This has been an eventful year for the University of Miami, the Miller School of Medicine, and the Department of Medicine. While most would say 2009 was not a particularly good year, we at the Department of Medicine not only managed to weather the difficult economic times, we also achieved substantial growth.

Our department's primary mission is to participate in the transformation of medicine in this country, which can be summarized in these few words: "We are here to take care of patients we will never see." It is our goal to train the physicians of tomorrow and to provide them, as well as our other trainees, with the proper skills to advance medical knowledge. We also strive to provide the best medical care and emotional support to our patients.

In the last two years we have elected four faculty members to the American Society of Clinical Investigation, the most prestigious society honoring academic achievement by physicians. These individuals include Drs. Krishna Komanduri, Maria Abreu, Jochen Reiser, and Myles Wolfe.

We have seen near quadrupling of our funding from the National Institutes of Health (NIH), which has enabled us to dramatically improve our department's national ranking. While it is certainly satisfying to see our ranking inch up more than 30 places in just two years, I also am very proud to report that the quality and scope of our scientific investigations continue to steadily improve. Our faculty are conducting groundbreaking work and leading discovery in a number of areas including stem cell biology, cancer genomics, podocyte biology, immunologic barriers to bone marrow transplantation, and the etiology of inflammatory bowel disease, to name a few.
Our department has grown dramatically including Olveen Carrasquillo, M.D., M.P.H., to head the Division of General Internal Medicine. We have recruited more than 120 faculty members in the past two years alone. Our operating budget has nearly tripled from $44 million in fiscal year 2008 to $120 million in fiscal year 2010. The economic reality of transforming ourselves into a research-intensive department has required this kind of growth, especially since external research funding is never sufficient to completely fund the research it is meant to support. This growth is particularly impressive given the difficult economic times we face.

There have been challenges. The opening of our new university hospital—University of Miami Hospital (UMH)—has required intense effort and stewardship. However, in less than two years UMH has become profitable, thanks, in large part, to the diligent efforts of our Division of Hospital Medicine, under the able leadership of Amir Jaffer, M.D.

The economic challenges have particularly threatened one of our clinical venues—Jackson Memorial Hospital (Jackson)—with major threats to the integrity of critical programs in cardiovascular disease and transplantation. As Jackson recruits new leadership this year, we hope the partnership, which has been such an integral part of our mission, can and will be strengthened. Clearly this will be an area of intense focus in the months to come.

The decrease in philanthropic and state support to our institution has forced us to shift much of our attention to operations. As we move to the end of the fiscal year, it is very gratifying to observe how the medical center and the Department of Medicine have been able to meet their financial metrics, which are so critical to the health of our University and to the growth of our mission.

In the coming year we plan to continue our growth. To that end, substantial recruitments are underway in the Divisions of Infectious Diseases, Clinical Pharmacology, Hematology-Oncology (cancer biology), Rheumatology and Immunology, and Nephrology and Hypertension.

I look forward to continuing to share our department’s achievements to an ever-expanding audience. With your support, I sincerely believe we can make the Department of Medicine among one of the best in the country.

Marc E. Lippman, M.D.
Kathleen & Stanley Glaser Professor and Chair
University of Miami Miller School of Medicine
President’s Letter

I view the Leonard M. Miller School of Medicine as one of the University of Miami’s shining jewels. Within the medical school, a component that distinguishes itself with regularity is the Department of Medicine.

Within the last year or so, the Department of Medicine has recruited more than 100 new faculty members who are at the zenith of their respective specialties, enabling the department to play a key role in the development of UHealth - the University of Miami Health System.

In addition, this impressive influx of talent into the department should easily allow it to build upon a legacy of excellence in research and medical education, spanning more than half a century.

In closing, I’d like to congratulate the Department of Medicine for the favorable light it consistently casts upon itself, the Miller School, and the entire University of Miami.

Donna E. Shalala
President, University of Miami

Dean’s Letter

I’m pleased to note that the Department of Medicine has played an integral role in the Miller School’s ascendency and has also been a major driver behind the development of UHealth – the University of Miami Health System.

The Department of Medicine is easily one of the medical school’s most accomplished and formidable departments, beginning with Chairman and Kathleen & Stanley Glaser Professor Marc E. Lippman, M.D.

Marc has assembled a gifted array of physicians who shine in clinical, academic, and research settings, and whose work has been a major component behind the Miller School’s continued academic excellence in 2009.

It just so happens I fall under the Department of Medicine’s aegis myself, since I belong to the Division of Cardiovascular Medicine. I’m able to point that out with pride, in light of the Department of Medicine’s sterling performance!

Pascal J. Goldschmidt, M.D.
Senior Vice President for Medical Affairs and Dean
University of Miami Miller School of Medicine
Chief Executive Officer, UHealth
Appointed to the role last year, Peter Mundel, M.D., vice chair of the Office of Research for the Department of Medicine, has seen the start of a planned transformation. It is one that is bringing about a strong and vibrant research community few institutions in the nation have experienced in such a short period of time.

The department's research enterprise has experienced back–to-back double-digit growth in National Institutes of Health (NIH) research dollars, with the Department of Medicine producing 23.9 percent and 31.5 percent growth respectively for FY2008 and 2009.

Additionally, the department has doubled its NIH funding and will continue to increase the Miller School of Medicine’s budget. This growth is a direct result of the department’s commitment over the past two years to recruit physician-scientists with strong research interests. The continued dedication and commitment of donors and sponsors, even in these current economic times, has indeed been a blessing. Such ongoing philanthropic support allows the department to continue its strong research efforts, allowing for significant accomplishments by our research faculty in the coming year.

We have set our core mission to be F.I.I.T., which means to include the following: (F) Facilitate interactions between research faculty and the University of Miami Community; (I) Infrastructure –To identify and develop the needs as we continue to grow. (I) Integrate basic, translation, and clinical research within the Department of Medicine and the University of Miami community at large; (T) Train junior faculty – We will set in place research venues, mentorship programs, and coordination of objectives in conjunction with the University’s Coral Gables campus.

For 2010, the Office of Research is developing a strong new vision by integrating the many institutional systems currently available, building on systems that already exist, and putting in place a focus on the support mechanisms that are far too often overlooked but which are critical to continued growth. We look forward to reaching out and working with the research community, fostering partnerships, and building relationships, specifically with the Departments of Medical Finance, Space Management, and Central Administration to develop best practice models and to foster a base of core metrics to support our research enterprise.

The Department of Medicine’s research enterprise generated over $46 million in funding in FY2009, including $18 million from the NIH, helping move the Miller School to a #42 rank in NIH funding. This includes an increase in overall research funding of more than 24 percent from the previous year and an increase of more than 31 percent in NIH funding.
Education

The training of graduate students is a major focus of the Department of Medicine and its faculty. Division faculty, in fact, contribute greatly to the undergraduate medical school curriculum and its related scientific disciplines by helping cultivate medical students at every level of their development.

The Internal Medicine Training Program of the University of Miami Miller School of Medicine provides qualified medical graduates with diverse and varied experiences to fully prepare them for a career in either general or subspecialty medicine. Training sites include:

Jackson Memorial Medical Center (Jackson): This site serves as the main training ground for our residents. The 1,550-bed hospital serves as the tertiary referral center for South Florida, the Caribbean, and Central and South America.

University of Miami Hospital (UMH): This site provides students with education opportunities in the following key areas:
- Ambulatory Peri-Operative and Cardiology Rotation
- Bascom Palmer Eye Institute (US News and World Report #1 Rated)
- Batchelor Children’s Research Institute
- Cardiovascular ICU
- Clinical Research Building/Wellness Center
- Diabetes Research Institute
- Gordon Center for Research in Medical Education
- Hospital Medicine Ward and Consult Rotation
- Miami Institute for Human Genomics
- Other Accessible Training Sites Miami Veterans Affairs Medical Center
- Sylvester Comprehensive Cancer Center/UMHC–University of Miami Hospital & Clinics

Pathway Development

A firm commitment to structured core training in internal medicine, coupled with course flexibility, provides residents with the opportunity to pursue a wide range of elective training opportunities. By dividing the large program into small groups, each closely followed by a program director, students receive individualized and personalized training and follow up. Early exploration of career pathways is encouraged, especially during the month residents conduct research. Wherever possible, residents are paired with additional research, subspecialty, or pathway mentors to help them optimize and enhance their training during the subsequent years.

Areas of emphasis (pathway programs) are the cornerstone of the program’s rotational training model, which concentrates experiential learning for residents in their area of interest, while working closely with faculty mentors who are experts in providing one-on-one supervision and guidance. Elective, inpatient, and outpatient rotations, as well as research/scholarly activity rotations, are carefully adjusted to ensure residents have six to eight blocks during their second and third year that subsequently enhance their career interests and focus. Pathways include:

Jay Weiss Residency Program for Social Medicine and Health Equity: This residency program was established in 2005 in memory of philanthropist Jay W. Weiss, a longtime champion of the underserved in our community. The residency program prepares physicians to earn a MPH degree by teaching them the essential leadership skills needed to improve health disparities among poor populations both in the U.S. and abroad.

Women’s Health Track: This specialty track trains internists who have an understanding of women’s health issues, such as diseases that present differently in women, and provides them with the expertise in providing comprehensive medical care to female patients. Residents will be given the opportunity to network and obtain mentorship from physicians with clinical and research interests in women’s health. Residents who complete this program will move on to clinical or research careers that will be enhanced by their experience in this program.
Innovative Initiatives

Resident Scholarly Activity Program (RSAP): This three-phase curriculum program is aimed at improving the quality of research projects pursued by residents and increasing the number of projects submitted for publication in peer-reviewed journals. Residents also receive support in selecting mentors, designing projects, and presenting their work during the last year of training.

Quality Improvement Initiative: Since 2008, our training program has developed a robust curriculum that focuses on the QI process, with structured modules delivered over a four-week rotation. This content formed the core of our hospitalist pathway leadership rotation, where residents work with faculty and hospital administrators on QI and patient safety projects as diverse as optimizing handoffs to improving communication associated with critical laboratory and imaging results. The process proved so popular that a similar rotation was developed within our general medicine leadership rotation, with a focus on transitioning care between the inpatient and outpatient settings.

Community Service

Department of Community Service (DOCS) is a student-run community service organization at the Miller School of Medicine. This department runs annual health fairs in underserved communities in South Florida, including Hialeah, Little Haiti, Florida City, Pompano Beach, as well as communities in the Florida Keys. Jackson resident-physicians serve as volunteer mentors for medical students providing care to needy populations otherwise unable to seek care. For more information, visit http://umdocs.med.edu.miami.edu.

National and International “Away” Electives

Our residents continue to participate in national and international rotation electives in every part of the country as well as international electives in Haiti, Central and South America, the Caribbean, and Africa. The training program fully supports these educational opportunities for residents, allowing up to one “away” rotation each year, as long as all other program requirements are met.

Veterans Affairs

It was another outstanding year of clinical excellence under the leadership of Sheri Keitz, M.D., Ph.D., chief of medicine. She and her team assure that veterans living in South Florida get the highest level of patient care available.

A cornerstone of our relationship with Veterans Affairs (VA) and its impact in our community is the ongoing research opportunities it affords. Studies benefiting the veteran population, South Florida, and beyond have their genesis within the University of Miami/VA partnership.

The Division of Pulmonary, Critical Care, and Sleep Medicine at the University of Miami Miller School of Medicine is currently conducting three studies in conjunction with the VA led by Michael Campos, M.D., assistant professor of clinical medicine in the division. The first aims to improve COPD diagnosis and AATD testing in primary care at the Miami VA Medical Center and is sponsored by the Alpha-1 Foundation. Next is a COPD study to understand more thoroughly the predictive symptoms of the disease. Lastly, also sponsored by the Alpha-1 Foundation, is a study titled “Targeted Detection of Alpha-1 Antitrypsin Deficiency in Patients Referred for Pulmonary Function Testing.” Leopoldo Raji, M.D., professor of clinical medicine, builds on previous years of innovative research on insulin resistance in salt-sensitive hypertension. Work this year has incorporated a clinical trial along with a pharmaceutical trial with an independent firm.

Diabetes Prevention Program Follow-Up Study

In a NIH-funded, multi-center study initiated in 1996, Hermes Florez, M.D. (clinical director of Miami GRECC and associate professor in the Divisions of Gerontology and Geriatric Medicine and Endocrinology, Diabetes, and Metabolism) and other members of the Diabetes Prevention Program (DPP) research group have recently shown that the prevention or delay of type II diabetes with lifestyle intervention (exercise and healthy diet leading to a seven percent weight loss or metformin therapy) can persist for at least 10 years. (Nearly three out of four veterans are overweight or obese while 20 percent have diabetes.) The onset of diabetes was delayed by approximately four years by lifestyle intervention and two years by metformin. This is the conclusion of an article recently published in The Lancet, a premier medical journal.
Enhance Fitness Program

Preventing functional decline in older adults is a national priority. The Miami Veterans Affairs Healthcare System (VAHCS) has become an important venue for health promotion activities in South Florida through the implementation of evidence-based programs that may improve the quality of life of veterans.

The Health Foundation of South Florida awarded investigators, including Dr. Florez, with a grant to implement the Enhance Fitness Program at the Miami VAHCS. This is part of the Healthy Aging Initiative in South Florida (www.healthyagingsf.org), which will target nearly 35,000 older adults living in Broward, Miami-Dade, and Monroe counties over the next five years. This initiative includes three additional programs for chronic disease self-management, fall prevention, and depression screening and management. Enhance Fitness is a multi-component group exercise program that includes balance, strength, endurance, and flexibility exercises. The program may improve physical and psychological functioning in older adults and could be an effective way to prevent functional decline and obesity-related co-morbidities, such as diabetes and cardiovascular disease.

Diabetes Trial

Although the VA Diabetes Trial recently concluded, there were several important findings that will affect diabetes care in veterans. This seven-year trial involving 1,800 patients at 20 VA medical centers nationwide had a mean follow-up of six years. Carlos Abraira, M.D., at the Miami VAMC, and Jennifer Marks, M.D., who headed the Miami team, also participated in this trial. Their work was subsequently published in the New England Journal of Medicine. The main purpose of the VADT was to see if a strict blood sugar control was better than standard control at preventing new cardiovascular disease. As it turns out, there was no difference between the intensive treatment group and the patients who continued regular treatment. The same results were also found in two other studies recently completed, the ACCORD trial (sponsored by the National Institute of Health) and the ADVANCE study, which was done in Europe, Asia, Australia, and Canada. However, the total number of new cardiovascular problems seen in the people who participated in the VADT overall was 25 percent less than expected, probably because of the excellent blood pressure control, reduced blood lipids, and changes in lifestyle that were part of the research program.

