Message from the Chairman

Springtime is in full swing in the Lowcountry with many exciting events taking place in the Charleston area. Similarly our department is undergoing exciting changes with the installation of new equipment leading to enhancements in patient care at MUSC. MUSC is the first hospital in South Carolina to implement the Adventure Series fluoroscopy room as a form of “distraction therapy” to reduce anxiety for our pediatric patients and to improve their overall experience. Vascular interventional radiology recently replaced a procedure room in the Main Hospital. As discussed by Dr. Selby, this state-of-the-art room will allow our VIR team to handle cases much faster with lower radiation dose while at the same time improve image quality.

On the clinical trials front, our innovative Neuroendovascular team performed the first three U.S. cases using the PulseRider™ which is a reconstruction device for wide-neck aneurysms at or near a bifurcation of the basilar tip or carotid terminus. Dr. Thacker was first in the U.S. to perform an MR-guided bone biopsy procedure in a pediatric patient eliminating the use of CT and associated radiation exposure.

Congratulations to Dr. Marcelo Guimaraes on his nomination to become Director of Vascular Interventional Radiology starting May 1st 2015. Dr. Bayne Selby will continue as an attending radiologist in VIR and we are grateful to him for his leadership of the VIR program. Dr. Nancy Curry is retiring at the end of June after many years of dedication and service to the Medical University and the Department of Radiology. Our heartfelt thanks go to Dr. Curry for the excellent clinical care she has brought to our patients and referring clinicians throughout her career at MUSC. Dr. Curry developed a national and international reputation for her expertise in the field of genitourinary radiology which led her to be named President of the Society of Uroradiology in 2007.

Thanks to the hard work of our faculty our residency program matched 9 outstanding applicants who will begin their training in 2016. We look forward to having them join our program and working with them in the future.

There are many more department wins and accolades for our faculty and staff mentioned in this issue of the newsletter. Please read about them and take the time to congratulate our faculty and staff for successes and accomplishments.

Philip Costello, M.D., F.A.C.R.
Professor and Chairman
Department of Radiology & Radiological Science
MUSC has completed the process of replacing the angiography rooms in the Vascular Interven-
tional Radiology area at the Main Hospital and the improvement in image quality and functionality
is dramatic. When the Heart and Vascular Center was placed on the 5th floor of the Children’s
Hospital in 2003, the new angio rooms at that time were state-of-the-art. But over the last dozen
years there have been significant advances and MUSC is now able to take advantage of those with
the installation of a new GE Innova angiography suite.

The new room has been operational for three weeks now and already there are cases being done much
faster with lower radiation dose and much better imaging quality. The new room has been used
for uterine artery embolization, safe removal of misplaced lines, and chemoembolization.

Last week a patient with internal bleeding was referred from an outside hospital where there had
been two unsuccessful attempts to embolize the difficult to access bleeding site. The procedure
was successfully done in under 90 minutes in the new room.

The radiologic technologists are finding it user friendly to do a cone beam CT, where a rotational
angio is done and automatically reconstructed as a CT in axial, coronal, and sagittal planes within
90 seconds. In addition, in the process the 3-D image of the blood vessels can then be laid over
the live fluoroscopy image and it maintains the appropriate relationship no matter to which angle
the C-arm is turned. Other attributes such as the large 56 inch monitor, constant radiation
monitoring, increased room size (less need for peripheral mechanical equipment), and ultrasound
available on the overhead monitor make this the room of choice for all advanced and pediatric
procedures. The next iteration of the equipment will begin installation at ART within the next
two months.
MUSC is the first hospital in South Carolina to adopt Adventure Series as a form of “distraction therapy” to reduce patient anxiety and improve patient experience in pediatric imaging. Dr. Jeanne Hill, Director of Pediatric Imaging, comments, “Creation of child-friendly patient care spaces like the Adventure Series Fluoroscopy room is the natural progression of our commitment to patient-centered pediatric imaging. The pediatric radiology staff are excited to be able to work in such a beautiful space. I am sure our young patients (and their parents) are going to love it as much as we do!” While MUSC completed the first Adventure Series installation last April at the MUSC Pediatric Urgent Care in Summerville, this is the 1st installation in Pediatric Radiology on the main hospital campus. Other Children’s Hospitals that have adopted Adventure Series include: UPMC (Pittsburgh, PA), University of California San Francisco, The Children’s National Medical Center in Washington, D.C., and Ann and Robert H. Lurie Children’s Hospital of Chicago (formerly Children’s Memorial Hospital).

