Emory Cardiology Newsletter

Introduction from the Director — W. Robert Taylor, MD, PhD

The September/October issue of the Divisional Newsletter is focused on our clinical enterprise. As all of you know, Emory Cardiology encompasses a wide range of clinical activities at multiple sites throughout the city and throughout the state. In this issue we have featured highlights provided by the leadership at some of these sites. The delivery of outstanding cardiovascular care is at the core of the mission of our division.

Also highlighted in this issue is the recent awarding of "MilliPub Club" awards to several of our distinguished faculty. Drs. Andrew Smith, Angel Leon, R. Wayne Alexander, David Harrision and Kathy Griendling were all initial inductees in the School of Medicine "MilliPub Club." This acknowledges individuals who have published one or more scientific papers that have received over one thousand citations. In addition, we were recently informed that Drs. Dan Sorescu and David DeLurgio will also join these individuals and be recognized in early November at the Department of Medicine’s Faculty Research Day. There are only 19 members of the MilliPub Club at Emory and 7 of these members are from the Division of Cardiology.

I would also like to announce that we are beginning our development campaign with former trainees of the fellowship program. As all of you know, training is a critical component of our mission and one that is quite frankly very susceptible to the adverse affects to the current economic climate as well as changes in the conflict of interest policy. As a result, we have initiated a development program to create a trainees fund within the division for the educational activities of our fellows. Drs. Andy Smith, John Merlino and Allen Dollar have generously agreed to help us with this effort. This is a part of the overall School of Medicine campaign but is focused directly on supporting our cardiovascular trainees. This support is necessary for many aspects of our training program ranging from salary support to special event support and travel for trainees to national meetings. Before we approach our former trainees, we will be approaching our faculty to ask for their help in this effort. I urge all of you to consider supporting our trainees fund as this is an extremely critical component of our academic mission.

Physician Profile: Michael Morris II, MD

Michael Morris, II, MD, joined the cardiology faculty in July 2008 as an Assistant Professor. Dr. Morris attended medical school at Morehouse School of Medicine here in Atlanta. He completed his internal medicine residency training at Mount Auburn Hospital in Cambridge, Massachusetts in 2004. Dr. Morris then moved to New York to do his cardiology fellowship at State University of New York and did a year fellowship in advanced cardiac imaging at St. Luke’s Roosevelt Hospital Center. Dr. Morris is primarily based at the Emory Heart and Vascular Center in Smyrna. Upon the transition of Dr. J. Arturo Corso, Dr. Morris assumed the physician leadership role at the Smyrna practice which has shown continued growth. The Emory Heart and Vascular Center at Smyrna is now the second largest cardiac outreach site in the network, making it one of the single largest contributors to Cardiology and Emory Healthcare as a whole.

Newsletter Ideas? Please email Kathleen Brill kbrill@emory.edu with any suggestions or feedback.
ACC lobbying in Washington DC by Jerre Lutz, MD

The 15th annual American College of Cardiology Legislative Conference was held in Washington, DC in September 2009. Three hundred fifty cardiologists from across the United States attended. Drs. Jerre Lutz and Douglas Morris were among the nine representatives from the State of Georgia.

The major focus of the congressional visits included gaining support for (1) reversal of the 21% cutback in the Centers for Medicare/Medicaid Spending (CMS) beginning in January 2010 predicated on a flawed formula used to calculate practice expenses and (2) prevention of an additional 27% overall reimbursement decrease for cardiac services in the year 2010 predominately for imaging techniques. This data is based on an AMA survey of 3,576 surveys of which only 145 were completed and 55 chosen for review. 20-30% of these practices had no nurse, no medical administrators and no billing personnel representing a skewed population. Cardiologists work an average of 68 hours per week versus 32 hours/week for the other physicians leading to incorrect practice expense calculations. Cardiovascular morbidity and mortality dropped 50% in the 1990’s and another 29% since 2000. These results were not achieved in Europe, Canada or other continents. One wonders why oncology and cardiology have been the recipients of the greatest cutbacks. The results are expected to be non-physician layoffs and lack of patient access. The Weimer-Briley Amendment, which proposed all imaging be done as inpatient in hospital with no outpatient imaging allowed after 2013, was withdrawn shortly after the ACC visit. The Baucus Bill in the Senate and HR3200 in the House remain in flux. The position of the College and Cardiologist should be reserved for the final bill. Stay tuned for the next report.