Division of Cardiovascular Medicine

The Division of Cardiovascular Medicine at the University of Miami Miller School of Medicine brings together many of the world’s leading experts in cardiovascular medicine and research. Under the leadership of Mauro Moscucci, M.D., M.B.A., division chief, the division’s expertly-trained cardiologists provide patients with the highest quality of care by performing a full range of cardiovascular procedures using the latest technology in its state-of-the-art facilities. Advanced technology and cutting-edge treatments are offered at all of the practice locations and use a caring, thoughtful, patient-centered approach. Division cardiologists currently see patients at the University of Miami Hospital (UMH) and other University of Miami locations as well as Jackson Memorial Hospital (Jackson). Members of the division perform groundbreaking procedures and provide state of the art treatments in the area of interventional cardiology (including percutaneous valve replacement), electrophysiology and congestive heart failure (including heart transplantation). In addition, novel and exciting treatments using bone marrow-derived stem cells to treat patients who have suffered a heart attack are currently being tested in clinical trials by a multidisciplinary stem cell research group through the division’s Interdisciplinary Stem Cell Institute. The research portfolio of the division continues to grow both in the clinical and basic science arena, with new programs on the genetic of cardiomyopathy and health services research and with expanding programs in translational medicine, cardiac hypertrophy, interventional cardiology, and stem cell research.
Until recently, individuals suffering from narrowing of the aortic valve opening, also known as aortic valve stenosis, had few medical options available to them. For years, patients were required to undergo an invasive surgical valve replacement to fix the stenosis, which can obstruct a person’s normal blood flow through the heart and lungs.

Faculty members within the Division of Cardiovascular Medicine at the Miller School of Medicine, part of UHealth – the University of Miami Health System, are examining new ways to treat such valve disorders through minimally invasive approaches. The division, in fact, is now part of a national clinical trial studying the effectiveness and safety of a minimally invasive technique known as percutaneous valve replacement (PVR).

William O’Neill, M.D., associate dean within the division and a national leader in PVR procedures (he was the first in the Western Hemisphere to perform the advanced valve replacement in a patient), now heads the University of Miami clinical trial, which is actively enrolling patients.

With PVR, a catheter is placed through the femoral artery in the groin and guided across the narrow valve and into the chambers of the heart. This new heart valve is then mounted on a stent which is “crimped” on a balloon. With inflation of the balloon, the stent valve is expanded and properly secured in place.

“Once the valve is expanded, you remove the balloon and the valve remains there. It’s essentially a valve inside of a valve since the newly placed valve that is functioning properly is implanted over the valve that is not functioning and remains there,” says Mauro Moscucci, M.D., M.B.A., division chief.

The goal of the trial is to assess the safety and efficacy of this breakthrough modality for valve replacement in patients who otherwise are not considered good surgical candidates because of other medical problems that markedly increase the risk of open heart surgery.\(^\text{11}\)

Interventional cardiologists within the division perform a large number of stent procedures, cardiac catheterizations, angioplasties, valvuloplasties, and vascular procedures every year, including complex cases, which until recently, would have required open heart surgery.

“We now have new options to treat these conditions with catheter-based technology; we can close holes, open holes, open blocked valves, and even ablate areas of the heart tissue that are linked to an obstruction of blood flow or that can lead to an irregular heart beat,” notes Dr. Moscucci. “Because of these advanced, minimally invasive approaches, we now have options for patients that just 10 years ago were unthinkable or in an early stage of development.”

Key faculty within the division are currently developing a multidisciplinary program for patients with structural heart disease to provide an integrated and multidisciplinary approach to complex conditions such as hypertrophic cardiomyopathy, valvular heart disease, paravalvular leaks, or cryptogenic stroke.

“As an academic institution, we have a great opportunity to develop a multidisciplinary program because we have access to a wide range of highly talented medical subspecialists—all under one roof,” explains Dr. Moscucci.

Patients will only benefit from such a multidisciplinary approach, since each cardiac case will be reviewed by a group of specialists comprised of general cardiologists, cardiac surgeons, interventional cardiologists, and imaging specialists.

The division works in collaboration with University of Miami Hospital, where five dedicated suites for interventional cardiology are located, including a unique suite designed to combine minimally-invasive percutaneous cardiovascular interventions with cardiovascular surgical procedures.

Clinical Advances Benefit Patients

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From Bench to Bedside

Since 1993, Ray Hershberger, M.D., has studied the genetic causes of familial dilated cardiomyopathy (FDC). Cardiomyopathy (heart muscle disease) causes the weakening of the heart muscle followed by cardiac enlargement, which together can cause a decrease in the heart’s ability to pump blood effectively. Cardiomyopathy is one of the most common reasons patients require a heart transplant, and therefore, identifying the genetic causes of FDC may lead to a better understanding of all causes of cardiomyopathy, as well as identify potential treatments. Since beginning his research, Dr. Hershberger has enrolled more than 2,000 individuals and approximately 400 families in the study. By doing so, he has made tremendous scientific progress, including identifying over 25 percent of the genetic causes in these families.

“After transplanting hundreds of patients with cardiomyopathy, we need a better way to diagnose and treat it before it reaches advanced stages of the disease. My sincere hope is that new knowledge gained from studying individuals and families with FDC will lead to earlier diagnoses and interventions, thereby saving hearts and lives,” says Dr. Hershberger.

Nanette H. Bishopric, M.D., F.A.C.C., F.A.H.A., has examined signaling and transcriptional mechanisms of cardiac myocyte apoptosis under oxidative stress. Through her work in this area, Dr. Bishopric has found that transient activation of stress signals can be protective, while chronic activation of the same signals is harmful, eliminating any clear distinction between “good” and “bad” forms of hypertrophy. Her current studies are focused on two aspects of p300 function during hypertrophy. One line of investigation will determine how p300-dependent acetylation controls regulatory protein stability during hypertrophy; a second is to identify and characterize p300-dependent microRNA regulatory circuits that control hypertrophy and heart failure. Her overall goal is to generate novel small-molecule therapeutic approaches to heart failure based on targeting p300 and/or its interaction with specific partners. In addition, she is exploring the role of calcium and p300 in patient populations, seeking genetic risk factors for heart failure and sudden death that may involve defective signaling through these pathways.

In spring 2010, Dr. Bishopric received the American College of Cardiology Distinguished Scientist Award for her efforts in basic molecular research in cardiac adaptation and remodeling.
The Division of Clinical Pharmacology at the University of Miami Miller School of Medicine, part of UHealth – the University of Miami Health System, offers a top quality research service, a network of university-based collaborating research scientists, and stringent quality assurance that conform with FDA regulatory requirements. The division has the technology necessary to conduct a wide variety of clinical trials and can provide the required scientific and pharmacokinetic support in conducting clinical research studies. The division also conducts original research in the areas of hypertension and renal disease, pharmacokinetics in diabetes mellitus, the effect on renal potassium excretory function of various antihypertensive drugs, platelet aggregation, and the clinical pharmacology of antibiotics, anti-hypertensives, central nervous system drugs, and cardiovascular agents.

High blood pressure is the second leading cause of kidney failure in the United States, according to the National Kidney Foundation. If left unchecked, this dangerous condition can result in severe levels of blood pressure elevation and can also lead to stroke, heart attack, and heart failure. Still, very little is known about how the blood pressure damages the artery or how it can reach such alarming levels.

Richard A. Preston, M.D., chief of the Division of Clinical Pharmacology at the University of Miami Miller School of Medicine, along with Chunming Dong, M.D.; Shoukand Zhu, M.D.; David Afshartous, Ph.D.; and Marco Gonzalez, M.D. (from the Division of General Internal Medicine), are one step closer to finding out why.

The team’s recent research into the role endothelial progenitor cells (EPCs) play in vascular injury and repair may prove to be an important piece of the puzzle.
Novel Technique May Help Determine Drug Safety in Patients

Approximately 5-10 percent of individuals with chronic kidney disease are predisposed to having high blood potassium levels since their kidneys cannot process potassium efficiently enough. Known as hyperkalemia, the condition, in its severest form, can cause rhythm problems in the heart and even lead to cardiac arrest.

Unfortunately, the drugs currently used to slow the progression of kidney disease can also cause hyperkalemia in some patients. That is because this very drug combination used to block the renin-angiotensin-system (RAAS), which is responsible for causing the damage to the kidneys, also impairs the kidney’s ability to efficiently process potassium in the blood.

Dr. Preston and David Afshartous, Ph.D., are examining the mechanisms of how this occurs. To do so, they’ve developed a novel technique to better predict who might develop hyperkalemia if given such drugs. The simple, yet clever technique administers an oral load of potassium (equivalent to the amount of potassium contained found in an average meal) to patients in a small controlled study group to gauge how high the potassium level will rise. If levels of potassium in the blood increase, researchers may be able to predict that this particular patient has a better chance of developing hyperkalemia, and therefore, may not be a good candidate to receive this drug combination for their kidney disease.

Lowering Blood Pressure in Post-Menopausal Women

For many women going through menopause, blood pressure is known to climb steadily, especially with the consumption of salty foods. (Blood pressure is considered to be sodium sensitive when it varies directly and substantially with the intake of sodium.) At UHealth, studies powered by the Miller School of Medicine have shown that salt sensitivity is associated with impaired nitric oxide production, a chemical in the body that allows blood vessels to dilate and function normally. Dr. Preston and his team are involved in ongoing studies of novel, anti-hypertensive drugs that release nitric oxide into the body in an effort to see if these drugs will, in fact, help reverse salt sensitivity in these women and then lower their blood pressure.
Division of Emergency Medicine

Located in the heart of the medical center, the Division of Emergency Medicine at the University of Miami Miller School of Medicine staffs the Jackson Memorial Hospital (Jackson) Emergency Care Center, a high-volume, high-acuity emergency department that offers a full range of patient services. As a training department, the division ensures that physicians-in-training from many specialties and medical students receive top-notch academic and clinical preparation. The clinical education component is conducted at the Jackson Emergency Care Center.

Emergency medicine clinicians are specialists who participate in direct patient care for emergencies that range from acute, life-threatening trauma, to pediatric care and adult medical care. In their role as educators, faculty members use hands-on experiences in the department, which serve as a rich educational environment for residents, medical students, and emergency medical technicians. Division faculty also conduct cutting-edge research with focused expertise in a variety of areas such as toxicology, pediatric emergency medicine, out-of-hospital emergency care, and emergency cardiovascular care.

Community CPR Training: A Matter of Life or Death

Would you know what to do if someone close by suffered a heart attack? Chances are, probably not. In fact, the percentage of local citizens properly trained in CPR remains dangerously low. Fortunately, a new program coordinated by the Division of Emergency Medicine at the Miller School of Medicine, part of UHealth – the University of Miami Health System, is working to change that.

“The single biggest gap in our ability to bring victims of sudden cardiac death back to life is public CPR,” says Kathleen Schrank, M.D., division chief and professor of emergency medicine. “We need our citizens to know what to do and to be willing to do it until rescue arrives.”

Spearheaded by Dr. Schrank and Marc Grossman, M.D., F.A.C.E.P., a voluntary assistant professor in the division, along with the University of Miami’s Gordon Center for Research in Medical Education, a “CPR short course” to effectively train the public in cardiac arrest care is now available.

Family and Friends CPR Anytime Kits, also known as “CPR in a Box,” provide learners of CPR with a 20-minute hands-on course through a special kit that comes readily equipped with a chart, small mannequin, and DVD. More importantly, trained individuals can return home, with kit in hand, to teach CPR to other family members and friends.

The kits are being purchased with help from local donors and distributed to middle schools and other local sites in an effort to train a wide segment of the population in this life-saving technique. Fire department paramedics are assisting. A public service announcement (PSA) campaign (“Chest Compressions: Push Hard, Push Fast, JUST DO IT!”) will also hit the airways soon.
Medical students during the clinical portion of their Emergency Medicine Clerkship spend a day with a paramedic crew on a City of Miami Fire Rescue truck responding to 911 calls and receive hands-on simulation training at Jackson’s Patient Safety Center’s Simulation Lab. Here, they witness realistic emergency scenarios, through the use of the SimMan® Advanced Patient Simulator, prompting them to think on their feet and take definitive actions to stabilize the patient.

The program provides fourth-year students with state-of-the-art acute medical care training. During the intense four-week training, Miller School of Medicine students work alongside division faculty, evaluating and treating newly arriving patients at Jackson’s Emergency Care Center.

All of their care is performed under the watchful eyes of division faculty coordinators and a group of core division faculty. Each SimLab case is videotaped so students can critique themselves during subsequent debriefing sessions. Every graduate also completes a full course in CPR for patients of all ages, an airway skills lab, a full certification course in Advanced Cardiac Life Support, and the Emergency Response to Terrorism course at the Miller School of Medicine’s Gordon Center for Research in Medical Education, under the direction of Ivette Motola, M.D., F.A.C.E.P.

At the end of the clerkship, each student, no matter their specialty, will graduate from the program ready to quickly initiate care for any emergency condition they will encounter as residents-in-training.

Ready for an Emergency

When disaster strikes, “first-in” response teams arrive on the scene to quickly provide invaluable emergency care. In South Florida, these teams will include several of the division’s faculty members including Joseph Scott, M.D., the first division specialist to be chosen as the medical team leader for FEMA’s International Medical Surgical Response Team (IMSuRT)-South.

Sandra Mostaccio, M.D., Winifred Fili, M.D., and Dr. Grossman are members of the Florida Task Force 2—one of FEMA’s premier Urban Search and Rescue Teams. The team’s goal is to locate, extricate, and transport victims of disasters. They are trained to deploy into high-risk scenes and crawl through collapsed buildings to find and save as many victims as quickly as possible. Their prompt care often is the difference between life and death.

First on the Scene

Hard-working high school students now have a chance to train for a rewarding career as emergency medical technicians (EMT) as part of their high-school curriculum, thanks to a dream of City of Miami Fire Chief Maurice Kemp and Drs. Schrank and Grossman, who developed an EMT training program for seniors at a Miami-Dade inner-city high school.

Twelve students completed the rigorous curriculum during the program’s first year and are now finishing their “clinicals” aboard rescue trucks and at Jackson’s Emergency Care Center, while preparing for their State of Florida certification exams.

This year, 26 seniors have started the EMT training, which requires the completion of two years of health science courses prior to entry. The program was created in partnership with the City of Miami Fire Rescue Department, the Miami-Dade County School Board, and Jackson.

EMT Training Starts Even Younger
Emergency Care for Acute Stroke Victims

When a stroke strikes, rapid identification and transport by rescue workers to a stroke center/hospital is absolutely critical for a patient’s survival. Since 1995, UM/Jackson emergency physicians and neurologists have performed rapid administration of thrombolytic “clot-busting” drugs within three hours from the onset of a stroke that can mean the difference between life and death.

As a Comprehensive Stroke Center (the first in South Florida), UM/Jackson has neurologic interventionalists who provide round-the-clock emergency endovascular interventions. The facility also accepts emergency transfers from other local primary stroke centers for those state-of-the-art procedures.

Division faculty members also have worked to establish a community-wide stroke coalition in conjunction with neurologists Ralph Sacco, M.D., Alex Forteza, M.D., Jose Romano, M.D., and Jeffrey Horstmyer, M.D. The coalition, which began with six fire rescue departments, has grown to include all area hospitals with an interest in acute stroke care. Drs. Schrank and Grossman, along with Dr. Donald Rosenberg (Division of Cardiology) and Dr. Fred Keroff (Community Emergency Medicine), have a long-standing Stroke Network Transport System to assure acute stroke victims are rapidly transported to the nearest stroke center hospital.

