

SMRT PRESIDENT'S MESSAGE



"How can we as a society meet the needs that will enhance your career in MRI?"

Pamela Vincent, MPA, R.T., (R)(M)(CT)(MR)

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Society for Magnetic Resonance in Medicine (ISMRM), Section for Magnetic Resonance Technologists (SMRT). We are an international organization. This means we are here to serve radiographers and MR technologists worldwide who have an interest in or are performing MRI. Wherever you live or work, that's where we want to be. One of my goals as president this year is to continue to foster the international development of our organization.

Our international chapters are busy planning educational opportunities. The Australia - New Zealand Chapter will hold its annual meeting in November 2009. These meetings always prove to be spectacular, so if you are able to travel there, you won't want to miss it. Our BeNeLux chapter is busy with preliminary plans for a meeting in 2010. Check the SMRT website for up to date information and further details. All of these regional meetings are great opportunities not only to continue your education, but to network with your colleagues. They are also excellent opportunities to introduce your friends and co-workers to the SMRT. Bring them to one of the educational meetings and encourage them to join the premier society for MR professionals.

Finally, our 19th annual meeting will be in

Stockholm, Sweden, in May 2010. The Program Committee under the direction of [Michael Macilquham](#), has planned an exciting array of topics and speakers. There will be educational information to please everyone.


Besides our educational meetings, we are looking for other ways to reach out to our international members. What benefits would be of use to you? How can we as a society meet the needs that will enhance your career in MRI? The SMRT Policy Board has more international representation than ever before. The SMRT Officers and Policy Board value your suggestions and ideas. Please feel free to contact any of us to discuss what you have in mind.

For our members in the United States, many educational opportunities are coming this quarter as well. Regional educational seminars are planned in Atlanta, Boston and New York. The President's Regional is planned for March 2010, hosted by the South Carolina Chapter. [Cindy Hipps](#), [Carol Lee](#), and the officers of the South Carolina Chapter have been busy preparing for what will prove to be an exciting day. We will also have a West Coast regional seminar in which several Policy Board members will participate. The meeting will be held in Los Angeles, California, in February 2010. Check the SMRT website for more details as these meetings are finalized.

For all of our members, if you don't see a meeting close by, why not look into hosting one? The SMRT will gladly help you with the planning process. The regional seminar packet is on-line and has all the details of how to get started with your own regional program. Our regional seminars committee chair, **Carol Lee**, has lots of experience and can help you with your planning. There are others ways to get involved with your professional organization as well. We are always looking for new members to join any of the SMRT Committees. All are listed on the website and volunteers are always welcome. If you see a committee that interests you, contact either myself or the committee chair for more information.

Are you a voting member of the SMRT? Nominations are currently coming in for the offices of President-Elect and Policy Board Member. Once the slate of candidates is finalized, ballots will be placed in the mail. Did you know that less than 10% of eligible members have returned their ballots in recent elections? When you get your ballot and the candidate's biographical information, please look at it and read it carefully. Many very qualified people have come forward to run for office. Please take the time to carefully consider your choices, fill out the ballot and send it in. If you are not a voting member, the change can be made easily by contacting the SMRT office. If you are not sure of your voting status or eligibility, call or contact the

SMRT office, and the staff will gladly help you. Your vote is important!

It hardly seems possible that I am now several months into my term as president of the SMRT. It is an honor to be able to serve you in this capacity. Our organization is run totally on a volunteer basis. All of your Officers, your Policy Board and the Committees are people who donate their time to further the goals of the SMRT. We have a wonderful group of people working hard to make this organization run smoothly. I would personally like to send out a big thank you to all of them for their hard work and dedication. I would also like to thank Jennifer Olson and the staff at the central office for their hard work and support. 



Editor's Letter

Julie Strandt-Peay,
B.S.M., R.T., (R)(MR),
FSMRT
Editor, Signals

"SMRT is an international organization, operating on volunteer labor and providing world class educational opportunities around the world."

Greetings,

As 2009 is quickly passing, we bring you news of the industrious work of your SMRT. President **Pamela Vincent** shares her mid-year report and brings us an overview of the many activities in process for your benefit. You are reminded that the SMRT is an international organization, operating on volunteer labor and providing world class educational opportunities around the world.