New Equipment Upgrades at Grady by Paul H. D’Amato, MD

This has been an exciting year for cardiology at Grady with the arrival of several long-awaited upgrades to the facilities and equipment. These improvements will facilitate and improve patient care in many ways.

Cath Lab
A new state-of-the-art digital cath lab opened in January. The lab is equipped with a Philips FD1010 biplane camera system with integrated Volcano IVUS and pressure wire capability. The lab includes a Xims hemodynamic monitoring system and interfaces with the Philips Xcelera digital reading and archiving system. An Abiomed Impella device is available for percutaneous LV support.

ECHO Lab
On June 10, 2009, digital Echo was implemented at Grady when a Philips Xcelera digital reading and archiving system went live. The reports are uploaded to the Grady NetAccess intranet and are available for review by the ordering physician within four minutes after report finalization. The associated Web Forum application allows Cardiology Faculty and Fellows to view the ultrasound or angiographic images throughout the hospital. Echo acquisition, evaluation and reporting is now a paperless process at Grady. Additionally, fellows and attendings are now working in a refurbished reading room.

A new TEE suite is under construction across the hall from the cath labs and will be completed in September. It will include three procedure rooms.

Stress Testing
An expanded stress test lab and dressing area has been constructed recently and is now in use, although not quite complete. It will include three test bays, allowing for two tests to be conducted simultaneously. The area will be used for treadmill and pharmacologic procedures, including stress echo and DSE.

Other
Grady has purchased an Acquadex FlexFlow Acquapheresis device which is now available for treatment of CHF patients with refractory fluid overload.
Emory Premiere Destination for VAD Therapy

The ETC’s ventricular assist device (VAD) program received a golden stamp of approval after The Joint Commission survey on August 17-18 granted the program Disease Specific Care Certification for Destination Therapy (DT). As a result, the Centers for Medicare and Medicaid Services (CMS) will provide reimbursement for the care of these patients at Emory Hospital. This is good news for heart failure patients in this region who need a VAD as destination therapy. Emory’s VAD program is the only certified program in the state and one of 80 centers in the U.S.

Destination therapy is for heart failure patients who need left ventricular assist device implants (LVADs) as permanent therapy rather than as a bridge to heart transplantation or to candidacy on the heart transplant waiting list. Destination therapy offers many patients with end stage heart failure an option to resume a more normal lifestyle and improve their quality of life.

The VAD program is currently providing care to seven patients who have received implants for destination therapy in the past two years. The program uses HeartMate II LVADs, which are very useful for treating patients with congestive heart failure. The technology provides a greater quality of life for patients who are not eligible for donor hearts or who may become a candidate for a donor heart in the future. Emory implanted its first LVAD, a Novacor, in 1988, and began using the HeartMate II in May 2007. Seven patients at Emory who have the HeartMate II are using the therapy as a bridge to candidacy or as a bridge to a transplant.

“The Joint Commission certification shows patients who need LVADs as destination therapy that Emory is a leader in the field with the best clinical practices,” reports Laura Jacobson, heart transplant services program coordinator. “We achieved this improvement, which positively impacts our clinical outcomes.”

In September 2008 Emory’s heart transplant program hired a VAD program coordinator, Ann Pekarek, a nurse practitioner, to help expand the program and manage patients. Dr. David Vega serves as the heart transplant program’s surgical director. Many of the program’s staff, including senior heart transplant coordinator Corby D’Amico, VAD clinical engineer Kevin McTeague, and physical therapist Amelia Haselden, have been with the program since 1988. “The program carefully evaluates each patient’s medical and psychosocial factors before surgery, and each patient’s device therapy options are tailored to his or her individual circumstances,” says Dr. Vega. The program also provides a mentoring program so that individuals living successfully with VADs can talk with patients considering a VAD. “Our goal is to safely integrate patients treated with VAD therapy back to their respective communities,” he says.