UPMC, which has adopted Adventure Series across Pediatric Radiology, has reported a department-wide decrease in necessity for sedation by nearly 20 percent in the year after the program was deployed. Moreover, staff productivity and throughput has increased.

Dr. Paul Thacker added “The addition of our new Adventure Series fluoroscopy room is in keeping with our commitment to provide high quality, child-friendly imaging with a patient-centered focus. As we grow our department and move into our new Children’s hospital, we will continue to optimize our imaging environment for our children, which will ultimately reduce stress and anxiety for both the patient and his/her parents. Imaging at MUSC Children’s Hospital should feel more like having fun and less like just seeing the doctor. Our goal at the end of each study is for the child to so enjoy the experience that they want to come back the next day.”
For neuroendovascular surgeons treating intracranial aneurysms, two of the most difficult to treat are bifurcation aneurysms arising at the basilar apex or the carotid terminus. Until recently, effective techniques that could be applied with acceptable risk were available only outside the United States.

In June 2014, the U.S. Food and Drug Administration (USFDA) approved an investigational device exemption for the PulseRider® (Pulsar Vascular, San Jose, CA), a reconstruction device intended for wide-neck aneurysms at or near a bifurcation of the basilar tip or carotid terminus. The first three U.S. cases were done by Alejandro M. Spiotta, M.D., Assistant Professor in the Department of Neurosciences, Raymond D. Turner, M.D., Associate Professor in the Department of Neurosciences, and M. Imran Chaudry, M.D., Associate Professor of Radiology at the Medical University of South Carolina (MUSC). They were able to achieve complete occlusion of the aneurysm without intraprocedural complications in all three cases. These cases are part of a multicenter clinical trial currently being conducted at eight select centers in the U.S. The trial is ongoing and patient enrollment is scheduled to end in late fall 2015. Dr. Spiotta and co-authors reported on these results in the January 5, 2015 Issue of the Journal of Neurointerventional Surgery.
Dr. Paul Thacker was called in to evaluate a little girl named Hope who was experiencing pain and swelling of her knee. Dr. Thacker and Hope’s orthopaedic surgeon, James Mooney, MD decided that Thacker would perform a MRI-guided biopsy.

Thacker said, “MRI–guided biopsies have been performed in adults, but not commonly for bone masses. Children, however, are another story entirely – to my knowledge it has only been performed a handful of times in the world. For one, it’s time-intensive and can take longer than other modalities; up to an hour. Also, there is less expertise on how to perform the procedure given its rare usage.”Thacker continued,

This is extremely important for us. If we can safely and quickly do it in children, we can significantly reduce or stop doing CT biopsies and decrease radiation exposure to our children. Radiation is a huge concern and this would be a better choice. Radiation-induced cancer is a known risk. By using MRI, we could eliminate that risk.”

Even with the advances in CT scanning, such as faster scanning times and higher resolution images, the benefits of an MRI–guided biopsy are many. With MRI, Thacker would be able to precisely locate and remove cells from the suspicious areas for diagnosis and treatment planning; the procedure would be minimally invasive; and, unlike CT, the MRI uses no radiation.

One concern Thacker had prior to the procedure was the time it could take to perform it. CT is very quick and CT–guided biopsies are relatively short procedures. In contrast, MRI scans may last an hour or longer. He wouldn’t want it to take any longer, as a small child under anesthesia for a prolonged period of time is always a concern. There were some unknowns going in to the procedure, and Thacker would have to safely improvise with the equipment he had. However, if this MRI–guided biopsy were to go well, and the time was not much longer than what a CT–guided biopsy would take, it would be a monumental advancement in how children undergo image-guided biopsy.