We are brought up to date with the plans for the annual meeting to be held in Stockholm, Sweden, by Program Committee Chair, **Michael Macilquham**. Literally hundreds of volunteer hours are

expended for each annual meeting and we appreciate the effort of Michael, his committee and those who agree to present their information at the meeting. Education Committee Chair, **Maryann Blaine** explains the evolution that has occurred with the work of the committee as well as future goals. The noticeable progress of the Education Committee, as well as the labors of the SMRT in general, speaks highly of the quality and dedication of the Policy Board and committee members.

We are reminded of the importance of participating in selecting and voting for the future Policy Board members of the SMRT by Past-President and Chair of the Nominations Committee, **Wendy Strugnell**. Only by carefully examining

the candidates presented and submitting a ballot, can you assist in ensuring the future of the SMRT is directed by individuals who are qualified to serve on your behalf. Also serving as Chair of the Awards Committee, Wendy reminds us to consider qualified candidates for the Crues-Kressel award. This award is given in years when an eligible candidate is presented for consideration by the membership.

One of the primary member benefits of the SMRT is access to the SMRT Educational Seminars Home Study Program, both mailed and electronic on-line. Editor **Anne Marie Sawyer** describes the latest offering to members. As in most activities of the SMRT, countless hours of volunteer time are applied for each of the



19th SMRT Annual Meeting Update

“MR Imaging Now and Into the Future”

Michael Macilquham,
B.App.Sc., M.H.Sc., (MRI), MSMRT
Chair, 2010 Program Committee

**Announcing the 19th SMRT Annual Meeting in
conjunction with the ISMRM-ESMRMB Joint Annual
Meeting, 1 - 2 May 2010, Stockholm, Sweden.**

Preparations are underway for the 19th SMRT Annual Meeting in Stockholm, with a focus of continuing the outstanding educational quality of the presentations given at the Hawai'i meeting in 2009.

The didactic program will begin on Saturday, 1 May, and continue on Sunday, 2 May. With the wide experience of the program committee and the informative and constructive feedback from previous annual meetings, the program committee is striving for another outstanding MR educational curriculum. The technical sessions will provide an extensive range of topics with a wide variety of speakers.

The poster exhibition and walking tour will once again precede the academic program. This is a fantastic opportunity to hear first-hand from your colleagues who are performing a far-reaching range of clinically innovative and research-focused work, as well as to meet your peers in a relaxed social environment. Please consider submitting an abstract of your

own clinical or research-oriented work. Awards are presented in both categories.


The SMRT abstract deadline date is 6 January 2010. In the meantime, keep abreast of program updates on the SMRT website at www.ismrm.org/smart.

The Annual Business Meeting will provide delegates the opportunity to hear about the achievements of the SMRT in the past year and the goals for the future. Newly elected and current members of the Policy Board and Executive Committee will be introduced. This is an important component of the meeting as it allows you, the members of the SMRT, the opportunity to hear from the Board. This session is also important in that it helps the SMRT understand what its members need, increasing the ability of the

organization to evolve further as an ongoing premium resource for MR education.

Registration to the SMRT 19th Annual Meeting also includes the opportunity to attend the ISMRM/SMRT Joint Forum, held during the main Joint Annual Meeting ISMRM-ESMRMB, Monday, 3 May, at 14:00. This collaborative session brings together technologists, physicians, clinicians and scientists to learn about relevant issues affecting current clinical practice.

The Annual Meeting again provides an excellent forum for MRI technologists and radiographers from throughout the world and from a diverse range of clinical and research disciplines, to come together and learn from the experts. Not only will you be guaranteed an excellent academic program, the opportunity to network with your peers is unparalleled within the field.

I hope to see as many of you as possible in Sweden! 

**The SMRT
abstract deadline is
6 January 2010.**

Editor's Letter continued from page 2

publications.

The guest author for the Chapter Chat this issue is **Carol Lee**, who describes the successful meeting held in South Carolina. As one of the more active SMRT Chapters, South Carolina has been conducting meetings twice per year. Carol contributes again, as Regional Seminars Committee Chair, and explains the significance of participating in local seminars and being willing to serve as a

host in your area. She is also looking for speakers willing to share their expertise; see the article for more information.

We welcome back MR Safety expert **Frank Sherlock** who clarifies the labeling now present on implants and devices and how it may concern the safety of your patients.