Dr. Andrew Smith, medical director of the program, opened the Center for Heart Failure in 1990, and he and his team manage the medical care of VAD patients before and after implantation. “Going through the process for Joint Commission certification impressed upon me how talented, experienced and committed our staff is,” reports Dr. Smith. “A patient with a VAD is cared for in multiple areas within our system and receives excellent care. It takes the right people and a lot of effort to create a quality VAD program.”

Heart Failure Group Visits

Emory’s Heart Failure Program is piloting “group visits” at their MOT clinic site. “Group visits” are a relatively new model of care delivery where individual patient visits are combined with interactive group education sessions. The heart failure team began piloting monthly group visits in June and will conclude the pilot in October. During each visit, patients have a private encounter with a physician or a nurse practitioner and receive individualized medical care (including vital sign collection, history taking and physical exam), in a private exam room in the heart failure clinic before moving to a meeting room for the group session.

During the group sessions, educational emphasis is on patient self-management and behavioral changes that would positively impact disease outcome. The primary goal during these sessions is to empower patients and family members with knowledge and skills to improve self-care and better manage their chronic disease. Each session is facilitated by a physician, nurse, pharmacist, or other professional discipline in caring environment where a combination of didactic, questions and answers, and open dialogue are encouraged. Topics of discussion are chosen ahead of time and are based on the needs of the group. At the conclusion of this pilot, the following topics will have been addressed: current trends in heart failure treatment, symptom management, medications, low sodium diet, exercise, emotional impact of chronic disease and community resources.

“As the number of patients newly diagnosed with heart failure grows each year, we are challenged to find innovative ways to effectively manage patient care and improve outcomes. The group visit model is a patient and family centered approach to care management where complex needs could potentially be addressed more thoroughly,” says Dr. Andrew L. Smith, Associate Professor and Medical Director of the heart failure program.

“These visits also allow dialogue that enhances our understanding of the issues confronting our patients, and helps us to better deliver educational messages,” says Angela Murphy, Heart Failure Program Manager.
Cardiology Research Funding Increases 54% in FY2009

Cardiology Division research funding increased 54% in FY 2009, setting an all-time high. Total Cardiology Division grants and contracts awarded was $16,481,004 for the fiscal year ending August 31, 2009. The increase is up from $10,699,354 in FY 2008.

Approximately $12.85 million of FY 2009 research funding came from federal sources such as National Institutes of Health and Department of Defense. Our external funding from these sponsors grew 75% from $7.34 million in FY 2008. These numbers do not include approximately $2 million dollars of recent stimulus funded grants that our faculty received in September. Those grants will further add to this impressive total.

Select ARRA Stimulus Grants for Cardiology Division

Economic consequences of advanced testing for subclinical cardiovascular disease—Leslee Shaw, PhD—NIH Challenge Grant—$498,026/yr
This study aims to evaluate 5-year cost for heart disease care in over 6 thousand individuals, and will further compare costs of heart disease care in subgroups of adults with low to high risk cardiac biomarkers. It will also compare costs in addition to the added benefit of improved detection of heart disease risk using several cardiac biomarkers.

NoxR1, A Regulator of Nox4-dependent cytoskeletal remodeling in vascular cells—Kathy Griendling, PhD—NIH R01—$484,375/yr
This proposal will characterize a new protein, termed NoxR1, that appears to be the first known regulator of the Nox4 NADPH oxidase. Nox4 plays a role in a number of basic cellular functions, including senescence, survival and differentiation, possibly by controlling cytoskeletal remodeling.

