

Jefferson Medical College Alumni Bulletin

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J. Woodrow Savacool '38

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Address correspondence to

Editor, Alumni Bulletin

Jefferson Medical College

of Thomas Jefferson University

1020 Locust M-41

Philadelphia, PA 19107-6799

Alumni Bulletin Office: 215 955 7920

Fax: 215 923 9916

E-mail: malcolm.clendenin@mail.tju.edu

Website:

www.tju.edu/jmc/alumni/bulletin.cfm

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Design by Malcolm Clendenin

New Date for Alumni Weekend: October 9, 10, 11, 2003

Thursday-Saturday

*A Gala Celebration That Will Include
All Alumni, in Addition to the
Reunion Class Years.*

*Featuring the Alumni Banquet,
Achievement Awards Presentation,
Clinic Presentations,
the Dean's Luncheon,
and Reunion Class Parties.*

*CME Programs Are
Being Considered.*

See Future Bulletins for More Details

The Accreditation Council for Graduate Medical Education (ACGME) recently issued the final draft of its Residency Duty Hours Program Requirements for final community comment. These requirements, their nature and their specificity, have met with a wide range of responses. I thought it might be instructive for you, our alumni, to understand the issues, and to understand our philosophy and approach to these difficult educational and clinical issues.

To begin with, I must declare two potential influences, or in the current parlance, conflicts inherent in my approach. The first is that I am an Internal Medicine educator and former residency program director. As such, I have spent much of my career leading residency programs in Internal Medicine under similar duty hours limitations. The second is that I am currently the Chair of the Residency Review Committee for Internal Medicine, and responsible for the writing and implementation of program requirements for the 390 Internal Medicine Residency Programs, and over 1,400 fellowship programs in the subspecialties of Internal Medicine.



Over the past 18 years, seminal events have shaped the course of the debate over the regulation of resident duty hours, and residents' supervision by faculty. The first was the report of the Bell Commission in New York State, with subsequent regulation of the work environment and duty hours for all residents within that state. New York has within its borders approximately 20% of the residents and residency programs of the United States. Thus, while the regulations applied only to New York State, the impact was felt nationally. Internal Medicine, Anesthesiology, Emergency Medicine, and Pediatrics enacted, in various forms, specific limitations on resident hours and responsibilities. However, most specialties did not enact formal, quantitative regulation of duty hours for residents. The second event was the Institute of Medicine Report that called attention to the issue of medical errors and patient safety. This report has been utilized heavily to justify limitations in duty hours and responsibilities as a tool to decrease medical errors. The recent (failed) OSHA petition, and the pending federal legislation concerning governmental oversight and control of resident duty hours have provided tremendous impetus for self-regulation by the profession. As the science of sleep has evolved, concerns regarding hours of consecutive "time on task" and acute and chronic sleep deprivation and its impact on the physician in training have been expressed by many. Finally, there are many who believe: that residents are working too many hours (especially early in their training); that educational programs are configured largely around the patient care needs of the institution and its faculty rather than the educational needs of the residents; and that the cumulative impact of chronic sleep deprivation and related stress both compromises education, and may adversely influence the development of empathy, compassion, and altruism in the young clinician. There are

equally committed educators who believe that residents only learn to cope with the rigors of clinical practice by being "trained and tested" under the circumstances of duty hours in excess of these limits. Hence the debate within the profession, not only about the need for regulation of duty hours, but also the nature of that regulation, the specificity of regulation, and the time course for implementation of any regulation.

The influence of potential Congressional intrusion into regulation of the educational environment of physicians, as well as an overwhelming desire to constructively deal with the heterogeneity (by specialty) of the approach to these issues, has resulted in the ACGME proposing uniform minimum standards regarding duty hours.

The duty hour requirements center around 4 major limits on resident work:

1. Residents must not work more than 80 hours per week, when averaged over 4 consecutive weeks.

(Currently residents might work 100 hours per week, or more.)

2. Residents must have one day completely free from program related responsibilities each week, when averaged over 4 consecutive weeks. (In many programs, residents receive only 0-2 days off per month.)

3. Residents must not work more than 24 consecutive hours in direct acute patient care responsibilities. Residents are permitted an additional 6 hours in the hospital or program, to attend to continuity of care for their patients, to attend continuity clinics, or to attend educational events in the program. (The current paradigm is 36- to 40-hour on call shifts during which they may, or may not, get any sleep or rest.)

4. Residents must have a minimum of 10 hours of duty free time between assignments. (New York state regulations require 8 hours between episodes of responsibility.)

In addition, there are requirements regarding the monitoring of resident stress, sleep deprivation, and moonlighting.

A key issue in understanding the impact of these requirements relates to the Balanced Budget Act of 1998, in which institutional resident complements were capped (through capping of GME reimbursement). Limits on expansion of the resident complement narrow the options of program directors in satisfaction of these requirements. Further, all teaching hospitals are in the midst of absorbing reduction of the Medicare Indirect Graduate Medical Education payments, which will have significant adverse impact on the finances of all these institutions.

These requirements, in the context of existing residency programs and resident complements, as well as the realities of the current financial status of most teaching institutions, will be very difficult to implement. In smaller programs, residents will work fewer hours, but the institutional patient load will not change. Resources for others to care for portions of the patient

population will be scarce. There are only two “linear” institutional responses to this event. Either the remaining available residents (a larger proportion of the residents will be off duty at any given time) or the attending physician of record will care for the patient. The institution might design and implement noneducational system adaptations that answer the clinical needs while protecting the integrity of the educational program. This could include “night medicine” rotations, short and long call rotations, or the hiring of non-physician extenders to provide the services previously provided by residents.