Division of Endocrinology, Diabetes, and Metabolism

Obesity, diabetes, osteoporosis, and other endocrine diseases affect tens of millions of Americans and many more worldwide. The mission of the Division of Endocrinology, Diabetes, and Metabolism is to provide the highest quality out-patient and in-patient care in these areas, along with top quality medical education and research. With that in mind, the division has recruited 10 new faculty members, merged operations with the Diabetes Research Institute (DRI) and now is leading the Eleanor and Joseph Kosow Diabetes Treatment Center and its new endocrine testing center. In addition, our clinical operations have expanded to the Miami Jewish Home and UHealth-Kendall. Recently, the division partnered with the DRI to run a fully-accredited clinical laboratory equipped to perform state-of-the-art diagnostic procedures assisting in the diagnosis and follow-up of patients with endocrine diseases.

To offer the highest quality of patient care, division faculty work closely with other physicians at University of Miami, including endocrine surgeons, neurosurgeons, nuclear medicine specialists, radiologists, and pathologists. This comprehensive, integrated approach simplifies the patient experience and results in the delivery of high-quality patient care.

Education and research also have been a priority. The division has been reorganizing its fellowship program, which is now focused on “mentoring young physician scientists whose goals include using basic and clinical research to treat and cure patients with metabolic diseases,” notes Antonio Bianco, M.D., Ph.D., division chief. The program offers an exciting training experience that promotes the development of focused clinical skills, critical thinking, and the ability to stay abreast of the newest knowledge in the field of endocrinology. These goals are achieved through close interaction between the fellows and the division’s team of physician-scientists and basic scientists working on research projects spanning the breadth of the field.
In January 2009, the clinical operations of the Division of Endocrinology, Diabetes, and Metabolism at the University of Miami Miller School of Medicine, merged with the clinical operations of the Diabetes Research Institute (DRI), to operate as one, cohesive unit. Today, the division’s clinical enterprise encompasses both diabetes and endocrine functions with affiliated clinics located throughout Miami-Dade County. The division is part of UHealth – the University of Miami Health System.

On the University of Miami/Jackson Memorial Medical Campus, clinics are located at the Eleanor and Joseph Kosow Diabetes Treatment Center as well as the University of Miami Hospital and Clinics (UMHC). The division also operates clinics at the UHealth-Kendall location and the Miami Jewish Home and Hospital for the Aged in Miami Beach. The division is also currently exploring collaborative opportunities with a large multi-specialty practice near Mount Sinai Medical Center in Miami Beach.

“We have patients coming from the tri-county area and beyond so it made sense to further branch out into the community,” notes Luigi Meneghini, M.D., M.B.A., director of the division’s clinical operations. “We first needed to optimize the clinical operations here within the medical campus, specifically at the Kosow Center, which is currently our largest clinical site. In coordination with the vision, mission, and the clinical objectives of the Department of Medicine, we plan on reaching out into the community and further expand the depth and breadth of our clinical operations for the benefit of patients, referring physicians, and our endocrine colleagues in the community.”

The division also continues to build its diabetes and endocrine consultation services in the inpatient setting. Currently, the division has ongoing inpatient activities at Jackson Memorial Hospital (Jackson), Sylvester Comprehensive Cancer Center / UMHC–University of Miami Hospital & Clinics (Sylvester), and over the past year, has built up the inpatient activities at University of Miami Hospital (UMH).

Luz Prieto, M.D., who has been spearheading the in-patient diabetes efforts for the division, is working to increase overall awareness of the clinical services offered at UMH with the goal of improving patient care and interdepartmental collaborations, while increasing patient volume and overall productivity at that location. Dr. Prieto and her team have been implementing standard protocols for inpatient management of diabetes, as well as improving processes, as well as outcomes, for patients with diabetes and hyperglycemia admitted to UMH. The division’s goal is to establish recognition for excellence in diabetes in-patient management at the various hospitals within the UHealth system.

Recognizing the importance of a multidisciplinary approach to the evaluation and management of complex endocrine diseases, Atil Kargi, M.D., is now the director of the endocrine consultation service. He aims to spearhead efforts to further expand and develop this important in-patient activity. Working closely with the endocrine faculty of the division, as well as its fellowship program, Dr. Kargi will bring renewed energy and expertise to a vital component of the division’s clinical and educational operations.

The practice of endocrinology often requires the use of sophisticated, dynamic testing to confirm or exclude one of the many potential conditions and diagnoses. The division’s new Endocrine Testing Center (ETC), under the direction of Alejandro Ayala, M.D., has been created to facilitate such evaluations. He and his team are charged with handling all referrals to the center, carrying out appropriate patient tests and evaluations, such as ACTH or CRH stimulation, glucose or insulin tolerance, clonidine suppression, and water deprivation, to name a few.

The ETC represents a unique and invaluable resource to the practice of endocrinology for the academic faculty, as well as our endocrine colleagues in the community.
New Research Laboratory is Created

The division recently created a fully equipped 5,000-square-foot state-of-the-art research laboratory on the sixth floor of the Batchelor Children’s Research Institute. This lab will be used to study the fundamental aspects of thyroid hormone metabolism and action, as well as to understand how hormones control metabolism and energy expenditure.

This laboratory is also home to a Mouse Metabolic Profiling Program that specializes in the study of genetically modified animal models. Identifying and understanding the consequences of one or more genetic modifications require extensive physiological knowledge and sophisticated hardware to test such animals.

Created and directed by Antonio Bianco, M.D., Ph.D., division chief, the mouse metabolic phenotyping core facility is capable of animal acclimatization at a wide range of environmental temperature (4-32°C), determination of body composition by DEXA, continuous measurement of energy expenditure, respiratory quotient, food and water intake and mouse physical activity with a CLAMS equipment. Animals also can be probed for measurement of core temperature and measurement of interscapular brown adipose tissue thermal response to infusion of different compounds.

In 2008, Dr. Bianco and Brian Kim, M.D., developed the concept and established a cell metabolic profiling core facility at the Brigham and Women’s Hospital, a teaching affiliate of Harvard Medical School. This was achieved while testing the first prototypes of “XF-24” technology from Seahorse Biologics (Billerica, MA) to monitor the physiological activity of cells over the course of an extended or multi-step experiment; this allows for the profiling of cellular metabolism. In Miami, Dr. Kim then established a similar program equipped with a XF-96 (96-well platform) that provides physiologically relevant readouts of cellular behavior that are used to determine metabolic rate, i.e. oxygen consumption and the extracellular acidification rate that mirrors lactate production. Both scientists have accumulated experience with this technology and are able to study multiple cell systems, creating the necessary infrastructure to study how different molecules or hormones affect cellular metabolic parameters in a controlled cellular environment. The strength of this approach relies on scientists who are able to correlate, in real time, mechanisms that take place at a molecular and cellular level with complex physiological parameters such as rate of metabolism and energy expenditure. Other important cellular measurements already available at the Miller School that are being incorporated in the same training setup include the study of insulin-stimulated glucose uptake, glycolytic flux, oxidative phosphorylation parameters, the activity of key rate-limiting metabolic enzymes or pathways, and the expression profiling of key metabolic genes by quantitative real time PCR. Programs such as these are being created in a number of centers in the United States and abroad. Here at the Miller School, they are critical in allowing trainees and scientists to have the opportunity to learn the theory and its practical aspects.

Research activities in the division are rapidly expanding with the recruitment of key faculty such as Alejandro Caicedo, Ph.D. A physiologist, initially trained in sensory neuroscience, Dr. Caicedo is applying his expertise to study...
the physiology of human islet cells, specifically the structural and functional properties of islet cells that lead to highly regulated hormone release. His results indicate that the human islets of Langerhans have a unique cytoarchitecture that facilitates paracrine signaling. In collaboration with colleagues at the Diabetes Research Institute, Dr. Caicedo is identifying paracrine, autocrine, and neural signals that contribute to coordinate hormone secretion in human islets. He also is studying the biology of islets in the living organism using a new technological platform, namely islet transplantation into the anterior chamber of the eye. Dr. Caicedo’s research is expected to impact current models about the regulation of hormone secretion by the endocrine pancreas. Furthermore, the identification of signaling molecules will open new avenues for pharmacological intervention.

For his 80th birthday, Robert F. Feltman, M.D., received a remarkable gift from his eight children. In 2007, the family surprised him by creating the Robert F. Feltman Gastroenterology Educational Fund, which supports a University of Miami Miller School of Medicine fellow or medical resident with an interest in gastrointestinal (GI) disorders.

“I was shocked and amazed. It was wonderful,” says Feltman, recalling his reaction to the gift. “For them to think of creating a fund to support GI fellows was so special to me. I really enjoyed working in that division. I loved teaching the GI fellows as they were an outstanding, intellectual group.”

Feltman, a graduate of George Washington Medical School and a World War II veteran, joined the Department of Radiology at the University of Miami Miller School of Medicine in 1960. Particularly concerned with training GI fellows, he set up weekly conferences to teach students how to properly read X-rays and make a diagnosis using X-ray films.”

The greatest gift
He did all of this on his own time since he enjoyed teaching. Feltman left the Miller School in 1967 to chair the Department of Radiology at Cedars of Lebanon Hospital, which is now part of the Miller School of Medicine. He retired from his practice in 1996 but continued teaching on a voluntary basis until about five years ago.

Close friends and family members continue to donate to the fund, which will begin supporting GI fellows within the Division of Gastroenterology this year. Feltman’s wife Sylvia (Sissi) reminds friends and family to support the fund on special occasions. “I had a recent birthday and I encouraged my family and friends to make donations to the fund,” she says.

For Feltman, the creation of the fund has allowed him to stay connected with the University, and in some respects, continue teaching. “I’ve watched the medical school grow, and I am happy to be able to help the division in their educational efforts,” adds Feltman.

The Robert F. Feltman Gastroenterology Educational Fund will serve as a legacy for a dedicated physician who helped train a generation of gastroenterologists at the School of Medicine.
Into the Black Box
Less than ten years ago, some patients suffering from unexplained gastrointestinal bleeding were sent home untreated, especially if an upper intestinal endoscopy and a colonoscopy could not readily detect the source of the bleeding. Part of the reason is that the length of the endoscope used then was not long enough to reach the very last part of the small intestine, which in its entirety can measure up 20 feet long. Another problem was that the technique of push enteroscopy did not pleat the intestine upon itself to effectively enter the depths of the small intestine. This area of the small intestine, not surprisingly, was often dubbed the “black box” since few gastroenterologists, could reach—let alone treat—any problems occurring there.

The field of diagnostic gastroenterology has advanced by leaps and bounds since then. Today, a variety of cutting-edge endoscopic techniques allow gastroenterologists such as Javier L. Parra, M.D., assistant professor of clinical medicine in the Division of Gastroenterology at the University of Miami Miller School of Medicine, part of UHealth — the University of Miami Health System, to not only enter and examine a patient’s intestinal tract but to treat and fix certain intestinal problems on the spot.

Dr. Parra performs capsule endoscopy as well as balloon-assisted enteroscopy. With capsule endoscopy, a tiny wireless camera sits inside a pill-sized capsule that a patient swallows. As it travels down the digestive tract, the mini camera takes close to 50,000 photos of the digestive tract alerting the gastroenterologist to any problems present, such as lesions, polyps, or tumors in the intestinal tract.

With single and double balloon-assisted and most recently, with spiral-assisted enteroscopy, a new procedure that uses a sleeve with a corkscrew-like device to pleat the intestine and move around the scope, Dr. Parra is able to enter the deepest parts of the small intestine. There he can find the bleeding lesion or related problem and repair what he finds. This is done by passing instruments, such as catheters or electricity conducting devices, through the scope, which he uses to cauterize and seal bleeding lesions, remove polyps, or biopsy tissue.

On average, he performs about ten such balloon or spiral-assisted enteroscopic procedures a month at University of Miami Hospital. The minimally invasive procedure takes only 35-45 minutes to complete.

Examining Bacteria’s Role in Cancer
María T. Abreu, M.D., professor of medicine and chief of the division, studies how bacteria are recognized by the gut. Researchers in her laboratory have discovered the important role bacterial signaling plays in aiding the gut to repair itself.

Over time, Dr. Abreu’s team has also found that in individuals who suffer constant damage to the gut, such as those with ulcerative colitis, a type of inflammatory bowel disease that affects the large intestine or colon, this signaling can go awry, predisposing them to cancer.

“For example, if someone took aspirin or anti-inflammatory medication, bacteria would help the intestine repair damage such as cuts or ulcers. But for those who have damage all of the time, the same bacterial recognition can eventually lead to colon cancer,” notes Dr. Abreu.

Researchers in Dr. Abreu’s lab are now conducting two research projects aimed at looking at the role of bacteria in causing colon cancer. Studies seem to indicate that patients who have had excessive damage to the gut (such as those with ulcerative colitis or Crohn’s disease) and who have gone on to develop pre-cancerous lesions and then colon cancer, may have higher levels of expression of a specific bacterial recognition receptor known as toll-like receptor 4 (TLR4).

“The link that we have been able to make is that these toll-like receptors located in the lining of the gut are playing an important role in growth and repair so when they are over stimulated it causes an over-growth of cells, which can eventually lead to cancer,” she says.

In the future, Dr. Abreu hopes that by targeting this specific pathway, physician-scientists will be able to use antibodies to neutralize the effects of such receptors, especially in those individuals who are on their way to developing cancer.
Prostate cancer responds very well to high doses of radiation therapy so accurately targeting the prostate is crucial to treatment success. The prostate can be a challenging target, though, since its position can change depending on the dynamics of the neighboring bladder and rectum. It also can be hard to locate in obese patients.

Implanting radiopaque markers, which serve as reference points to delineate organs, can be a useful mapping tool. These markers provide Afonso C. Ribeiro, M.D., associate professor of medicine, with a far more accurate target for radiation therapy. This is especially important since if the prostate is not precisely targeted, there is added risk of damaging adjacent organs due to the high levels of radiation being used.

“The best way to deliver radiation therapy to the prostate is with these types of markers because you know with exact precision where the prostate is,” notes Dr. Ribeiro, who recently led a study that examined the feasibility and safety of using endoscopic ultrasound to implant markers in prostate cancer patients needing targeted radiation therapy. “Today, almost all radiation to the prostate is done with some guidance.”

Such implantable markers are also used in patients where the prostate has been removed (due to cancer) and where there has been some local cancer recurrence. For example, Dr. Ribeiro can map the area where the prostate was initially, generally below the bladder and around the urethra, so that radiation oncologists can radiate the field properly and treat the cancer.

Division of General Internal Medicine

The Division of General Internal Medicine, the core of internal medicine and all of its subspecialties, is focused on education, research, and patient care. For persons who are relatively healthy, division faculty focus on health maintenance by preventing and delaying the onset of serious illnesses. Division faculty also provide ongoing long-term primary care for person with a wide spectrum of medical disorders such as hypertension, hypercholesterolemia, coronary artery disease, pulmonary disorders, diabetes, gastrointestinal illnesses, and musculoskeletal disorders. For those who have multiple co-morbid medical conditions, faculty within the division provide world-class comprehensive, coordinated, and individually tailored care with a goal of avoidance of further long-term complications.