For those members who will be attending the RSNA meeting in Chicago, Illinois,

USA, there is information about the Associated Sciences program. SMRT is a member of the Associated Sciences and will be participating once again in the meeting.

A calendar of upcoming educational opportunities is listed for your reference and you are reminded to check the SMRT web-site often for updates and programs.

Happy Reading! 

SMRT 19th Annual Meeting Program Schedule: "MR Imaging Now and Into the Future"



SMRT Poster Walking Tour Reception – Friday, 30 April 2010, 6:00 pm

**The SMRT
abstract deadline is
6 January 2010.**

Time	Saturday, 1 May 2010
07:00	Registration
07:45	Welcome & Announcements Pamela S. Vincent, MPA, R.T.(R)(M) (CT)(MR), SMRT President 2009-2010 Michael D. Macilquham, B.App.Sc., MHS (MRI), SMRT Program Chair 2010
	Forum 1: Physics and Technology Moderator: Sonja Kay Robb-Belville, MSRS, R.T., (R)(MR)
08:00	Physics Refresher Martin Graves, M.Sc.
9:00	From 3.0T to 7.0T A. Greg Sorensen, M.D.
9:30	High Field RF Coils & Techniques Stuart Crozier, Ph.D., D. Eng., FInstP
10:00	Break
	Forum 2: MR Safety Ashok Saraswat, M.S., Bed., R.T., (R)(MR)
10:20	SAR: A Practical Guidance for MR Users Franz Hebrank, Ph.D.
10:50	Time Varying Magnetic Fields & Spatial Gradient Considerations Donald McRobbie, Ph.D.
11:20	SMRT Annual Business Meeting
12:00	Lunch
	Forum 3: Proffered Papers Moderator: Stephen Darty, R.T., (N)(MR)
12:45	Proffered Papers/ President's Award Paper SMRT Meets Scandinavia Titti Owman, Anne Dorte Blankholm, M.Sc., R.T., (MR)
	Forum 4: Technical Updates Moderator: J. Carol Lee, B.S., R.T., (R)(CT)(MR)
13:45	Whole Body Imaging Thomas Lauenstein, M.D.
14:15	Body Diffusion Weighted Imaging Dow Mu Koh, M.D.
14:45	Break
	Forum 5: Neuro Moderator: Colleen A. Hammond, R.T., (R)(MR)
15:00	Applications of DWI and PWI Meng Law, M.D., MBBS, FRACR
15:40	fMRI From Paradigm to Analysis Amanda Wood, Ph.D.
16:20	Artifacts in Spine MRI Joseph Castillo, B.Sc., M.Sc.
17:00	Announcements/Close

Time	Sunday, 2 May 2010
07:00	Registration
07:45	Welcome & Announcements Julia Lowe, B.S., R.T., (R) (MR) SMRT President 2010-2011 Michael D. Macilquham, B.App.Sc., MHS (MRI) SMRT Program Chair 2010
	Forum 6: Breast MR Masterclass Moderator: Janice Fairhurst, B.S., R.T., (R)(MR)
08:00	Overview of Breast MRI Michael Knopp, M.D., Ph.D.
9:00	Techniques to Optimize Breast MR Chris Kokkinos, B.App. Sc., PgCert (MRI)
9:30	MR-Guided Breast Biopsy Techniques Laura Amodei, M.D.
10:00	Break
	Forum 7: Body MRI Moderator: Jane M. Francis, DCR, (R) DNM
10:20	Abdominal MR Artifacts Neil M. Rofsky, M.D.
11:00	Pediatric Congenital Cardiac Protocols Rod Jones, DCR, (R), M.Sc. (MRI)
11:40	Female Pelvic Imaging Laurian Rohoman, R.T., (R)(MR), ACR
12:20	Lunch
	Forum 8: Clinical MSK Imaging Moderator: Maryann Blaine, MAT, B.S., R.T.(R)(MR)
13:00	Proffered Papers
13:30	Musculoskeletal MR at 3.0T Garry Gold, M.D.
14:00	Cartilage Imaging Methods Hollis G. Potter, M.D.
14:30	SMRT Awards Presentation
14:45	Break
	Forum 9: Emerging Technologies Moderator: Muriel Cockburn, D.C.R., B.Sc.Hons
15:00	MR Elastography Richard L. Ehman, M.D.
15:40	Non-Neuro Spectroscopy Arend Heerschap, Ph.D.
16:20	Fetal MR Techniques Daniela Prayer, M.D.
17:00	Announcements/Adjourn



Education Committee Report

Maryann Blaine, R.T., (R)(MR)
Chair, Education Committee


"...there has been a tremendous amount of progress made in the abstract submission and review process."

