Jefferson Translations

Volume 1 | Issue 1 Article 1

1-1-2003

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(2009) "Download full PDF issue-Jefferson Translations-Vol. 1, No. 1, Summer/Fall 2003," *Jefferson Translations*: Vol. 1: Iss. 1, Article 1.
Available at: http://jdc.jefferson.edu/translations/vol1/iss1/1

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Jefferson Translations

Volume 1, No. 1, Summer/Fall 2003

for the friends and colleagues of the Department of Medicine at Jefferson Medical College

Project CARE Is Impetus for Improvement at Jefferson

A significant undertaking of the Department of Medicine this year is Project CARE (Coordinated Approaches Redesigned for Excellence). Spearheaded by Geno Merli, MD, and Howard Weitz, MD, and supported by a multidisciplinary steering committee, the initiative seeks to improve the standards of care by integrating the latest clinical guidelines into everyday patient care. The project also aims to improve efficiency by facilitating hospital admissions, assessing outcomes, and streamlining patient services. Two key diagnoses, Congestive Heart Failure (CHF) and Acute Coronary Syndromes (ACS), are the initial focus of the project.

Project CARE steering committee (back row, left to right): Geno Merli MD, Alan Forstater MD, 2004 CMR Christopher DiMaio MD, The Bard Group's Andrew Epstein MD, 2003 CMR Steven Mathai MD, Rachel Sorokin MD, Marion Warchol, Daniel Louis, and Egle Mangum; (seated, left to right) Alan Brechbill, Arthur Feldman MD, PhD, Rebecca O'Shea, and Matthew DeCaro MD. Not shown: Howard Weitz MD and Mary Anne McGinley PhD, RN.

The leadership body of the project is the steering committee (SC), which takes recommendations and makes decisions pertaining to accountability and allocation of resources. Members include representatives of Jefferson's many constituencies—full-time faculty, volunteer faculty, nursing, house staff, hospital pharmacy, case management, etc. The SC has met every four to six weeks since November, and is supported by the expertise of The Bard Group, a medical consulting firm based in Boston. New task forces were commissioned to explore bed allocation and utilization and creating a more effective program for teaching and clinical care in the CCU.

The cornerstone of Project CARE has been the two clinical work teams (one devoted to each diagnosis), which have been developing practice guidelines with key decision points targeted to improving effectiveness and efficiency of care. Their goal is to devise guidelines that are understandable and usable for the greatest number of practitioners, while also accounting for the necessary degree of variation. Dr. Weitz, who heads the ACS clinical team, says, "The document we have produced now allows for significant freedom of choice. It incorporates perspectives from full-time and volunteer faculty in family medicine, internal medicine, emergency medicine, and cardiology, and is set up as a framework so that each of these constituencies can work together as a team." The implementation phase will involve regular educational programs as well as bringing the guidelines in line with the electronic order-entry system.

"The format of the guidelines can accommodate revisions and updates as new data is released," says Dr. Merli. His CHF clinical team is examining how a new ICCU could better operate in light of the new environment being created by Project CARE. Dr. Merli acknowledges that the most challenging aspect of the process will be putting the new protocols into practice, because this will require

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From the Chairman

This is the inaugural issue of a new newsletter from the Department of Medicine. The name "Translations" represents a fundamental aspect of our mission: translating information from the basic science laboratory, seminal clinical trials, and outcomes research to improvements in patient care as well as student and postgraduate education. While the completion of the human genome project and technologic advances in high-throughput genotyping, robotics, and the molecular biology of many human diseases have resulted in an explosion of new therapies and devices, it is often difficult to keep track of these many advances, much less identify what novel resources are available at Jefferson to help in care of the patient. The three yearly issues of *Translations* will inform you about the department's ongoing research, clinical, and educational activities, so that both doctors and patients are able to take better advantage of the range of opportunities available at Jefferson.

The cover article discusses Project CARE, an important and ongoing activity that spans the tripartite missions of the department and

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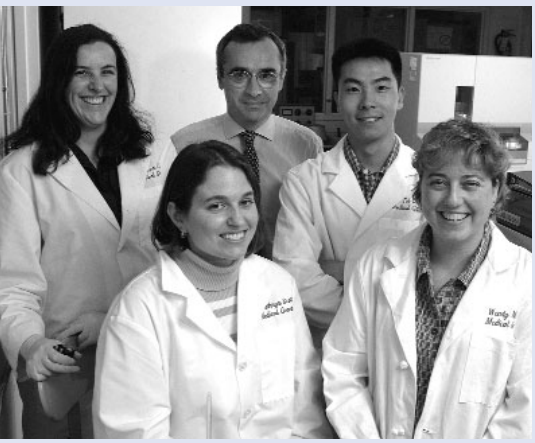
Genomics Core Unlocks the Secrets of the Human Genome

Paolo Fortina, MD, PhD, a clinical molecular genetic investigator, joined Thomas Jefferson University in September 2002 as Chief of the Center for Translational Medicine's Diagnostic and Genomics Core, one of the center's four central facilities. Dr. Fortina was previously Director of the Molecular Diagnostic Unit at the Children's Hospital of Philadelphia and Associate Professor of Pediatrics at the University of Pennsylvania School of Medicine.