The division is at the forefront of medical education and division faculty have leadership roles in many educational programs at the University of Miami, including leadership in outpatient education for students, residents, and faculty. In addition, our faculty contribute to the research enterprise in important areas such as medical ethics, medical education, health services research, minority health, health services research, and health policy research.
Research Projects Abound

With new research leadership, the division has already begun several research programs focused on the areas of health disparities and optimum delivery of health services to vulnerable and disadvantaged populations.

The Miami Healthy Heart Initiative

Can community health workers make a difference when reaching out to minority populations to assist with such health concerns as diabetes or high blood pressure? The Miami Health Heart Initiative, a randomized controlled trial being conducted by a team of division researchers, led by Olveen Carrasquillo, M.D., M.P.H., is close to finding out. This ongoing study will determine if these workers are an effective complement to help improve cardiovascular risk factors (such as blood pressure and cholesterol) among Latino patients with poorly controlled diabetes. The study is funded by a grant from the National Institute of Minority Health and Health Disparities, and sponsored by the National Center for Minority Health and Health Disparities, is examining whether a nurse-led motivational interviewing phone call can help improve patient medication compliance.

“The nurse will also have real-time access to pharmacy claims data so she will know when a patient has not refilled his/her prescription, she can then assist the member with any issues preventing them from filling a Plavix prescription. For example, she can help in placing a call to the pharmacy,” says Dr. Palacio. By keeping better tabs on patient after such a stent procedure, she hopes to help more of them take their prescribed medication which, in turn, will lead to better cardiovascular health outcomes.

Improving Written Patient Communication

For those women who’ve been on the receiving end of those standard letters typically sent out after an abnormal mammogram, chances are the words on the page were not easy to understand. Erin N. Marcus, M.D., M.P.H., associate professor of clinical medicine, and Yanisa Del Toro, M.D., assistant professor of clinical medicine, are conducting a study showing that these letters sent to patients after an abnormal...
Innovative Educational Work

Preparing high school students from disadvantaged backgrounds to compete and enter into varied health professions is the goal behind the Miami Model for Health Professions Education. Sheri Keitz, M.D., Ph.D., professor of medicine in the division and chief of medicine at the Miami Veterans Administration (VA), has obtained support from the Health Resources Services Administration (HRSA) to conduct this innovative program, whose goal is to provide the necessary skills to disadvantaged youth to spark their interest in the health profession. The program is being conducted through a partnership with several local schools and other community-based organizations and offers a summer science education program component, a Saturday Science Academy, and a research training component.

In an effort to increase residents’ knowledge about, and interest in, research, Leonardo Tamariz, M.D., assistant professor of medicine, and Dr. Palacio have developed the Resident Scholarly Activity Project (RSAP) for the Department of Medicine’s Residency Program. A scientific abstract about the project presented at the SGIM meeting showed the RSAP project improved research knowledge among residents by over 20 percentage points as measured by a standard research knowledge instrument. Additionally, all residents completed certification in human subjects’ research and one third presented their scholarly findings at scientific meetings.

Division Hosts Annual Meeting

The Division of General Internal Medicine hosted the Annual National Meeting of the Society of General Internal Medicine (SGIM) in May 2009. SGIM is the professional organization representing academic general internists who are committed to promoting research and education aimed at improving healthcare for patients. Alex Mechaber, M.D., associate professor of medicine and associate dean for undergraduate medical education, served as the co-chair for the meeting, while Hilit Mechaber, M.D., assistant professor of clinical medicine and assistant dean for student services, acted as the chair for students, residents, and fellows program, and Yvonne Diaz, M.D., assistant professor of clinical medicine, shared the host committee. Division faculty presented 23 scientific abstracts, workshops, clinical vignettes, and clinical symposia at the annual meeting. The program included a tour to the Michael S. Gordon Center for Research in Medical Education where SGIM members got a close up view the inner workings of Harvey, the cardiopulmonary simulator, developed at the Miller School of Medicine and used internationally. (See photo below.)
Division of Gerontology and Geriatric Medicine

The Division of Gerontology and Geriatric Medicine at the University of Miami Miller School of Medicine is dedicated to the improvement of health, independence, and quality of life of older persons and focuses on reducing the burden of dependent persons through interdisciplinary learning and discovery. Divisional training and research activities are based in interdisciplinary care models established and maintained by the faculty.

The division also administers one of the nation’s largest geriatric medicine fellowships. This dynamic and evolving program, which is accredited for 10 training positions by the Accreditation Council for Graduate Medical Education (ACGME), blends clinical, research, and teaching activities to meet the needs of fellows in training according to ACGME guidelines. Upon graduation, fellows trained in Miami have consistently obtained careers in clinical medicine, academic medicine, or health care administration.

Finding a preventive approach to such chronic diseases as cancer, diabetes, osteoporosis, and Alzheimer’s has been a longstanding goal of the Division of Gerontology and Geriatric Medicine at the University of Miami Miller School of Medicine, part of UHealth – the University of Miami Health System.

For years, researchers in the division examined the important role exercise and nutrition play in delaying the onset of many age-related diseases. To promote healthier aging among south Floridians, today the division’s team is actively implementing a variety of evidence-based programs to increase physical activity and enhance fitness in older adults, provide appropriate management of age-related diseases such as cardiovascular disease and diabetes, as well as prevent falls (and related injuries) in the elderly by increasing their overall balance and stability.

Division researchers, led by Bernard A. Roos, M.D., division chief, along with Hermes Florez, M.D., M.P.H., Ph.D., are examining innovative prevention approaches for diabetes and its cardiovascular co-morbidities. Among these approaches are a weight-management program based at Miami Veterans Affairs Healthcare System and the Diabetes Prevention Program (DPP), in which University of Miami researchers are showing the benefit of intensive lifestyle modification or metformin for reduction of diabetes risk in subjects with prediabetes.

The Path to Healthier Aging

Few foods naturally contain vitamin D, so most Americans depend on sun exposure to maintain adequate vitamin D levels in the blood. That’s why division researchers were surprised to find that despite Florida’s year-round sunny weather, over 50 percent of adults in the greater Miami area have vitamin D insufficiency.

Armed with that information, division faculty have embarked on a series of studies evaluating the health consequences of vitamin D deficiency. For example, low vitamin D levels, commonly found in obese persons, are associated with inflammation and insulin resistance, which often lead to diabetes.

Until recently, vitamin D and its biologically active metabolites were thought to have the sole function of maintaining bone health. But researchers within the division (and at other academic medical centers) are finding that vitamin D plays an essential role in multiple aspects of human health. Normal vitamin D levels not only maintain optimal bone health, sufficient vitamin D is needed to promote normal muscle function, immunity, and glucose metabolism. It also helps reduce the risk of colon cancer and cardiovascular disease.

Consequently, division researchers have initiated a broad series of collaborative studies on vitamin D deficiency and its effects on overall health, specifically examining cognitive and physical functioning in individuals age 60 and older.

Vitamin D: From Bone to Brain

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Imagine being able to receive daily, real-time updates on a family member or loved one with a chronic disease without having to leave your home or place of business. Faculty members within the division, including Stuti Dang, M.D., M.P.H., have a high-tech way to help caregivers get such valuable information electronically.

Known as Mobile Collaborative Solution for Community-Based Disease Management, this innovative, patented technology was developed in collaboration with GenerationOne, a private company, and the University of Miami College of Engineering and uses advanced cellular phone technology (such as interactive video text and voice recognition) to assess and educate persons and families dealing with a host of chronic conditions, including diabetes, heart failure, hypertension, and chronic obstructive lung disease.

Automated telephone-based messaging devices deliver questions, reminders, and health tips (via voicemail or text message) based on the patient's vital signs data, clinical symptoms, self-management behaviors, and knowledge. Nurses then coordinate the care of the patients based on their daily responses.

### Advances in Telemedicine Improve Care While Easing Caregiver Burden

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### Good Bones Promote Good Health

Research into bone biology and calcium metabolism has helped advance the treatment and prevention of osteoporosis, but division researchers also are examining the body’s repair processes and the role aging plays in age-related degenerative diseases. More importantly, a unified public health strategy to bolster tissue repair and reduce the burden of aging and age-related disease is emerging from the division’s work in this area.

For years, division researchers were aware of the connection between bone health and overall health: bone loss and osteoporosis, for example, are associated with other degenerative age-related diseases. These associations led to pivotal research within the division examining diverse cell populations in the bone, especially stem cells, that reside in the bone marrow.

Known as marrow-isolated adult multilineage inducible cells—or MIAMI cells—these stem cells not only work to maintain bone, they also respond to signals from damaged tissues throughout the body and even generalized inflammation by migrating from the bone marrow into the bloodstream and then to those tissues in need of repair.

“What we’ve discovered is that when you maintain good bones you maintain a good population of stem cells in your bone marrow that are responsible for repairing all of the damage throughout your entire body. So if you exercise and keep your bones healthy, the rest of you benefits,” explains Dr. Roos.

Fewer of these cells can be recovered from the bone marrow during the aging process, however. In fact, researchers believe that depletion of these pluripotent cells reflects hormonal imbalance that occurs during aging and resultant changes in the skeletal and calcium metabolism. This depletion during the aging process affects the ability to respond to and repair tissue damage in a range of extraskeletal tissues.

As a result, researchers now believe maintaining bone health through appropriate physical activity and dietary regimens will prevent decline of these adult stem cells and thereby delay the onset of disease that results from degenerative changes in blood vessels and multiple organs and soft tissues throughout the body.

In the lab, researchers already have shown that MIAMI cells are neuroprotective in brain tissue ischemia and in peripheral vascular ischemia of the lower limb. They now want to understand how aging influences the regulation and production of these adult stem cells within the bone marrow as well as their release and trafficking to extraskeletal sites of repair. Such an understanding will allow the division to translate these studies into innovative prevention and treatment of age-related chronic illnesses.

### Characteristics of MIAMI Cells Decrease with Aging

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Part of the division’s innovative telemedicine program is T-Care, a technology-integrated care-coordination program created 10 years ago. The T-Care program has made major advances in the care of vulnerable and frail persons by integrating computer-linked monitoring and communication systems with sophisticated voice recognition-based technology and data-mining approaches. The care model that has evolved from the initial pilot project provides quality and cost-effective care of older persons with common chronic illnesses through technology-based communication and interactions. T-Care benefits virtually all aspects of chronic care, including assessment of clinical status and patient needs, comprehensive care planning, transitional care, self-care and caregiver support, follow-up over time, and reassurance.

Molecular Gerontology Program

What happens to us when we age? The division’s newly created Molecular Gerontology Research Program is helping to answer that very question by uncovering the molecular mechanisms underlying aging and age-related diseases. The program’s aim? To gain an even better understanding of the aging and disease processes and their interactions, with the ultimate goal of developing innovative approaches to help individuals lead healthier and longer lives.

The program was created with the support of Marc E. Lippman, M.D., chair of the Department of Medicine, and will be led by Bruce Troen, M.D., a geriatrician and molecular biologist and member of the division. Several scientists with expertise in aging and age-related disease, including Priyamvada Rai, Ph.D., and Ramiro Verdun, Ph.D., have already been recruited to the division to support the development of this program. One goal is to understand basic biology underlying the strong relationship between aging and common age-related problems such as prostate cancer as well as the deterioration of bone and muscle during aging. Another goal of the program is to gain new knowledge of oxidative stress pathways and telomere maintenance mechanisms related to cellular senescence and the prevention of cancer. Such insight into specific pathways and mechanisms opens new avenues for tissue repair and the prevention and therapy of cancer.

Miami Jewish Home: Delivering Care That’s Within Reach

When the Department of Medicine sought to improve its delivery of services to the elderly in our community, the Division of Gerontology and Geriatric Medicine began to explore better ways to perform those services where patients live.

Dr. Michael Silverman, professor of medicine, and Dr. Edilia Alzugaray have been providing compassionate health care at the Miami Jewish Home for years. As of October 2008, Dr. Alzugaray has led these efforts as an assistant professor of clinical medicine, and her commitment to the delivery of top-quality health care to this unique population now encompasses subspecialties such as endocrinology, a Miller School of Medicine division that also devotes clinic time on site at the Miami Jewish Home.

“The Miami Jewish Health System has a longstanding tradition of excellence, and the University of Miami has had a history of excellent geriatric research based at this facility, which was recognized and supported by the designation of the Miami Jewish Home as the first State of Florida Teaching Nursing Home, led by the division director, Dr. Bernard Roos. It is appropriate and exciting to be in a position to capitalize on these traditions and provide outstanding care to this important population,” said Marc Halman, vice chair, administration, Department of Medicine.

Building on the success at the Miami Jewish Home, the department is actively developing additional opportunities to deliver a high standard of care to new and specialized groups within our community.

Miami Jewish Home: Delivering Care That’s Within Reach

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Building on the success at the Miami Jewish Home, the department is actively developing additional opportunities to deliver a high standard of care to new and specialized groups within our community.
The Division of Hematology-Oncology provides medical oncologic and hematologic services to Jackson Memorial Hospital, Sylvester Comprehensive Cancer Center / UMHC–University of Miami Hospital & Clinics, University of Miami Hospital, and the Miami Veterans Administration Hospital. The division sees over 5,000 newly referred cancer patients per year and a large variety of patients with hematologic illnesses.

Phase I trials are the first human tests of an experimental therapy. They are designed to determine a drug’s safety and correct dosage and often provide the critical first step in the development of promising new anti-cancer drugs, providing options to patients that have failed standard approaches.

The Phase I Clinical Trials Program, led by division researchers Caio Max S. Rocha Lima, M.D., and Jaime Merchán, M.D., M.M.Sc, is designed to provide patients with early access to novel therapeutic agents while maintaining the highest standards in patient care. The program supports clinical studies resulting from the scientific developments of University of Miami investigators. As a result, the program—the only Phase I drug development effort in South Florida—continues to successfully provide new hope for patients affected by cancer.

Program researchers also study the pharmacokinetics of new drugs (how the body metabolizes a particular drug) to effectively study how drugs are absorbed, distributed, metabolized, and eliminated by the body. Phase I researchers also try to identify biomarkers in the blood that may correlate with the drug’s benefit or potential toxicity.

Currently, the program is testing a variety of novel agents, both alone and in combination with chemotherapy, in patients with solid tumors. One such promising trial is using Sunitinib (an oral, small-molecule, multi-targeted receptor tyrosine kinase inhibitor) in combination with a novel chemotherapeutic agent known as ixabepilone, which is given at different schedules for patients with advanced solid tumors who have not responded to prior therapies. This clinical study is an outgrowth of scientific developments within the University of Miami.
The discovery of the STING molecule was a key factor in awards for both Drs. Barber and Ishikawa from the International Society for Interferon and Cytokine Research. Dr. Barber was selected the co-winner of the 2009 Seymour and Vivian Milstein Award while Dr. Ishikawa was awarded the Seymour and Vivian Milstein Young Investigator Award.

"We have witnessed encouraging clinical activity in patients with refractory cancers," notes Dr. Merchán, who is also an assistant professor in the division. "This shows how important Phase I studies are in testing the safety of a drug and providing preliminary evidence of clinical activity, which helps investigators further develop this combination in specific cancers."