I believe that these adaptations are merely diversions from a more fundamental, more complex question that must now be asked. That is, do we need to closely examine, and fundamentally alter, the current inpatient clinical care/medical education paradigm of most major teaching hospitals and academic medical centers? Is the current model of care, and the educational program built around the delivery of clinical service, so compromised by the pressures on resource utilization, length of stay, and enhanced volume requirements that the addition of duty hours limitations brings the system to its knees? Or, as Jim Bagian '77 (Director of the Veterans Affairs National Center for Patient Safety) might say, does this give us the opportunity to challenge and change the systems of care rendered in our academic medical centers? Can we use this opportunity to actually enhance both patient care, as well as education?

The traditional practice model of a single doctor caring for a single patient, day or night, year in and year out, has largely been supplanted by groups of physicians caring for a patient. While it is usually true that a single patient identifies a single physician in such a group as “their doctor,” the doctor’s colleagues participate in the care of the patient. We persist, however, in defining “continuity of care” as the continuous availability of a clinician to a given patient, and continuous hours of contact time essential in the education of the physician.

To a great extent, I agree with the concept that physicians in training need to be involved with the care of particular patients over a significant period of their hospital stay, as well as observe patients over time in the ambulatory setting. One key question to ask, however, is what is so magical about 36 hours of continuous care, and how is that concept applicable to the patient who is admitted in the 35th hour? Patients are admitted to residents along the time course of their duty responsibilities, not just at the start of their “on call” day. As one begins to look at the true nature of “continuity” as we currently operationalize it in educational programs, the paradigm of continuous observation and involvement begins to crumble. Indeed, it actually ended when interns were no longer imprisoned in the hospital, or residents no longer resided in the hospital (1950s). Whether the medicine resident who performs the history and physical and orders the diagnostic evaluation and therapeutic intervention, or the surgical resident who assists the attending physician in the surgical procedure, they need to observe the course of their patient, and learn how to intervene to achieve the desired

outcomes. The also, however, need to learn how to work with other physicians to achieve the desired outcomes for their patients, as that is the practice environment they will encounter upon graduation.

What about continuity for the individual patient? Leaving aside the issues related to fatigue in the terminal hours of a 36-40 hour shift, what happens in most traditional call rotations to the patient? Their care is usually supervised each night by a physician who has not participated in their care. On an every fourth night rotation, the patient sees four (4) different residents. Is that continuity of care for that individual patient? There are seven unique transitions in information over four days, three of which (transfer of information to physicians who have had no previous contact with the patient) we know are opportunities for error introduction. In the fast paced, complicated world of inpatient care, is this the best system of clinical care and education we can design?

These are but a few of the issues that each residency program, and each sponsoring institution will struggle with over the next six months, anticipating the implementation of these regulations in July, 2003. One concept must be held sacrosanct as we struggle to redefine the clinical educational paradigm. The sense of duty and responsibility to patients must be emphasized and reinforced in each and every educational program. We must redefine how we express altruism for each individual patient. We must emphasize how we define commitment, excellence in patient care, and professionalism. We must hold both trainees and faculty to the highest standards in these dimensions.

Finally, many have questioned the commitment of students and residents in this “next generation” to medicine, and their patients. I have been around long enough to have heard that discussion about my generation, as well as the generations of the '80s and '90s. I can imagine that the commitment of young physicians in the 1950s was challenged when they no longer lived in the hospital as interns. Whenever change or challenges to long held beliefs occur, it is natural to ask these questions. I can, from my vantage point here at Jefferson, answer categorically that the commitment to professionalism, and to the care of each individual patient is strong and unwavering in our students and residents. This is a tribute to them, their families (who have instilled in them the values of professionalism), and their mentors and faculty.

We must seize the opportunity raised by these requirements to enhance the systems of care and education in our teaching hospitals, and further strengthen the trust of our patients in our system of learning in the context of serving those entrusted to our care. Our common goal is the provision of excellent, patient centered care to each person entrusted to us, as well as the education of outstanding compassionate physicians to serve our nation.

At Jefferson, we are rising to this challenge.

Please accept from all the faculty, staff, students, residents and administration here at Jefferson our warmest wishes for a happy and healthy holiday season! 🍷

As reported in the June *Bulletin*, Arthur M. Feldman MD, PhD became the Magee Professor and Chairman of the Department of Medicine in July. Since taking on this post, Dr. Feldman has had the opportunity to explore how medicine at Jefferson functions and has begun to formulate wide-ranging plans for the future. His primary goals are to create new and exciting clinical programs to complement ongoing activities in the Department of Medicine and to enhance both clinical and basic research. In addition, Dr. Feldman has devoted much of his early time at Jefferson on the development of the CARE Project, a performance improvement initiative that will introduce the concepts of practice guidelines, process indicators, and outcome-driven medicine to students, residents, and faculty. "The Department of Medicine at Jefferson has a rich tradition of excellence in clinical care going back 175 years," he stated. "Our goals for the future are to try and build on that platform of excellence."

Through new programs and practices, Dr. Feldman hopes to create new opportunities to treat patients. For example, in collaboration with the Department of Surgery, he hopes to attract a group of experts in heart failure and cardiac transplantation. These programs have not previously been available within the Jefferson community. Furthermore, in collaboration with strong clinical programs in Surgery, Radiation Oncology, Bone Marrow Transplantation, Melanoma, and Hematologic Diseases, Dr. Feldman hopes to create centers of excellence for the treatment of patients with solid tumors.

