Educational programs in clinical and translational research

Educating and training the next generation of clinical investigators is viewed as a high national priority, and is a cornerstone of the CTSA program of the NIH. This issue of Connections highlights the 2009-10 career development awardees, including Irene Blanco, M.D., M.S., Sean Lucan, M.D., M.P.H., M.S., Deepa Rastogi, M.D., M.S., Susan Rubin, M.D., M.P.H., and Joshua Steinerman, M.D.

The availability of didactic course work is a required element of the CTSA, the grant that funds the Einstein-Montefiore Institute for Clinical and Translational Research (ICTR). Indeed, our strong track record in this arena contributed to our success in obtaining a CTSA grant; in turn, the CTSA has spurred the development of a more comprehensive and varied menu of educational options in research that supports the entire community. While this issue of Connections highlights the trainees who are supported by career development awards from the ICTR, I also want to give you an overview of the research education and training options available.

Of these options, the Clinical Research Training Program (CRTP) remains the flagship educational program of the ICTR. Its first Scholars enrolled in the summer
Irene Blanco, M.D., M.S., is an assistant professor in the department of medicine. Her research seeks to improve the clinician’s ability to predict and ultimately improve the outcome of lupus nephritis (LN). Systemic Lupus Erythematosus (SLE) is an illness that can affect every organ system. A potentially devastating complication of SLE is LN, which can lead to chronic renal failure and end-stage renal disease. The potential for screening and treatment to improve outcomes of LN is demonstrated by increased life expectancy: 5-year survival in LN has increased from 50% in 1955 to 80-85% today. However, biomarkers currently used to follow disease activity do not always correlate with disease activity. Dr. Blanco’s research seeks to find new biomarkers for LN that better correlate with disease activity, leading to early diagnosis and treatment. Her mentor is Chaim Putterman, M.D. (professor, medicine and microbiology & immunology; chief, division of rheumatology).

Sean Lucan, M.D., M.P.H., M.S., is an assistant professor of family and social medicine. His research focuses on developing more complete characterizations of local food environments, modeling and mapping dietary disparities and translating nutritional knowledge into improved community health. Mapping demographic, diet and disease data in urban environments produces impressive findings: minority and poverty status overlap with poor food environments; poor food environments overlap with low healthy-food consumption; and low healthy-food consumption overlaps with high rates of obesity, diabetes and other diet-related diseases (the leading causes of death in the U.S.). Dr. Lucan will work to develop more complete characterizations of local food environments in order to improve community dietary practices. His mentor is Hal Strelnick, M.D. (assistant dean for community engagement; professor, clinical family and social medicine).

Deepa Rastogi, M.D., M.S., assistant professor of pediatrics, is a pediatric pulmonologist. Dr. Rastogi’s research seeks to better characterize mechanisms explaining the association of asthma and obesity, and whether the pathogenesis of asthma associated with obesity is distinct from asthma not associated with obesity. In addition to the recent explosion of obesity, millions of children in the U.S. are affected by asthma. Both conditions are especially prevalent in poor inner-city minority populations like those of the Bronx. Mechanisms hypothesized to explain the association between asthma and obesity include increased systemic inflammation and/or altered chest wall mechanics due to truncal fat, presenting as lower airway obstruction. Dr. Rastogi’s research will elucidate these mechanisms to determine whether the pathogenesis of asthma associated with obesity is distinct from asthma not associated with obesity. Her mentor is Raanan Arens, M.D. (associate professor, pediatrics).

Susan Rubin, M.D., M.P.H., is an assistant clinical professor of family and social medicine. Her research focuses on healthcare providers’ role in increasing the use of long-acting reversible contraceptives (LARC) among adolescents. Each year, 750,000 U.S. adolescents become pregnant: over 75% of such pregnancies are unplanned, and 50% end in abortion. Contraceptive methods that do not rely on the user are less likely to fail, yet only 2% of all contraceptive women, and even fewer adolescents, use LARC. The IOM’s 2009 report of the 100 initial priority topics for comparative effectiveness research placed strategies for preventing unintended pregnancy, including expanded access to LARC, in the top quartile. Through her research, Dr. Rubin aims to improve the quality of and access to reproductive healthcare. Dr. Rubin’s mentor is Karen Bonuck, Ph.D. (associate professor, family and social medicine and obstetrics & gynecology and women’s health).

Joshua Steinerman, M.D., assistant professor of neurology, is a behavioral neurologist and neuropsychiatrist. About 5% of people ages 65 to 74 have Alzheimer’s disease (AD), but nearly 50% of those 85 and older are at risk. Dr. Steinerman’s research integrates the cognitive neuroscience of aging and community-based participatory research. His work is based on approaches pioneered by the Einstein Aging Study over the past five years. Dr. Steinerman’s research will develop cognitive assessment models with increased power to detect changes in community-based settings in the Bronx. The success of this line of investigation promises a paradigm shift in clinical trials designed to improve cognitive performance or prevent AD, in which measurement and intervention are integrated into the community fabric via telehealth technologies. Dr. Steinerman’s mentor is Richard Lipton M.D. (professor, neurology, psychiatry and behavioral sciences, and epidemiology & population health).
Matthew Abramowitz, M.D., M.S., is an assistant professor of medicine. His research focuses on the association of metabolic acidosis with the progression of and complications related to chronic kidney disease.