Working with Dr. Paolo Fortina (top center) in the Genomics Core's temporary facilities are (clockwise from top right) Fei Cao, Wendy McClure, Kathryn Scott, and Shannon Cowie.

Dr. Fortina brings with him relationships with various biotech companies, who share his goal of finding more robust, cost-effective, and reproducible tools to investigate the human genome. His research has focused on biochips, or microarray technology, by which large sets of single-stranded nucleic acid molecules are anchored to a solid surface. The molecules then participate in a biochemical reaction with complementary DNA or RNA molecules, which represent the target to be interrogated. Thousands of reactions can be performed simultaneously. A scan results in a genetic profile of the target molecules. "The relative simplicity and flexibility have demonstrated that DNA microarray technology is one of the most promising analytical techniques," explains Dr. Fortina.

Gene-expression profiling offers the potential to analyze the "molecular fingerprints" of thousands of genes within single cells and responses to internal and external change agents—all from a single cell or drop of blood. Dr. Fortina foresees the impact this will have on the future of medicine: "Soon it will be possible to customize drug treatments based on a patient's genome as well as determine whether he/she is a carrier for a certain disease."

He adds that one of the most important needs of our institution over the next several years will be the ability to define individual genetic profiles by the characterization of single nucleotide polymorphisms (SNPs) and to screen for characterized mutations in our patients and in at-risk populations. "Mutation detection provides a rapid and definitive method for pinpointing many diseases," he says.

The Genomics Core is currently capable of providing gene-expression profiling as well as genotyping services for all investigators on the Jefferson campus, either for clinical/diagnostic purposes and/or for research-oriented projects. Presently located in offices in the Medical Office Building, the Center will soon relocate to 30,000 square feet of newly renovated space on the third and fourth floors of the College Building. For more information about the Genomics Core's research, contact Dr. Fortina at **Paolo.Fortina@jefferson.edu.**

Gastroenterology and Heptatology

New Liver Transplant Team in Place

Jefferson's liver transplant team is in place with new leadership in surgery and GI/Hepatology. Joining Lloyd Ratner, MD, Director of Jefferson's Transplantation Program, is renowned liver surgeon Ignazio Marino, MD, the new Director of Liver Transplant and Associate Director of the Transplantation Division of Jefferson Medical College. Victor Navarro, MD, Medical Director of the Liver Transplantation Program, recently joined Steven Herrine, MD, Associate Director, and together they oversee the evaluation and care of the patient with liver disease during the pre- and post-transplant phase, including the use of immuno-suppressants. Another addition is Yoogoo Kang, MD, a nationally recognized liver transplant anesthesiologist. The team is planning the initiation of the live donor liver transplant program, which makes it possible for a patient to receive a partial liver from a healthy person with a compatible blood type.

Tiny Capsule Makes "Fantastic Voyage" a Virtual Reality

New technology has made it possible to obtain a picture-perfect view of the gastrointestinal tract with a procedure that is barely more invasive than swallowing a pill. With capsule endoscopy, a vitamin-sized capsule produces more than 50,000 color photographs of the stomach and small intestine. The patient wears a battery-operated data recorder. Eight leads attached to the patient's abdomen receive radiowave images from the capsule, and after eight hours the physician downloads the photographs to a computer to diagnose the problem. Mitchell I. Conn, MD, Clinical Associate Professor of Medicine (Gastroenterology and Hepatology), and Anthony Infantolino MD, Clinical Assistant Professor in the division, are leading the clinical research efforts related to this developing technology. Jefferson's is the 5th-largest program of its kind in the country, and the first in the Delaware Valley.

Dr. Bonita Falkner's long-term study of hypertension and diabetes has yielded far-reaching results.

Nephrology

Hypertension Study Spans Two Decades

Through a series of NIH-funded studies, Bonita Falkner, MD, Professor of Medicine and Pediatrics, has had the unique opportunity over the past two decades to study a group of individuals since they were adolescents. Now in their mid- to late 30s, this cohort of African Americans—representative of a population that suffers disproportionately high rates of hypertension and diabetes—has aided Dr. Falkner in exploring the relationship between insulin resistance and blood pressure.