The growth of basic research will focus around the development of the new Center for Translational Medicine. "So often, we build medicine research programs in silos. One program doesn't talk to the other. There are duplication of interests, and resources are wasted," he stated.

However, by recruiting outstanding scientists around a group of key core facilities, Dr. Feldman believes that Jefferson can develop an interdisciplinary collaborative group that can push forward exciting frontiers of scientific investigation. "Indeed, there are good role models within our own environment for this type of research structure, including the Farber Institute for the Neurosciences and the Kimmel Cancer Center," noted Feldman.

In an effort to increase Jefferson's clinical research capabilities, Dr. Feldman wants to establish an infrastructure within the Department of Medicine that will facilitate clinical trials. "Often when an

individual investigator wants to do clinical research, there isn't an infrastructure to support him," he said. "There is no one to do the budgeting and negotiations with the company...no one to help plow through the large number of Federal regulations...and no facility for training research nurses and fellows."

By providing an infrastructure within the Department of Medicine, Dr. Feldman believes that "we can provide services and support so that the steps between a company approaching a Jefferson investi-



gator or an investigator developing a novel idea and the actual enrollment of patients becomes a relatively seamless and expeditious event."

From a training perspective, he said "We need to take better advantage of outstanding resources within our community, including the training program in the Division of Clinical Pharmacology and the new MPH program in the University. The days are over when a physician could simply participate in a clinical trial without didactic training, a qualified staff, and administrative support."


Dr. Feldman also hopes to improve patient outcomes, increase efficiency, decrease resource utilization, and enhance inpatient bed access and capacity by achieving "best practice" indicators consistent with national treatment guidelines and reducing variations in care. "While improving care, these efforts will also allow us to introduce the concepts of practice guidelines, process indicators, and outcome-driven medicine to our students, residents, and fellows, thereby improving their educational experience and better preparing them for practice in the 'real world,'" Feldman stated.

Under the leadership of Howard Weitz '78 and Geno Merli '75, the CARE Project will initially focus on four disease states: heart failure,

acute coronary syndromes, atrial fibrillation, and community acquired pneumonia. Divided into four focus groups, a multidisciplinary team consisting of full-time faculty, voluntary faculty, house staff, nursing staff, and hospital administrators will initiate programs in the pre-hospital setting, the in-hospital setting, and the post-discharge period that will insure optimization of care.

For example, a Rapid Triage Unit for heart failure patients and a Chest Pain Center for rapid treatment of patients with acute coronary syndromes will be a key aspect of improving care for patients with these disease states. Furthermore, standardized admission orders, standardized discharge orders, and a post-discharge disease management strategy will be expected to facilitate improved guideline compliance, decreased length of stay, diminish 30-day readmission rates, and improved patient outcomes and satisfaction. “Through collaborative interactions with the Office of Health Policy and Clinical Outcomes of TJU, the University Health Consortium, and the Case Management Office of the TJU Hospital, we will be able to quantify our accomplishments,” he said.

Dr. Feldman is extremely enthusiastic and optimistic about the future of the Department of Medicine at Jefferson. “This is a unique institution,” he stated. “We have strong and experienced leadership in the Medical College, the University, and the Hospital; a highly talented and dedicated faculty and staff; a committed patient base; outstanding house staff; a prime location in Center City; and a long and rich history of clinical excellence.”

“However,” he continued, “We also live in a medical environment that has disadvantaged the academic medical center. Thus, we must be entrepreneurial, innovative, collaborative and aggressive as we face the challenges of the future, and it will be important for all of us to work together with one clear goal: to provide the best care possible for our patients.” 

Dr. Feldman's Research Program at Jefferson

Heart failure is a disease of epidemic proportions in the U.S. affecting more than five million people of all ages. There will be approximately 400,000 new cases recognized this year, and people with newly diagnosed heart failure have a five-year prognosis that is worse than virtually all cancers. As our society ages, it is expected that the number of patients with heart failure will increase over two-fold by 2016.

Arthur Feldman MD, PhD, the incoming Magee Professor and Chair of Medicine, has focused his research interests on heart failure for the past 20 years. “Heart failure is the number one DRG for Jefferson University Hospital,” he stated. “It’s the number one discharge diagnosis for people over the age of 65. It will account for a million hospitalizations this year, and costs the health care economy over 60 billion dollars.”

Heart failure is a condition in which the heart loses its ability to pump enough blood through the body. This loss of pumping action is

usually attributable to weakening of the heart muscle, but can also be attributed to thickening of the heart muscle. The former is referred to as a dilated cardiomyopathy, while the latter is referred to as hypertrophic cardiomyopathy. In patients with dilated cardiomyopathy, the most common cause of heart muscle dysfunction is heart damage, such as occurs during a heart attack or, less commonly, during a viral infection of the heart.

According to Dr. Feldman, one cause of the increased incidence of heart failure is that people are living longer after experiencing a heart attack. This improved survival is due to new technologies, such as stents and thrombolytic therapy (clot busters) that effectively improve survival in patients who have a heart attack. “If you look at people in their 70s and 80s, it’s been suggested that as many as two in 10 will have or will develop heart failure. So, as the population ages and the Baby Boomers move into their later years, the incidence of the disease increases,” he explained.