"We are testing new drugs and combinations that regulate angiogenesis (the growth of new blood vessels)," explains Dr. Merchán. "Identifying a biomarker or indicator in the blood that can predict that a patient may benefit—or not—from this and other antiangiogenic therapies will be critical in our attempts to develop personalized cancer therapies."

Other locally developed trials being conducted include a dose escalation/dose-finding study with ABT 263 (which inhibits proteins within cancer cells that promote cancer cell survival) and gemcitabine, a chemotherapy agent that inhibits the metabolism and proliferation of cancer cells. All patients with refractory cancers are potential candidates.

Another exciting trial is the combination of standard chemotherapy drugs, gemcitabine and oxaliplatin with sorafenib, an anti-angiogenic agent. This three-drug combination is enrolling patients with unresectable or metastatic biliary cancers.

Researchers also are advancing towards a clinical trial of an oncolytic virus known as vesicular stomatitis virus or VSV (VSV has been shown to reduce tumor size and spread in certain types of cancers). Oncolytic viruses are selectively able to infect and destroy cancer cells. The therapeutic agent was originally developed as a result of the laboratory work of Glen N. Barber, Ph.D., associate director of basic research, professor of medicine, and the Eugenia J. Dodson Chair in Cancer Research at Sylvester.

"We think the human innate immune system reacts the same way," says Dr. Barber. The theory is that without STING, a DNA-based vaccine wouldn’t have the effectiveness because the body would not create interferon and other cytokines which are essential for stimulating adaptive immune responses.

Drs. Barber and Ishikawa also intend to examine STING’s effect on parasites, such as malaria, and fungi. They’ll also further evaluate the importance of this molecule in regulating T-cell response to DNA-based vaccines, which could lead to improved and safer vaccines to combat cancer and other serious illnesses.

Understanding the Immune System Through STING

Prominent researchers within the division have taken another major step in understanding the mechanisms of the immune system. For the second year in a row, Glen N. Barber, Ph.D., and Hiroki Ishikawa, Ph.D., a post-doctoral fellow, have published their findings in the prestigious journal Nature.

In their previous study, Drs. Barber and Ishikawa identified a molecule, called STING (Stimulator of Interferon Genes), which activates the body’s innate immune system by triggering the production of interferon. In their latest research, Dr. Barber and his team expanded their work to examine several different specific cell types. This NIH-funded study further solidifies the importance of STING’s role in activating pathway for production of interferon. STING, as Drs. Barber and Ishikawa discovered, initiates sequence of events that unleashes interferon production against viruses. Armed with the knowledge that STING triggers interferon in basic cells, Barber and Ishikawa took a closer look at STING’s role in attacking DNA pathogens such as herpes simplex virus and the bacteria Listeria, among others. “What we found,” explains Dr. Barber, “is that STING is absolutely essential to the body’s defense against a variety of different DNA pathogen types.”

This becomes an especially critical finding in gauging the immune system’s reaction to plasmid DNA-based vaccines, such as those being used to develop new types of flu vaccines. These scientists found that STING was a critical factor in facilitating immune responses to DNA-based vaccination. Vaccines are meant to trigger the body to make antiviral or antibacterial antibodies and T cells that can attack virally infected cells.

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Using Gene Expression to Predict Patient Outcomes

Izidore Lossos, M.D., and his team of researchers have cloned the gene known as HGAL or human germinal center-associated lymphoma, which is a predictor of outcomes in Hodgkin’s disease and diffuse large B-cell lymphoma. Further study by Dr. Lossos and his team has demonstrated that HGAL helps regulate lymphocyte motility by activation of the RhoA protein. (RhoA acts as a critical molecular switch in signaling pathways and is pivotal in many cellular activities). According to Dr. Lossos “this is important because HGAL is a prognostic factor, and with it, physician-scientists can help explain why some lymphomas spread differently and why lymphomas that express HGAL have different prognoses in different patients. It also explains how lymphocytes move and increases our understanding of how lymph nodes are organized.”

In addition, he has identified six novel genes that act as key prognostic factors for large lymphoma, Dr. Lossos and his team are taking that research a step further by studying microRNA’s (microRNAs are small RNA species involved in biological control at various levels) which can contribute to his six-gene model and add to its value for prediction of outcomes. Researchers in this lab also are studying Interleukin 21 (IL-21), a protein that has potent regulatory effects on cells of the immune system. They have demonstrated that IL-21 can be useful for therapy of DLBCL. The study was recently published in the journal Blood.

Stopping Breast Cancer in its Tracks

For some time, researchers have known that protein p27 is an important inhibitor of cancer cell growth. Normally, p27 provides a major braking mechanism to restrain cancer growth. Understanding the full mechanism and extent of that role has taken much longer. Now, scientists within the division have solved part of the puzzle, discovering that p27 can severely misbehave when in bad company. In fact, it can lose its restraining action on cell growth and bind to other molecules to promote cell motility, one of the first steps in the spread of cancer. In other words, Dr. Jeckyl becomes Mr. Hyde.

Joyce M. Slingerland, M.D., Ph.D., a member of the division and director of the Braman Family Breast Cancer Institute at Sylvester, led a team of researchers whose findings were published in Proceedings of the National Academy of Sciences (PNAS) and reviewed in the journal Cell Cycle. In this research, Slingerland describes p27 as a “good molecule gone bad,” winding up in the wrong place, surrounded by molecules that subvert its normal effect to restrain cell growth and causing it to gain the ability to promote cell motility. This increase in motility “might be the first critical step in which a cancer cell acquires the potential to survive in an abnormal environment and move around and cause cancer spread or metastasis,” she says.

Developing Better Treatments for ER-positive Breast Cancer

Considered one of the more aggressive types of breast cancer, HER2-positive breast cancer affects about 20 percent of women with the disease. In this subtype of breast cancer, for the human epidermal growth factor receptor-2 (HER-2), the gene is amplified resulting in over-expression of the gene product, a potent growth factor receptor.

Mark Pegram, M.D., along with his team of researchers, has been targeting HER-2 signaling to develop more effective treatments against this type of breast cancer.

“What we have found is that HER-2 down-regulates estrogen receptors, and estrogen receptors are one of the most critical targets to treat breast cancer because anti-estrogens are very effective against ER-positive breast cancers,” notes Dr. Pegram.

Dr. Pegram and his team conducted a clinical trial that combines a blockade of the HER-2
Breast tumors must recruit a new blood supply to provide glucose, oxygen, and other nutrients to the growing tumor or else the tumor dies. Division researchers are also studying the effects of blocking such blood vessel growth using an antibody against the vascular endothelial growth factor (VEGF), in combination with anti-HER2 therapy. VEGF is a protein made by cancer cells that promotes blood vessel growth.

For the first time, Dr. Pegram and his team combined Avastin treatment with the HER2 antibody treatment (herceptin) by conducting a Phase II clinical trial in patients with HER2 positive metastatic breast cancer. (Avastin is an FDA-approved tumor-starving therapy designed to block the VEGF protein that is produced by cancer cells.) All patients in the trial were treated with herceptin plus Avastin and received no chemotherapy. The response rate to such treatment was 48 percent, which compared very favorably to the 49 percent response rate for herceptin plus chemotherapy.

“This combination is a non-toxic alternative to chemotherapy for HER2 positive patients, which is great,” Dr. Pegram says. Phase III clinical testing of this combination is now ongoing in Europe and the United States.

In December, the research team attended the San Antonio Breast Cancer Symposium to present the final analysis of the study, which uses a combination of HER2 blockers plus anti-angiogenesis thought to play a critical role in the pathogenesis of breast cancer.
A brotherly tribute

Glenn Sutton works hard to keep his older brother’s memory alive and he does so by playing off Dennis’ interests in life. After the avid golfer died of Hepatitis C on October 24, 2006, Glenn established the Dennis Sutton Golf Tournament, plus the poker-based Texas Hold'em Tournament. Proceeds from the golf tournament support the University of Miami Miller School of Medicine Center for Liver Diseases, while proceeds from the poker event help the Boys and Girls Club of Broward, an organization Dennis was a board member of.

To date, Glenn has raised close to $150,000 with the support of past title sponsors including Neal Roth of Grossman & Roth, P.A.; Jay Cohen, P.A.; Tony Fiorentino, the Miami Heat’s TV broadcaster; and Steve Stowe of the Miami Heat; who are also some of Dennis’ closest friends. Other pivotal sponsors include Aventura Whole Foods Market, Pembroke Pines Target, Miccosukee Resort and Gaming, and Southern Wine and Spirits. “In addition, many of Dennis’ friends come from all over the country just to play and show their love and support for Den,” adds Glenn.

Researchers also are working on a treatment strategy for triple negative breast cancers. “These types of cancers do not have an estrogen receptor, a progesterone receptor, and they don’t have a HER2 receptor, so there is no targeted therapy for those breast cancer patients. The only thing available was chemotherapy, which is toxic and not particularly effective,” says Dr. Pegram. About 15-20 percent of all breast cancers are triple negative and represent a subset of patients that are difficult to treat.

In collaboration with Drs. Richard Cote, Lisa Baumbach, and Judith Hurley, Dr. Pegram’s team has been awarded grants from the U. S. Department of Defense Breast Research Program, and more recently an NIH Director’s Challenge Grant, to study genomic alterations in triple negative breast cancer, particularly amongst minority and underserved populations.

Investigators are about to launch a study that will examine a new treatment strategy using poly (ADP-ribose) polymerase (PARP) inhibitors. According to Pegram, when PARP is blocked, DNA repair is inhibited, which causes the cells to die. “If you treat triple negative breast cancer cells with a DNA damaging agent plus a PARP inhibitor, it kills the cancer cells that are not able to recover from the DNA damage that otherwise would relapse following chemotherapy alone,” he adds. Sylvester will be participating in clinical trials of PARP inhibitors on campus this year.

Triple Negative Breast Cancers

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The former maitre de of Joe’s Stone Crab restaurant, Dennis had been fighting the chronic liver disease for three years and was thought to have “beaten” the disease when his viral count reached zero. This chronic disease, however, had already progressed to cirrhosis and his risk for cancer of the liver persisted. He later developed liver cancer which metastasized to the bone and lung. Eugene R. Schiff, M.D., professor and director of the Center for Liver Diseases within the Division of Hepatology, had helped Dennis control the disease and its progression.

“Dr. Schiff told me the other day Dennis’ case is still teaching us and giving us information about the disease. We have since learned that even though someone might have a zero viral count, if they already have cirrhosis, screening needs to be done every six months to ensure that the scarred liver has not developed any cancer,” explains Glenn. “Dennis was a fighter; he never gave in to this disease,” he adds.

Since Dennis’ death, Glenn has focused his energies on by supporting research into liver diseases. Today, he’s also trying to raise national awareness of this silent killer by pitching Dennis’ courageous fight to “The Dr. Oz Show,” with host and Oprah Winfrey alum Mehmet Oz.

“I do this to raise awareness and to keep Dennis’ memory alive,” says Glenn. “He was like a father to me. There was a seven-year difference between us and he taught to be thankful for what we have and to give back to the community and the children in it.”

Division of Hepatology Center for Liver Diseases

The Division of Hepatology/Center for Liver Diseases at the University of Miami Miller School of Medicine has earned a world-wide reputation for state-of-the-art clinical care and research for diseases of the liver and biliary tract. Fellows from more than two dozen foreign countries have trained with the division’s faculty.

The division also collaborates closely with the Miller School of Medicine’s Departments of Pathology, Surgery, and Radiology in the treatment of patients. Our physicians are an integral part of the liver transplant program at the Miller School of Medicine. Over the last two decades, the team has performed more than 2,000 liver transplants.

With a large staff, the division’s activities are campus wide. The Hepatology Diagnostic Laboratory is located at the Rosenstiel Medical Science Building with outpatient facilities located at the University of Miami Hospital and Clinics. There is a 15-bed liver unit at University of Miami Hospital. Pre- and post-transplant clinics are located at the Highland Park Building Inpatient and outpatient facilities are housed at Jackson Memorial Hospital and the Miami Veterans Affairs Medical Center.
Better Treatment for Patients with Hepatic Tumors

“The incidence rate of hepatic carcinomas is increasing dramatically and it is particularly common in Florida, although the reasons are not quite clear,” notes Paul Martin, M.D., F.A.C.P., chief of the division. “It is often difficult for patients and referring physicians to determine what the appropriate initial workup should be and which specialists they should see.”

In response to this alarming trend, the division recently instituted a weekly clinic for patients with hepatic tumors, both benign and malignant. The system is beneficial for patients in the UHealth System since a variety of pertinent specialists from the Miller School of Medicine are involved in their care from the very beginning. That’s because each patient’s case is reviewed and discussed by a multidisciplinary team of specialists including surgeons, oncologists, radiologists, and hepatologists—in addition to the nurse assigned to the patient—to determine the best plan of treatment.

“Irrespective of whether a more surgical approach is needed (such as liver transplant or if the patient needs a tumor resected) or we feel the patient should be managed by oncology, all the specialists are present for the discussion.” Research has shown that a patient-centered approach often leads to better clinical outcomes.

Improving Hepatitis Care through National Dialogue

It’s estimated that approximately two million Americans are chronically infected with the Hepatitis B virus (HBV) and another five million have the Hepatitis C virus (HCV). More worrisome, however, is the fact that these chronic viral infections—often dubbed silent killers—have few, if any, symptoms; so many infected individuals don’t even suspect they have the disease.

Even with such large numbers, the standards for virus prevention, screening, and clinical care in this country are sorely lacking, which has resulted in a major unmet medical need.

That’s just one of the reasons why Eugene R. Schiff, M.D., professor and director of the Center for Liver Diseases within the Division of Hepatology, was one of the Scientific Planning Committee co-chairs of the CME/CE-certified summit titled “The Dawn of a New Era: Transforming our Domestic Response to Hepatitis B and C,” held September 10-11, 2009 in Washington, D.C.

“At this successful multidisciplinary, stakeholder-type of meeting we examined the national response to chronic viral hepatitis in the U.S. by discussing how to improve the prevention and detection of these diseases,” explains Dr. Schiff. “We also looked at gaps in the diagnosis and treatment as well as improving access to care for those with chronic hepatitis B and C. Chronic hepatitis C is leading to a marked increase of liver cancer in this country.”

In addition to identifying the need for a coordinated national response to chronic hepatitis B and C, participants at the two-day conference identified factors that might affect the response to treatment of infected individuals; described specific treatment and management strategies in order to delay the onset of liver disease; and identified ethnic/racial/socio-ethnic disparities in chronic liver disease among other pivotal issues.

Representatives from a host of medical schools and institutions including the NIH, FDA, CDC, and the Department of Health and Human Services, attended the hepatitis summit, which hopes to improve the prevention and care of the disease through national dialog and the passage of future medical legislation.
Detecting Liver Scarring Non-Invasively

If left unchecked, patients with hepatitis B and C can develop liver scarring the precursor to cirrhosis so these individuals must have biopsies performed every few years to ensure cirrhosis (when normal liver cells are damaged and replaced by scar tissue and regenerating) has not developed. Performing such invasive biopsies can lead to significant complications including bleeding, and patients must remain under medical supervision for a few hours following the procedure.

