coursework forms the core of instruction on the theory and methods of preventive cardiology, yet that didactic component is considered necessary but not sufficient to assure productivity in the researcher. There remain a number of competencies required for success which cannot be assumed in the mentor-mentee relationship nor do they lend themselves to a theoretical or methods-oriented course, or “survival skills” as referred to in NHLBI Programtic Emphases. To rectify this, a two year long sequence of 8 skill-building workshops and seminars is provided (Figure 4). The workshops are generally scheduled each week at times convenient for those with laboratory or clinical responsibilities (e.g. 4-6 pm). A new workshop, Community Engagement, is now available online through the CTSA program. Syllabi are in Appendix II.

a. Introduction to Clinical Research (Summer, Year I). Director: T. Pearson, MD, MPH, PhD. This series constitutes 3 two-hour seminars which introduce the trainees to clinical research at URMC. For part of each session, the Program Director will meet with each fellow to plan his/her curriculum, including required and elective courses, mentor, topic of research project, and other information. The Clinical Research Resource Inventory will be used to identify resources and mentors.

b. Ethics and Professional Integrity in Research (IND 503). July-August of Year I. Course Director: Gary Chadwick, PharmD. This six-week workshop is required of all postdoctoral clinical research trainees at the University of Rochester. This course covers a broad range of topics and issues related to professional standards of conduct, including: human subjects in Research, conflict of interest, academic honesty and misconduct in scholarship, data management, responsible authorship and intellectual property. This workshop should be completed by the end of Semester 1 in Year I, and is the initiation of the trainee to Instruction on the Responsible Conduct of Research. Fellows conducting research involving laboratory animals may take IND 501 instead (See Section 5 for entire Plan).

c. Workshop on Recruitment and Retention of Research Subjects. Instructor: A. Dozier, RN, PhD. (Semester 1, Year I). This fourteen week workshop is designed to follow the Ethics and Professional Integrity in Research workshop and focuses on strategies to recruit and retain subjects known to be “hard to recruit”, such as individuals from disenfranchised communities, the elderly, etc. This workshop is part of the trainee’s Instruction on the Responsible Conduct of Research (see Section 5).

d. Workshop in Scientific Communication. Instructor: Shanti Sharma, PhD. (Semester 2, Year I). This workshop series addresses the principal elements of scientific presentation and communication such as: abstract preparation, poster development, Power Point instruction, manuscript writing and critique, oral
presentations, working with the media/public relations. At the end of this series, the trainee should be able to prepare and present his/her results in written, visual, and oral form clearly and concisely.

e. Workshop in Technology Transfer/Working with Industry. Instructor: Marjorie Hunter, JD, Director of the Office of Technology Transfer. (Semester 1, Year II). This workshop is a joint effort by the Office of Technology Transfer and the Rochester CTSA, with its overall goal to introduce trainees and faculty to the relationships between the university-based research and private industry. This 11-week workshop will explore a number of issues to prepare the university-based researcher for productive interactions with industry, consistent with NHLBI Programmatic Emphases for involvement of industry.

f. Practical Skills in Grant Writing (PM438). Faculty: T. Pearson, MD, PhD, two other faculty (rotating). (Semester 2, Year II). This 16 week workshop instructs the trainee in the types and sources of research support, the procedures by which applications are reviewed, the structure of a research proposal, clear organization and communication of research ideas, development of budgets and resources, and the critique of a proposal. As of 2009, it will also be web-archived for trainee use. Trainees will write a research grant application using NIH Form 398 with the assistance of their research mentor. Each trainee will present their applications to the group, and also review and prepare a critique of another trainee's application. Each application will also be reviewed by two other faculty members and a peer for strengths and weaknesses. At the end of this course, the trainee will know how a research grant application is constructed and reviewed, will have skills in writing an actual proposal, and will have a broad range of constructive comments on that initial proposal. Experience with this course shows that most of the proposals are eventually submitted to funding agencies, and many have been funded).

g. Workshop on Research Program Administration. Instructors: G. Liders and S. Griffin-Roth (Semester 2, Year II). Federal Agencies require compliance with federal regulations regarding clinical research and use of federal funds. The Workshop is planned to 1) educate and certify trainees as to their knowledge of federal regulations regarding research and 2) provide practical skills regarding the post award management of the financial, human resources, facilities, and regulatory aspects of a federally funded research project.

h. Workshop on Community-Based Participatory Research. Instructor: Noelle Andrus, PhD. This seminar teaches the principles of community-based participatory research to improve the trainee’s skills and cultural competence in engaging diverse communities in research projects.

3.c.(1)(d). Seminars, Journal Clubs, and Other Educational Opportunities for Postdoctoral Fellows
The URMC and the Department of Community and Preventive Medicine have extensive series of seminars, informal discussions, visiting lectureships, etc. The fellow is encouraged to attend these. Three seminars are required for postdoctoral trainees: Clinical/Translational Research Seminar Series, Preventive Cardiology Journal Club, and the Departmental Seminar in DCPM. Additional courses can be accessed from the National CTSA Education Resource Program.

a) Clinical Research Seminar Series
This series of research seminars has several purposes. First, it brings together mentors and trainees from diverse fields and disciplines within the URMC. Second, there should be mechanisms by which new technologies, especially those in the basic sciences, are introduced to clinical researchers. Third, it is essential that there be a forum for outstanding clinical researchers to be brought to the University of Rochester to not only share the newest advances in clinical research theory and methods, but also to serve as additional role models for trainees. With these purposes in mind, the Clinical Research Seminar has been successfully held Tuesdays from 12:15 to 1:30 for approximately 36 weeks per year. Eminent clinical researchers from within the University as well as from U.S. and International institutions have presented. Over the course of a year, this seminar provides trainees with a broad exposure to clinical research topics and role models (See 2008-9 Schedule in Appendix III).

b) Preventive Cardiology Journal Club
This monthly meeting is organized by Robert Block, MD, MPH. On a rotating basis, a fellow selects a journal of his/her interest and distributes it to fellows and faculty. The fellow then leads a discussion of the issues/methods/implications which follow. These sessions have been held during the noon hour, but other venues are being considered (e.g. dinner meetings). A list of discussed papers for 2007-8 is provided in Appendix III.
c) Departmental Seminars in Community and Preventive Medicine/Grand Rounds in Public Health
As trainees in DCPM, the postdoctoral fellows will be expected to attend the weekly Departmental Seminar. The series is held weekly on Fridays from 12:00 to 1:15. A list of speakers and presentation topics for 2008-9 is attached in Appendix III.
The Rochester CTSA Program received a supplement from the NCRR in October, 2008 to create the NCERP (T. Pearson is Project Director). The goal of this program is organize and make accessible a variety of educational modules from the 38 CTSA Programs and from NIH Institutes and Centers which could enrich clinical/translational trainees’ career development programs. The modules targeted by the NCERP are not of a core curriculum as previously described, but rather specialized educational modules that an institution has special strengths in. The modules may have a variety of formats and media. The NCERP makes these available to CTSA institutions’ trainees, including RTPC fellows. Funds are also available to bring in visiting professors to teach courses or to send trainees to external institutions to participate in an educational module not available at their own institution. The program is currently under development with full operation expected in mid 2009. The NCERP is consistent with the NHLBI Programmatic Emphases to develop “virtual” research training centers linking multiple institutions with unique expertise.

3.c.(1)(d). Mentored Research Experience:
a) Selection of Research Mentor.
In the first few months of the training period, each preventive cardiology postdoctoral fellow will participate in the RCRC orientation sessions. Also during this time, the Program Director will meet with the three new fellows to describe opportunities within the program. Fellows will be encouraged to visit additional faculty members identified as mentors or preceptors (Table C). Often, the fellow already has identified a mentor (or the mentor has referred the fellow to our program). Nonetheless, a broad view of the mentors available should allow the trainee to select core-mentors or other preceptors on a mentoring committee.

The trainee will meet with the Program Director and one or both Co-Directors to select a research mentor. If selected already, the mentor will be invited to this meeting. The mentor will be encouraged to participate in our Mentor Development Program (see below). Change in mentors can be arranged within the first year of the Program, but by the end of Year I, the trainee and mentor should be well along in defining the research project, if not already conducting the research.
b) Expectations of the Mentored Research Project.
It is important that the scope of the mentored research project be of the quality and novelty as to merit publication in a peer reviewed journal, but also feasible so as to be completed within the two year training period. The trainee will select a scholarly project with these parameters in mind. The trainee will identify a Master’s Thesis Committee consisting of a chair and two other members. The Chair is generally from DCPM. The other two can include the mentor or other faculty mentors and preceptors. Under advisement of their mentor and this Committee, the trainee then prepares a formal written Master’s Degree proposal for a research project, including a written abstract, hypothesis, significance, brief literature review, methodology, and limitations. Once approved by this Committee, it is presented to the Department as an MPH Research Proposal Seminar, open to all faculty and students. The Committee will then provide approval for the trainee to continue their mentored research projects, culminating in a research report.

The Master’s Research Project must be the work of the trainee, i.e. the trainee should have researched the literature, conducted all data analysis, formulated the results, and written the paper. For purposes of completing the requirements for the Master’s Degree, the trainees should prepare a research paper describing the research. This paper either should be accepted for publication in a peer-reviewed journal or otherwise satisfy the Master’s Thesis Committee members that the paper is of sufficient quality as to be acceptable for publication.