When Dr. Feldman began his research into heart failure some two decades ago, physicians had relatively few treatment options to offer their patients. “Very little was known about the basic pathology responsible for the development of heart failure or how best to treat the condition,” he stated. “Therefore, we focused our work on trying to understand the causes of the disease at the protein and molecular level with our goal being to translate those findings into the clinical arena.”

Dr. Feldman explained that his foray into the genetics of heart failure began about 15 years ago with two fundamental observations, which led him and his colleagues to hypothesize that fundamental differences in the genetic make-up of patients resulted in marked disparities in response to pharmacologic therapy. “First,” he said, “we had an interesting young man who presented with all of the signs and symptoms of heart failure: fatigue shortness of breath, and marked fluid accumulation or edema in his lower extremities and abdomen. By echocardiography, his heart was markedly dilated with diminished function.”

“It turned out that this young patient had severe hypothyroidism,” he continued. “When his thyroid function was treated, his heart returned to virtually normal size and function. A return to normal function was highly unusual as heart failure was generally viewed as an irreversible disease. Second, we found that some patients responded quite well to medical therapy while others had no response whatsoever.”

Dr. Feldman and his colleagues obtained biopsies of the heart muscle from the young man with hypothyroidism and heart failure. Molecular analysis of the biopsies, using techniques developed in Dr. Feldman’s laboratory, revealed that the return of normal function in this patient was accompanied by normalization of the expression of a group of proteins that were critically important to normal heart function. Interestingly, studies by other laboratories had demonstrated that the genes whose proteins were normalized after thyroid hormone treatment were sensitive to a peptide called “tumor necrosis factor alpha” or TNF-alpha. While this protein was known to be important in the development of inflammation, it was not thought to be produced by the heart. To test its importance in the

heart, Dr. Feldman and his colleagues created transgenic mice that were bred to over-express TNF-alpha selectively in the heart. "It turns out that if you over-express TNF-alpha in mice, they will develop a form of heart failure that recapitulates what you seen in humans: the heart dilates, the walls become thin, the contraction of the heart is weakened, the extra-cellular matrix becomes very thick and brittle," he explained.

When mice over-expressing TNF-alpha were treated with anti-TNF therapy, the development of heart failure was completely blocked. Unfortunately, when anti-TNF strategies were evaluated in patients with heart failure, they did not show the same benefits seen in the studies in the laboratory. However, this disappointment might have led to improved understanding of both heart muscle disease, as well as the role of genetics in treating patients with heart failure.

In pursuing the effects of TNF-alpha expression in the heart, Dr. Feldman and his colleagues made two interesting discoveries. The first was that there were vast differences between different strains of mice. The second was that male mice had a much poorer prognosis than female mice. Feldman explained that in some strains of mice, heart failure was extremely well tolerated, while other strains of mice barely lived past six weeks of age. In addition, male mice had a much shorter survival than female mice, regardless of the strain of mice. "While these strain and gender differences were interesting, they led us to suspect that genetic differences might account for the marked differences in survival we had seen amongst different patients having the same degree of heart muscle damage," he said.

Indeed, when Dr. Feldman and his colleagues looked at a large group of patients with heart failure, they found that those patients having a mutation in a gene that encoded for the production of a protein called "angiotensin converting enzyme" had a far worse prognosis than did patients who did not harbor the mutation. However, the patients who had the mutation were far more likely to respond to medical therapy. "Thus," he stated, "genetic differences in populations might have explained the failure of anti-cytokine therapy to benefit a heterogeneous group of patients with heart failure."

As his research progresses, Dr. Feldman continues to apply the knowledge he has gained from mice in the laboratory to humans in the clinical setting. "I've had the opportunity in my career to go back and forth between the bench and the bedside," he said. "In our initial studies in the early 1980s, we were able to use samples of heart obtained at the time of cardiac transplantation to see if findings in animal models reflected alterations in the human failing heart. More recently, we've been able to go back and forth between the bench and the bedside by making comparisons between treatment strategies aimed at new targets in the mouse models and the effectiveness of those strategies in humans."

Currently, Dr. Feldman is focusing his research on trying to understand the reasons for gender-related differences in survival. "We're trying to pursue studies in a myocardial infarction model to see if we can modulate the post-infarct phenotype," he explained. "In addition, we're trying to learn more about the down-stream effects of TNF-alpha over-expression by looking at mice that have ablations of the functions of a variety of proteins that are involved in TNF-

mediated signaling. This allows us to tease apart the various redundant pathways in the heart."

In addition, Dr. Feldman and his team are attempting to understand why patients respond differently to various therapies. "We know that there are genetic differences in various populations that have caused mutations to occur in common genes that encode proteins that are critical for normal heart function or for different responses to injury," he said. "These mutations are referred to as polymorphisms. They have no effect on heart function during normal growth and development, but when the heart is damaged or stressed, they may alter the response to that damage in either a good or a bad way.

Dr. Feldman and his colleagues are studying a large array of different genes that harbor polymorphisms for their role in either predicting the development of heart failure or the outcome in patients who have developed heart failure. Patients are being studied who are enrolled in one of several ongoing clinical trials in the U.S., and the laboratories at Jefferson are serving as the core genetic testing center for those studies. In addition, Dr. Feldman and his colleagues plan to acquire genetic samples from a large number of Caucasians, African Americans, Hispanics, and Asians who have been diagnosed with heart failure and who receive their care in the Jefferson Health system. It is hoped that these studies will lead to an identification of which patients respond best to certain medications and which patients should receive therapy earlier in their disease.