Dr. Falkner has been particularly interested in insulin resistance as a condition that precedes the onset of Type 2 diabetes. "We are now looking to see if we can detect evidence of vessel injury before the disease is expressed," she explains. Another aspect of the study is whether in premenopausal women a relative excess of androgens can lead to a greater risk for diabetes and hypertension.

"It has been a luxury to study this group over such an extended period of time," says Dr. Falkner. "I would not have predicted these types of studies when we first began in the early '80s." She hopes to continue her research in order to identify the critical stages for injury and more specific therapeutic targets for protection within this high-risk ethnic group.

Pulmonary

Asthma Education on the Move

Salvatore Mangione, MD, Associate Professor of Medicine, first devised the idea of a traveling asthma education program in the mid-90s, as a member of the Philadelphia Asthma Task Force. An NIH grant supported efforts to do city-wide screenings and educational services with schoolchildren and to raise awareness about asthma—the number-one cause of children's hospitalizations, prescribed therapy, absenteeism, and poor academic performance. "The problem is especially pronounced in poor and underserved inner-city communities, where many children remain undiagnosed," explains Dr. Mangione, "and yet it is a disease that is fully treatable."

In 1998 he came up with the idea of using a bus with educational programs and exhibits that would travel from school to school. When he learned that Glaxo Wellcome would fund the program, a representative suggested that he buy a double-decker bus. "I thought it was a joke!" Dr. Mangione says. But once the funding came through, he found himself traveling to London to do just that.

Dr. Mangione says the staff at Jefferson transformed what was a good idea into a very effective reality. The Department of Marketing and University Graphics devised a set of innovative ideas for kids focusing on recognition and treatment of the disease and created the design for the bus.

Since its launch in 2000, the bus has visited 73 schools and close to 8,000 middle-school students. A 45-minute program is led by a respiratory educator on the upper level of the bus, while on the lower deck students self-administer a 7-minute videosurvey connected to ISAAC (the International Study of Asthma and Allergies in Children) that identifies five symptoms. The results are in turn reported to students' families. "As many as half of school-age asthmatics in Philadelphia may be unaware of having the disease," says Dr. Mangione.

Educators also introduce the school group to a series of cartoon characters developed just for this project: the Asthma BUS-ters. Students get to take home a 24-page comic book and trading cards with asthma health tips. The program was awarded the 2001 President's award by the American College of Chest Physicians (ACCP) for outstanding community service.

GlaxoSmithKline (formerly Glaxo Wellcome) continues to fund nearly half of the program's expenses, and the rest is covered by a grant from the Centers for Disease Control (C.D.C.), through the School District of Philadelphia. Dr. Mangione and his associates in the Division of Pulmonary Medicine are in the process of writing up the data they have compiled, which he feels has significance for future treatment of the disease.

Dr. Sal Mangione's bus program has brought asthma education to 8,000 Philadelphia schoolchildren.

Cardiology/Internal Medicine

Anticoagulation Program Offers Team-Based Care

A nurse/pharmacologist-run anticoagulation program has been established within the Division of General Internal Medicine. Deborah diEugenio, PharmD, who trained as a pharmacologist at the Temple University School of Medicine and was a resident at Jefferson last year, works as a part of a team of physicians, PharmDs, and nurse practitioners co-directed by Geno Merli, MD, and Bernardo Menajovsky, MD, and based in Internal Medicine. The team provides Jefferson patients with antithrombotics therapy and services.

"The program used to be managed by physicians, but the current setup offers a new level of continuity of care with all patients," says Dr. diEugenio. "We provide patient education, try to prevent adverse events, and offer follow-up, ensuring that patients get adequate care once they leave." This also decreases the number of hospital admissions and decreases patients' length of stay, "along with making for the best care," she adds. Lovenox, for example, is a drug that offers "bridge therapy," so patients can go home and are not stuck in the hospital on an IV.

Says Dr. Merli, "The new anticoagulation center will also be the source of information and will facilitate within our practice the use of cutting-edge drugs that will be out in the next year or two."

Deborah diEugenio, PharmD (far right), and Geraldine Santoro, RN (center), run Internal Medicine's new team-based anticoagulation program.