Luckily, the division’s Center for Liver Diseases, part of UHealth – the University of Miami Health System, is conducting a clinical trial to check the accuracy and safety of a unique device called FibroScan, a new technology that uses ultrasound waves to evaluate the scope and severity of liver fibrosis.

“People are trying to find ways to bypass liver biopsy, which is an invasive procedure, so this scan—which correlates hepatic elasticity with fibrosis of the liver—is really nice since there is no needle involved,” explains Dr. Schiff.

The handheld portion of the device is placed between the patient’s ribs and generates a measurement (print out) that reveals how much scarring is present. All the patient feels is some vibration, nothing more.

FibroScan, which is already licensed and approved for use in Europe, is expected to receive FDA approval in the U.S. within a year’s time.

Developing New Treatments for HCV

Division researchers including Drs. Paul Martin, Eugene Schiff, Christopher O’Brien and Lennox Jeffers continue to study various novel anti-viral agents—such as protease inhibitors and polymerase inhibitors—which are being used in conjunction with pegylated interferon to more effectively treat hepatitis C (HCV).

“The new approach is to attack the virus directly; interferon and ribavirin have anti-viral effects but in large part stimulate your immune system to attack the virus,” explains Dr. Schiff. Several studies currently being conducted in the division involve the use of direct antivirals (also known as “small molecules”) and protease inhibitors boceprevir and telaprevir, to treat HCV.

“Using these drugs will dramatically improve the cure rate of HCV to 75-80 percent, and it sets the stage for other studies that we are conducting with other direct antivirals which ultimately will be administered without interferon and ribavirin,” adds Dr. Schiff. The most recent results of these studies were presented at the American Association for the Study of Liver Diseases meeting in Boston, Massachusetts in November 2009.

Maria De Medina, M.S.P.H., is evaluating the performance of a rapid test (using saliva samples and fingersitck whole blood) for hepatitis C. This obviates the need for a blood draw.

Cynthia Levy, M.D., is studying a novel agent to treat primary biliary cirrhosis. Currently there is no cure for this disease so treatments attempt to slow its progression and relieve its symptoms.

One of the studies Christopher O’Brien, M.D., is involved in is looking at experimental agents to improve blood clotting in patients with low platelets. Low platelets are often found in patients with cirrhosis.

Division researcher Leopoldo Arosemena, M.D., in collaboration with Dr. Tzakis and Dr. Jang Moon, is examining the optimal strategy for those patients with kidney disease who subsequently require a liver transplant. Current research indicates that if a patient requires a kidney transplant but also has significant liver disease—specifically due to hepatitis C—they may do poorly if the kidney is transplanted first and then the liver. Such findings are leading physicians to advise patients of the need for simultaneous liver and kidney transplant.
Division of Hospital Medicine

The rapidly expanding Division of Hospital Medicine, comprised of 24 faculty members, provides clinical care in multiple locations across the University of Miami medical campus, including inpatient care for cancer patients at the University of Miami Miller School of Medicine where procedures, such as bone marrow and lumbar punctures, also are performed.

The division also provides inpatient care to patients at University of Miami Hospital (UMH) and works closely with internal medicine residents at Jackson Memorial Hospital (Jackson) to provide both an inpatient teaching service, as well as an internal medicine consultative service for surgical patients.

In addition, the division has a special track focused on hospital medicine for second- and third-year residents interested in this field. Residents are taught about patient safety, quality improvement, transitions of care, palliative care, and risk management through hands-on seminars, journal clubs, patient safety conference, and a required quality improvement project.

The division also plays a key role in educating medical students. At UMH, fourth-year students from the Miller School of Medicine are working under the supervision of hospitalists to complete their medicine sub-internships. The third year students rotate with the hospitalists at both Jackson and Sylvester Comprehensive Cancer Center / UMHC–University of Miami Hospital & Clinics.

Putting Patient Safety First

In addition to delivering high quality care, improving patient safety is a primary concern for the Division of Hospital Medicine at the University of Miami Miller School of Medicine, which is part of UHealth –the University of Miami Health System. Faculty members within the division are helping to create policies and best practices to further improve patient safety in four main areas—medication reconciliation, prevention of catheter-related blood stream infections, and transitions of care, as well as anticoagulation management to improve the safety of hospital-administered blood thinners.

Three faculty members within the division are collaborating with the newly formed UHealth Safety and Quality Council, a group charged with assessing the present status of the medical campus’ response to the 16 National Patient Safety Goals for 2009. These individuals also are charged with heading four of the council’s taskforces.

Efren Manjarrez, M.D., F.H.M., assistant professor of clinical medicine and director of clinical operations for the division, who also heads the council’s taskforce on transitions of care, is working to develop national guidelines, in conjunction with the Society of Hospital Medicine, to improve hand-off communication between physicians when signing off from a hospital shift. When hospital hand-offs are done improperly—for example, if there is a breakdown in communication regarding a patient between the outgoing and incoming physician on a hospital shift (e.g. medication errors)—the results can be disastrous.

“When patients are hospitalized, whether in an academic center or in the community, often times their usual health care provider has to go home, on vacation or off service, so doctors—or hospitalists in our case—have to transfer professional responsibility of their patients to another physician. Yet until now, there was not a standard protocol for this,” he explains.

Dr. Manjarrez, who served as a co-author on the Society of Hospital Medicine’s published guidelines and position paper (September 2009...
Division Co-Sponsors Prestigious Summit

In 2009, the division co-sponsored the Fourth Annual Perioperative Medicine Summit, an annual symposium on perioperative medicine. The proceedings of this meeting were published in a special supplement of the Cleveland Clinic Journal of Medicine. The event was attended by over 350 physicians from across the country and oversees. Jaffer also was the guest editor for Geriatric Clinics of North America on the topic of Perioperative Medicine. He was also appointed to be the course director for the Annual Meeting of the Society of Hospital Medicine (SHM) to be held in Washington D.C. from April 9-11, 2010. SHM is the largest organization in the nation representing hospitalists and the practice of hospital medicine. Its mission is to promote the highest quality care for hospitalized patients, as well as provide opportunities and support to hospitalists.

Joshua D. Lenchus, D.O., R.Ph., F.A.C.P., assistant professor of clinical medicine in the division, oversees the taskforces that focus on medication reconciliation and the prevention of catheter-related blood stream infections (CRBSI).

“The concept behind medication reconciliation is that the patient’s medication profile is carefully reviewed and altered (if necessary) at every transition of care. That means we will review (and then add, delete, or leave as is) the medications a patient is taking when he/she is admitted to the hospital, and then when he/she is transferred to another floor or area of the hospital, and then is reviewed once more before the patient leaves the hospital,” explains Dr. Lenchus.

The CRBSI taskforce is a sweeping campus-wide initiative encompassing University of Miami Hospital (UMH), Jackson, and Sylvester. Its charge is to attempt to eliminate the incidence of these costly, and sometimes life-threatening, infections. Dr. Lenchus has developed a checklist to be used during the insertion process and his team is actively modifying the necessary policies to create a standardized approach to minimizing infection rates.

Amir Jaffer, M.D., division chief, heads the task force on anticoagulation management for UHealth since assuring the safety of anticoagulant therapy in healthcare settings now has been mandated by The Joint Commission. Dr. Jaffer, who was a panel member of the American College of Chest Physicians Guidelines on Antithrombotic Therapy and author of the Delivery of Optimized Anticoagulant Therapy: Consensus Statement from the Anticoagulation Forum, is leading a multidisciplinary team to develop new algorithms, order sets, and monitor systems that will improve the safety of commonly administered anticoagulants in the hospital such as heparin (unfractionated and low-molecular-weight), direct thrombin inhibitors, and warfarin.

UHealth Preoperative Assessment Center (UPAC)

Approximately 36 million surgeries are performed annually in the United States (or 100,000 surgeries daily). Of those surgeries, about one million result in serious adverse events, costing the health care system $45 million a year. Add the fact that over the next two decades the number of surgeries is expected to increase by 50 percent—especially as the number of patients over the age of 65 nearly doubles to 70 million—hospitals will likely face a crisis surrounding the management of these surgical patients.

With those statistics in mind, the Division of Hospital Medicine has created the UHealth Preoperative Assessment Center (UPAC), a collaborative effort between University of Miami Hospital, Sylvester, and the Departments of Medicine, Anesthesiology, and Engineering as well as Health Care Management, a new undergraduate minor in the School of Business.

“Patients incur adverse events if they are not appropriately screened before surgery, and with the aging population and patients living longer and undergoing more surgeries than ever before, it’s extremely important to complete a thorough evaluation before undergoing any surgical procedure,” says Dr. Jaffer. “By taking these extra steps, we can ensure the safety of our patients.”
Four hospitalists from the division including Drs. Kalidindi, Andres Soto, Uzma Abbas, and Tariq Mahmood recently attended the newly created Academic Hospitalist Academy of the Society of General Internal Medicine and the Society of Hospital Medicine in November 2009. The mission of the academy is to provide academic hospitalists with the educational, scholarly, and professional development skills to promote academic success, personal growth, and work satisfaction.

By using a multidisciplinary approach (surgery, anesthesiology, and hospital medicine) as well as evidence-based medical algorithms and approved testing guidelines, patients now complete a comprehensive preoperative questionnaire, which allows the surgeon to discuss options with the patient and order any needed preoperative lab testing. Then at UPAC, hospitalists evaluate medically complex patients and generate a preoperative assessment and plan. Medical sub-specialists can then be consulted and additional tests ordered. For those less complex patients, registered nurses from UPAC can do a proper screening and/or compile medical records and test results for patients seeing the primary care physician.

steps before surgery, we are able to improve patient outcomes, decrease the cancellation rate of surgeries, improve patient satisfaction, as well as improve communication with the patient and surgeon. Finally since hospitalists already know these patients, we can proactively follow the more complex patients and be available to assist the surgeons postoperatively if unexpected events arise."

UHealth Hospitalists Attend the Academic Hospitalist Academy

The Division of Hospital Medicine also offers a wide range of educational services for medical residents as well as community physicians. Hospitalists from the division, for instance, play a key role in educating medical students at the Miller School of Medicine. At University of Miami Hospital, fourth-year residents work under the supervision of hospitalists to complete their medicine sub-internships. This sub-internship is organized by Jenny Drice, M.D., and Tariq Mahmood, M.D. Third-year students rotate with the hospitalists at both Jackson and Sylvester.

The division has collaborated with Jackson’s Internal Medicine Residency Program to build a specialty track in hospital medicine to help residents become better prepared for this burgeoning field. Now in its second year, this track is focused on Hospital Medicine for second- and third-year residents interested in this field. Organized by Venkat Kalidindi, M.D., and Dr. Jaffer, residents are taught about patient safety, quality improvement, transitions of care, palliative care, and risk management through hands-on seminars, journal clubs, patient safety conferences, and a required quality improvement project.

In addition, members of the division are involved with these residents and by themselves to do quality improvement projects at one or more of the hospitals. The division also educates community physicians and holds medicine grand rounds at UMH in addition to hosting divisional grand rounds at Jackson.

Educational Efforts

The Division of Hospital Medicine also offers a wide range of educational services for medical residents as well as community physicians. Hospitalists from the division, for instance, play a key role in educating medical students at the Miller School of Medicine. At University of Miami Hospital, fourth-year residents work under the supervision of hospitalists to complete their medicine sub-internships. This sub-internship is organized by Jenny Drice, M.D., and Tariq Mahmood, M.D. Third-year students rotate with the hospitalists at both Jackson and Sylvester.

The division has collaborated with Jackson’s Internal Medicine Residency Program to build a specialty track in hospital medicine to help residents become better prepared for this burgeoning field. Now in its second year, this track is focused on Hospital Medicine for second- and third-year residents interested in this field. Organized by Venkat Kalidindi, M.D., and Dr. Jaffer, residents are taught about patient safety, quality improvement, transitions of care, palliative care, and risk management through hands-on seminars, journal clubs, patient safety conferences, and a required quality improvement project.

In addition, members of the division are involved with these residents and by themselves to do quality improvement projects at one or more of the hospitals. The division also educates community physicians and holds medicine grand rounds at UMH in addition to hosting divisional grand rounds at Jackson.
On special occasions such as his birthday and important holidays like Christmas or Easter, Linda Murphy sets balloons free so her late son Anthony (lovingly referred to as “my Tony”) can live forever. This simple, symbolic act allows Murphy to reconnect with her son in a spiritual way and also leaves her feeling closer to him.

“I write him a letter with all I have inside me and then get helium-filled balloons so I can send it to him via air mail, watching as they disappear into the clouds. It’s something I do to remember him, and more importantly, it leaves me with a smile on my face,” says Murphy, a political activist, Coast Guard Captain, and Merchant Marine Officer living in Miami.

Tony died at the age of 38 of AIDS-related lymphoma on October 9, 2004. After months of misdiagnoses by his HIV/AIDS doctors, he was correctly diagnosed and then treated at the University of Miami Miller School of Medicine’s Division of Infectious Diseases, part of UHealth – University of Miami Health System, under the care of Gordon M. Dickinson, M.D., chief of the division.
"Dr. Gordon Dickinson turned out to be quite unique in that he got very attached to Tony," Murphy recalls. "He called me several times to see how I was doing, because during the illness and the many stages of the disease, Tony's main concern was how I was going to fare once he was gone."

Tony fought for 18 more months before lapsing into a coma.

"I believe Tony was gone a month before we let him go. None of his organs were working, but one day I just decided, 'I want you to rest in peace,'" recalls Murphy.

Since then, the mother of three has donated $25,000 to the Division of Infectious Diseases to help fund ongoing research in HIV and other infectious diseases. "I would never want anyone to go through what I went through, so as long as there is research, there's hope," Murphy says.

Murphy gives back in so many other ways. As a mother who sat for endless hours in hospital waiting rooms while Tony was sick, she knows what a blessing it is to have reading material to pass the time. She now donates magazines to Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine to be used in the various waiting rooms.

She's also training to become a grievance counselor, where she can impart her experiences and the lessons she's learned from losing a child. One of those lessons is finding a way to free yourself to keep your loved one's memory alive. For Murphy, that release came through philanthropy and the lift of a simple balloon.

"I was finally able to accept Tony's death," she says, "when I realized he could not rest in peace as long as I needed him to be here."

Division of Infectious Diseases

The Division of Infectious Diseases, now comprised of 21 full-time faculty, staffs the major teaching hospitals at the medical center, including University of Miami Hospital, the University of Miami Hospital and Clinics (UMHC), Anne Bates Leach Eye Hospital, Jackson Memorial Hospital (Jackson), and the Miami Veterans Administration Medical Center (Miami VA). Three adjunct faculty at Mount Sinai Medical Center contribute to the teaching role of the division. Investigators in the division also conduct research at various locations.

The division provides quality patient care, conducts cutting-edge research, and educates physicians in the diagnosis, management, and treatment of patients with infectious diseases. Specific activities include primary care for an estimated 3,500 persons with HIV at Jackson clinics and the Miami VA, and treatment of serious complications in an active HIV-dedicated inpatient service at Jackson. A private consultation clinic also operates at Sylvester Comprehensive Cancer Center / UMHC–University of Miami Hospital & Clinics. Division faculty offer consultations for questions regarding the diagnosis or management of infections. The division also operates the Sexually Transmitted Disease Clinics of Miami-Dade County.