Mechanisms linking Depression to Cardiovascular Risk—Viola Vaccarino, MD, PhD—NIH R01—$780,847/yr
This proposal will further clarify the role of depression on CVD using a prospective design to study changes over time in CVD measures. This continuation twins heart study project offers a unique opportunity to examine CVD progression as a function of depression in a genetically informative sample.

Phase II Study: Mobilization of progenitor cells in peripheral arterial disease—Arshed Quyyumi, MD—NIH Grand Opportunity Grant—$1,180,494/yr
This study tests whether stimulation of progenitor cell release from the bone marrow will improve symptoms and outcomes in patients with PAD by either enhancing endothelial dysfunction or promoting development of functional collaterals, or both.

Nox4 and Cardiac fibrosis—Dan Sorescu, MD—NIH R01 Supplement—$273,118
The purpose of this supplement award is to identify the mechanisms by which Smad2/3 and FOXO3A regulate expression of Nox4 mRNA and protein.

Sex differences in myocardial ischemia triggered by emotional factors after MI—Viola Vaccarino, MD PhD—NIH R21 Supplement—$291,952
Young and middle-aged women tend to have higher mortality and complication rates after a heart attack. This epidemiological/genetic set of studies evaluates risk factors connected with heart disease in women such as: depression and history of trauma and biological changes in the heart, brain and inflammation in response to stress.
Reminder—Faculty Research Day November 5, 2009

Please join us Thursday, November 5, 2009, for the second annual Department of Medicine Faculty Research Day to celebrate our research efforts across the department. This event will bring together researchers from all divisions and will provide an opportunity to share exciting new findings, facilitate scientific exchange and identify potential new collaborations.

Faculty in the Department of Medicine will give oral presentations and poster presentations. Trainees and faculty from other departments are welcome to attend the presentations given by faculty from the Department of Medicine.

Schedule

8:00 am – 12:00 pm
Selected research presentations given by faculty

12:00 – 1:00 pm
Keynote address “Systems Pathobiology and Human Disease” by Dr. Joseph Loscalzo, MD, PhD, Chairman, Department of Medicine and Physician in Chief, Brigham and Women’s Hospital, Harvard School of Medicine

1:00 – 2:30 pm
Lunch and poster presentations by faculty and judging of posters

2:30 pm
“Research accomplishments in the DOM” and presentation of poster winners, Dr. R. Wayne Alexander, MD, PhD, Chair, Department of Medicine

3:00 pm
Adjourn

“Project SEED” Staff Awards

Department of Medicine “Project SEED” Staff Awards and Recognition Celebration was held August 13. Here are Cardiology Division staff who received special recognition. Congratulations to all for your exemplary service.

Jiten Ghelani, Division Administrator, received the COMPASS Leadership Award.

Judy Wynn, Accounting Assistant, Sr., was nominated for the Mary Nell McDonald Outstanding Service Award.

Chuong Pham, Sponsored Research Administrator, was nominated for the IMPACT Service Award.

Carolyn Morris, Administrative Assistant, Sr., was nominated for the Mary Nell McDonald Outstanding Service Award.

Jeanette Zahler, Administrative Assistant, was honored for 30 years service at Emory.
The MilliPub Club was formed to honor and recognize current Emory faculty who have published papers that have garnered more than 1,000 citations. Such a paper is commonly considered a “citation classic” and represents high impact scholarship. A reception was held to honor selected members. Dean Thomas Lawley and Associate Dean Ray Dingledine made the presentations.

Drs. Andrew Smith, Angel Leon, R. Wayne Alexander, David Harrison and Kathy Griendling were all initial inductees in the MilliPub Club. Drs. Dan Sorescu and David DeLurgio will also join these individuals and be recognized in early November at the Department of Medicine’s Faculty Research Day. There are only 19 members of the MilliPub Club at Emory and 7 of those are from Cardiology.