One day, Dr. Feldman hopes that each patient will have his or her disease treated with tailored therapy. "I expect that within ten years, patients will go to their doctors who will prick their finger, take a small amount of blood, and place it in an automated machine that will then give them back a genetic profile of that patient," he said. "The genetic profile will then be entered into a computer which will print out a treatment regimen for that patient that will be based on his genotypic fingerprint. Using this technique, only those patients that will respond to a drug will receive that drug. Therefore, the cost of care will be substantially less, but more importantly, patients will not have to needlessly be exposed to the side effects of medicines that would not be expected to benefit them. Patients will be able to get a greater effect with fewer medications."

Dr. Feldman's research team consists of six Jeffersonians, as well as a group of individuals from his laboratory at the University of Pittsburgh. He also chairs the steering committees of several national clinical trials assessing the efficacy of new and novel therapies for the treatment of heart failure. Of his team members, Dr. Feldman stated, "I've been very fortunate over the years to have had a group of outstanding fellows and wonderful collaborators. It's those relationships that have really allowed us to answer the questions that we have been able to approach. I have also been fortunate in being able to attract several of those collaborators and trainees to Jefferson. My hope is that because of the richness of this academic environment and the commitments of the Dean, the University President, and the Board of Trustees to translational research, we will be able to bring new investigators to Philadelphia, to develop new relationships with the outstanding group of scientists already at this institution, and to continue to push forward the care and treatment of patients with heart muscle disease." 🌐

Buchheit Named Chair of Neurosurgery

William A. Buchheit MD has been named Professor and Chairman of Neurosurgery, succeeding Frederick Simeone MD, who had been Chairman since 1994.

Dr. Buchheit previously served as Vice Chairman of the department from 1995 to 1999. Prior to that appointment, he was Professor and Chairman of Neurosurgery of Temple University School of Medicine, where he had been a member of the faculty since 1966. Dr. Buchheit specialized in treating brain tumors, particularly acoustic neuromas.



"We're very pleased to have Dr. Buchheit with us again at Jefferson," says Thomas J. Nasca '75, Dean of Jefferson Medical College. "His experience and expertise are uniquely suited to lead our department of neurosurgery." Dr. Buchheit has served as President of the American Academy of Neurological Surgeons and the Society of University Neurosurgeons, Vice Chairman of the Residency Review Committee for Neurosurgery as well as governor of the American College of Surgeons. He is a past member of the American Board of Neurological Surgery. In 1994, he received the Distinguished Service Award from the American Association of Neurological Surgeons. 🌐

Rao Appointed Chair of Radiology

Vijay M. Rao DR'78, Professor of Radiology and of Otolaryngology/Head and Neck Surgery, has been named Chair of Radiology at Jefferson Medical College and Thomas Jefferson University Hospital. She most recently served as the department's vice chair for education, director of the radiology residency program, and co-director of the Division of Neuroradiology/ENT.

Her research interests include TMJ imaging, sino-nasal imaging and dynamic MRI of head and neck tumors. *Philadelphia Magazine* for six years has named Dr. Rao one of the "Top Docs" in the Philadelphia area for diagnostic radiology.



Dr. Rao was recently named President of the Association of Program Directors in Radiology. The new chair serves as a board examiner for the American Board of Radiology, and on the editorial executive committee of *Academic Radiology*. She chairs the Committee on Faculty Appointments and Promotions at Jefferson Medical College. Dr. Rao is the author of more than 200 papers, presentations and book chapters. She joined Jefferson 27 years ago in 1975, completing a diagnostic radiology residency at Thomas Jefferson University Hospital in 1978. 🌐

Siegmán Chairs Physiology

Longtime faculty member Marion J. Siegmán PhD, Professor of Physiology, has been named Chair of the Department. Dr. Siegmán, who had previously been acting Chair, is the first woman chair of a medical college department at Jefferson. She succeeds Alan Lefer PhD, Emeritus Professor, who retired in 2001.

Dr. Siegmán came to Jefferson in 1967 as an Instructor and by 1977 was the first woman to achieve the rank of full Professor at Jefferson. She's particularly proud of her portrait commissioned by the medical college last year because she was chosen by her students and peers to receive the honor.

Dr. Siegmán's research focuses on the biophysics of smooth muscle. She has authored or co-authored numerous peer-reviewed publications, including editing the monograph *Regulation and Contraction of Smooth Muscle*. She says, "It's been especially exciting because each step in the investigational process leads to another more interesting one."



Dr. Siegmán earned her PhD in pharmacology in 1966 from the State University of New York, Downstate Medical Center in Brooklyn, and remained there as a postdoctoral research associate.

While she continues to pursue her research, she also gets "particular pleasure from teaching, which has been an unexpected reward from being at Jefferson." She won the Burlington-Northern Foundation Award for Excellence in Teaching and Productivity in Research at Jefferson in 1986. She was awarded the Lindback Award for excellence in teaching from Jefferson in 1987. She received an Outstanding Alumna Award from Newcomb College of Tulane University in 1990. She won the Dean's Award for Teaching Excellence at Jefferson Medical College in 2000.