Endocrinology, Diabetes, Metabolic Diseases

HealthWorks: A Model for Diabetes Education

The Division of Endocrinology has assumed HealthWorks, the diabetes self-management program formerly offered by Thomas Jefferson University Hospital (TJUH) and currently being run in partnership with the hospital. The first classes offered by Endocrinology began in March. The main goal of the program, according to Barry Goldstein, MD, PhD, Director of the Division of Endocrinology, is to educate patients about every aspect of diabetes management. "Ours is a comprehensive diabetes education program, administratively coordinated with the hospital and a multidisciplinary advisory board," says Dr. Goldstein, "which includes members of the Departments of Family Medicine, Nursing, Community Health, and the Division of Internal Medicine."

HealthWorks was awarded recognition by the American Diabetes Association in accordance with the National Standards for Diabetes Self-Management Education Programs. Managing the program with Dr. Goldstein is Cheryl Marco, RD, CDE, a registered dietitian and certified diabetes educator. The six-session program covers pathophysiology of diabetes and lifestyle issues such as exercise, goal setting, and diet. It also teaches patients and family members about medications, insulin, blood sugar monitoring, and preventing complications.

"Through the program, the division provides patient access to an excellent educational curriculum, which is often difficult to find in Philadelphia," explains Dr. Goldstein. "Within the Endocrine Division, HealthWorks is just one component of the varied set of resources providing high-quality diabetes education to all patients throughout the Jefferson community." In addition to HealthWorks, Cheryl Marco leads a series of programs including one-on-one sessions for individual patients, 90-minute groups covering diet and medication, and a 3-week series about optimizing insulin management. According to Ms. Marco, these additional programs offer "a valuable alternative for patients who cannot commit to the full 6-week series."

Patients can have direct access to these programs and need not be seen by an endocrinologist to receive diabetes education. A simple form is required to indicate the reasons and goals for the referral. Forms are available from Ms. Marco at **cheryl.marco@jefferson.edu**. Patients can obtain information about HealthWorks directly by calling **1-800-JEFF-NOW**.

Education

Residency Program and Recruitment

This year the Department of Medicine received nearly 2,500 applications and interviewed 420 candidates for just 44 places. The current class of interns represents 12 states, including California, Texas, Michigan, Arkansas, Mississippi, Tennessee, Virginia, Illinois, and Wisconsin, as well as New England. "We have been highly successful at recruiting top students from across the country," says Gregory Kane, MD, Director of the Residency Program.

Dr. Kane and the Department of Medicine leadership have also been working to restructure the internal medicine residency program to meet the 80-hour workweek mandate. "We are confident," says Dr. Kane, "that our solutions will preserve the continuity of care and teaching that are a part of the Jefferson tradition."

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Giving to Medicine

A Critical Juncture

The financial exigencies of the 2000s have made it increasingly difficult to support the academic missions of the Department of Medicine through NIH grants and professional fee revenues alone. Philanthropic giving therefore becomes a critical ingredient in supporting the future of academic medicine. Thus, we are pleased to announce the Department of Medicine's new development efforts, which will enable us to fund innovative and exciting research and programs such as the Center for Translational Medicine.

Our new Director of Development is Susan Schiffrin, MBA, who comes to us with extensive experience with a range of fund-raising organizations in Philadelphia, including the American Society for Technion, the Fiel Foundation, the Jewish Federation of Greater Philadelphia, and the University of Pennsylvania. Ms. Schiffrin also served as a senior aide to former Senator Bill Bradley (D-NJ) in Washington, D.C.

Individuals interested in making a gift to the Department of Medicine, one of its 13 divisions, or a member of the faculty should contact Ms. Schiffrin at **215-955-7556** or via e-mail at **susan.schiffrin@jefferson.edu**. Her office is located on the 8th floor of the Medical College Building at 1025 Walnut Street, Philadelphia.

Susan Schiffrin is the new Director of Development for the Department of Medicine.

The Department wishes to extend our warmest thanks to the many generous individuals and corporations who have supported the Department of Medicine to date, and look forward to their continued participation in our future development initiatives.

Faculty News

DeHoratius Named ACR President

Raphael DeHoratius, MD, was named President of the American College of Rheumatology (ACR) at this year's academic annual research meeting held in October in New Orleans. A member of the organization since 1974, Dr. DeHoratius has been a dedicated and prolific volunteer in the organization, with distinguished service on the ACR board of directors from 1990 to 1994 and 1997 to present. He was also Vice President of the Research and Education Foundation from 1996 to 1997 and Consulting Editor of *Clinical Care in Rheumatic Diseases,* 2nd ed. He became the ACR Vice-President in 2000 and President Elect in 2001.