The SMRT Education Committee and the Student Scope Subcommittee currently have a substantial number of action items. Relating to the Annual Meeting, there has been a tremendous amount of progress made in the abstract submission and review process. That work will continue this year with our first objective which is to continue to revise the "Guide" to abstract authors. This will include a specific format as well as publications ethics to be used by those wishing to submit abstracts for consideration.

In addition, the Education Committee hopes to develop and implement two

mentoring programs; one for individuals who might be looking for some assistance with preparing abstracts and one for individuals who might be looking for some assistance with preparing and giving presentations at meetings. We are fortunate to have two individuals, *Dave Stanley* and *Cindy Comeau*, willing to lead task forces with the goal of implementing these programs before November of this year. I might add that for those individuals who have author and speaking experience and might be interested in providing mentorship in either category, they should contact the respective task force leader. The plan

is to develop an application form to be completed by anyone interested in having a mentor, and then members of the Education Committee will match the requests with an appropriate mentor.

The Student Scope Subcommittee is also very busy under the leadership of *Sonja K. Robb-Belville*. The priorities for this subcommittee are to maintain a current list of MRI programs and program directors for correspondence regarding Student Scope submissions, on-going revision of the submission guidelines, and working with the Awards Committee to promote the John Koveleski Award. 



2009 SMRT Elections

Wendy Strugnell, BAppSc(MIT)
SMRT, Past President
Chair, Nominating Committee

As a member of the SMRT it is your professional responsibility to actively participate in the future direction of our society.


The annual elections for the positions of SMRT President Elect and Policy Board members are here again. As a member of the SMRT it is your professional responsibility to actively participate in the future direction of our society.

In the near future you will receive your ballot in the mail. You will be asked to select one candidate for President Elect and five candidates for positions on the Policy Board. Please take some time to read the biographical information of each individual and select the people

you believe will best represent our profession at an international level. The members of the SMRT are also responsible for selecting the recipient of the Crues-Kressel award. This prestigious award recognizes individuals who have made outstanding contributions to the education of MR technologists and radiographers.

Ballots will be mailed to all voting members by 15 October 2009.

Returned ballots must be postmarked by 1 December 2009 and received in the ISMRM/SMRT office by 7 December 2009 to be eligible. If you are uncertain about your voting status or wish to convert to a voting member, please contact the SMRT office by e-mail at: smrt@ismrm.org or by telephone +1 510 841 1899.

Your participation as a voting member is vital to the continued success of our vibrant international society. 



SMRT Educational Seminars Home Study Update

Anne Marie Sawyer, B.S., R.T., (R)(MR)
Editor
SMRT Educational Seminars
Home Study Program

"Like it or not, mathematical equations play an important role in much of the new 'neuro' applications including Diffusion, Perfusion and BOLD imaging."

We are pleased to present the SMRT Educational Seminars, Volume 12, Number 3: "MR Imaging of the Spine." This is the forty-fifth accredited home study developed by the SMRT, exclusively for the SMRT members. The accreditation is conducted by the SMRT who acts as a RCEEM (Recognized Continuing Education Evaluation Mechanism) for the ARRT in which Category A credits are assigned to educational symposia supplying the necessary credits to maintain registry with the ARRT. For this issue, we have selected two articles in which the first is a review of the pathophysiology of the intervertebral disc; the second discusses infection and other clinical conditions of the spine.