In addition to serving on editorial boards, Dr. Siegmán has been a member and reviewer for the Physiology Study Section of the National Institutes of Health, a member of the Advisory Committee for Physiology, Cellular and Molecular Biology for the National Science Foundation, and an ad hoc reviewer for special study sections for the National Heart, Lung and Blood Institute. 🌐

Gomella Leads Urology

Leonard G. Gomella MD has been named Chair of Urology at Jefferson Medical College. Dr. Gomella, the Bernard W. Godwin Jr. Professor of Prostate Cancer and Director of Urologic Oncology at Jefferson's Kimmel Cancer Center, will also serve as chair at Thomas Jefferson University Hospital.



He is recognized nationally as an expert in prostate cancer as well as urologic laparoscopy. In 1986, he began a two-year urologic oncology fellowship with the Surgery Branch of the National Cancer Institute in Bethesda. Dr. Gomella has been on the faculty of Jefferson Medical College since 1988.

Dr. Gomella is involved in both basic science and clinical research in the development of new diagnostic techniques and treatments for prostate, bladder and kidney cancer.

Dr. Gomella's team was the first to use PCR to detect microscopic blood born metastasis in patients with prostate cancer. The Radiation Therapy Oncology Group (RTOG) has appointed him urology chairman for the national cooperative group.

In addition to giving more than 300 presentations at local, national and international meetings, he has written more than 250 papers, book chapters and monographs in the field of urology and has served a member of the editorial board of the Investigative Section of the *Journal of Urology*. He has served as co-editor in chief of the journal *Techniques in Urology*, on the board of *Urologic Oncology* and the *Journal of Laparoendoscopic Surgery* and as a consultant to the *Journal of Urology*, *Urology*, *Cancer Research*, the *Journal of the National Cancer Institute*, *Cancer*, *Journal of Urologic Oncology*, *The Cancer Journal* and many others in the field.

Dr. Gomella has authored and edited more than two dozen different books for medical students, house officers and practicing physicians, many of which have been translated into foreign languages. *Recovering From Prostate Cancer*, written for patients and their families, was the first book specifically designed for the general public on this topic. *Laparoscopic Urologic Surgery*, the first color operative atlas in this area, is co-edited by Dr. Gomella. In the field of medicine, Dr. Gomella is widely known for the *Clinician's Pocket Reference*, now in its ninth edition. 📖

Wender Heads Family Medicine

Richard Wender FP'82, a longtime Jefferson physician who is best known for his work in cancer prevention and screening, has been named Chair of the Department of Family Medicine. Dr. Wender was most recently Vice Chair of the Department, a position he held since 1995. He is a full Professor.



Dr. Wender devotes a great deal of time to the American Cancer Society (ACS), where he has been president of the state and local chapters. At the national level, he is chair of the National Cancer Control Committee. He is a co-author of the ACS screening guidelines for both colon cancer and prostate cancer, having co-chaired the Prostate Cancer Screening Guidelines Work Group. Since 1999, Dr. Wender has been a member of the National Board of Directors of the ACS.

Dr. Wender is a leader in advocating for improved screening strategies. He is chairman of the Best Practices in Colorectal Cancer Awareness and Screening Task Group and co-chair of the Providers Work Group of the National Colorectal Cancer Roundtable, co-director of the Colon Cancer Conference of the Cancer Research Foundation of America and a member of the Oncology Measurement Advisory Panel of the National Center for Quality Assurance. Dr. Wender helped to develop the Center for Disease Control and Prevention's "A Call to Action: Prevention and Detection of Colorectal Cancer," a widely disseminated web-based educational program. He has published extensively on cancer, diabetes and humor in medicine in professional journals including *Cancer*, *Journal of Family Practice* and *Archives of Family Medicine*.

Dr. Wender is currently co-investigator for a National Institutes of Health grant titled "Increasing Colon Cancer Screening in Primary Care" and recently served as a consultant on a U.S. Army Medical Research and Materiel Command grant titled "Value Based Decision Making in Prostate Cancer Early Detection."

Noted for his warmth and enthusiasm, he is a popular lecturer. He received the Applied Pharmacology Teaching Award from the Jefferson Medical College Class of '88. In 1997, he was the Parents Day Speaker at Jefferson Medical College and in 1999 served as Class Day Speaker.

After receiving a bachelor of arts degree from Princeton and an MD from the University of Pennsylvania, Dr. Wender completed a residency in Family Medicine in 1982 at Thomas Jefferson University Hospital, where he served as Chief Resident. That year, he joined the faculty. He directed the family practice residency from 1985 to 1995. 📖

New Department of Emergency Medicine Will Be Chaired by Christopher

Jefferson Medical College has designated emergency medicine as an academic department, becoming one of 60 of the nation's 125 medical schools that have upgraded emergency medicine to an independent department. It was previously a division within Jefferson's Department of Surgery.

Theodore A. Christopher EM'86, Associate Professor of Emergency Medicine, has been named the first Chair, having previously served as Director of the Division of Emergency Medicine.



The new designation will give emergency medicine an "equality" with other academic departments in policy and budgetary decisions. In addition, all fourth-year Jefferson medical students, starting in 2003, will complete an educational clerkship in emergency medicine. "Not only does this raise the status of emergency medicine in the academic setting," Dr. Christopher said, "but it will help us in recruiting new attending physicians and residents."

Emergency medicine is now one of the most popular residencies among medical students in the United States. There are 12 emergency medicine residency positions available each year in Jefferson's well-established, three-year training program.

"It's an exciting specialty," said the new chairman, who is President-elect of the Pennsylvania chapter of the American College of Emergency Physicians. "It's a unique specialty where doctors can explore the entire spectrum of medicine."