The procedure itself took 20 minutes. From the time Hope was put to sleep until she left the MRI suite was about an hour. The good news for all concerned was that Hope’s lesion was an infection which was easily treated with a course of antibiotics.
RESIDENCY PROGRAM MATCHES APPLICANTS TO BEGIN IN 2016

RADIOLOGY RESIDENTS: CLASS OF 2016-2020

Cody Branch
Univ. of Mississippi

Carol Fahmy
Ohio State Univ.

Shawn Hobby
Univ. of Texas

John Hohenberger
MUSC

Jennifer Martin
Philadelphia College

Chase Mitchell
Univ. of Alabama

Jonathan Poirier
Lake Erie College

James Stubbs
Univ. of Florida

Frank Vento
Univ. of Toledo

**Double-pulsed diffusional kurtosis imaging for the in vivo assessment of human brain microstructure.** Ed Hui, Jens Jensen. E-poster.

**Modeling of Brain Microstructure by Kurtosis Analysis of Neural Diffusion Organization (KANDO).** Ed Hui, Russell Glenn, Joseph Helpern, Jens Jensen. E-poster.

**Comparison of Diffusional Kurtosis Imaging (DKI) and Diffusion Spectrum Imaging (DSI) for White Matter Fiber Tractography.** G. Russell Glenn, Jens H. Jensen, Yi-Ping Chao, Chu-Yu Lee, Joseph A. Helpern, and Li-Wei Kuo. Traditional Poster.


**Comparative Analysis of Magnetic Field Correlation Imaging, Quantitative Susceptibility Mapping and Transverse Relaxation Rate R2* Indices of Brain Iron in Healthy Adults.** Adisetiyo V, Jensen JH, Lee C, Roberts DR, Spampinato MV, Helpern JA. Traditional Poster.

**Psychostimulant Medication Duration Correlates with Increased Brain Iron Levels in Attention-Deficit/Hyperactivity Disorder.** Adisetiyo V, Jensen JH, Tabesh A, Deardorff RL, Gray KM, Helpern JA. Oral Presentation.


**Differentiating Microscopic Field Inhomogeneity Induced Relaxation from R2 and R2* Relaxations with Magnetic Field Correlation Imaging.** CY Lee, X Nie, JH Jensen, V Adisetiyo, Q Liu, JA Helpern. E-poster.

**Monte Carlo Modeling of the Non-monoexponential CPMG Relaxation in Iron Overload.** CY Lee, JH Jensen. E-poster.

**Preliminary Evidence of Midazolam Effect in Brain Microstructure using Diffusional Kurtosis Imaging.** Xingju Nie, Dorothea Rosenberger, Aurelie Ledreux, Ann-Charlotte Granholm, Heather Boger, Maria Falangola. E-poster.
Accuracy and reproducibility of native myocardial T1 mapping using 9, 10, and 11 heartbeat MOLLI acquisition schemes
S. Mangold1, A. Varga-Szemes1, C.N. De Cecco1, G. Muscogiuri1, P.M. Cannao1, J.L. Wichmann1, P. Suranyi1, W.G. Rehwald2, U.J. Schoepf1;

Approaches to ultra-low radiation dose coronary artery calcium scoring using 3rd generation dual-source CT: a phantom study
G. Muscogiuri, C.N. De Cecco, A. McQuiston, F.G. Meinel, J.L. Wichmann, A. Varga-Szemes, P.M. Cannao, U.J. Schoepf;

Non-contrast 3D and QISS magnetic resonance angiography for pre-operative TAVR evaluation
P.M. Cannao1, A. Varga-Szemes1, G. Muscogiuri1, C.N. De Cecco1, M. Renker1, S. Mangold1, D. Piccini2, S. Giri3, U.J. Schoepf1