**Millipub Club — Researchers Honored September 23**

Newly inducted MilliPub Club Members from Cardiology: Drs. Leon, Griendling, Alexander & Smith

**Cardiology Millipub Papers**

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<thead>
<tr>
<th>Year</th>
<th>Journal</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1991</td>
<td>Nature</td>
<td>Isolation of a cDNA encoding the vascular type-1 angiotensin II receptor.</td>
<td>Murphy TJ, Alexander RW, Griendling KK, Runge MS, Bernstein KE.</td>
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<td>1993</td>
<td>J Clin Inves</td>
<td>Hypercholesterolemia increases endothelial superoxide anion production.</td>
<td>Ohara Y, Peterson TE, Harrison DG.</td>
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Farewell to departing faculty

Farewell to Drs. Randy Martin, Mujeeb Jan, Bobby Khan, Steve Sigman and Jose Torres. We appreciate your contribution to Emory University and wish you the best in the future.

Meet our new faculty

Meenakshi Bhalla, MD, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. Bhalla attended medical school in India at Indira Gandhi Medical School. She completed internal medicine residency training at SUNY Buffalo in 2006 and then moved to University of Missouri, Columbia, for her cardiology fellowship training, which she completed in June 2009. Dr. Bhalla will be based primarily at Emory Heart and Vascular Center at Cartersville as a general cardiologist.

Faisal Merchant, MD, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. Merchant received his Doctorate of Medicine from Duke University School of Medicine in 2003. He subsequently completed residency and cardiology training at Massachusetts General Hospital. Dr. Merchant will be based primarily at Emory Heart and Vascular Center locations at Emory Eastside and Rockdale, and at Emory University Hospital as a general cardiologist.

Michael McDaniel, MD, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. McDaniel received his Doctorate of Medicine from Medical College of Georgia in 2002 and completed his residency training at Emory in 2005. He then entered our cardiology fellowship program and recently completed his interventional cardiology training here in June 2009. Dr. McDaniel will be based primarily at Emory Heart and Vascular Center locations at Eastside and Rockdale and at Grady Memorial Hospital as an interventional cardiologist.

Modele Ogunniyi, MD, MPH, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. Ogunniyi received her Doctorate of Medicine from the University of Ibadan in Nigeria and her Master of Public Health degree from Johns Hopkins University. Dr. Ogunniyi subsequently completed a fellowship in Preventive Medicine and Public Health at the CDC, and then completed residency training at Morehouse School of Medicine. She completed her cardiology training at Vanderbilt University this past month. She will be based primarily at Grady Memorial Hospital as a general cardiologist.

Alejandra San Martin, PhD, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. San Martin obtained her PhD in cellular and molecular biology at Universidad Catolica de Chile in Santiago. She has been a post-doctoral fellow in our basic research area since 2004 and has been studying the role of redox-sensitive and insensitive signaling pathways leading to migration in vascular smooth muscle cells. Dr. San Martin has an NIH K99/R00 Grant to continue her investigation of vascular smooth muscle cell migration. Her lab and office will be in the Woodruff Memorial Research Building.

David Vadnais, MD, has joined the cardiology faculty as Assistant Professor of Medicine. Dr. Vadnais completed his residency at UCLA Medical Center in Los Angeles and obtained his Doctorate of Medicine degree from Emory University School of Medicine. Dr. Vadnais completed his cardiology training in our fellowship program in June 2009. He will be based primarily at Emory University Hospital Midtown as a general cardiologist.
Recent publications

1. Major depression and coronary flow reserve detected by positron emission tomography.

2. Many Americans Have Prediabetes and Should Be Considered for Metformin Therapy.

3. Partial carotid ligation is a model of acutely induced disturbed flow, leading to rapid endothelial dysfunction and atherosclerosis.


5. Effect of a psychoeducational intervention on depression, anxiety, and health resource use in implantable cardioverter defibrillator patients.

6. Induced cardiovascular procedural costs and resource consumption patterns after coronary artery calcium screening: results from the EISNER (Early Identification of Subclinical Atherosclerosis by Noninvasive Imaging Research) study.