3.c.(1)(f). Other Activities
a) Interactions with Basic Scientists
Incorporated into the Training Program are several opportunities to interact with basic biomedical scientists. First, all postdoctoral trainees will participate in the orientation in August, which describes basic science resources at URMC. Trainees are encouraged to participate in basic research seminars in the Center for Cardiovascular Research and the Division of Cardiology in the School of Medicine.
Third, elective coursework in basic science-oriented courses is feasible (See Table E). All these should broaden the scope of interest and capabilities consistent with NHLBI Programmatic Emphases.

b) Clinical Preventive Cardiology Opportunities

Postdoctoral fellows who desire limited clinical training and/or bedside teaching in preventive cardiology can elect to attend the Strong Preventive Cardiology Clinic held each Thursday, 8:00 a.m. – 12 noon. Dr. Pearson is the attending physician. This busy clinic emphasizes the assessment of patients’ risk factors and risk, the consideration of the etiology of the patients’ cardiovascular disease, modification of lifestyle behaviors, and evidence-based pharmacologic management for risk factor modification and cardiovascular risk reduction. The clinic is held in the Strong Heart Program, a cardiac rehabilitation program. In general, clinical activities are limited to one half-day clinic per week for those clinicians who wish to maintain their clinical skills.

c) Teaching Opportunities

Postdoctoral fellows are provided the opportunity to serve as discussion group leaders or teaching assistants in relevant courses in the Medical and Graduate Schools, but not to the extent to interfere with coursework or mentored research. A popular opportunity is service as a Problem-based Learning Tutor for the Mastering Medical Informatics Course (directed by Dr. Fisher). Their teaching is linked to 3 two hour seminars a week for 4 weeks, in a course of epidemiology and biostatistics for 1st year medical students. Other teaching opportunities are available upon request.

3.c.(2) Pre-Doctoral Training Program: PhD Program in Cardiovascular Epidemiology

The RTPC Program proposes in this renewal to slightly enlarge its predoctoral training program. This takes advantage of both the curriculum already developed in the postdoctoral program as well as a successful PhD Program in Epidemiology within DCPM. Previously, only one predoctoral student at a time was supported. We propose to support one new student each year. The pre-doctoral training program will support an approximately four-year course of study and research leading to a PhD in Epidemiology. Trainees will focus their studies on the epidemiology of cardiovascular disease, and their research on a particular aspect of this subject. Support is requested for 1 new trainee per year for a four-year period of support. One trainee will begin in year 1 of the award period, and a second will begin in year 2. A third will begin in the third year of the period, etc. so that at steady state, four predoctoral students would be supported. The rationale for this expansion is the improved efficiency of recruiting a predoctoral candidate each year as well as confidence in ability to recruit a highly-qualified candidate each year. The predoctoral training program consists of six components: didactic coursework, skill-building workshops, “laboratory” rotations, seminars and journal clubs, teaching assistantships, and dissertation research.

3.c.(2)(a). Didactic Coursework

Students will complete a minimum of 60 credits of formal coursework. Coursework will provide the student with skills in the full spectrum of advanced epidemiologic methods, and also the opportunity to focus on cardiovascular disease epidemiology, one of five areas of concentration already available to students. Students will be required to take the course – PM 418: Cardiovascular Disease Epidemiology and Prevention (See Syllabus in Appendix I). Students will generally complete their coursework within two years. After completion of 55 credits, students will be required to pass written and oral qualifying examinations. Table A in Section 2.e lists program requirements. Table F. Elective Courses

Many of the required courses listed in Table A (Section 2.e) have been described with the postdoctoral program. The PhD Program in
addition contains another year of didactic courses emphasizing epidemiologic and statistical methods. These are briefly described here. Students are strongly encouraged to take at least one elective course in basic sciences other than epidemiology, and additional electives in advanced epidemiology. A subset of available electives, relevant to epidemiology and preventive cardiology, is provided below in Table F. The didactic curriculum for the PhD Program in Epidemiology is provided below with required and elective courses specified by semester. Course descriptions are provided with the exception of courses previously described for the Postdoctoral Program (All syllabi in Appendix I).

Year 1, Semester 1
(1) History of Epidemiology (PM 414). Faculty: J. Adams, MD, MPH. This course introduces the student to the growth and development of epidemiology as a basic science, emphasizing the integration of epidemiologic methods with intellectual, social, political and technological progress over time.
(2) Introduction to Epidemiology (PM415). Faculty: D. Fernandez, M.D., Ph.D., S. Fisher, Ph.D.
(3) Introduction to Biostatistics (BST 463) Director: Christopher Beck, MA, PhD.
(4) Introduction to Data Management & SAS (PM 410). Director: J. Guido, M.S. This course will present a thorough introduction to the SAS system for data management, statistical analysis, and reporting. Students learn hands-on skills for data manipulation and statistical programming.
(5) ElectiveYear 1, Semester 2
(6) Statistical Methods (BST 464). Director: S. Thurston, Ph.D.
(7) Epidemiologic Methods (PM 416). Director: S. Fisher, Ph.D. This course provides an in-depth coverage of the quantitative methodologic issues associated with population-based epidemiologic research. Topics emphasized include: analytic techniques to address confounding and effect modification, multivariate logistic regression, survival analysis and Cox proportional hazards modeling. Two major analysis projects are included in the course requirements.
(8) Survey Research (PM 412). Director: S. McIntosh, Ph.D. This course provides an overview of the role of survey methods and tools in the research process, with a particular focus on survey research applications in heath care research and epidemiology. Students participate in all stages of the survey process from instrument development to pilot testing.
(9) Advanced SAS (PM 477 ). Director: J. Guido, M.S. This course prepares students to conduct advanced statistical analyses using SAS programming language. File manipulation, creation of new variables, and coding nuances are emphasized for the proper conduct of multivariate analyses including generalized linear models, logistic regression, and survival analysis.
(10) Nutritional Epidemiology (PM 442). Director: D. Fernandez, MD, Ph.D. In this course students participate in a detailed review of the nutritional epidemiologic literature as a basis for advanced discussions related to the conduct of observational studies of diet, nutrition and disease in the U.S. as well as globally.

Year 2, Semester 1
(11) Measurement & Evaluation of Research Instruments (PM 472). Director: Ronald Rogge, PhD. This course curriculum provides a comprehensive background in the development and testing of research instruments for epidemiologic research purposes. The principles of survey development are reviewed and an advanced comparative analysis of instrument designs and instrument testing techniques is undertaken.
(12) Ethics (IND 503)
(13) Sampling (BST 421). Director: P. Rao, Ph.D. Sampling designs, theories of inference in finite populations, sampling with varying probabilities, stratified and systematic sampling, and multistage sampling are topics included in this course. Analytic methods for sampling and parameter estimation are taught.
(14) Social and Behavioral Medicine (PM 421) Faculty: D. Ossip, Ph.D, and N. Chin, Ph.D.
(15) Elective
Year 2, Semester 2
(16) Field Epidemiology (PM 413). Director: E. van Wijngaarden, Ph.D. Through a series of didactic lectures, examination of case studies, and hands on field work and data analysis, this course explores the application of traditional epidemiologic methods to public health practice. Issues, problems and methodologic approaches relevant to specific topics are addressed. These topics include: outreach and cluster investigations, public health surveillance, risk assessment, screening, cost benefit analysis and public health policy.
(17) Clinical Trials (BST 456) Director: M. McDermott, Ph.D.
(18) Multivariate Models for Epidemiology (PM 469). Director: S. Fisher, Ph.D.
The purpose of this course is to provide the student with a strong understanding of and experience in more advanced quantitative methods for data analysis. Survival analysis with time dependent covariates, ordinal logistic regression, poisson regression, and approaches for model building and diagnostics are presented.

3.b.(2). Skill-building Workshops.
   All trainees are required to complete the Ethics and Professional Integrity in Research course (IND 503). All the Workshops are available to predoctoral trainees, and the Scientific Communication, Recruitment and Retention of Research Subjects, and Practical Skills in Grant Writing are strongly encouraged of all trainees.

   During Years I and II of their program, students have the opportunity to work in ongoing research projects under the supervision of mentors. Typically, this might occur in the summer between Year I and II for a 10 week preceptorship. This provides the trainee with valuable predoctoral experience, allows him or her to evaluate a faculty member for future dissertation mentorship, and provides an opportunity to study a subject perhaps different than that of their dissertation. All the research clusters and mentors might be approached for this opportunity. For example, we previously have established a collaboration with the Jackson Heart Study for a 10 week placement of a student at this study site in Jackson, Mississippi. This population-based longitudinal study of an African American population had just completed patient enrollment. The student identified a topic prior to the preceptorship and worked conjointly with a URMC preceptor (Dr. Pearson) and a scientist at the Jackson Heart Study (Dr. Taylor). Hopefully some students might wish to return and perform their dissertation research there (See Letter of support from Herman Taylor, MD, Director of the JHS).

   Predoctoral Students are welcome at all seminars in URMC. They will be required to attend the Departmental Seminars for DCPM, the MPH Presentations, and the Preventive Cardiology Journal Club, as previously described. In addition, they will attend an Epidemiology Seminar Series held monthly (See Appendix III). This Seminar Series emphasizes the theory and practice of epidemiology and provides a forum for proposed, ongoing, and completed work by faculty and students from the Department and elsewhere.