Impact of automated attenuation-based tube voltage selection on radiation dose at CT: an observational big data analysis on a global scale
J.V. Spearman1, J.L. Wichmann1, F.G. Meinel1, I. Driesser2, C. Canstein2, R.R. Bayer1, S. Mangold1, C.N. De Cecco1, U.J. Schoepf1;

CT evaluation of small-diameter coronary artery stents: impact of an integrated circuit detector with iterative reconstruction using 3rd generation dual-source CT

CT dose reduction using sequential or fast pitch spiral technique employed in CTA of the aorta: results from the CT dose study
A.M. Bucher1, M. Renker2, F.G. Meinel3, T.J. Vogl1, K.M. Chinnaiyan4, G.L. Raff4, U.J. Schoepf

Diagnostic yield and accuracy of coronary CT angiography after abnormal nuclear myocardial perfusion imaging
Evaluation of diagnostic value of a novel non-invasive coronary computed tomography angiography algorithm versus standard coronary angiography for assessing fractional flow reserve

Virtual unenhanced images of the abdomen with third-generation dual-source dual-energy CT and advanced modeled iterative reconstruction: image quality, attenuation and radiation dose

Semi-automated global quantification of left ventricular myocardial perfusion at stress dynamic CT: diagnostic performance for detection of territorial perfusion deficits
J.L. Wichmann1, F.G. Meinel1, C.N. De Cecco1, A. Varga-Szemes1, G. Muscogiuri1, P.M. Cannao1, Y.H. Choe2, Y. Wang3, U.J. Schoepf1

Left ventricular myocardial perfusion at stress dynamic CT: multi-center evaluation of relative and absolute territorial myocardial blood flow in patients with coronary artery stenosis
J.L. Wichmann1, C.N. De Cecco1, F.G. Meinel1, A. Varga-Szemes1, G. Muscogiuri1, P.M. Cannao1, Y.H. Choe2, Y. Wang3, U.J. Schoepf1;

Mammographic Screening and Detection of Breast Arterial Calcification as an Independent Predictor of Coronary Atherosclerotic Disease in a single ethnic cohort of African American Women. Nunez, JH. Student Session.
Psychostimulant Medication Duration Correlates with Increase Brain Iron Levels in Attention Deficit/Hyperactivity Disorder. Adisetiyo V, Jensen JH, Tabesh A, Deardorff RL, Gray KM, Helpern, JA. Oral Presentation


Diffusion Kurtosis Imaging in the Setting of Non-Accidental Trauma. Thomas McLaren PhD, Rachael Deardorff, Els Fieremans PhD, Sarah Milla MD, Truman Brown PhD, Joseph A. Helpern PhD, Jens Jensen PhD, Donna R. Roberts MD.


Radiation Dose and Image Quality in Pediatric Head CT. M Vittoria Spampinato, K Byington, S Tipnis, R Brothers, B Zoghbi. Oral Presentation.


M. Bret Anderson, MD

“Transjugular liver biopsy and hemodynamic evaluation in post hypertensive patient” Lecture.

Marcelo Guimaraes, MD

“Update in Lower Extremities Interventions” Moderator.

“Challenging occluded fem-pop bypass grafts” Lecture.

”Best 2014 Papers Published in JVIR” Lecture.

Christopher Hannegan, MD

“Portal Hypertension Session” Moderator.

“Hemodynamic changes and survival in the post TIPS patient” Lecture.

“Transplant Interventions” Lecture.

Claudio Schonholz, MD

“Should all patients with lower extremity occlusive disease have an attempt at endovascular treatment prior to surgical intervention?” Panelist.

“Carotid/Stroke Session”. Lecture.

“New Carotid Stent to Prevent Pre & Post Procedure Events” Lecture.

Ricardo Yamada

“Considerations in Traditional vs. Endovascular Treatment of Bleeding Associated with Pancreatic Disease”. Presentation.
Marcelo Guimaraes, MD

“Transradial Peripheral Interventions” Lecture.

“How I Do It IV: Dialysis Access” Lecture.

