

UNIVERSITY of VIRGINIA  
SCHOOL of MEDICINE

Winter 2015

# KEATS SOCIETY

DEPARTMENT OF RADIOLOGY  
AND MEDICAL IMAGING  
ALUMNI SOCIETY



## CHAIRMAN'S CORNER

Dear Keats Society Members and Friends:

As the upcoming Keats Society Meeting approaches (May 1-2, 2015), I look forward to you joining us for a weekend of education, socializing and exchanging of knowledge and stories. In the interim, I would like us to reflect on how lucky we are as radiologists and what an opportunity we have to increase our circle of influence.

Diagnostic radiology and image-guided interventions remain one of the most dynamic and influential areas of medical practice in health care. Our department alone touches the lives of more than 400,000 patients and families every year. What a huge impact we have on the patients who have entrusted their lives to us. Medical imaging is virtually irreplaceable and affects every clinical specialty, from psychiatry to pediatrics to physical medicine and rehabilitation.

The detailed anatomy generated from modern-day CT and MR equipment is exquisite for making a diagnosis and for treatment planning. Molecular imaging is demonstrating its ability to reveal reliable physiologic and pathologic information. At some point, cadavers for first year medical school anatomy classes will become a thing of the past, being replaced by CT, MR and ultrasound images that will provide normal, abnormal and variant anatomy correlates with pathology.

As newer developments occur with microparticle technology (i.e. nanoparticles, microsomes and exosomes), methods to accurately image biomarkers and drug-delivery vectors less than one micron in size will be needed to determine the sites and effects of targeted diagnostics and therapeutics. This so-called realm of "theragnostics" is fertile ground for growth and discovery, both in the pre-clinical and clinical arenas. Indeed, the National Institute for Biomedical Imaging and Bioengineering, a branch of the NIH that funds medical imaging research, has the most citable patents per dollar of funding of any NIH branch, which reflects the great return on investment for research in biomedical imaging.

Therefore, radiologists have the opportunity to positively influence the lives and care of so many patients, to affect the education of the next generation of caregivers, and to innovate to advance "theragnostics." However, in order for radiologists to have their greatest impact, they will need to come out from behind the shadows of their PACS monitors and reading rooms to make themselves and the value of their specialty more visible. Such a paradigm shift will be a significant change for many radiology practices, and will involve hard work and more time, likely without an increase in pay. However, the return on investment will likely be a significant enhancement of professional gratification, while also putting the radiologists in a position to have more meaningful influence on their institutions, health care systems, legislators, payers, and most importantly, the care of their patients.

Best wishes for 2015 and I hope to see you in May.



## *DR. KEATS AND THE EARLY DAYS OF MRI*

2014 marked the 30th anniversary of the year from when Dr. Ted Keats, with advice from his colleagues and help from the UVA Hospital, decided to invest in the first whole-body superconducting magnet MRI scanner to be located in the Commonwealth of Virginia. This was a prototype 0.35 Tesla Siemens magnet system that was not yet FDA approved for routine patient studies. For various reasons, including a concern that such a strong unshielded magnet would produce a fringe magnetic field that would interfere with other hospital activities, this first MRI system was located in a nearby renovated Sears garage that the hospital had recently acquired. The Sears garage, now renamed Stacey Hall, had served Charlottesville for many years. When brain MRI studies in the elderly became more common at Stacey Hall, it often caused the remark by new Charlottesville patients “that although they were there now for a brain scan, the last time it was for an oil change.”

Since this was a prototype MRI system, in the first few years there were many upgrades in software and hardware to improve image quality. In particular the magnet field strength was increased from 0.35T to 1.0 T and many new specialized receiver coils were added to target various body regions such as the knee and shoulder. A particular early challenge was how to interpret the contrast between tissues obtained from an MRI image. Unlike the situation when X-ray CT scanners were first introduced, which had image contrast similar to plain film X-Ray, there was no radiology precursor for the contrast obtained with MRI. It was all new: in fact, radiologists could choose from several different image contrasts available on the console menu, provided they knew what was wanted. But without previous training or knowledge how were they to know which menu item to choose?

So where to begin? In 1985 there were no MRI manuals or textbooks, and when these did appear they were usually outdated by the time they were published. So early MRI practitioners had a very steep learning curve with limited guidelines.

Fortunately at the Stacey Hall MRI site, several radiology faculty members eagerly participated at various levels in this learning process. A neuroradiology team was led by Wayne Cail and included Maurice Lipper, Leon Morris and Julie Matsumoto, and the body group included Michael Paling and Eduard de Lange, and later, when the specialized musculoskeletal coils became available, Phoebe Kaplan and Robert Dussault developed the MSK imaging protocols.

In 1985 David Teates, director of Imaging for the Radiology Department and Jim Brookeman, a physicist recruited from the University of Florida to be director of MRI research proposed the formation of a joint graduate research program in medical imaging with the UVA Department of Biomedical Engineering (BME). This program would have a strong focus on the development and implementation of new advanced methods to improve the speed and quality of the emerging field of clinical MRI. The BME department was also located in Stacey Hall, close to the MRI scanner. This proximity proved to be very fortuitous, since it provided the BME graduate students ready access to the new MRI scanner for their research when the scanner was not employed for patient studies.

In the early years, the BME graduate students proved a decided benefit to the clinical MRI program, since on many occasions the UVA radiologists wished to modify the MRI patient imaging pulse sequence to improve the conspicuity of the pathology. In a short time, with help and training from the Siemens technical staff, the graduate students and faculty were able to develop the knowledge and skills to actually perform many beneficial alterations to the MR imaging pulse sequences to improve the patient imaging protocols. In fact, in some instances, they were able to write completely new MR imaging sequences almost from scratch. Such was the case when John Mugler as a BME graduate student, and now a senior faculty member in the Radiology Department, investigated a way to acquire a 3-dimensional MRI image. This technique was published with the name 3D MP RAGE in 1990 by John Mugler and Jim Brookeman. The technique is now universally employed on MRI scanners world-wide, and is particularly used in brain imaging as a biomarker for the early detection of the presence and the progression of Alzheimer's Disease.