   Each student is required to serve as a teaching assistant for at least two 3-credit courses within the Epidemiology Program. Each graduate should be comfortable teaching in either small group or lecture formats, as an important skill for their future careers in academic epidemiology.

   As mandated by the University of Rochester Graduate Studies Program, each student must complete 60 credits of dissertation research. Predoctoral trainees in the RTPC Program will be required to select a dissertation topic that deals with the epidemiology or prevention of cardiovascular disease. Primary data collection is a critical requirement for the dissertation research project. The process will begin with selection of a research mentor and organization of a multidisciplinary dissertation committee. The research mentor will serve as Chair of the dissertation committee, and must be an Associate Professor or Professor within the Division of Epidemiology. At least two other committee members must be full-time faculty, at a level of assistant professor or higher, within Community and Preventive Medicine. At least one other member must be a full-time faculty member, again an assistant professor or higher, from outside of Community and Preventive Medicine. RTPC predoctoral trainees will be encouraged to select committee members from Program Faculty (Table C). The trainee must develop a comprehensive thesis proposal and present it formally to his or her dissertation committee. The committee must approve the proposal before work can begin. Before the trainee engages in final defense of his or her methodology and findings, he or she must first present these at a public forum.

3.c.(3) Mentoring Plan.
Enhanced plans for career development of trainees are a major focus of this renewal application. The plan to be used in the RTPC Program is similar to that of the Rochester CTSA. This current Program has been successful in reaching its objectives and goals, and several trainees have established clinical research careers and received external funding through its support (See Section 6). However, the integration of the coursework and mentored research components can be strengthened and standardized through early and recurrent monitoring of trainees plans and progress, and through a program specifically designed to improve the quantity and quality of mentors at the URMC, consistent with NHLBI Programmatic Emphases on mentorship.

3.c.(3)(a) Curriculum Planning and Monitoring

The postdoctoral trainees will meet with the Program Director as part of the Workshop: Introduction to Clinical Research, with an early objective to identify a mentor (or mentors) and to explore an area of research for a career focus. At the beginning of Semester I, Year I, the postdoctoral fellows should have identified a mentor. Shortly thereafter, the Program Director, the trainees, and the mentor should meet to review the Research Career Development Plan including the didactic coursework plan, involvement in possible research projects (see below). These meetings will be repeated to monitor progress at the end of Years I and Year II. This should greatly strengthen and standardize the mentoring that each scholar receives. The Program Director, as Course Director for one of the trainee's final courses, “Practical Skills in Grant Writing”, will be able to follow the final six months of each trainee’s program carefully, as he/she prepares applications for independent research funding.

Predoctoral trainees will meet with Dr. Pearson and Dr. Fisher early in Year I to identify their goals and after each semester of coursework. After Semester 2 of Year I, the predoctoral student should begin to identify a thesis advisor, possibly by working with the mentor in a laboratory rotation. Drs. Pearson and Fisher will meet with the trainee and their mentor at 6-month intervals thereafter to assure progress is being made.

3.c.(3)(b) A Program for Mentor Development at URMC

A new Mentor Committee has been convened by the Rochester CTSA to develop and implement a Mentor Development Program for the URMC. The Committee is Chaired by Denham Ward, MD, PhD, Associate Dean for Faculty Development and Co-Chaired by Vivian Lewis, MD, Associate Dean for Development of Women and Minority Faculty. The overall objective of this Mentor Development Program is to prepare faculty who have been identified as potential Mentors for the mentorial role, so as to improve and standardize the mentoring available to trainees. RTPC faculty will be included in this plan.

Proposed here is a two part Mentor Development Program for use by both mentors and mentees. The first part entails a didactic portion available online describing the components and development of a successful mentor-mentee relationship, including the roles and responsibilities of the mentor and the roles and responsibilities of the mentee. For example, a mentor shall expect to spend about 5% effort per trainee in a Chief Mentor role and 2% per trainee as a co-mentor. The Dean supports this by crediting this activity in the promotion process (See letter of support). The Mentor Development Program has several half or full-day teaching days each year to further the mentoring skills of faculty. The second part will be a Research Career Development Plan (RCDP) as a joint effort of the mentor and mentee. This would be similar to “mentoring contracts” or other agreements used in some institutions. The Research Career Development Plan will include: the trainee’s career development goals and objectives, the trainee’s curriculum vitae, a critical self-appraisal by the trainee of his/her training needs, description of how the mentor or a mentorial committee meets the mentee’s needs and their role in meeting those needs, a two year plan of activities in clinical care (if appropriate), teaching, didactic coursework, other training and skill development, overall research plan, and advice regarding growth within their institution and profession. It is hoped that by developing the RCDP, the mentor will also identify areas in which he or she might approve their own mentoring skills.

The Program Director will request and review the RCDP at the initiation of the mentorship in Year I for both predoctoral and postdoctoral trainees. At the end of Year I, progress being made by each mentor-mentee relationship will be monitored and by meeting together with the mentor and mentee. Midway through Year II, the Program Director will again review the RCDP with the trainee. At the end of Year II, the mentor, trainee, and Program Director will meet to complete the evaluation of the training experience as a whole (See below).
3.d. **Program Evaluation.**

3.d.(1) Evaluation of Didactic Coursework.

Each course and workshop will be evaluated by course participants at the end of the course. Written evaluation forms are distributed in class and submitted to Pattie Kolomic, Graduate Education Coordinator, for summarization. Copies of the evaluation summaries are sent to the Course Director as well as the Chair (Dr. Fisher) and Associate Chair for Education (Dr. Chin). These are used for course improvement or, if necessary, replacement of the Course Director.


The Evaluation Plan will be overseen by Camille Martina, PhD, a new member of the management team. Evaluation of the trainee is facilitated by the establishment of 25 educational objectives and acquired competencies at the beginning of the curriculum (Table D). Each objective has one or more measurable outcomes. At the completion of the Program, each Scholar completes an evaluation form and shares this with the mentor (Appendix IV). Completion of knowledge objectives entails receipt of a grade of A or B for the coursework. Trainee progress is reviewed twice annually and individuals with one course grade less than a B are placed on probation. Receipt of more than one grade below B will result in dismissal or retaking the course for an acceptable grade.

Attainment of skill objectives are monitored by the reporting on the Evaluation Form of the title of the research project, the mentor, publications, presentations, and abstracts, and grant activity (Appendix IV). These are entered into the DCPM Student Database. The attitude objectives are also assessed on the Evaluation Form by completion of workshops.


The DCPM Student Database has been established using the evaluation form at the completion of the program. A curriculum vitae is also collected at that time. Each trainee is contracted on an annual basis, requesting an updated C.V. From this, the following data would be extracted and entered into the database: current position and affiliation, new publications, abstracts, presentations, grants submitted and received, awards and accomplishments. These data will update each trainees’ database. In addition, beginning at the time of completion, the Educational Coordinator will track publications generated since admission through extensive searches of PUBMED. The number of first and coauthored papers will be summarized. One paper per year (if present) will be selected from the journal judged to be most respected and the impact factors of that journal entered into the database. The average impact factors for each trainee will be calculated, along with the number and first authorship of papers. Similarly, the grant activity of each trainee will be requested. The grants submitted and approved as Principal Investigator will be ascertained. The funding rate will be determined and entered into the database along with the number of grants funded as principal and collaborating investigator.

Each trainee’s career development then will be summarized on the existing DCPM Student Database. Outcome measures to be tracked include: continued academic appointment; promotion in position; grant applications submitted, awarded, and funding rate; number of total and first authored publications; and impact factors of best publication. These outcome measures provide some absolute benchmarks that can be agreed upon as evidence for career success following the Training Program.

3.e. **Trainee Candidates.**

3.e.(1) Recruitment of Postdoctoral Candidates.


Experience during the first period of funding has shown that most applicants originate from two sources: residents and postdoctoral fellows in clinical training programs within the URMC, though recent years have identified larger numbers from outside of URMC (Tables 8B, 9B). Extensive advertising in medical journals has yielded only one candidate at high cost. However, the Program has become an asset in recruiting trainees from outside the Medical Center to the University of Rochester. While most candidates appear to be from within the URMC, several of their recruitment to other training programs actually entailed an offer to enroll in the RTPC as an important factor in their decision to come to the University of Rochester. The URMC has a large pool of trainees from which to draw. A total of 656 house officers train in 75 Programs in 17 Clinical Departments. While it is realized that many house officers and fellows have no intention to pursue a research career, this identifies a huge pool from which to recruit and select 3 postdoctoral fellows per year. The Program will be advertised to these potential participants at the initiation of their training appointment.
Table 7 summarizes statistics regarding the applicant pools for NRSA and similar training programs which with program faculty are involved, beginning with statistics for the Preventive Cardiology Research Training program. The numbers clearly attest to the availability of qualified candidates, to the success of the programs in enrolling candidates after offers have been made, and to filling of all training positions.