“Central Venous Recanalization after Failure of Conventional Techniques” Lecture.

Claudio Schonholz, MD

“Hybrid Carotid Stent to Reduce Peribraciocephalic Events” Lecture.

“Next Generation Devices for CAS and EPD” Lecture.

“Filters versus Proximal Occlusion and Flow Reversal” Lecture.


Update on BIRADS for Breast Ultrasound. Ackerman S. Presentation. AIUM Annual Meeting 2015.


The American College of Radiology’s “Daily News Scan” featured our Radiology Breast Division’s abstract “Ultrasound Outperforms MRI, Digital Mammography for Assessing Breast Tumor Size Preoperatively.” as the March 25th “Leading the News” article.

The article states that “Aunt Minnie reports that research presented at the American Institute of Ultrasound in Medicine meeting suggests that “regardless of breast density, ultrasound outperformed MRI and digital mammography for preoperatively assessing breast tumor size.” In the 93-patient retrospective study, our researchers found that both ultrasound and mammography yielded better performance than MRI, which significantly overestimated tumor sizes. However, ultrasound was the highest overall performer.”

The ACR Daily News Scan is a daily eNewsBriefing tailored to the needs of radiologists and radiation oncologists and summarizes key reporting on the field of radiology over the preceding 24 hours.

NEW PUBLICATION BY DR. GUIMARAES ON EMBOLIZATION THERAPY

December 4, 2014: Dr. Marcelo Guimaraes is one of the editors for the new Embolization Therapy: Principles and Clinical Applications, which covers all of the current devices, basic and advanced techniques, and tips for frequently performed procedures. Includes a review of embolic agents, step-by-step clinical applications, and discussions of the future of embolotherapy.
Turk, et al. ADAPT FAST study: a direct aspiration first pass technique for acute stroke thrombectomy. This article describes a novel method for mechanical revascularization using a large bore aspiration catheter. The operators utilized the largest caliber aspiration catheter that the target vessel would accommodate. The catheter was then advanced to the face of the thrombus and aspiration applied. The catheter was subsequently withdrawn, attempting to remove the clot en bloc. Adjunct devices were used at the discretion of the operator. The investigators employed the technique in 98 acute ischemic stroke patients harboring large vessel occlusions. The aspiration component achieved Thrombolysis in Cerebral Infarction (TICI) 2b or 3 revascularization in 78% of cases. The adjunct use of stent retrievers increased the TICI 2b/3 rate to 95%. The authors demonstrated that this versatile and technically straightforward revascularization method can be utilized to achieve revascularization. This study is a good example of the ability of neuroendovascular surgeons to join together and channel collective energies and resources.

Cephus Simmons, RA receives two applause awards

Cephus Simmons received two applause awards for his work at ART. The applause award is given to an employee who has gone above and beyond their regular job duties to satisfy customers and exceed expectations.

Radiology Marketing Liaison joins Mount Pleasant Business Association Board

Tonya Pilkenton, Radiology Marketing Liaison, was selected to serve on the Mount Pleasant Business Association Board and act as the chair for the marketing committee for 2015. She is responsible for all their marketing activities and networking opportunities.
U. Joseph Schoepf, MD and Russell Chapin, M.D. have received the 2014 Editor’s Recognition Award with Special Distinction in recognition of their outstanding efforts as reviewers for *RADIOLOGY*. This recognition is given to the top 5% of journal reviewers.

**DRS. SCHOEFPF AND CHAPIN RECEIVE RSNA’S EDITOR’S RECOGNITION AWARD**

**DR. MARCELO GUIMARAES PROMOTED TO THE DIRECTOR OF VASCULAR INTERVENTIONAL RADIOLOGY**
MAY 1st 2015

**DR. WILLIAM CONWAY RECEIVED A LIFETIME ACHIEVEMENT AWARD FROM AMERICAN BOARD OF RADIOLOGY**

**DR. LEONIE GORDON ELECTED TO ALPHA OMEGA ALPHA HONOR SOCIETY**
The Radiology Research Grant Coordinator Team works with the department’s Principle Investigators (PIs) to secure clinical research and basic research funding. Our Grants Coordinators are involved with the processing of grants from pre-award, assisting with budgets and departmental start-up costs if necessary, through the proposal submission process. Once a proposal is awarded, they handle post-award activities; setting up the project for spending, preparing clinical trial invoices, reconciling expenditures each month and sending project balances to PIs.