Alexopoulos N, Raggi P. Nat Rev Cardiol. 2009 Sep 29. [Epub ahead of print]

8. Differential Healing After Sirolimus, Paclitaxel, and Bare Metal Stent Placement in Combination With Proliferosis Proliferator-Activator Receptor (gamma) Agonists. Requirement for mTOR/Alk2 in PPAR(gamma) Activation.


10. Redox control of vascular smooth muscle migration.
San Martin A, Griendling K. Antioxid Redox Signal. 2009 Sep 8. [Epub ahead of print]

Willis P, Voeltz MD. Am J Cardiol. 2009 Sep 7;104(5 Suppl):34C-8C. Review.

12. Usefulness of elevations in serum choline and free F2-isoprostane to predict 30-day cardiovascular outcomes in patients with acute coronary syndrome.


Velasquez-Castano JC, Lloyd MS. Heart Rhythm. 2009 Sep;6(9):1380-2. Epub 2009 Apr 1. No abstract available.


17. Echocardiography and risk prediction in advanced heart failure: incremental value over clinical markers.

18. Exposure to low-dose ionizing radiation from medical imaging procedures.


20. Correlation Between Carotid Intimal/Medial Thickness and Atherosclerosis. A Point of View From Pathology.
Recent publications (cont)

21: Low-density lipoprotein apheresis as a treatment option for hyperlipidemia.

22: Management of the statin-intolerant patient.

23: Comparison of hydrophilic guidewires used in endovascular procedures.

24: Risk assessment and predictive value of coronary artery disease testing.

25: Nox proteins in signal transduction.

26: Serum resistin concentrations and risk of new onset heart failure in older persons: the health, aging, and body composition (Health ABC) study.


28: Myocardial deformation imaging of the systemic right ventricle by two-dimensional strain echocardiography in patients with d-transposition of the great arteries.

29: Percutaneous left atrial appendage occlusion for patients in atrial fibrillation suboptimal for warfarin therapy: 5-year results of the PLAATO (Percutaneous Left Atrial Appendage Transcatheter Occlusion) Study.

Highlighted Publication

Exposure to low-dose ionizing radiation from medical imaging procedures


Using claims data for nearly 1 million individuals over a 3-year period (2005-2007), this study estimated exposure to ionizing radiation from medical imaging in the US. 2% of the population were exposed to 20 mSv or more every year, which- when generalized to the US population- suggested that over 4 million individuals in the US are exposed to these doses annually. CT and nuclear medicine scans accounted for 3/4 of all radiation exposure and about 80% of exposure occurred in the outpatient setting. SPECT myocardial perfusion imaging alone accounted for over 1/5 of the overall radiation exposure. The authors suggested raising physician and patient awareness, avoiding unnecessary studies, promoting research to determine where imaging is most beneficial, and continued technological advances in imaging as key approaches to enhancing radiation safety.
## Recent Presentations at National Meetings

**AHA 63rd High Blood Pressure Research Conference 2009**

- **P257/P257 - The Role of T cell Costimulation in Hypertension and Vascular Inflammation**
  Antony Vinh, Louise A McCann, Lena Blinder, Jorg Goronzy, Cornelia Weyand, David G Harrison, Tomasz J Guzik

- **030 - Interleukin 17 Is Critical to Angiotensin II–Induced Hypertension and Vascular Dysfunction in Vivo**
  Meena Madhur, Tomasz Guzik, Louise McCann, David Harrison

- **P318/P318 - GTP Cyclohydrolase I Phosphorylation and Interaction with GTP Cyclohydrolase Feedback Regulatory Protein Determine Endothelial Cell Tetrahydrobiopterin Levels and Nitric Oxide Production**
  Li Li, Wei Chen, Emory Univ, Atlanta, GA; John Salerno, Kennesaw State Univ, Kennesaw, GA; David G Harrison

- **067 - Ischemia-Induced Oxidative Injury in the Renal Proximal Tubule Is Specifically Prevented by Tempol-Folate Conjugate**
  Sarah F Knight, Emory Univ, Atlanta, GA; Kousik Kundu, Niren Murthy, Georgia Inst of Technology, Atlanta, GA; W Robert Taylor