3.e.(1)(b). Qualifications and Criteria for Acceptance

All applicants must be U.S. citizens or permanent residents who have completed a doctoral degree and who express a firm commitment to a career in preventive cardiology research. Diversity in professional background is desirable, and generally a mix of MD and PhD fellows (usually a 2:1 ratio) will be sought, consistent with NHLBI Programmatic Emphases to develop physician investigators. In addition, all trainees must be eligible for matriculation into Master’s Degree Programs. Applicants will be requested to submit a general application form, transcripts from their most recent degree program, letters of recommendation from three previous mentors, a synopsis of previous graduate, medical school or fellowship research, GRE scores (GMAT and MCAT are also accepted), a writing sample which includes a personal statement about their career plans, their area of research interest, and their commitment to research in preventive cardiology-related disciplines.

When applications are complete, the credentials will be reviewed by two members of the Program Management Team, and if eligible, presented at a meeting of the Internal Advisory Committee. Selections of three fellows per year will be based on promise as an investigator, commitment to an investigative career, and presence of a mentor’s research program which meets the individual's interests and needs. Applications from women, minorities, and disabled persons will be encouraged and seriously considered.

3.e.(1)(c). Recruitment Plans for Postdoctoral Candidates

An active program to identify and recruit the most qualified trainees from all Departments in the URMC will be carried out. Attractive informational materials will be developed to describe the Program and are included in inquiries for the MPH and PhD Programs. All URMC training program directors will be sent these materials on an annual basis. The Program is featured prominently in the URMC Website: www.urmc.rochester.edu.

All new postdoctoral clinical and research fellows will be informed of the RTPC during their orientation period in June-July of each year. The Clinical/Translational Research Seminar Series is widely advertised to all fellows and the Program will be advertised at these URMC-wide sessions. All research fellows are required to enroll in the Ethics and Professional Integrity in Research module. As they do, they will be sent a brochure inviting their application to the Program. Dr. Pearson, as Senior Associate Dean for Clinical Research, is frequently invited to update Clinical Department Leadership about clinical research, and the Program will be re-emphasized during these sessions. Finally, the Mentors and Preceptors will be encouraged to nominate trainees interested in preventive cardiology training. To date, this has been the most effective strategy for recruitment. Special plans to recruit candidates for under represented minority and disability groups will be described in Section 4.

3.e.(2). Recruitment of Predoctoral Candidates

3.e.(2)(a). Applicant Pool

Tables 8A and 9A provide applicant information for the Epidemiology PhD program in 2008, as well as other PhD programs with which participating departments are involved (Health Services Research, Pathology, Genetics, Pharmacology, and Physiology). The information convincingly demonstrates that UR has an outstanding reputation as a place to begin a career in biomedical research. It also documents that an adequate pool of qualified applicants for the Program is readily available (Note in particular that 14 applications have been received by the Epidemiology PhD program for the 4 slots that have been filled in 2008).

4. Recruitment and Retention Plan to Enhance Diversity.

4.a. Prior Experience and Track Record

4.a.(1) Recruitment and Retention of Trainees from Underrepresented Racial and Ethnic Minorities (Diversity Group A).

Several approaches have been utilized to recruit candidates from underrepresented minority groups, consistent with recommendations for Recruitment and Retention Plans to Enhance Diversity from NHLBI in October 2008. The first involves personal networking and recruiting efforts by the Program Director. Dr. Pearson has had longstanding research collaborations with investigators from minority-serving institutions, especially the Morehouse School of Medicine and the Jackson Heart Study. The second has entailed promotion of the program to his colleagues at the UR and regional partnering institutions. Candidates are...
referred to Dr. Pearson, who meets with the candidates to encourage them to apply. This approach has yielded most of the minority applicants. The third method is paid advertising in journals or via website. These emphasize the Program’s interest in identifying qualified candidates from minority groups. While this has yielded a national group of candidates for the training program, it has yielded few persons from underrepresented minorities. Most inquiries are from international candidates ineligible for the program.

The Program has been successful in attracting minority candidates over its eight years of operation (Table 10). Specifically, seven applicants have been members of underrepresented minorities and were offered admission, and six accepted. Of the 27 trainees (3 predoctoral, 24 postdoctoral) to date, six (22.2%) have been from underrepresented groups (3 African American, 2 Latino, 1 African American/Latino), thereby meeting our goal of attracting 20% enrollment of persons from ethnic and/or racial minority groups.

4.a.(2). Recruitment and Retention of Trainees from Disability Groups.

This recruitment plan has been spectacularly successful (Table 10). The approach entails development of the world’s first research center directed to the study of the health of deaf persons – The National Center for Deaf Health Research (NCDHR). This CDC-funded Prevention Research Center has an educational component which emphasizes the identification and involvement of deaf investigators in community-based participatory research. The CDC support has no stipends or tuition per se. The NCDHR has developed a bilingual campus (English, American Sign Language) which is very attractive to deaf researchers and trainees. As deaf individuals who wish to pursue an academic career in clinical and translational research are identified, Drs. Pearson and Barnett meet with them to explore possible benefits of research training in preventive cardiology.

The Program has been successful in attracting deaf candidates over its eight years of operation. Specifically, a total of 4 eligible individuals have applied to the program, two were offered and accepted admission, one more will enter the program later this year, and discussions are continuing with the fourth. So, of 27 trainees to date, two (7.4%) have been from the deaf community, with potential for one trainee per year (1/3 of postdoctoral trainees) coming from this source in the foreseeable future. We know of no other similar training program which identifies, recruits, and retains deaf investigators in the World.


The University of Rochester values diversity and is committed to equal opportunity for all persons regardless of age, color, disability, ethnicity, marital status, national origin, race, religion, sex, sexual orientation, or veteran status. The PCRT Program, in particular, is committed to attracting students from underrepresented minority groups and disability groups. Our plans are to recruit 20% of trainees from underrepresented race and ethnic groups and at least 10% of trainees from disability groups. We believe that we can successfully retain a diverse trainee group and be an international magnet for deaf trainees in health promotion/disease prevention research.

Specific plans are necessary to ensure success. The Program has not used paid advertisement in national journals to recruit fellows, as the results have not been satisfactory in improving our diversity or quality of trainees. Instead, the following channels will be strengthened to identify qualified candidates from underrepresented minorities and disability groups.

a. Linkage with Morehouse School of Medicine (MSM). Dr. Pearson holds an Adjunct Professorship in Preventive Medicine there and serves as an advisor with the Clinical Research Training and Career Development Program, the Stroke Prevention Intervention Research Group, and the Atlanta CTSA program. Dr. Pearson annually meets with MSM Clinical Research fellows to review their work and advise them on grant preparation. Dr. Elizabeth Ofili, Chief of Cardiology and Senior Associate Dean for Research is a member of the External Advisory Committee and will assist the program in identifying promising Morehouse students for recruitment into the program (see letter of support).

b. Jackson Heart Project/University of Mississippi Medical Center. The RTPC Program has engaged in a collaborative relationship with the Jackson Heart Project for purposes of placing students in research rotations. The JHP, through its association with Tougaloo College and Jackson State University, both minority-serving institutions, is well-placed to identify promising minority candidates with an interest in cardiology and public health. During their undergraduate training, potential candidates from Tougaloo have been annually offered summer research internships in the Department of Community and Preventive Medicine, where they will be introduced to the program as well as to the Rochester area (Scott McIntosh, PhD supervises this program). Qualified candidates will be encouraged to apply to the predoctoral program. The JHS is also a rich
research resource and the ability to collaborate with this research program is useful in recruiting promising African American students, as was the case for a UR medical student who completed his MPH thesis on left ventricular remodeling using JHS data. Dr. Herman Taylor, Director of the Project and a Professor at University of Mississippi, will publicize the Program and recommend promising candidates to the Program (see letter of support).

b. Association of Black Cardiologists. The Association of Black Cardiologists frequently receives inquiries from African American physicians seeking training opportunities and is willing to refer these individuals to the RTPC Program. Keith C. Ferdinand, MD, FACC, Chief Science Officer of ABC, is also willing to advertise the fellowship via their extensive listserve and to publish an article on preventive cardiology research training in the journal Cardiology Reviews, which he edits (see letter of support).

c. Rochester Prevention Research Center (RPRC). CDC funding for this Prevention Research Center has allowed the engagement of the deaf and hard of hearing (D/HOH) community, a severely underserved and understudied disability group. Rochester has the highest prevalence of deaf persons in the U.S., and the RPRC has research and training components attracting deaf professionals and undergraduate students. Three deaf M.D's and one PhD have already inquired about fellowship positions. The RPRC will advertise opportunities to the local and national D/HOH community, to be a national center for training of deaf investigators in general.

d. University of Rochester. The undergraduate campus at the UR adjoins the medical center campus, facilitating recruitment from the approximately 11% of students that are members of under-represented minority groups. A new public health major in the Arts and Science College should provide candidates for predoctoral programs. The program will specifically target undergraduate organizations such as the Black Student Union, the Minority Student Advisory Board and the Spanish and Latino Students Association for presentations regarding academic careers in epidemiology, to identify interested students and encourage them to apply to the program. The Program will also make use of its participation in undergraduate medical education at the UR School of Medicine and Dentistry to identify minority candidates interested in public health. Approximately 25% of medical students are members of under-represented groups.