Among Dr. Christopher's goals for the department are improving patient satisfaction, making the flow of patient traffic through the emergency department more efficient and augmenting the department's research production. Toward those ends, the department plans to establish observation and diagnostic units for heart failure, chest pain and asthma to reduce the waiting time for patients, and to develop an injury prevention center.

The Emergency Department offers a range of services including pediatric emergency care, a sexual assault center, an injury prevention center, travel medicine services and a Workers Compensation Clinic. The department also oversees the JeffSTAT transport program and the EMT training center. 🗺️

Hospital Is the Best in Philadelphia for Orthopaedics, Cardiology/Cardiothoracic Surgery and Rehabilitation Medicine, According to U.S. News

U.S. News & World Report has once again ranked Thomas Jefferson University Hospital as the best hospital in Philadelphia for orthopaedics, cardiology/cardiothoracic surgery and rehabilitation medicine.

U.S. News & World Report also determined that Jefferson University Hospital was among the best in the nation in those medical specialties and four more areas—cancer, geriatrics, gynecology and urology.

In addition, Wills Eye Hospital, which serves as the Department of Ophthalmology for Thomas Jefferson University Hospital and Jefferson Medical College of Thomas Jefferson University, again ranked as third in the nation and first in Philadelphia for ophthalmology.

Jefferson Hospital has major programs for heart disease, cancer treatment, high-risk childbirth, genetics, radiology, orthopaedics, digestive diseases and many other areas of medicine and surgery. It is one of only a few hospitals in the United States that is both a Level I Trauma Center and a federally designated regional spinal cord injury center. Jefferson's Kimmel Cancer Center is designated as a clinical cancer center by the National Cancer Institute.

In addition, Jefferson University Hospital and the hospitals of the Jefferson Cancer Network provide free screenings for breast, skin and prostate cancers. There are a number of free support programs available.

U.S. News assessed care for medical specialties at more than 6,000 hospitals nationwide to determine the rankings. These specialties were assessed using a three-part model that combines reputation, mortality and a group of care-related factors such as nursing.

This year's ranking by the magazine is one among many honors Jefferson has received over the years. Jefferson physicians have been named among the best doctors by *Philadelphia Magazine* and by Best Doctors in America.

Jefferson University Hospital has also been listed by Solucient (formerly HCIA-Sachs Institute) as one of the top 100 hospitals in the United States and the Philadelphia region, as well as one of the top teaching hospitals in the nation. Solucient also cited Jefferson as being one of the top 100 hospitals in the nation for:

- Treating heart attacks and cardiovascular disease,
- Providing cost-effective stroke care,
- Having one of the top performing intensive care unit services in the nation.

In addition, Jefferson University Hospital has been awarded the Consumer Choice Award for five years in a row by the National Research Corporation, for being an innovator and leader in health care in Philadelphia. 🗺️

A Follow-Up Visit to the University Office of Technology Transfer

Jefferson's research initiatives have grown remarkably since a major effort was initiated in 1982 to expand and enlarge this component of the institution's mission. The results of good scientific and medical research enhance the reputation of the institution and, occasionally, result in increased income to the institution. The results of good medically oriented research are scientific achievements that can result in discoveries that improve the human condition, or can result in technologies and products with marketable possibilities. The link between research and industry at Jefferson is the University Office of Technology Transfer whose role is to obtain patents and licenses for the new discoveries or inventions of Jefferson's faculty or staff, and to assist them in finding industry partners to develop and market new inventions and discoveries of Jefferson researchers. (see "Technology Transfer: Jefferson's Link Between Research and Industry," *JMC Alumni Bulletin*, December 1996).

The technology transfer program at Jefferson was created in 1984 to capture opportunities in basic and clinical research and to develop them into marketable products in a timely fashion. Patenting and licensing of specific discoveries and inventions usually are necessary steps in converting basic science discoveries into useful products that can be made widely available for health care use. Efforts of the Office of Technology Transfer add a new and motivating dimension to research activity. Taking a discovery or product from a basic idea to a clinical use, or to an actual product that can benefit the whole population, is a task that can be accomplished best by combining the research and clinical capabilities of an institution like Jefferson with the product development, manufacturing, and marketing capabilities of industry.

Jefferson's technology transfer program seeks to facilitate this development by securing patent protection to give industry the incentive to invest significant resources into development of the product or invention, in coordination with the department sponsoring the research. This activity is followed by licensing the technology or product to an existing company, or to a new start up company specifically formed to develop and market the new Jefferson technology or invention. The University Counsel provides legal analyses in licensing issues and reviews license agreements. In addition, the Technology Transfer Website provides information to both the Jefferson community and to industry. The University recognizes that, in certain instances, the public interest may be served best through the licensing of an invention or product to a newly created or an early stage company. Such a company may make a more focused effort to

commercially develop a product or invention to make it available to the public. In order to maximize company funds available for development of the product or invention, the company may offer, and the University may accept, equity in the company in lieu of cash license fees as full or partial consideration for the license. At the end of 2000, total license-related research funding at Jefferson since 1984 was over \$38 million, and license revenues totaled about \$7.5 million.