As stated by the authors of our first article, *Jill P.G. Urban* and *Peter Winlove*, "Most MRI investigations of the spine are currently undertaken in an effort to establish the causes of back pain. However, the links between back pain and degeneration of the intervertebral disc are still, like most conditions involving congenital or acquired abnormalities of the disc, surprisingly poorly understood. This unsatisfactory situation reflects, in large part, our poor understanding of the physiology of the normal disc, and in particular, the relationships between function, malfunction, and structure at the cellular and molecular levels." This article takes us into a deeper investigation of the most fundamental components and physiology of the intervertebral disc that


may prompt the reader to wonder if this is necessary for successful MR imaging of the spine on the part of the technologist or radiographer. Given the rapid and continued development of MR imaging sequences and options in which studies are conducted to identify appropriate scan parameters coupled with the vast knowledge still to be learned, this reader would venture to say "Yes." As part of the "team" that includes technologist, radiographer, referring physician, radiologist, surgeon, physical therapist and other health care professionals responsible for the health care of each individual patient, it is our duty to continue our education thereby contributing our very best through acquired knowledge.

The second article in this issue provides a fascinating look at infectious spondylitis and other conditions that may simulate spinal infection. The number and variety of images included make for a very comprehensive review that is especially valuable for technologists and

radiographers. According to authors Sung Hwan Hong et al, "Confirmation and localization of a spinal infection usually depends on imaging findings. Magnetic resonance (MR) imaging is preferred because of its high sensitivity and specificity." Early detection allows for successful conservative measures and prevents surgical intervention. Our contribution in delivering the optimum image quality is especially important to ensure no time is lost in healing the patient and preventing increased health care costs.

We would like to express our grateful appreciation to *Kelly Baron, B.S., R.T., (R)(MR)(CT), FSMRT*, for acting as our Expert Reviewer for this home study issue and accompanying quiz that provides the continuing education credits.

Thanks also to *Paul McElvogue, R.T. (R)(MR)*, SMRT Publications Chair and in the Berkeley, California, USA central office of the ISMRM/SMRT, Jennifer Olson, Associate Executive Director, Mary Keydash, Publications Director, and the staff for their insight and long hours supporting these educational symposia.

We would especially like to thank *John Wilkie* and all of the people at Invivo Corporation who generously support our home studies program, the SMRT Educational Seminars. Their continuing investment advancing technologist and radiographer knowledge brings quality continuing education to the SMRT membership worldwide. 



Carol Lee, B.S., R.T., R (CT)(MR)
Co-Chair, South Carolina Chapter

Chapter Chat - South Carolina SMRT Chapter Spring Meeting

"...our enthusiastic attendees give us the motivation to keep hosting these exciting meetings."

The South Carolina SMRT Chapter and GE Healthcare hosted the 2009 Spring Chapter Educational Seminar at the GE Magnet Plant in Florence, South Carolina, USA, on 16 May 2009. Past SMRT President, **Cindy Hipps**, with **Carol Lee**, **Melonee Elrod** and **Wendy Callahan** co-hosted the meeting. **Scott Ramsey** and **Carolyn Wasko** from GE Healthcare were instrumental in coordinating the meeting facility, hotel accommodations and the extraordinary meals enjoyed by all the attendees.

The 'Carolina Girls' hosted a 'Meet and Greet' Friday night sponsored by Insight Health Corporation. Everyone enjoyed barbeque (which in the South of the United States is pulled pork from a roasted pig, not a hamburger cooked on the grill) while networking and interacting with other MR technologists, the speakers, friends, and co-workers. A big thanks to **Lynn Cranson** for helping us with this fun event!

Saturday started with donuts and coffee sponsored by GE. Our first speaker was our very own **Cindy Comeau**, Past SMRT President, from New York City. She shared her vast knowledge and expertise in advanced cardiovascular MR. She spoke on "Cardiovascular

Imaging Updates for 2009." As always, Cindy did a great job keeping our attention and making cardiovascular



Dr. Amodei addressed Breast MR and Site Preparation

MR interesting. Our next speaker, **Dr. Laura Amodei**, from the Charleston Breast Center, spoke on "Breast MR and Site Preparation." She did an excellent job discussing what is involved setting up an MR breast program including the importance of screening, good imaging techniques, as well as educating referring physicians.

Wendy Dolesh and **Lisa Ball** from Wake Forest University Baptist Medical Center spoke on the "Integration of 3T in Radiation Oncology." Together they explained the difference between radiation oncology MRI vs. diagnostic MRI including the use of MR in the treatment planning, advantages and disadvantages, and understanding

the safety issues. It was interesting to hear about another use for MR in the treatment of cancer. **Stuart Clarkson** with GE Healthcare spoke on the amazing directions MR is heading in the future. He spoke about what to expect in future products, hardware and software. We work in an incredible field; we always have something new

to look forward to.