The division's research arm is dynamic and covers a broad spectrum of first-class biomedical science, including studies in basic immunology; HIV disease (with an emphasis on therapeutic interventions); pathogenesis of streptococcal infections; molecular tracking of multi-drug resistant bacteria; transplant-associated infections; STDs in women with HIV; management of fungal infections and the evaluation of newer antifungal agents; and factors linked to access to care for persons with HIV infection.
Leaders in Healthcare Epidemiology

Infections remain a major cause of human suffering and death. Hospital-associated infections are particularly troublesome, as highly-resistant bacteria have emerged throughout hospitals around the world—an undesired by-product of medical progress.

The Division of Infectious Diseases has a particularly strong presence in healthcare epidemiology and infection control, areas receiving much news coverage lately. And as our confrontation with the H1N1 influenza pandemic evolves, the importance of epidemiologists is readily apparent.

The division has four faculty members primarily concerned with hospital-associated infections and the wider aspects of epidemiology of infectious diseases. Established faculty members include Gio J. Baracco, M.D., the healthcare epidemiologist at the Miami VA Medical Center, and Rafael Campo, M.D., who has similar responsibilities at University of Miami Hospital and Sylvester. Two recent recruits include Lilian M. Abbo, M.D., assistant professor of clinical medicine and co-director of the Antimicrobial Stewardship Program, and Silvia Munoz-Price, M.D., director of infection control and hospital epidemiology at Jackson.

The team works diligently to meet emerging pathogens through surveillance and other methods, prepare the center for epidemic infectious diseases, as well as develop measures to prevent the spread of pathogens, especially multi-drug resistant pathogens such as MRSA (methicillin-resistant Staphylococcus aureus), VRE (vancomycin-resistant Enterococci), and Clostridium difficile, within our hospitals.

“I am pleased that we have such expertise at our center,” says Gordon M. Dickinson, M.D., chief of the division.

Preventing HIV/AIDS

Take My Advice

In the African-American community, grandmothers wield a lot of power. As family matriarchs and popular opinion leaders, they are often called on for advice or guidance. That’s what led Michael Kolber, Ph.D., M.D., professor of medicine and director of the Comprehensive AIDS Program, to enlist their help in the fight against HIV/AIDS.

“African-Americans make up 12 percent of Florida’s population, but account for 40 percent of the state’s HIV/AIDS cases,” explains Dr. Kolber. “Although education and testing have been tried in this community, it has not been as successful as we would like.”

The Grandmother’s Project began in 2009 with the help of ten grandmothers from Covenant Missionary Baptist Church in Florida City, who participated in an initial focus group. During that session, each woman stated they knew someone who had been directly impacted by HIV/AIDS. They also noted they would be comfortable speaking to members of the African-American community about sex, HIV/AIDS, and other sexually transmitted disease.

Since then, the multi-year program has recruited and trained over 50 grandmothers and other popular opinion leaders to educate others on how to modify their behaviors that could lead to HIV infection.
Many of the division’s investigators and their wide range of research projects demonstrate a breadth of interests.

Allan Rodriguez, M.D., as the principal investigator on a CDC grant regarding access to care issues for individuals with HIV has been moving the field forward by defining areas to target that would improve medical care outcomes.

Maria L. Alcaide, M.D., and Deborah Jones, M.D., (Department of Psychiatry) recently received a supplemental award from the National Institutes of Health (NIH), to evaluate genital shedding of herpes in HIV co-infected women in Zambia.

Isabella Rosa-Cunha, M.D., supported by an NIH supplement on an RO1 from Dr. Metsch (Epidemiology and Public Health), is studying the human papillomavirus (HPV) in co-infected HIV women and the interactions between the two that may enhance cervical cancers rates in this population.

Jose G. Castro, M.D., who is interested in a variety of Hispanic public health issues, recently received funding from the El Centro to conduct a pilot study examining the attitudes and beliefs of Hispanics regarding circumcision and the transmission of HIV disease.

Rafael Campo, M.D., is examining the role of gut flora in modulating HIV by the use of probiotics in HIV patients.

There are also a number of ongoing collaborations in the area of HIV vaccine research. Dr. Eckhard Podack (Microbiology and Immunology) has expanded his novel cell-based vaccine efforts into the HIV field and is working with Michael Kolber, Ph.D., M.D., and others toward a human HIV therapeutic trial.

Select HIV Research Projects

Due to the active 2009-2010 flu/influenza season and the rapid spread of the H1N1 virus, the division aggressively revamped its entire influenza vaccination program to ensure that as many UHealth employees as possible—both medical and non-medical personnel—got vaccinated against this disease.

“We did this, not just because it’s the right thing to do for our employees and our patients, but because studies show if you vaccinate a large percentage of your workforce—especially those health care workers who have direct patient contact—we can actually decrease the number of cases of influenza and complications of influenza among patients,” explains Rafael Campo, M.D.

This year’s comprehensive vaccination campaign has a new feature: In October 2009, an innovative computer-based module was distributed to all UHealth — University of Miami Health System employees to educate them about the advantages of getting vaccinated in hopes it will empower them to step up and get the flu shot.

Data was then collected from the entire workforce during open enrollment to decipher how many of the approximate 8,000 employees actually got the vaccine.

“We hope to get close to 100 percent participation so we know exactly how many individuals got vaccinated and how many didn’t, and more importantly, why not,” says Dr. Campo.

By understanding the barriers to getting vaccinated, the division will be able to fine-tune its educational messages to increase the employee vaccination rate next year.

Protecting Against Influenza

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Division of Nephrology and Hypertension

The Division of Nephrology and Hypertension continues to improve the lives of patients with all types of renal disease and hypertension. Led by Jochen Reiser, M.D., Ph.D., professor and division chief, the division covers all aspects of modern medicine and incorporates basic science, clinical research, drug discovery, and excellence in patient care.

Under the leadership of Arif Asif, M.D., an internationally recognized authority in interventional nephrology and the director of the division’s Interventional Nephrology Program, the division performs a wide range of renovascular procedures and is frequently visited by faculty from divisions nationwide.

The division also has several inpatient and outpatient dialysis units that serve as treatment centers for patients with acute and chronic renal failure. David Roth, M.D., the clinical director of the division, ensures patients of the division receive world-class nephrology care at University of Miami Hospital, Jackson Memorial Hospital, and the Miami Veterans Administration Hospital.

Myles Wolf, M.D., director of clinical research in the division, coordinates studies and epidemiological analyses that unravel important clues to the understanding and treatment of renal diseases. Dr. Reiser directs the basic science research in the Miami Program of Renal Medicine (MPRM) and studies the molecular mechanisms that underlie various forms of renal failure. He also is the director of The Peggy and Harold Katz Family Drug Discovery Center, which is located within the MPRM and used to translate results into promising approaches for the development of novel therapeutics.

Division to Launch New Vascular Access Center

Due to the growing number of dialysis patients in the community, there is an increasing need for patients to have timely access to physicians with expertise in the management of their vascular access, the “lifeline” that allows these patients to receive hemodialysis three times per week.

The Division of Nephrology and Hypertension at the University of Miami Miller School of Medicine, part of UHealth, has been a leader in the burgeoning field of interventional nephrology and will soon open its second vascular access center. The new center will be located in southern Miami-Dade County (S.W. 144 Street and U.S. 1) in leased space in an existing dialysis center.

“We are creating a new state-of-the-art vascular access center that will have two procedure rooms, a waiting area, a pre- and post-operative recovery area, and offices so we can care for patients living in that part of town and provide them with the expertise of our University-trained nephrologists,” notes David Roth, M.D., the division’s clinical director.

Maintenance hemodialysis patients have surgically created access sites in one of their upper extremities, usually with an arteriovenous (AV) fistula (created surgically by connecting an artery to a vein, usually in the forearm) or an arteriovenous graft. Over time, however, these access sites can develop complications that compromise their function, such as clotting, narrowing of the vessel, or infection that requires immediate intervention to salvage the access and keep it working effectively.

“The average dialysis patient usually has somewhere between two and four procedures per year (such as angioplasty, stent placement, or the removal of a clot, for example) to maintain these accesses and to ensure they are...
Clinical Research Continues in Chronic Kidney Disease

Myles Wolf, M.D., M.M.Sc., and his team have been actively involved in examining the role of disordered mineral metabolism in patients with chronic kidney disease with a particular emphasis on phosphorus, fibroblast growth factor 23 (FGF-23), parathyroid hormone (which helps control calcium within the blood), and vitamin D metabolism. This is done by conducting detailed physiological and epidemiological studies aimed at deciphering the mechanisms by which FGF-23 regulates phosphate and vitamin D metabolism in humans.

Dr. Wolf and his colleagues are examining racial differences in mineral metabolism in patients with kidney disease as well as in healthy individuals, emphasizing phosphorus and FGF-23 metabolism. The team is also studying mineral metabolism following kidney transplantation. Their overall focus is to better characterize these pathways, with the ultimate goal of discovering new potential treatment strategies that may ameliorate the markedly increased risk of cardiovascular disease in the millions of patients with kidney disease in the United States alone.

“We also are conducting studies looking at different types of dietary sources of phosphorus and how it impacts physiological parameters of mineral metabolism and how that differs by race, ethnicity, and socioeconomic status,” explains Wolf. “So we are looking not just at individuals’ physiology, but also their food choices.”

Translating Basic Science Discoveries into Medical Practice

Kidney disease is a world-wide epidemic that affects adults and children of all socio-economic levels. What’s more, its treatment results in billions of dollars in health care costs each year, making it among the most costly diseases.

Kidney diseases, especially chronic diseases of the kidney, begin in the filtering units (so called glomeruli) by allowing the pathological leakage of protein into the urine (proteinuria). Typically, proteinuria stems from a dysfunction of podocytes, cells that produce the filtration membrane in the kidney. Several hundred millions of people are affected by this early sign of chronic kidney disease. People that are affected by urinary protein loss have been recognized by increased risks for cardio-vascular and renal morbidity as well as mortality. Persistent proteinuria usually results in further scarring of kidney filters, a condition seen, for example, in diabetic kidney disease. Currently, there are no cell-specific medications available that effectively treat the origins of proteinuria and/or provide protection for podocytes so that kidney diseases can be successfully stopped.

Work within the division continues to uncover pathways that lead to failure of podocyte cells and kidney filter function. Novel insights offer approaches and methodologies to develop cell-specific therapeutics or devices that can combat glomerular kidney disease by protecting podocytes and their function and by the neutralization of damaging kidney factors that circulate in the blood.

Dr. Reiser and his team have been conducting research in the following areas: the identification of a novel enzymatic form called cytosolic cathepsin L that when present in podocytes destroys important regulatory proteins and thus leads to podocyte failure and kidney disease; the identification of another group of molecules [urokinase (uPAR) receptor family] that alters the dynamic movements of podocytes and thus the filter barrier function; the measurement of novel biomarkers of renal disease using a single blood drop, which allows risk-stratification and monitoring of renal function; and the use of cellular assays and additional technologies to study podocyte functions for drug development and optimization.

The identification of these novel pathways and principles allows for further pre-clinical testing and offers novel approaches to treat patients with renal disease in the near future. In addition, such research and novel approaches will help build platforms and products that can be used to treat renal diseases more effectively.
Leopoldo Raij, M.D., director of the nephrology section at the Miami VA, has uncovered novel results about the roles of NFκB inflammatory pathways by angiotensin II-induced reactive oxygen species. His team is also shedding light on how these pathways importantly contribute to vascular injury, systemic inflammation, as well as vascular and peripheral insulin resistance in hypertension. Together with his team, Dr. Raij is making important contributions to better understand the molecular pathogenesis of hypertension and its connection to cardiovascular and renal disease.

On a mission to help others

When Ellen Fauver’s husband, Jim, was diagnosed with idiopathic pulmonary fibrosis in February 2006, they were both shocked. Jim, a retired real estate developer and entrepreneur, was just 59 years old and in good health. One connection they could make to the disease was Jim’s smoking, which he began in his teens. Thankfully he had kicked the habit 15 years prior. Another connection was his working in a chemical plant scrapping dried chemicals from troughs using wooden paddles back in the 1960s. Neither connection was a healthy one.

“Jim came home one day after a doctor’s visit and told me he had been diagnosed with idiopathic pulmonary fibrosis (IPF),” Fauver recalls. “I said, ‘What is pulmonary fibrosis?’ I’ll always remember the look on his face when he answered, ‘Ellen, it’s a fatal lung disease.’ I did not initially understand the full impact of his message or what we would endure during the next eight months. It was all so surreal.”

After receiving various referrals, in March 2009 the Fauvers contacted pulmonologist Marilyn Glassberg, M.D., at the Division of Pulmonary, Critical Care, and Sleep Medicine. Dr. Glassberg took a personal interest in Jim’s health and thought he was a good candidate for a new experimental drug trial. Unfortunately, by the time he returned for his follow-up visit, the disease already had irreversibly scarred his lungs and he never entered the trial. His disease advanced...
so rapidly that he was later admitted to the hospital and put on a respirator.

“Sometimes I felt like I was walking through a terrible dream and I knew I had to remain strong and positive for Jim. It was devastating watching my husband go from a healthy man to someone physically helpless in such a short amount of time,” recalls Fauver.

Although he received wonderful medical care in Naples, Florida (where the couple had retired) and at the University of Miami, the damage to his lungs was already too severe. Just 20 days later, the disease took his life.

Dr. Glassberg and Fauver stayed in touch after Jim’s death. Fauver later learned that 70 to 80 percent of patients with pulmonary fibrosis today were smokers in the past. With this statistic and her husband’s battle with the disease vivid in her mind, she set out to increase awareness of the disease.

Shortly after Jim’s death, the James S. Fauver Pulmonary Fibrosis Research Fund was established under the direction of Dr. Glassberg. Fauver has personally donated $85,000 to the fund, with the most recent $10,000 gift donated in October 2009, to support Dr. Glassberg’s basic medical research. Dr. Glassberg is now one of a select group of investigators that direct NIH-sponsored clinical research in Jim’s disease—idiopathic pulmonary fibrosis.

Fauver is now writing a book about her husband’s struggle with this fatal lung disease, her experience as the caregiver, and how her life took an unexpected renewal after a visit to Tuscany. She makes regular visits to Dr. Glassberg’s lab and clinical research center.

“I feel a sense of urgency to help Dr. Glassberg and her team of researchers,” notes Fauver. “I know there is a cure on the horizon, and I want to be part of the celebration when that day comes. Raising money and awareness is my contribution to the individuals who work tirelessly in the battle against idiopathic pulmonary fibrosis.”

Division of Pulmonary, Critical Care, and Sleep Medicine

The Division of Pulmonary, Critical Care, and Sleep Medicine combines state-of-the-art clinical care with subspeciality training programs in pulmonary medicine, critical care, and sleep disorders and biomedical research to serve patients with respiratory and critical illnesses.

Academically, the faculty of clinicians, physician-scientists, and basic scientists employ established and innovative methods in diagnosis and treatment and laboratory and translational research to benefit patients. Researchers within the division are developing better approaches to the prevention, care, and cure of lung disease and critical illnesses.