5. Instruction in Responsible Conduct of Research.

Currently, all research trainees, including predoctoral and postdoctoral trainees at the University of Rochester, are required to complete and pass a course in the Ethics and Professional Integrity in Research. Two courses are offered in parallel in the first semester: IND501: Ethics in Research (Instructor: David Pearse, PhD), is designed for basic science trainees; IND 503: Ethics and Professional Integrity in Research is designed for clinical and translational science trainees. The two courses provide the same core of 6 lectures and then split off for discussion groups/case studies on use of animals in research (IND 501) or protection of human subjects (IND 503). The syllabus for this course is shown in Appendix II. The instructor is Gary Chadwick, DPharm, Professor of DCPM and Director of the Offices of Human Subjects Protection. This course is considered a minimum requirement for this broad and important topic. Several enhancements to this important instruction will be encouraged. First, regarding ethical treatment of research subjects, all trainees Scholars will complete the on-line course: “Protection of Human Subjects in Research” and receive Human Subjects Protection Program (HSPP) Certification. Second, the Skill-Building Workshop: “Recruitment and Retention of Research Subjects” is considered to be a second course in the series following IND 503 and will be required, dealing with ethics during the recruitment of human research subjects. Third, the Workshop: “Research Program Administration” has several components specifically dealing with compliance with ethical standards in research, conflict of interest, etc. (See Syllabus in Appendix II). Postdoctoral trainees must complete this program. Finally, the first Clinical/Translational Research Seminar of each month is given to the Office of Human Subjects Protection (G. Chadwick, PhD, Director) to update attendees as to new ethical and regulatory issues in Clinical Research, as the continuing education component to Instruction in Responsible Conduct of Research. Finally, individual lectures which deal with issues of ethics and scientific integrity are incorporated into required coursework such as Introduction to Epidemiology and Practical Skills in Grant Writing.
6. Progress Report (Funding Period: 8/1/00-1/26/09)

6.a. Accomplishments of the Training Program.

The Research Training in Preventive Cardiology Program is now fully mature with 8.5 years of funding. The RTPC Program can cite the following accomplishments; those consistent with NHLBI Programmatic Emphases are identified by an asterisk (*):

1. Creation of a predoctoral component with three highly qualified predoctoral trainees identified, recruited, and retained, with one trainee completing his program, a second almost completed, and a third trainee developing her thesis project.

2. Continuation of a successful postdoctoral program with 24 postdoctoral fellows identified and recruited and another 3 candidates identified and in the interview process. This program has been especially successful in recruiting physician-investigators*. Of the 24 fellows, 17 have been MD’s, two MD/PhD’s, and five PhD’s (the three additional candidates entering the selection process include two physicians and one PhD).

3. Attainment of our goal of recruitment of at least 20% of trainees from underrepresented minorities.*

4. Development of a unique program to identify, recruit, and retain trainees from the Deaf Community*. Two trainees and one candidate use American Sign Language as their primary language.

5. Expansion of the didactic curriculum to include two new Masters Programs, including the MS-Translational Research and MS-Clinical Investigation Degrees. These new programs make available a broader range of courses and new mentoring opportunities for the trainee.*

6. Linking the RTPC Program to the Rochester CTSA Program*, creating a number of opportunities for fellows, including pilot study funds, laboratory support grants, and career development awards, as well as a number of workshops providing “Survival Skills” to the trainees*, including a course on working with industry.*

7. Creation of the Preventive Cardiology Journal Club as a monthly opportunity to supplement other seminars with discussions of relevant literature in cardiovascular epidemiology.

8. Creation of the course: “Epidemiology and Prevention of Cardiovascular Disease” directed by a trainee-graduate, Robert Block, MD, MPH.

9. Regular acceptance of two fellows each year to the Ten-Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease sponsored by the American Heart Association.

10. Expansion of the number and quality of mentors, especially with an expanded working relationship with the Division of Cardiology. Dr. Charles Lowenstein is the newly appointed Chief of this Division and plans to increase his activities with the RTPC (see letter of support). No identification of a number of preceptors bodes well for their development into mentors.*

11. Formalization of the Mentor Development Program for the RTPC Program by joining the program offered by the Rochester CTSA Program.*

12. Offering access to the National CTSA Educational Resource Program as a virtual research training opportunity.*

6.b. Use of Training Related Expenses.

Each fellow is given discretion to use these funds in ways most useful to their program. Most fellows have used them to purchase books and software. A number of trainees have purchased statistical consulting services, incentive payments for subjects, etc. The funds have also been used to fund a second trip to a meeting to present their research findings. Use of training-related expenses is monitored for each trainee and expenses are recorded for each trainee.

6.c. Lack of Completion of Planned Duration of Training.

Two postdoctoral fellows have not completed the two-year traineeship considered to be adequate for research training. In the first 5-year period of funding, Nilda Hernandez, PhD, left the program suddenly and unexpectedly for a self-described medical/psychiatric reason and has not had contact with the program since then. In the second 5-year period of study, Chad Teeters, MD completed one year of coursework toward the Master’s Degree but left when offered a faculty position which unexpectedly opened in the Division of Cardiology as Director of Clinical Research at one of the URMC affiliated hospitals (Highland Hospital). Dr. Teeters continues in this academic position and will hopefully continue to apply his training to his new position.

Two postdoctoral trainees have been provided with a third year of funding. Both are from underrepresented minority groups. Leslie Hazel-Fernandez, PhD was provided a third year of support to allow her to complete her own projects and to participate in the Grenada Heart Project. Keon Menzies, MD, PhD has been provided a third year of support to compete his Masters thesis and to establish research
collaborations with Russell Tracy, PhD at the University of Vermont, where Keon will do his Cardiology Fellowship upon completion of his fellowship.

6.d. Brief Synopsis of Trainee Projects and Progress:
This section will describe each of the 3 predoctoral trainees and 24 postdoctoral trainees enrolled in the RTPC since 2000. The trainee’s mentor(s) and their research project will be described. For graduates of the program, their current position, publications, grant activity, etc. will be summarized. Please see Table 6 for complete listing of trainees’ publications.

6.d.(1) Predoctoral Trainees.

a. Timothy Ryan, PhD, MPP
Dr. Ryan entered the doctoral program in Epidemiology in September, 2002 after serving in the Peace Corp for two years and then receiving a Master degree in Public Policy from Duquesne University. Dr. S. Fisher served as his mentor. Tim was very interested in renal diseases and decided to focus his dissertation research on risk factors of cardiovascular mortality among individual with chronic kidney disease. He conducted a cohort study that included more than 82,000 individuals residing in New York, and he garnered extramural funding from Amgen to support the initial costs for conducting the study. In Fall, 2005 Tim assumed a position on the T32 in order that he could complete his study and enhance some of his previous educational experiences related to cardiovascular epidemiology. Tim completed his studies in August, 2007 and has published two first author manuscripts.


In September, 2007 Dr. Ryan assumed a position as Chief Epidemiologist in the Environmental Public Health Section of the Wyoming Department of Health, Cheyenne, WY. He is also an Affiliate Professor with the Colorado State University, Department of Environmental and Radiological Health Sciences.

b. Lisa Kakinami
Lisa Kakinami graduated from University of California-Los Angeles with a major in Psychology and entered the doctoral program in Epidemiology at the University of Rochester in September, 2004. Dr. S. Fisher serves as her mentor. Lisa had previous experience working on studies of HIV vaccine acceptability and risk communication and was, therefore, interested in continuing in her dissertation research in the field of HIV. In September, 2007 Lisa successfully presented her dissertation proposal for approval; the study is entitled: "Risk of Cardiovascular Disease Among People with HIV, Hepatitis C or Co-infection". The overall goal of this research is to improve the understanding of how co-infection with HIV and Hepatitis C impacts the risk of cardiovascular disease. The first specific aim is to determine if individuals infected with HIV, Hepatitis C, or co-infected with HIV and Hepatitis C have significantly different TC/HDL-C ratios. The second specific aim is to determine if the use of HAART is associated with an alteration in the TC/HDL-C ratio, and if this association differs based on infection with HIV, Hepatitis C, or co-infection. The last specific aim is to evaluate if the Framingham Risk Score differs based on infection type (HIV, Hepatitis C, or co-infection) and if this risk is significantly different from that of the general, uninfected population. This knowledge will allow for identification of high risk groups for whom interventions may be appropriate to prevent lipid related complications.

Since funding from the T32 began, Lisa has co-authored 5 peer-reviewed publications (1 as first author).

Lisa has served as a Teaching Assistant for two graduate courses including our Introduction to Epidemiology class. Recently, as Co-Principal Investigator, Lisa submitted a pilot grant application to our Clinical & Translational Science Institute to examine the effect of multiple new interactive exercise technologies on energy expenditure. She has just been awarded funding for that one-year project which is scheduled to begin in Spring of this year. Lisa continues to work on the required primary data collection for her dissertation. We anticipate that she will defend her dissertation in Summer, 2010.

c. Jessica Elder, MPH

Jessica Elder was accepted into the doctoral program in Epidemiology in September, 2005 after completing her Masters in Public Health degree at the University of Rochester. Edwin van Wijngaarden, PhD and Ronald Schwartz, MD have been her mentors. Jessica expressed a strong interest in women’s health as it relates to chronic disease. After completing the two years of required didactic coursework, Jess developed her dissertation research project which is entitled: Assessment of Female-Specific SPECT Parameters for Prediction of Cardiac Outcomes in Women with Suspected Ischemia. This investigation will generate new diagnostic cut-off values for left ventricular ejection fraction and summed stress score using ROC curves and will assess the association of these parameters with cardiac death, myocardial infarction, and combined outcomes. A comparison of the sensitivity of the newly identified cut-offs with literature-based mixed gender and female-specific cut-off values will also be conducted.