Jefferson's research base has increased dramatically in the last 15 years, rising from \$10 million in 1987 to approximately \$100 million today. Some 70 percent of this funding is in grant support from the National Institutes of Health. The Office of Technology Transfer has received more than 1,000 invention disclosures from the faculty with more than 200 U.S. patents obtained. Nearly \$50 million has come to the University in licensing fees, research funding and equity to date from products and inventions developed by Jefferson faculty members. As an example of how this activity can come about, suppose a Jefferson researcher interested in ulcerative colitis identifies a specific target molecule present only in some tissue cells in the part of the colon affected by ulcerative colitis. Suppose he or she next develops an antibody to block the protein and disable it so it no longer can stimulate the immune system and cause inflammation in the colon. With permission from the Institutional Review Board (IRB), the newly developed molecular antibody can be tested in clinical trials. If these clinical trials show successful patient results with this newly developed molecular antibody, the Office of Technology Transfer can prepare a U.S. patent application, followed by negotiations with industry to identify an appropriate biotechnology company, or a new start up company, who then can be licensed to develop this molecular antibody for wider clinical use.

Not all discoveries or inventions made at Jefferson are judged of sufficient importance to warrant patenting. Each Jefferson researcher requesting patent protection is given a full and fair hearing, but the final decision will rest on the potential commercial value of each invention or discovery. The cost for the patent application is assumed by the University. Although the patent is issued to the investigator, the intellectual property is owned by the University, and all derived revenue is shared between the investigator and the institution in certain percentages as specified in the Thomas Jefferson University Patent Policy. The institution's share of the proceeds is justified by the fact the institution provides the space, laboratory, equipment and consulting staff that made the discovery possible. All equity acquired by Jefferson from these patents and start up

companies is managed by the University Treasurer who uses reasonable business judgment on when to sell any or all Jefferson equity so acquired. In addition, any agreement signed with industry may not impede the fabric of free inquiry, open discussion, the sharing of materials, or the right of prompt publication of results. Jefferson believes the best research and teaching are done in an environment that minimizes extrinsic inducements, nurtures free inquiry and broad dissemination of information, and one that has clear, specific, and credible policies on conflicts of interest.

In December 2002, the Director of the University Office of Technology Transfer, Abram Goldfinger, was recruited to a large private university to head their technology transfer program, and Mr. Richard Miller, the Assistant Director, was asked to serve as the Acting Director for the period needed to recruit a new Director. Over the ensuing year, a nationwide search was conducted with the assistance of a search firm. From seven good candidates, the Search Committee selected Ms. Katherine Chou who comes to Jefferson with a degree in chemistry, an MBA degree, an extensive background in business and six years of experience as a technology transfer officer in the Office of Technology Licensing at Harvard University. Ms. Chou began her new duties as Director of the Office of Technology Transfer at Jefferson on September 1, 2002. Ms. Chou, a charming and energetic person, reports to Dr. Jussi Saukkonen, Dean and Vice President for Science Policy, Technology Development and International Affairs, and to the Biotechnology Committee of the Board of Trustees. Her office is responsible for managing the protection of intellectual property at Jefferson, including patents. She develops business plans and helps to create start up companies. She also negotiates and reviews license, research and clinical trial agreements between Jefferson and corporations.

Ms. Chou believes she has instituted better marketing efforts in the office since taking charge of the University Office of Technology Transfer. She recognizes that Jefferson has limited resources so she believes it is necessary for her office to obtain as high a value as possible for any new product, drug, or invention developed at Jefferson. She also believes her office must be driven by the possible commercial value to Jefferson inherent in any new product, drug, or invention. She points out that as soon as a patent application is in place she initiates marketing efforts. She believes it is too late for effective marketing if the office waits to begin these efforts until after a patent is granted. Before initiating any marketing efforts, she meets with the researcher or inventor who gives her key words about the research finding or invention to use in the marketing effort. She uses these key

words when searching the Internet for possible commercial partners. She then sends a non confidential summary to 25 to 30 potential company partners to test their interest in the research finding or invention. She also makes it a policy to keep researchers and inventors informed by sharing company feedback with them about the results of these initial marketing efforts.

Ms. Chou also has initiated what she calls a “taking your ideas to reality” program because, as she points out, Jefferson’s research faculty members are her office’s clients. She regards the efforts of her office simply as the service that helps them develop their research findings commercially so the findings can have a wider public application. She meets with all the formal research committees on campus, as well as with departmental researchers and research administrators on a regular basis, to keep them aware of the possible benefits that can accrue to them and to the University from the efforts of the Office of Technology Transfer on their behalf. She points out that Jefferson now has over 700 research faculty members and she makes a special effort to make certain that all of them know about the services that can be provided to and for them by the University Office of Technology Transfer.

After starting at Jefferson, Ms. Chou became concerned about the legal expenses the University had been paying for patent filings and the expenses involved with licensing particular technologies or inventions to certain companies. Once a company has licensed a particular technology or invention the company then becomes responsible for all legal expenses. Ms. Chou, arguing that the University is a legitimate nonprofit organization, has been able to convince the involved companies that have licensed Jefferson technologies or inventions to reimburse Jefferson for these initial legal expenses. To date, she has recovered over \$300,000 for Jefferson in paid out legal expenses from the involved companies.

At the end of 2002, Jefferson held \$12 million in equity in about 40 companies. Ms. Chou anticipates a Technology Transfer income of approximately \$1.5 million in 2003. Judging from the perspective of 20 years, Jefferson’s decision to add a research component to the University and to develop an Office of Technology Transfer to capitalize on Jefferson’s research findings and inventions certainly has proven to be a wise decision from a financial standpoint. It also is a decision that is in keeping with the academic mission of Jefferson Medical College and the University as a whole, particularly in these uncertain times of rising expenses and limited resources. 🗎