In the 1980's Ted Keats was a visionary who saw the importance of emerging imaging technologies, and this caused him to commit significant radiology resources and early support for the MRI program at UVA in areas of research, education and clinical training.

James R. Brookeman PhD, Professor of Radiology and Medical Imaging and Biomedical Engineering

## MESSAGE FROM YOUR PRESIDENT

Greetings from Charlottesville,

As in most years, as we move into 2015, I find myself looking back and looking forward.

Looking back, it was a good year for the Keats Society. We were able to purchase access to the Imaios e-anatomy site for the residents as well as provide funding for seven residents to attend the Huda physics review course. We finished the year with yet another wonderful RSNA reunion at the Intercontinental Hotel in Chicago and as you can tell from the pictures in this issue, it was a great time to reconnect. At the same time, it also reminded me that time really does begin to blur as I get older. While speaking with two of our former musculoskeletal imaging fellows at the reception I said to them, "You two remember each other, correct?" only to find out that they had actually been fellows about 5-6 years apart with no overlap! But that's one of the great things about the Society: it provides a rich continuity of old and new, a chance to reconnect with familiar friends while also making new connections with others who have also shared in the UVA tradition.



Looking ahead, I'm very excited about the Keats Society Homecoming Weekend scheduled for May 1-2, 2015 here in Charlottesville. Our luminary guest will be Dr. Giles Boland from Massachusetts General Hospital who will provide Grand Rounds in the department on Friday and then speak again during our joint session on Saturday. Another tour of local wineries which proved to be very popular at our last homecoming, will take place on Saturday afternoon as will the "2015 Riddervold Open" at the highly desired Pete Dye's Full Cry at Keswick Golf Club. Tee times will go quickly so book early. We've already formed a few MSK teams, so bring it on!

In the meantime, I wish you the very best for the new year and look forward to seeing you in Charlottesville this May.

With best regards,

*Mark*

## WELCOME



Lucia Flors Blasco, MD joined the Department on January 1, 2015 having completed her residency at the Universidad de Valencia in 2009 and a research fellowship in Noninvasive Cardiovascular Imaging and a clinical fellowship in Thoracic Imaging, both from the University of Virginia.

Join us in welcoming Dr. Blasco to our team!

## PATT KEATS MAKES A HUGE IMPACT

A hearty THANK YOU goes out to Patt Keats, who recently made a significant financial gift to Piedmont Community College in support of PVCC's Radiography Associate of Applied Science Degree program. Her gift will allow scholarships for second-year students and provide funding for supplies, equipment and faculty salaries. In recognition of her significant donation, the PVCC Board passed a resolution at its meeting Jan 7 which names the College's science building the Theodore E. and Patt Hart Keats Science Building. Read more... <http://www.pvcc.edu/news/2015/01/07/donation-will-help-radiologic-technology-students>





# RSNA ALUMNI & FRIENDS RECEPTION 2014



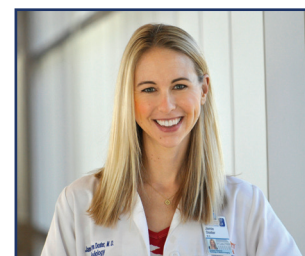
For the tenth consecutive year, UVA Radiology staff, alumni and friends gathered in Chicago during the 2014 RSNA. The reception was held on Tuesday, December 2 at the beautiful Intercontinental Hotel. Dr. Alan Matsumoto welcomed guests and gave an update on the Spencer Gay, MD Resident International Educational Fund. Dr. Mark Anderson spoke about our Homecoming 2015 weekend and encouraged everyone to join us and Dr. Hannes Kroll, a fourth year resident, thanked society members for their generous and continued support of our residents in 2014. More pictures of the event can be found in the photo gallery of our website:

Please save the date and plan to join us for our annual reception in Chicago on **Tuesday, December 1, 2015.**

## RESIDENT CORNER

With the New Year upon us and my time as a resident coming to an end, I find myself looking back on the past four years with appreciation for the training and education I have received at UVA as well as fondness for the memories I will be taking away. There is a sense of sadness to be leaving the comfort of residency; however that is not to be overshadowed by the excitement I feel to start my fellowship at UVA. I am thankful that the majority of my co-fourth year residents have also chosen to stay at UVA for fellowships, many of whom have become lifelong friends.

Our time at UVA has not been without stress and I feel I speak for all of the fourth years when I say we are glad the first part of the ABR Core exam is over and that we were all able to breathe a sigh of relief when we found out we passed. The support from the Keats Society was crucial in our preparation for the exams, providing funding for us to attend the Huda physics review course, and well as supplying key study resources such as e-Anatomy, STATtx and the ever favorite RadPrimer question bank.



The radiology program is now in the second year of the new curriculum for radiology residencies around the country. The new curriculum has changed the format of our call schedule, placing more upper level residents in house overnight while continuing to support the first year residents as they prepare to start taking call. The majority of fourth year is now composed of elective time, which includes two 3 month blocks of focused time. This is a great way to increase our proficiency in areas outside of our chosen fellowship, which is instrumental in an increasingly competitive market. Alternatively, some of us have chosen to remain focused in our subspecialty area, better preparing us for the upcoming year ahead.

Heading out into the “real world” can be an intimidating experience, however I am confident in the training I have received while at UVA and proud to be joining the company of our prestigious alumni.

Jamie Doster, M.D.  
4th Year Resident