While working on her data collection for her dissertation, Ms. Elder has established a very productive collaboration with other investigators in cardiology. Below is a summary of the current projects/publications that have emanated from these efforts.

- Orren Wexler BS, Scott R. Yoder MD, Jessica L. Elder, MPH, Maria L. Mackin MS, CNMT, Leway Chen MD MPH, Gladys P. Velarde MD, James P. Corsetti MD PhD, Ronald G. Schwartz MD MS. Effect of Gender on Cardiovascular Risk Stratification with ECG Gated SPECT Left Ventricular Volume Indices and Ejection Fraction. Journal of Nuclear Cardiology; Accepted for Publication.

Ms. Elder’s efforts have been funded on the T32 since April 2007; she is expected to successfully defend her dissertation and graduate in March, 2009.


a. Michael J. Adams, MD, MPH (8/1/00-7/31/02).

Dr. Adams is a 1997 graduate of Johns Hopkins School of Medicine with postgraduate training in Pediatrics at the University of Rochester. He entered the fellowship 8/00; Dr. Pearson served as his mentor in the Epidemiology cluster. He completed requirements for an MPH (Clinical Investigation Track) in 2003. He participated in the 26th Ten Day Seminar in the Epidemiology and Prevention of Cardiovascular Disease in 2000. As a cancer survivor, Jacob has been interested in the cardiovascular affects of radiation and radiotherapy and his thesis entailed: “Cardiovascular Function in Long-term Survival of Hodgkin’s Disease Treated With Chest Radiotherapy.” To date, Jacob lists 18 publications, 12 as first author (See Table 6).

Dr. Adams joined the UR faculty as Assistant Professor of Community and Preventive Medicine (tenure track) in July, 2003. He is the recipient of a K23 Award from NHLBI, “Cardiovascular Risk 50 Years After Thymic Irradiation” to develop a follow-up study of infants exposed to chest radiotherapy in the 1950’s. He has co-directed the course, “Epidemiology and Prevention of Cardiovascular Disease” in the past and currently directs “Molecular Epidemiology.” He was awarded the Young Investigator’s Award from the American Statistical Association in 2006 for a paper on survivorship after irradiation therapy.

b. Robert Block, MD, MPH (8/1/04-7/31/06).

Dr. Block completed his MD degree at the University of Medicine and Dentistry of New Jersey and his internal medicine residency at the Mayo Clinic. He entered the fellowship in 8/1/04 and received his MPH (Clinical Investigation Track) in 2006. Dr. Pearson served as his mentor in the Epidemiology cluster. He participated in the AHA Ten Day Seminar in the Epidemiology and Prevention of Cardiovascular Disease in 2005. Bob has been interested in the effects of dietary lipids on cardiovascular health, especially Omega 3 fatty acids. His thesis entailed analysis of data from the THROMBO Study with Drs. Moss and Zareba. To date, Dr. Block cites nine publications, five as first author (See Table 6).

Dr. Block joined the UR faculty as Assistant Professor of Community and Preventive Medicine (tenure track) in July, 2006. He has been or is currently Principal Investigator on six grants, including a CTSA KL2...
Mentored Career Development Award, entitled: “Potent Lipid Mediators and Lethal Ventricular Arrhythmias in MADIT II.” He has also received a Laboratory Support Grant, a Novel Methodologies Grant, and a Clinical Research Center Pilot Study Award from the Rochester CTSI. He is PI on a collaborative grant with Cornell University and University of Albany School of Pharmacy from the Upstate New York Translational Research Network and as the site PI for the CRESCENDO Study. He directs the course: “Epidemiology and Prevention of Cardiovascular Disease.” Dr. Block was a finalist for the Elizabeth-Barrett Connor Award of the AHA Council on Epidemiology and Prevention in 2006 and was the winner of the Sandra Daugherty Award for Excellence in Cardiovascular Disease or Hypertension Epidemiology from the AHA Council on Epidemiology and Prevention in 2008.

c. **Doru Chirieac, MD, MPH** (1/1/01-12/31/02).

Dr. Chirieac completed his MD in Romania in 1992 and his Pathology Residency there in 1997. He was a fellow in Pathology at the University of Rochester from 1997 to 2001. He entered the fellowship in January, 2001 and received his MPH (Clinical Investigation Track) in 2002. He participated in the AHA Ten Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease in 2003. Dr. Charles Sparks was his mentor in the Vascular Biology cluster. Dr. Chirieac has been interested in the role of insulin in triglyceride-rich lipoprotein metabolism. Dr. Chirieac cites seven publications during his fellowship (Table 6). Dr. Chirieac combined his investigative career and is currently on the faculty of the Department of Medicine (Cardiology) at the NYU Langone Medical Center.

d. **Yazid Fadl, MD, MPH**

Dr. Fadl completed his BA Degree at Carnegie Mellon in 1994, his MD at Temple University in 1998, and his internal medicine residency at the University of Rochester in 2001. He entered the fellowship in 8/1/01 and received his MPH (Clinical Investigator Track) in 2003. Dr. Moss and Dr. Pearson served as his mentors in the Clinical Trials Cluster. Yazid’s interests lie in mechanisms for poor prognosis after MI, including thrombogenic activity. His MPH thesis was entitled: “History of Hypertension and Enhanced Thrombogenic Activity in Post Infarction Patients.” Yazid also assisted Dr. Pearson in a joint AHA-CDC workshop on “Inflammatory Markers and Cardiovascular Disease.” He participated in the AHA Ten Day Seminar in the Epidemiology and Prevention of Cardiovascular Disease in 2002. He lists seven publications (Table 6). He was a finalist for the Sandra Daugherty Award for Excellence in Cardiovascular Disease and Hypertension Epidemiology in 2002.

Dr. Fadl entered the Cardiology Fellowship Program at Washington University 2003-2006 with specialization in cardiovascular electrophysiology. He continued his epidemiologic research with the Mid American Heart Institute as part of his fellowship. He is currently on the physician staff of Clarion North Medical Center.

e. **Mark Fox, MD, MPH, PhD** (8/1/01-12/31/02).

Dr. Fox completed his undergraduate degree at Georgetown in 1987, a BA/MA at Oxford University in 1994, and an MD and PhD (Religion, Ethics, Society) at Vanderbilt in 1997. He completed his Medicine/Pediatrics Residency at the University of Rochester in 2001. He entered the fellowship in 2001 and completed his MPH (Clinical Investigation Track) in 2005. Mark’s interests are in the ethics of allocation of cardiac transplants and his MPH thesis was entitled: “What Can Transplantation Learn from Public Health?” Dr. Pearson served as his mentor in the Epidemiology Cluster. Dr. Fox lists 10 publications, all as first author (See Table 6).

Dr. Fox received a K23 Award from NHLBI in 2003 entitled: “An Ethical Analysis of Organ Allocation Policies.” In 2003, he joined the faculty at the University of Oklahoma College of Medicine and has continued his research, including a study of recognition of elevated blood pressure in pediatric patients diagnosed with Attention Deficit Disorder. He is currently Associate Professor of Internal Medicine and Pediatrics, Assistant Dean for Research Development, Director of the Center for Clinical and Translational Research, and Director for Native American Health Initiatives; all at the University of Oklahoma, Tulsa.

f. **Leslie Hazel-Fernandez, PhD** (12/15/03-12/14/06).

Dr. Hazel-Fernandez completed her undergraduate degree at Hunter College and her PhD in Clinical Psychology at the University of Rochester in 2004. She entered the fellowship on 12/15/03 and completed three years of training, receiving her MPH degree in 2006. Her mentor was Deborah Ossip, PhD, in the Behavioral Sciences Cluster. Her thesis examined tobacco control in the Dominican Republic. Leslie is especially interested in cardiovascular disease in low-income countries and cross-cultural aspects of risk behaviors, especially in immigrant groups. She participated in the Grenada Heart Study, a field survey of low
incidence Afro-Caribbean communities. She presented her findings at the NHLBI trainee session at the AHA Council of Epidemiology and Prevention in 2006. She participated in a Field Epidemiology Program at the University of Umeå in Sweden in 2005. She lists three publications (Table 6) with additional publications anticipated from the studies in Grenada.

g. **Nilda Hernandez, PhD** (2/1/01–3/21/02).

Dr. Hernandez received her PhD in Psychology from the University of Rochester in 1999 and entered the fellowship in 2/01. Dr. Pearson served as her mentor in the Epidemiology Cluster. Her interests focused on community interventions in minority communities and she participated in several proposals, some successful, for programs to place medical and graduate students in inner city communities as a practicum experience. Nilda resigned suddenly and unexpectedly citing a medical reason in 2002.

h. **Ayesha Khan, MD** (7/28/08–Present).