Nationally and internationally recognized experts lead the various programs. Patient care and research activities are housed at University of Miami Hospital, Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine, Jackson Memorial Hospital, Miami Veterans Affairs Medical Center, and A.G. Holley Hospital. Although division faculty have experience in managing the entire spectrum of lung disease, critical care, and sleep medicine, the division has special interests in chronic obstructive pulmonary disease (COPD), lung cancer, cystic fibrosis, tuberculosis and non-tuberculous mycobacteria, lung transplantation, pulmonary hypertension, sleep disordered breathing, and the study and treatment of septic shock and acute lung injury.

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When Bacteria Pose a Health Risk

It’s been dubbed the “shower head disease,” but there’s a reason why nontuberculous mycobacteria or NTM—certain environmental bacteria found in soil and water (as well as shower heads) that can cause severe lung disease—has garnered much press coverage lately. Pulmonary NTM is on the rise in the United States, according to the National Institute of Allergy and Infectious Diseases (NIAID), and South Floridians seem to be at particular risk.

“There are a growing number of people who have NTM. A rough estimate right now is approximately 150,000 in the U.S., but I believe this is a gross underestimate because people typically don’t know they have this disease,” notes Matthias A. Salathe, M.D., chief of the division. “South Florida is becoming the epicenter for NTM, partly due to the climatic conditions here, which create an ideal environment for such bacteria to thrive, but we really don’t know why certain people get it and others don’t.”

The disease is often recognized only years after it started since its symptoms resemble chronic bronchitis. Division researchers and clinicians such as Jaime Avecillas, M.D., Gregory E. Conner, Ph.D., Michael Campos, M.D., Michael Light, M.D., Andreas Schmid, M.D., and Matthias Salathe, M.D., along with physician-scientists at the University of Florida, are taking a statewide approach to understanding and combating NTM. They’re studying the basic science of this disease as well as examining the quality-of-life issues associated with it. By working in conjunction with Alexandra L. Quittner, Ph.D., from the University of Miami Department of Psychology, a world-renowned expert on health-related quality-of-life (HRQOL) measurement, the division can assess the impact of the disease and its treatments on HRQOL and evaluate how the course of the condition affects HRQOL over time.

A major initiative is underway to develop a disease-specific HRQOL measure for non-CF bronchiectasis, which would have a module specific to patients with NTM.

“We want to be able to determine a variety of issues such as the type/severity of the disease; determine risk factors for disease susceptibility, where the patient was exposed to the bacteria (home, office, other environment), how the disease affects their health-related quality of life (HRQOL); as well as how to best treat these patients,” adds Dr. Salathe.

Examining Protein Deficiency

One of the most common serious hereditary disorders in the world, Alpha-1 Antitrypsin Deficiency (Alpha-1) can result in life-threatening lung disease (such as emphysema) or liver disease in children and adults. Alpha-1 is a deficiency of a protein usually produced in the liver, but the protein can also be produced in many other places in the body, such as the airways. This protein protects an individual from certain enzymes that can destroy the lungs and helps defend against bacteria and other potential problems. Thus, it is important for innate host defense.

Some patients suffering from NTM lung disease, for example, seem to have mutations of the protein, and for this reason, are not as well protected from certain diseases when compared to those who actually produce the normal protein. Since some of the alpha-1 anti-trypsin protein is produced in the airways, for those with the mutation, this important protein is not released by cells, which then causes a subsequent stress response. This response can lead certain individuals to acquire airway disease such as bronchiectasis, a dilation of the airways. People with bronchiectasis are susceptible to acquiring NTM.
At the basic science level, researchers within the division, including Michael Campos, M.D., Gregory E. Conner, Ph.D., Philip Whitney, Ph.D., Adam Wanner, M.D., and Matthias Salathe, M.D., are closely examining why certain individuals cannot defend against these bacteria, what happens in the airways to those with this protein deficiency and how these factors can lead to the development of bronchiectasis.

Interventional Bronchoscopy

Many lung cancer patients, especially those with few, if any, surgical or therapeutic options, can also suffer from central airway obstruction (CAO). This occurs when a tumor invades the airways and partially obstructs it, impairing the ability of the patient to breathe. Thus, such obstructions lead to dyspnea, post-obstructive pneumonia, or in some severe cases, premature death.

Interventional bronchoscopy, for years a focus area of Elio Donna, M.D., allows these cancer patients to breathe easier for the last few months or years of life. Certain bronchoscopic techniques, such as airway stenting, can open up the airways that have been partially occluded by tumors that cannot be resected by surgery.

“You are treating the cancer but it is not a cure, it’s more palliative, in other words, it concentrates on reducing the severity of disease symptoms,” notes Dr. Donna.

The Miller School of Medicine is one of just a few specialized medical centers in Southeast Florida to offer such interventional bronchoscopy techniques.

Examining Heparin-Induced Complications

When patients are admitted to the hospital, even if they are not candidates for surgery, chances are they will be administered the blood thinner Heparin as standard hospital protocol. Heparin prevents the blood from clotting to prevent deep vein thrombosis and pulmonary embolism. However, when Heparin is used, the drug has been known to cause unwanted side effects in some patients, namely a drop in blood platelets with the paradoxical effect of actually promoting blood clotting. Daniel Kett, M.D., Roland Schein, M.D., and Andrew Quartin, M.D., clinical researchers working in the intensive care unit, are investigating how to better manage this process so that such unwanted, potentially dangerous side effects do not occur in the first place.
Division of Rheumatology and Immunology

The Division of Rheumatology and Immunology is one of the nation’s leading research and education centers for rheumatic diseases in the country and provides patients with comprehensive care in the subspecialty of rheumatology. Over 5,000 patients are seen annually in a variety of settings, including clinics, inpatient consultation, emergency room, and rehabilitation areas. The division’s mission is to provide the highest level of patient care, to train physicians in the care of patients with arthritis and the rheumatic diseases that cause arthritis, and to advance the knowledge of arthritis and rheumatic diseases through research.

Systemic lupus erythematosus (SLE) and mixed connective tissue disease (MCTD) are some of the more severe rheumatic autoimmune diseases. These autoimmune diseases occur when the body’s own immune system mistakenly attacks itself, which can lead to a number of health problems and still require lifelong treatment. Researchers in the division are examining the steps that occur in this process to better understand how and why the immune system becomes dysfunctional in the first place.

Eric L. Greidinger, M.D., the interim chief of the division, has made major contributions to lupus research. Currently, he and his team are working to identify the conditions that determine the organ systems targeted in SLE and MCTD.

Creating a Detour for Autoimmune Responses

Systemic lupus erythematosus (SLE) and mixed connective tissue disease (MCTD) are some of the more severe rheumatic autoimmune diseases. These autoimmune diseases occur when the body’s own immune system mistakenly attacks itself, which can lead to a number of health problems and still require lifelong treatment. Researchers in the division are examining the steps that occur in this process to better understand how and why the immune system becomes dysfunctional in the first place.

Dr. Greidinger has created an experimental system to show that activating different sets of danger-signal sensors—known as Toll-like receptors or TLRs—can actually alter the type of organs being targeted in an autoimmune response. Instead of having the immune response attack critical organs such as the lungs (as in severe forms of MCTD) or the kidneys (as is the case with lupus nephritis), for example, researchers are seeking ways to target the immune response to other parts of the body.

Dr. Greidinger also is working to analyze the expression of genes in patient’s circulating immune cells in early stages of disease to predict the risk for more severe autoimmune responses, such as those that might lead to lung or kidney disease.
Researchers in the division are examining the clinical characteristics of mixed connective tissue disease (MCTD). Elaine Tozman, M.D., Dr. Greidinger, along with co-authors Emily Marks, M.D., a former rheumatology fellow, and Magda Perez, M.D., a 2010 rheumatology fellow, recently published a study looking at the risk for developing MCTD based on blood work. Maria Carpintero, M.D., a former internal medicine trainee and first-year fellow in the division, has taken on the role of studying the clinical manifestations of the disease through the use of advanced blood tests to potentially single out those who may have a risk of developing lung disease.

Dr. Greidinger is working to develop a strategy to target a limited set of T cells to treat cases of lupus and MCTD. The patients who could benefit develop so called anti-RNP autoimmune responses directed against certain proteins that bind to RNA, a finding observed in many lupus patients and all MCTD patients. Earlier studies have shown that certain types of T cells recognized during this response have the same amino acid sequence in both the blood and target tissue (e.g. the lungs or kidneys).

Armed with this information, Dr. Greidinger and colleagues are developing a T cell “vaccine” by essentially “growing” T cell receptors with this stretch of amino acids in a test tube. In the future, they hope to inject patients with these very T cell receptor sequences so that their bodies can develop an immune response against the disease-associated T cell receptors themselves.

“This is a very promising treatment approach because it’s very targeted and gets rid of the bad T cells without affecting the other T cells’ ability to respond and fight off infection,” notes Dr. Greidinger. “This proposed treatment also has the potential to continue to work over time, without the need for retreatment.”

Carlos Lozada, M.D., a nationally renowned educator and researcher in osteoarthritis and inflammatory arthritis and fellowship program director for the division, recently received a grant from the ACR Research and Education Foundation to support the training program. The grant will help fund one full fellowship slot and is a testament to the quality of the clinical and research training of the division and its ability to train and develop competent researchers.

Alyssia Crews

Division of Rheumatology and Immunology

Eric L. Greidinger, M.D. 
Interim Division Chief / 
Associate Professor

Senior Division Administrator
Alyssia Crews

Awards and Kudos

Beloved by the Internal Medicine House Staff for his knowledge and commitment to training, Larry Young, M.D., a former rheumatology fellowship trainee and current deputy director of the Internal Medicine Residency Training Program, has won numerous teaching awards and other commendations for his educational training efforts over the last three years. With the support of Sheri Keitz, M.D., Ph.D., the chief of medicine at the Miami Veterans Administration (VA), Dr. Young has been named the chief of rheumatology at the VA. He was appointed to the prestigious position in June of 2009.
Office of Philanthropy and Medical Development

Donations with a Cause

Each year, the Department of Medicine at the University of Miami Miller School of Medicine relies on the generosity of individuals, corporations, foundations, and alumni to fulfill our mission to advance the education, research, and clinical expertise at the Miller School of Medicine. This investment reflects the belief in our initiatives to create a healthier community today and for future generations.

Remarkably, this past year, our donations were 18.5 percent higher than the previous year, resulting in $7,620,511 in outright gifts. This is accomplished by those loyal individuals who support our annual fundraising efforts and volunteer their time—and for that we are very grateful.

Through the good times and bad, the Department of Medicine continues to thrive, due in large part to your support. Amid economic uncertainty, your tremendous unwavering support and commitment has truly helped build a stronger, more vibrant Department of Medicine. Thank you!

To learn more about ways to support any one of our 14 divisions within the Department of Medicine, please contact:

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Honor Roll

We send a heartfelt thanks to all of our contributors. Your commitment to our work is greatly appreciated and is making a tremendous difference. Furthermore, we are honored by the trust you place in us, and we will continually work to deliver on our pledge to be good stewards of your donated gifts to help make South Florida a stronger and healthier community.

The 2008-2009 University of Miami Miller School of Medicine’s Department of Medicine Annual Report is dedicated to the thoughtful foundations, organizations, friends (non-alumni), corporations, alumni, and the many others whose names appear on the following pages. Your generous support demonstrates how much you value and support the Department of Medicine.

Every Gift Counts

The Department of Medicine sincerely thanks the many donors who made gifts under $250. Every gift is important and is greatly appreciated. The individuals, corporations, and foundations listed here made tax-deductible gifts to the Department of Medicine between June 1, 2008 and May 31, 2009. Every effort has been made to ensure accurate and complete listings of all contributors. Our sincerest apologies for any inadvertent errors or omissions; and please advise us of any corrections.
A Labor of Love

At the heart of our philanthropy efforts are our tireless volunteers—those who donated their leadership, time, energy, and in-kind gifts to make us a stronger Department of Medicine. Whether you opened your home to host an event or organized an annual fundraiser, we are grateful for your thoughtfulness and thank you.

The following pages illustrate a few of the Department of Medicine events during the 2008-2009 year.

Peggy Katz Visit to the Division of Nephrology
November 10, 2008

Terry & Cynthia Taylor Reception for the Division of Hepatology/Center for Liver Disease
January 29, 2009

MDVIP Cocktail Reception, Key Biscayne
February 16, 2009

Men on a Mission

A group of male professionals descended on Morton’s The Steakhouse in Miami in November 2009 for the kick-off of a unique, high-profile Men’s Event, which allows men (women also attended) the opportunity to enjoy an evening among their peers in an upscale dinner setting while raising significant dollars for men’s cancer research. This gathering was a precursor to a larger Men’s Event to be held in Miami on March 8, 2010.

The full kick-off and upcoming spring event are organized by the National Cancer Prevention Fund (NCPF), a non-profit organization that has awarded over $3 million in grants to cancer institutions around the country with a specific focus on cancer prevention and control research.

NCPF partnered with the Department of Medicine last year to raise funds to support cancer research efforts as well as to help with its community educational efforts and ongoing research in men’s cancers, including prostate, colon, and rectal cancer.

“We were very impressed with the results of the kick-off event last fall and look forward to an even greater turnout for the larger Men’s Event scheduled for the spring,” notes Marc Lippman, M.D., Chair of the Department of Medicine. Dr. Lippman has collaborated with the NCPF in the past and understands its value in educating men on cancer-related issues in a relaxed, unintimidating setting.

Now in its 11th year, the NCPF organizes several such educational/fundraising events around the country each year. These events are always associated with an accredited cancer research center or research hospital such as the Miller School of Medicine.

“Often, the men who attend these events have fun, they have a good meal, they learn about men’s cancers and the partnering institution, and end up going home with a smile on their face.”
Proceeds from the Miccosukee Tribe of Indians of Florida’s annual Coral Gables Wine and Food Festival partially support the Division of Pulmonary, Critical Care, and Sleep Medicine. Members of the division hosted a table at the event to provide information on the clinical services and research at the University of Miami Miller School of Medicine. Sebastian joined in the fun at the Miccosukee Tribe of Indians Food Festival along with a University of Miami fan and Miss Miami-Dade County. Marc Buoniconti, honorary chair and a local NBC of Florida’s annual Coral Gables Wine and News anchor, welcomed guests to the festival. Nick Buoniconti and friends enjoyed all the festival has to offer in support of an important and personal cause.

**Dennis M. Sutton Memorial Golf Tournament in Support of the Division of Hepatology/Center for Liver Diseases**

May 4, 2009

Glenn Sutton created the Dennis Sutton Golf Tournament in memory of his late brother Dennis, the former maitre de of Joe’s Stone Crab restaurant. As a parting gift, all golf tournament participants receive a bag of stone crabs. The event draws hundreds of golfers each year.

**Crohn’s and Colitis Foundation of America Walk, Key Biscayne**

April 18, 2009

A team of faculty and friends from the Division of Gastroenterology participated in the Crohn’s and Colitis walk on Key Biscayne. The team was sponsored by Aon.
Our department’s primary mission is to participate in the transformation of medicine in this country.

— Marc E. Lippman, M.D.