Stuart Clarkson presented "MR Directions of the Future"



Cindy Comeau shared her expertise in Cardiovascular MR



Wendy Dolesh and Lisa Ball spoke on the "Integration of 3T in Radiation Oncology"

Next, the group enjoyed the opportunity to tour the GE Magnet Plant which was one of my favorite portions of the meeting. We put on our goggles and we were ready to go.

James Beier, GE Engineer and installation base leader explained the manufacturing of a superconducting magnet on our tour. It helped us better understand the internal

workings of the magnet. After seeing this demonstration, one understands how each magnet has its own personality. Thanks to James for organizing the tour and providing this wonderful opportunity.

After the plant tour, a great hot meal was provided by GE. Boy, that chocolate cobbler was a hit! To keep in line with GE's continued "GREEN" program, everyone who brought plastic grocery bags, received a reusable green GE bag to use instead on the next visit to the store. After lunch we learned additional ways MRI is being used today and in the future. **Dr. Arthur Chan** from InSitec



Dr. Chan explained the use of "MR Guided Focused Ultrasound"

spoke on "MR Guided Focused Ultrasound." He explained the theories behind MRgFUS, the ExAblate



Lloyd Estkowski showed the potential for "MR Elastography"

device, and the clinical research currently underway as well as clinical data and case studies. **Lloyd Estkowski** from GE spoke on "MR Elastography." He explained what elastography involves, as well as the advantages and disadvantages and the potential of this new tool. Both were excellent speakers.

We finished the day with our friend, colleague and past SMRT Policy Board member, **Jim Stuppino**. Jim spoke on "MR Safety," a subject which technologists can never hear too much about. He did a great job covering MR

safety including the good, the bad and the ugly!

We want to thank all of our great speakers for sharing their time and knowledge. We would also like to thank our sponsors, because without them we would not be able to host the talented speakers for the program. And of course our enthusiastic attendees give us the motivation to keep hosting these exciting meetings. A great big thank you to everyone at GE Healthcare for all you did to make this day possible. [S]



"MR Safety" was presented by Jim Stuppino



The Chapter Meeting group from a new perspective with tour leader James Beier

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Regional Seminars Report

Carol Lee, B.S., R.T., R (CT)(MR)
Chair, Regionals Committee

"SMRT is committed to MR Technologist education around the world but it starts with each of us in each of our own areas."

Regional educational seminars are a great avenue for the SMRT to offer the latest in MRI education as well as promote the organization on a local level. With the climate of healthcare changing daily and MR's constant advancements, it is important for MR technologists and radiographers to stay current. After just a few days of monitoring the MR list-serve, anyone can see there is always something new to learn and there are always many ways to obtain the same results, depending on the site. Regional meetings also give MR technologists and radiographers the chance to network with their peers and to learn one on one from each other.

Those unable to attend the John Koveleski 3rd Annual Memorial Regional Seminar in Hershey, Pennsylvania, missed a great day of education, networking and chocolate. Don't miss out on other educational opportunities to come! You could take a vacation this fall to Atlanta, Georgia; Boston, Massachusetts; New York, New York; and Adelaide, Australia. What better way to see one of these wonderful cities than attend an SMRT educational seminar. The Regional Seminars Committee is busy working with other local groups that will host meetings in areas such as Los Angeles, California, in February and the President's Regional in Greenville, South Carolina, in March 2010.

Let's STAND UP for our profession and support the SMRT and the local organizers by attending a Regional Educational Seminar near you. Share the

SMRT and the wonderful benefits with your co-workers and encourage them to join our organization. For details go to <http://www.ismrm.org/smart/regional.htm>

We would love for you and your co-workers to share your town or city with us and help us organize a local meeting in your area. SMRT is committed to MR technologist education around the world but it starts with each of us in each of our own areas. If you are involved in MR education at your facility, we would love for you to become more involved with the SMRT by hosting an educational seminar. The Regional Committee would help you get started and mentor you through the process. As chair of the Regional Seminars Committee, I promise we are just an e-mail away!