Dr. Khan is a newly appointed trainee. She is a 2000 MBBI graduate of Liaquat University in Pakistan and holds U.S. Permanent Resident status. She served as Researcher from 2005-2008 in the Department of Psychiatry. She is currently completing her didactic coursework requirements. She is especially interested in the role of socioeconomic status as an additional risk factor for CVD and has been exploring a mentoring role for Dr. Kevin Fiscella, Professor of Family Medicine. We would anticipate her graduation in Spring, 2010. She cites no publications yet.

i. **Lanette Leadbetter-Brown, MD** (12/1/04 – 11/30/05).

Dr. Leadbetter-Brown completed her undergraduate training in Denison University and her MD degree at the University of Rochester in 2004. She entered the fellowship in 12/04 and completed the coursework for the MPH in Clinical Investigation. She participated in the development of the study design, operation manuals, and data collection forms for the Grenada Heart Study, but was unable to participate in the survey in Grenada due to health reasons. She has not completed her MPH thesis project to date.

j. **Deborah Levy, MD, MPH** (7/1/03–6/30/05).

Dr. Levy completed her undergraduate education at the University of Pennsylvania, her MD in 2000 at the Sackler School of Medicine in Israel, and her internal medicine residency at the University of Rochester in 2003. Her research interests are in the metabolic syndrome and its management. Her mentor was Dr. Pearson in the Epidemiology Cluster. She completed her MPH (Clinical Investigation Track) in 2007; her thesis was entitled: “Metabolic Syndrome Center: Identification and Management of Patients with Metabolic Syndrome.” She cites 5 publications (Table 6). She also participated in the Grenada Heart Survey and was a fellow at the 29th Ten Day Seminar in the Epidemiology and Prevention of Cardiovascular Disease in 2003.

Dr. Levy is currently Clinical Instructor in Medicine at the Brigham and Women’s Hospital, Harvard Medical School.

k. **Ariane Marie-Mitchell, MD, PhD** (7/21/08–Present).

Dr. Marie-Mitchell completed her undergraduate degree from Stanford in 1993 and completed her MD and PhD (Epidemiology) from University of Southern California in 2003. She completed a Pediatric Internship at the University of Rochester in 2006 and a Preventive Medicine Residency in 2008, receiving her MPH degree in 2008. She is now Board Certified in Preventive Medicine. Her mentor from the MPH was Dr. Fisher and her thesis was entitled, “Influence of Parent-Child Attachment in Healthcare Utilization and Outcomes.” She began her fellowship on 7/29/08 with the focus on pediatric determinants of cardiovascular risk especially early life stressors. Dr. Pearson is her mentor in the Epidemiology Cluster. She will be developing a research program including pilot studies and external funding proposals over the next year.

l. **Michael McKee, MD** (1/1/08–Present).

Dr. McKee completed his undergraduate training at Lynn University in 1997 and his MD from University of Florida in 2001. He completed a Family Medicine Residency in 2004 at the University of South Carolina, where he received the American Academy of Family Practice/Bristol-Myers Squibb Award for Excellence in Graduate Medical Education. Mike is currently completing his didactic coursework. Dr. Pearson is his mentor and Dr. Barnett is a co-mentor in the Epidemiology Cluster. Dr. McKee’s primary language is American Sign Language. Mike’s research interests are in cardiovascular disease prevention in the Deaf Community. He has been involved in the National Center for Deaf Health Research from the beginning of his fellowship, playing a major role in a qualitative research study of knowledge and attitudes about cardiovascular disease in Deaf persons. He has also been actively involved in a BRFSS Survey of the Rochester Deaf Community. Mike has presented at the 2008 APHA Conference and 2008 NIH Conference on Diversity and will be presenting preliminary findings at the meeting of the NHLBI trainees at the AHA Council of Epidemiology and Prevention.

m. Shannon McLellan, DO, MS (7/1/07-Present).

Dr. McLellan completed her undergraduate training in 1992 at St. John’s University and has an MS in Medical Illustration from Rochester Institute of Technology in 1994. She completed her DO degree at the New York Osteopathy College in 2002 and her family medicine residency at the University of Rochester in 2005. Dr. Pearson is her mentor in the Epidemiology Cluster. She has completed most of her required coursework. Her research interests are in the cardiovascular health of women and she will be developing a study examining the diagnosis of myocardial infarction in men versus women. She cites one paper (Table 6). She is expected to complete her fellowship Spring of 2009.

n. Keon Menzies, MD, PhD (7/1/00-6/30/09).

Dr. Menzies received his undergraduate training at Brooklyn College and his MD/PhD degree from Mount Sinai School of Medicine. His PhD is in Molecular and Cellular Biology. He completed his residency in internal medicine in 2006 at the University of Rochester. Keon’s research interest is in hemostatic factors in cardiovascular disease, especially Tissue Factor. His mentors have been Dr. Taubman and Dr. Pearson in the Vascular Biology Track. He has completed his coursework for the MSCI degree and will complete his thesis which examines levels of Tissue Factor in the MESA cohort. He lists two publications to date. He presented his work at the NHLBI Trainee Session of the Cardiovascular Disease Epidemiology and Prevention Conference in 2008. Dr. Menzies will complete his Masters thesis in the Spring of 2009 and will move to a Cardiology Fellowship at the University of Vermont in 7/09. Dr. Russell Tracy has been an advisor to his study of the MESA cohort and he will continue these studies with Dr. Tracy during his Cardiology Fellowship.

o. Nicole Mihalopoulos, MD, MPH (8/1/03-7/31/05).

Dr. Mihalopoulos completed her undergraduate degree at the University of Utah in 1995, her MD degree at Tulane in 1999 and her MPH/Internal Medicine and Preventive Medicine Residency at Tulane in 2003. She entered the fellowship in 2003; Dr. Klein was her mentor in the Behavioral Science Cluster. She attended the AHA Ten Day Seminar on Cardiovascular Disease Epidemiology and Prevention in 2004. Nicole’s research interests have been in obesity in adolescents and young adults. Her fellowship research project was entitled: “Behavior Change and Cardiovascular Risk Factors in Adolescents.” She presented her work at the NHLBI Trainee Session of the Cardiovascular Disease Epidemiology and Prevention Conference of the AHA in 2005, entitled: “The Freshmen 15: Is it Real?” She cites 7 publications (Table 6).

Dr. Mihalopoulos is currently Assistant Professor of Adolescent Medicine at the University of Utah Health Sciences Center and Adjunct Assistant Professor of Nutrition and Internal Medicine there. She has served as Principal Investigator of three grants on pediatric obesity and is involved in the Children’s Health Study site in the State of Utah. She will be submitting an application for a Career Development Award in 2009.

p. Grzegorz Pietrasik, MD, MPH (9/1/05-8/31/07).

Dr. Pietrasik completed his medical training at the University of Warsaw in Poland and his internal medicine residency at the John Stroger Hospital at Cook County, in Chicago, Illinois. He entered the fellowship in 9/1/05. Wojciech Zareba, MD, PhD was his mentor in the Clinical Trials Cluster. Dr. Pietrasik completed his coursework for an MPH (Clinical Investigator Track); his thesis was entitled: “Obesity and the Risk of Sudden Cardiac Death or Sustained Ventricular Arrhythmia among Post-Myocardial Infarction Patients with Severe Left Ventricular Disfunction.” He attended the AHA Ten Day Seminar for Cardiovascular Epidemiology and Prevention in 2006. He lists 6 publications (Table 6), all related to his fellowship. Dr. Pietrasik is currently on the academic staff of Northwestern Memorial Hospital in Chicago, Illinois after competing a Heart Failure and Transplant Fellowship at URMC in 11/08.

q. Charlene Pope, RN, PhD (8/1/01-7/31/03).

Dr. Pope received her nursing training at the University of Maryland in 1974, her MPH from Johns Hopkins in 1978, and her PhD in Sociolinguistics at the University of Rochester in 2001. Her mentor was Dr. Ossip in the Behavioral Science Cluster. Her fellowship project was: “Teen Voices: Barriers to Communication of Smoking Cessation Advice.” She continues her research interests in health education and the communication of health messages to disadvantaged populations. She cites 9 publications (Table 6), almost all in the area of health disparities research.

Dr. Pope is currently Assistant Professor at the Medical University of South Carolina and Associate Nurse Executive for Research at the Charleston VA Medical Center. From 2002-2006, she held a National
Center for Minority Health Disparities Scholar Award. She currently is Principal Investigator for a grant from the National Library of Medicine: “Developing a Multiethnic Digital Corpus of Speech With Elderly Persons.” In 2007, she was named the PhD Faculty of the Year at the MUSC College of Nursing and the Palmetto Gold Award for Nursing Excellence from the South Carolina Nurses Association.

r. Megan Rashid, MD, MPH (8/1/07-7/31/05).
Dr. Rashid received her undergraduate training in clinical engineering from the McGill University in 1995 and her MD from Washington University School of Medicine in 1999. She completed her residency in Pediatrics at the University of Rochester in 2002 followed by a fellowship in Pediatric Nephrology. She entered the fellowship in 8/1/07. Her mentor is Dr. Fisher in the Epidemiology Cluster. Her research interests are in pediatric hypertension. Her MPH (Clinical Investigation) thesis was entitled: “Pediatric Hypertension: NHANES Analysis of the Prehypertension State in Children; White Coat Hypertension and Echocardiographic Change.” She cites 2 publications (Table 6).