Mooyeon Oh-Park, M.D., M.S., associate professor of clinical physical medicine and rehabilitation, has been working on research projects to reduce and prevent disability in high-risk populations.

Gabriele de Vos, M.D., M.S., is an assistant professor in the division of allergy and immunology. Her research focuses on the pathogenesis of allergic diseases and the induction of immune tolerance through allergen vaccination (immunotherapy).

Amy E. Sanders, M.D., is an assistant professor of neurology. Her research focuses on successful cognitive aging and on genetic factors that may protect against age-related cognitive decline and dementia.

Rebecca Madan, M.D., M.S., assistant professor of pediatrics, focuses on factors that influence genital mucosal immunity in HIV-infected and uninfected adolescent women.

William Southern, M.D., M.S., associate professor of clinical medicine, is working to create academic development programs for the Teaching Hospitalist group on the Einstein and Montefiore campuses.

Shadi Nahvi, M.D., M.S., is an assistant professor in the departments of medicine and psychiatry and behavioral sciences. Her research and educational interests are in health disparities, substance abuse and tobacco control.

Tao Wang, M.D., Ph.D., is an assistant professor of biostatistics. He is focusing on the use of functional genomic and proteomic approaches in addition to statistical modeling to explore complex diseases.
of 1998; since then, it has conferred the master of science degree on 132 clinician-investigators. The CRTP, now directed by Dr. Ellie Schoenbaum, professor of epidemiology & population health, admits no more than 15 Scholars per year into this intensive program, which requires a doctoral degree (except for one or two medical students each year in Einstein’s five-year M.D./M.S. program). Admission is based on a competitive application that assesses the candidate’s background and experience, the proposed mentored research plan and the strength of the departmental support, including adequate protected time during this two-year program (candidates must have no more than 20 hours/week of clinical/teaching duties, although most successful applicants have even more protected time for their research and training activities).

While the CRTP is often referred to as the “master’s program,” it should not be confused with a typical M.S. program. It is not simply an array of 30 credit hours of course work; rather, it is a comprehensive educational and career development program. CRTP Scholars have a substantial course load, including homework and exams, but they pursue these courses in conjunction with their mentored research projects, and with close supervision and support from a committed and highly engaged faculty. In addition to the “basic science” of clinical research – epidemiology and biostatistics – the program includes courses in research ethics, scientific communication and grant writing. The Scholars become a tight-knit multispecialty and interdisciplinary cohort who not only study and learn together, but critique each other’s work through a longitudinal series of “works-in-progress seminars.” The CRTP remains “right-sized” at about 15 Scholars per cohort, partly because the pedagogical approach and research supports require a small group. The clinicians who can muster the support necessary to devote more than 50% of their work effort to research and training often have research fellowships, academic “start-up packages” or career development grants. The faculty members are not only teachers, but advisors and consultants, helping launch these Scholars toward productive careers, here or elsewhere, as clinical investigators who are able to compete for extramural funding.

There has long been a demand for a less-intensive overview of clinical research methods: we have been answering that call since 2004 with our Clinical Research 101 lecture series. This program has provided an introduction to the fundamentals of study design and analysis to over 300 members of the community, including clinical residents and fellows, postdoctoral fellows, medical students, graduate students (who can obtain course credit) and attending physicians (who can obtain CME credits). Those who successfully complete this course, based on attendance and the final exam score, receive appropriate certification and are eligible to enroll in a new course, Clinical Research 201, a seminar-based follow-up program for interested students that was offered for the first time in 2010 and will be offered again next spring. Some who have participated in CR101 have gone on to apply successfully to the CRTP.

A major new initiative has developed in conjunction with the graduate school, in the creation of a Ph.D. in clinical investigation (PCI). This program enrolls predoctoral candidates in the Ph.D. or M.D./Ph.D. programs who plan to focus their research careers on the clinical and translational sciences. The PCI is directed by Dr. Cheryl Merzel, and provide new opportunities to gain knowledge and skills in research methods that emphasize community-based participatory approaches in the behavioral and social sciences, and provide foundational support for the growing field of comparative effectiveness research. The first certificates in public health were awarded in June 2010, and the charter class of the M.P.H. program began its studies in July 2010.

Given this growing menu of courses and programs, interested students, fellows and faculty can learn clinical research methods in programs that range from a 1-credit lecture series to an 11-credit certificate to a 30-credit M.S. or 42-credit M.P.H. Thus, members of the Einstein community who seek to enhance their knowledge and skills in clinical investigation can identify educational options that best fit their interests and availability. Anyone with questions about these programs may e-mail Dr. Paul Marantz, associate dean for clinical research education and associate director of the ICTR, at paul.marantz@einstein.yu.edu.

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