**Heart Failure Society of America Scientific Meeting 2009**

- **HF Family Caregiver Outcomes and Associated Factors**
  Sandra B. Dunbar, Patricia C. Clark, Rebecca A. Gary, Christina Quinn, Carolyn M. Reilly, Andrew Smith, Melinda Higgins
  Journal of Cardiac Failure - August 2009 (Vol. 15, Issue 6, Pages S108-S109)

- **Predicting Risk among Patients Listed for Heart Transplantation: Is It the Same as a General Heart Failure Population?**
  Vasiliki V. Georgiopoulou, Andreas P. Kalogeropoulos, Amna Altaf, Nida Arif, Perry Anarado, Danesh Kella, Maryah Mansoor, Grigorios Giamouzis, Syed A. Agha, Wendy Book, Sonjoy Laskar, Andrew L. Smith, Javed Butler
  Journal of Cardiac Failure - August 2009 (Vol. 15, Issue 6, Page S102)

- **Hemodynamic Parameters and Renal Function in Patients Hospitalized for Heart Failure**
  Mahdi Chowdhury, Perry Anarado, Imad Hussain, Amanda Methvin, Andreas P. Kalogeropoulos, Vasiliki V. Georgiopoulou, Vikas Bhalla, Deepa Mangalat, Jeffrey Shih, Syed A. Agha, Wendy Book, Sonjoy R. Laskar, Andrew L. Smith, Javed Butler
  Journal of Cardiac Failure - August 2009 (Vol. 15, Issue 6, Page S95)

- **Cardiac Index, Maximal Oxygen Consumption, and Outcomes in Patients with Advanced Heart Failure**
  Amanda Methvin, Perry Anarado, Mahdi Chowdhury, Imad Hussain, Andreas P. Kalogeropoulos, Vasiliki V. Georgiopoulou, Vikas Bhalla, Deepa Mangalat, Jeffrey Shih, Syed A. Agha, Wendy Book, Sonjoy R. Laskar, Andrew L. Smith, Javed Butler
  Journal of Cardiac Failure - August 2009 (Vol. 15, Issue 6, Page S95)

- **Hemodynamic Correlates of Outcomes in Patients Hospitalized for Heart Failure**
  Imad Hussain, Perry Anarado, Andreas P. Kalogeropoulos, Mahdi Chowdhury, Vasiliki V. Georgiopoulou, Amanda Methvin, Vikas Bhalla, Deepa Mangalat, Jeffrey Shih, Syed A. Agha, Wendy Book, Sonjoy R. Laskar, Andrew L. Smith, Javed Butler
  Journal of Cardiac Failure - August 2009 (Vol. 15, Issue 6, Pages S98-S99)

## Recent Grants
(For NIH ARRA Stimulus grants received see pg 4)

**Kathy Griendling**—NIH PPG Program Project Grant
Diverse Roles of of Reactive Oxygen Species in Vascular Disease—NIH P01HL095070—$2,360,539/yr

**Viola Vaccarino**—NIH K24 Midcareer Investigator Award in Patient Oriented Research — Mind-body interactions in Cardiovascular Disease—NIH K24HL077506—$176,882/yr

**Young-sup Yoon**—NIH R21 Identification of Novel Endothelial Progenitor Cells — NIH R21HL097353—$232,500/yr

**W. Robert Taylor**—NIH R01 Osteopontin and Collateral Vessel Growth — NIH R01HL092150—$361,700/yr

**Neal Dickert**—NIH F32 Ethics in resuscitation research: Understanding and incorporating community views—NIH F32HL095358—$51,710/yr

**Sergey Dikalov**—AHA Grant in Aid—Role of Mitochondrial oxidative stress in endothelial dysfunction and hypertension—$77,000/yr

**Michael Lloyd**—Medtronic—Stimulus Intensity in Left Ventricular Leads and Response to Cardiac Resynchronization Therapy Trial—SILVER CRT

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