Dr. Rashid is currently Senior Instructor of Clinical Pediatrics at the University of Rochester. In 2008, she was awarded the Outstanding Hospital Teaching Faculty Award by the Golisano Children’s Hospital.

s. Saadia Sherazi, MD (7/1/07-6/30/09).
Dr. Sherazi is a 1998 MBBS graduate from Allama Iqbal Medical College in Pakistan. She is a U.S. permanent resident. She completed her residency and chief residency in internal medicine at the Unity Health System in Rochester. She has completed most of her coursework for the MSCI degree. Dr. Block is her mentor in the Epidemiology Cluster. Saadia’s research interests are in the use of cardiovascular devices, especially internal defibrillators. Her MSCI thesis will be entitled: “Study of Physicians’ Attitudes Regarding Implantable Cardiovascular Defibrillators.” She cites 4 publications, 3 as first author (Table 6). Saadia will take the Practical Skills in Grant Writing Course in Spring, 2009 and complete her MSCI and fellowship by 6/30/09. She will return to Unity Health System as Director of Clinical Research and will remain affiliated with the RTPC Program.

t. Anne Steider, PhD (4/1/05-3/31/07).
Dr. Steider received her BA and MS degrees in Psychology from Valparaiso University and University of Dayton, and her PhD in Clinical Psychology at Gallaudet University in 2001. Her mentor was Steven Barnett, MD in the Behavioral Science Cluster. American Sign Language is her primary language. Her research interests have been in cardiovascular risk behavioral issues in Deaf persons. She participated in the Deaf Health Survey in the National Center for Deaf Health Research. She has one publication in press: Hauser PC, O’Hearn A, McKee M, Steider A, et al. Deaf Epistemology: Deafhood and Deafness. American Annals of the Deaf. In press. Dr. Steider currently is Clinical Assistant Professor of Psychiatry and Medicine at the University of Rochester and continues her collaboration with the National Center for Deaf Health Research.

u. Carolyn Tabak, MD, MPH
Dr. Tabak received her undergraduate training at the University of Pennsylvania and her MD from Case Western Reserve University in 1997. She completed her pediatric training at the University of Rochester in 2002. Her mentor was Michael Weitzman, MD, in the Behavioral Science Cluster. Dr. Tabak’s interests are in nutrition and exercise especially related to childhood obesity. She completed her MPH (Clinical Investigation Track) in 2004; her thesis was entitled: “The Association of Glycemic Index and Load with Pediatric Obesity: A National Perspective.” She cites 6 publications. Since completion of her fellowship, she has been an officer with the Epidemic Intelligence Service, National Center for Health Statistics, Centers for Disease Control.

v. John Teeters, MD (7/1/07-6/30/08).
Dr. Teeters completed his undergraduate and MD training at the University of North Carolina in 2002, and his internal medicine training and cardiology fellowship at the University of Rochester in 2008. His mentor was Mark Taubman, MD. Dr. Teeters completed most of the coursework toward an MSCI but left after one year to assume the position of Director of Clinical Research in the Cardiology Division of Highland Hospital and Clinical Instructor of Medicine at the University of Rochester. Dr. Teeters will continue to be affiliated with the RTPC Program as he fulfills requirements for the MSCI by completion of his thesis.

w. Matthew Wilson, MD (6/1/03-5/31/05).
Dr. Wilson received his undergraduate training at Northwestern University and MS degrees from Columbia University and RIT. He completed his MD degree at the University of Rochester in 2003 and entered the fellowship in 6/1/03. Dr. Pearson was his mentor in the Epidemiology Cluster. He has completed course requirements for an MSCI degree. He participated in the AHA Ten Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease in 2004. Matt has now completed a residency in Family Medicine at UR
in 2008 and is working with us to complete his thesis project prior to continuing his association with the Department of Family Medicine. He cites 4 publications (Table 6).

**x. Kate Young, PhD (7/31/06-7/30/08).**

Dr. Young completed her undergraduate training at Johns Hopkins and her PhD in Pharmacology and Physiology at the University of Rochester in 2005. She did a postdoctoral fellowship in neuroscience at the University of Chicago in 2006. Her mentor was Peter Veazie, PhD and Curt Benesch, MD, MPH in the Health Services Research Cluster. Dr. Young completed her MPH in 2008; her thesis was entitled “Selection Criteria for Patients with Ischemic Stroke who Benefit from Transesophageal Echocardiography Screening.” Kate is primarily interested in cost effectiveness analysis, especially as it relates to cardiovascular devices. She attended the 2007 AHA Ten Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease. She cites one publication (Table 6).

Dr. Young is currently, as of 8/1/08, Research Assistant Professor in the Division of Vascular Surgery at the University of Rochester, and is responsible for the research program for that division. She has submitted several proposals for research funding, including a KL2 application to the Rochester CTSA Program. Her current research is examining the cost effectiveness of carotid artery stenting compared to endarterectomy.

**7. Human Subjects.**

Table G contains the IRB review and approval of currently active trainees, including the title of their study and the last IRB Approval Date. Several of the most recently appointed postdoctoral fellows have not developed protocols to the point of IRB Submission.

<table>
<thead>
<tr>
<th>Trainee Name</th>
<th>Study</th>
<th>IRB Last Approval Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saadia Sherazi</td>
<td>Study of Physician Knowledge and Attitudes Regarding Implantable Cardiac Defibrillators</td>
<td>Exempt</td>
</tr>
<tr>
<td>Shannon McLellan</td>
<td>None, prior to study initiation</td>
<td>N/A</td>
</tr>
<tr>
<td>Keon Menzies</td>
<td>Correlation of Plasma Tissue Factor with Coronary Artery Calcium Scores, a Key Marker of Subclinical Atherosclerosis: The Multi-Ethnic Study of Atherosclerosis (MESA)</td>
<td>11/16/2009</td>
</tr>
<tr>
<td>Michael McKee</td>
<td>Health Behavior Surveillance Among Deaf Adults</td>
<td>11/25/09</td>
</tr>
<tr>
<td></td>
<td>Deaf Cardiovascular Health Perceptions</td>
<td>Exempt</td>
</tr>
<tr>
<td>Ayesha Khan</td>
<td>None, prior to study initiation</td>
<td>N/A</td>
</tr>
<tr>
<td>Ariane Marie-Mitchell</td>
<td>None, prior to study initiation</td>
<td>N/A</td>
</tr>
<tr>
<td>Jessica Elder</td>
<td>Assessing the Value of Female Specific Spect Parameters to Predict Cardiac Outcomes in Women with Suspected Ischemia</td>
<td>7/4/09</td>
</tr>
<tr>
<td></td>
<td>Prognostic Utility of Heart Scan of Myocardial Blood Flow and Cardiac Function</td>
<td>12/5/09</td>
</tr>
<tr>
<td>Lisa Kakinami</td>
<td>HIV, Hepatitis C or HIV/Hepatitis C Co-infection and Risk of Cardiovascular Disease</td>
<td>7/17/09</td>
</tr>
<tr>
<td></td>
<td>The Effects of Omega 3 Fatty Acids on Aspirin Resistance</td>
<td>9/15/09</td>
</tr>
<tr>
<td></td>
<td>15-epi-lipoxin Levels in Ischemic Cardiomyopathy</td>
<td>2/28/09</td>
</tr>
<tr>
<td></td>
<td>Antiretroviral Use and ADLs Among People with HIV</td>
<td>12/16/09</td>
</tr>
<tr>
<td></td>
<td>HIV Vaccine Acceptability Among Populations At Risk</td>
<td>Exempt</td>
</tr>
</tbody>
</table>
Table H shows the Human Subjects Certificates (HSPP or EPRP) for all currently active trainees. All trainees are expected to complete the Human Subjects Protection Plan certification as part of their training in Responsible Conduct of Research.

<table>
<thead>
<tr>
<th>Trainee Name</th>
<th>Certification Number</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saadia Sherazi</td>
<td>HSPP 75990912</td>
<td>9/30/10</td>
</tr>
<tr>
<td>Shannon McLellan</td>
<td>HSPP 76030912</td>
<td>9/30/10</td>
</tr>
<tr>
<td>Keon Menzies</td>
<td>HSPP 72470312</td>
<td>3/31/10</td>
</tr>
<tr>
<td>Michael McKee</td>
<td>EPRP 79430113</td>
<td>1/31/11</td>
</tr>
<tr>
<td>Ayesha Khan</td>
<td>EPRP 60970510</td>
<td>5/13/11</td>
</tr>
<tr>
<td>Ariane Marie-Mitchell</td>
<td>HSPP 83111113</td>
<td>11/30/11</td>
</tr>
<tr>
<td>Jessica Elder</td>
<td>HSPP 30310508</td>
<td>7/12/09</td>
</tr>
<tr>
<td>Lisa Kakinami</td>
<td>HSPP 40850910</td>
<td>9/2/11</td>
</tr>
</tbody>
</table>

8. Vertebrate Animals: Not Applicable

9. Select Agent Research: Not Applicable

10. Literature Cited:


11. Multiple PD Leadership Plan: Not Applicable

12. Contractual Consorted Arrangements: Not Applicable

13. Participatory Faculty Biosketches:

14. Data Tables:

15. Letters of Support