Over the years Dr. DeHoratius has been involved in ACR's educational efforts. "There are approximately five thousand rheumatologists in the United States, and five full-time at Jefferson," he says, "therefore part of the goal of the ACR is to increase the number of physicians going into academic rheumatology divisions." The ACR's 2003 Annual Scientific Meeting and Basic Research Conference will take place in Orlando in October.

Dr. Raphael DeHoratius is current president of the American College of Rheumatology.

Dr. Neal Flomenberg (right) receives congratulations from Dr. Gerard Berry, Vice Dean for Research, JMC, at the March 27 Gratz Prize ceremony.

Flomenberg Receives 2003 Gratz Prize

In March Neal Flomenberg, MD, Professor of Medicine and Microbiology/ Immunology and Director of the Division of Medical Oncology, was awarded the Jefferson Medical College Simon Gratz Research Prize. The $20,000 prize is awarded once every three years to JMC alumni whose work over the past five years is deemed to have "most furthered the advancement of medical or surgical treatment of disease or…produced results having real practical value." The prize was presented March 27 as part of Sigma Xi Student Research Day program. Says Dr. Flomenberg, "I am honored that my work has been recognized by my alma mater for its relevance in helping to affect patients' lives. It has been a great privilege to continue to work and contribute as a faculty member."

Pulmonary Fellows Take Home ACCP Award

Three Jefferson pulmonary/critical care fellows won the American College of Chest Physicians (ACCP) CHEST Challenge held in San Diego at the ACCP National Meeting in November. After six months of online qualifying rounds against challengers from 88 other medical schools, Bharat Asware, Vikas Batra, and Rodolfo Pascual emerged victorious in a *Jeopardy*-style competition of pulmonary-related questions, bringing home trophies as well as $5,000 for research. Dr. Asware is Clinical Assistant Professor of Medicine and Director of the Medical Respiratory Intensive Care Unit. All three completed their fellowships in June 2002.

Pulmonary fellows Drs. Pascual, Asware, and Batra (left to right) bested fellows from 88 medical schools across the country in a recent competition.

Project CARE

Continued from page 1

changing standards that have been in place for many years. "This is an important step in the process, and yet we are confident because the project has been an interdisciplinary effort that involves staff at all levels of experience," says Dr. Merli. "The Steering Committee and clinical work teams, in combination with nursing and administration, have begun to bring about a real change in terms of what is possible at Jefferson," he continues. "This has already had a significant impact on the hospital as a whole, in areas of case management, the ER, and how patients are assigned to the house staff."

The next steps in Project CARE are to finalize the guidelines and plan for their implementation, which will continue throughout the fall. Tracking tools will ultimately be put in place to monitor the hospital's activity to ensure that it is consistent with the guidelines and having the desired impact. Dr. Weitz is confident that the work he and his team have devoted to Acute Coronary Syndromes will have numerous benefits. He says, "Our current activity will result in strategic and long-term benefits for the hospital as well as the medical school."

Research and educational efforts of Project CARE are supported by educational grants from Astra Zeneca, LP; Medtronic; Guidant; Scios, Inc.; and the TJU Cardiology Research Foundation.

From the Chairman

Continued from page 1

links closely with Thomas Jefferson University Hospital (TJUH). Perhaps one of the most important activities carried out by the department in the recent past, Project CARE focuses on improving the quality of care for patients at Jefferson and enhancing the satisfaction of both patients and staff. Although focused initially on Acute Coronary Syndromes and Heart Failure, we are confident that Project CARE will play a critical role in improving care for all common discharge diagnoses. Led by a multidisciplinary team, Project CARE will undoubtedly have a significant impact on the care of all patients at Jefferson.

Academic medicine faces great challenges, requiring that we constantly reassess and re-engineer its goals and missions in order to survive. We must place ourselves on the leading edge of research and clinical care, expeditiously provide care to an aging population, provide the latest innovations in clinical research to our patient population, and develop innovative means to support the academic missions of research and teaching. Despite these challenges, we are excited about the future of Jefferson Medicine. In the years ahead we hope that *Translations* will be a convenient vehicle to keep the Jefferson family apprised of new advances at our institution and to introduce you to new people who have joined the family. Working together, we will continue to strive to maintain the quality of medicine that has provided care for the people of Philadelphia and the region since 1824.

Arthur M. Feldman, MD, PhD
Magee Professor of Medicine
and Chairman of the Department

Translations

Translations is published three times a year by the Department of Medicine, Jefferson Medical College, of Thomas Jefferson University (www.tju.edu/medicine). For more information call 215-955-6946 or write to the address below.

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Edited by Alison Rooney
Photography: Robert Neroni
Design: Marketing and University Graphics
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