Susan Holland has been with the department since January 2014. She has a BS in Business Administration from the Citadel and came to us from MUHA Facilities and Capital Improvements handling contract administration. Susan has a total of 10 years’ experience here at MUSC, however has 30+ years’ experience with finance.

Michelle Forster has been with the department since October 2014. She has almost completed her MBA at the Citadel and transferred from the Department of Pharmacology where she handled administrative activities, which included handling activities on the departments COBRE grant. Michelle has a total of 5 years’ experience here at MUSC.

Susan (Susie) Lent has been with the department since July 2014. She has MA in Human Resources Management and Development from Webster University and transferred from the Department of Regenerative Medicine and Cell Biology where she handled all aspects of the Federal and Foundation pre-award and post-award activities. Susie has a total of 10 years’ experience here at MUSC, however has 21 years’ experience in finance.

Teri Huggins began her MUSC career with the department in December 2014. She has BS in Business Administration from the College of Charleston. She came to us from WebsterRogers LLP, a local accounting firm. Teri has 20 years’ experience working in accounting. She will be handling all Federal and Foundation pre-award and post-award activities.
IN THE NEWS

ARTICLE IN IR QUARTERLY WRITTEN BY BAYNE SELBY, M.D. ON IR LEADERSHIP

Dr. Bayne Selby was invited to write an article on Leadership in IR for the IR Quarterly Winter 2015 issue. Included in this issue of IRQ is a sidebar with information on the newly formed ACIR Society which has a goal of recruiting IR Division Chiefs for leadership. To read Dr. Selby’s article and receive more information on the ACIR Society, please read more online at http://www.sirweb.org and click on IR Quarterly.

DR. RITENOUR DISTINGUISHED INTERNATIONAL INVITED SPEAKER DURING INTERNATIONAL CONFERENCE IN INDIA

Dr. E. Russell Ritenour was invited to serve as a Distinguished International Speaker at the International Conference on Advances in Medical Electronics in Kalyani, India. His address as keynote speaker was titled “Safety Issues in High Field Strength MRI”.

DR. NANCY CURRY RETIRING AFTER MANY YEARS OF DEDICATION AND SERVICE TO MUSC RADIOLOGY

Dr. Nancy Curry is retiring at the end of June after many years of dedication and service to the Medical University and the Department of Radiology. Our heartfelt thanks go to Dr. Curry for the excellent clinical care she has brought to our patients and referring clinicians throughout her career at MUSC. Dr. Curry developed a national and international reputation for her expertise in the field of genitourinary radiology which led her to be named President of the Society of Uroradiology in 2007.
COMMUNITY

RADIOLOGY FACULTY AND STAFF GIVE CONSECUTIVELY OVER 10-15 YEARS TO THE MUSC “YES” CAMPAIGN

Currently a two-way tie for 1st place:
Laura Bell (X-Ray) July 29, September 25, January 9, March 26
Marion Watson (Radiology Administration) July 30, September 24, December 17, February 17

Currently 2nd Place
Tina Rapstine (Radiology Residents) September 24, December 17, February 17

Currently a four-way tie for 3rd place:
Claudia Richey (Radiology Medical Education) January 28
Tina Cooper (Radiology Research) January 8
Mike Ricciardone (Radiology Administration) August 7
Sandra Stringer (Interventional Radiology) August 20

Have you given blood? If so, please be sure to email your name, the division you work for, and the date you donated to Sandra Stringer at stringes@musc.edu. Our top three donors at the end of the fiscal year will receive plaques to commemorate their generosity! All donors will receive a certificate to celebrate their donation!
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