There are many wonderful speakers in the MR world with so much knowledge to share. I would love to start a list of available speakers for future meetings. If you want to share your knowledge and would be willing to speak at a local educational meeting, please let me know. You can reach me at clsc@charter.net. I want to give a great big THANK YOU to those of you who have shared your knowledge and expertise over the years and encourage you to encourage others to get involved as well. I believe in the SMRT because it has been so instrumental in my professional career, and I want to see others benefit from these wonderful opportunities. So let's all continue the "Each One, Reach One" into the SMRT organization. [S]

SAVE THE DATE!

17 October 2009

New England Regional Educational Seminar
SMRT New England Chapter
Massachusetts College of Pharmacy and Health Sciences,
Boston, Massachusetts, USA

7 November 2009

Northeast Regional
SMRT NY/NJ Chapter, New York
University Medical Center,
New York, New York, USA

7-8 November 2009

4th Annual Meeting of the SMRT ANZ Chapter
Adelaide Convention Centre
Adelaide, Australia

13 February 2010

West Regional
University of California
Los Angeles Medical Center
Los Angeles, California, USA

13 March 2010

President's Regional Educational Seminar
Greenville Hospital System
Patewood Medical Office Building
Greenville, South Carolina, USA

27 March 2010

SMRT BeNeLux 3rd Regional MR Symposium
UZ Brussel, Brussels, Belgium



John Koveleski 3rd Annual Memorial Regional Seminar

John Posh, R.T., (R)(MR)
Co-Chair, John Koveleski 3rd Annual
Memorial Regional Seminar

The John Koveleski Third Annual Memorial Regional Seminar was held on 9 August 2009 in Hershey, Pennsylvania, USA. This special SMRT Regional was established to honor the memory of John Koveleski, friend, colleague, and past SMRT President. Co-chairs were **John Posh** and **Robin Kline**.

This year's regional succeeded in all respects. The day began with **John Posh** presenting "Clinical Veterinary MRI." John detailed the similarities and differences between human and veterinary MRI and presented interesting cases for review

and discussion. The next speaker was **Dr. Nabeel Sarwani**, from the Penn State Milton S. Hershey Medical Center, who spoke on "Prostate MRI." Dr. Sarwani presented an entertaining and informative look

at the prostate, its pathology, and the preferred imaging techniques for detailed evaluation.

Next to speak was **Candy Roth**, current President of Imaging Education Associates who presented on "Advanced

Body Imaging." Candy's talk was entertaining, as usual, while still explaining the nuts and bolts of advanced body

imaging in a detailed and well organized manner. Candy has taken time out of her busy schedule to speak at this meeting every year, and we intend to keep that tradition as long as she is willing.

Bill Faulkner, SMRT Past President, of William Faulkner and Associates was the third speaker. Bill presented two

talks this year to atone for his unavailability in previous years. He spoke first on "Optimizing SNR." His expert insight into MR Physics makes him an ideal speaker in this regard.

Bill reviewed the basic tenets of SNR and discussed advanced techniques such as SENSE, SMASH, and GRAPPA.

Attendees enjoyed a very nice buffet lunch catered by the Penn State catering staff. Sandwiches, wraps, salads and cookies were just what the crowd needed to restore following the information crammed educational sessions. As the meeting was held in Hershey, Pennsylvania, there was also numerous never-ending bowls of chocolate scattered about the conference room.

Bill's second lecture was a "Breast MRI Overview" where he discussed the various elements of a successful breast MRI program. He clarified gradients, coils, techniques, and pearls and pitfalls of breast MRI.

Bill's lecture was also the perfect lead-in for **Dr. Susann Schetter** of the Penn State

Milton S. Hershey Medical Center, who spoke on "Clinical Breast Imaging." Dr. Schetter offered an excellent overview of breast MRI including clinical indications, techniques, and problem cases.

The next speaker was **Barry Southers** from the University of Cincinnati who

lectured on "Functional MRI and the Bipolar Brain." Barry gave an interesting insight into bipolar disorder and how functional MRI can help with diagnosis

and management. He demonstrated some of the functional paradigms used on the audience. We won't mention

names but some of us might not be as normal as we seem.

The last speaker of the program was **Dr. Stephanie Bernard**, also from the Penn State Milton S. Hershey



Dr. Susann Schetter shared her expertise



Barry Southers lectured on fMRI



Dr. Stephanie Bernard taking the podium



Dr. Nabeel Sarwani answering questions following his talk on "Prostate MRI"



Candy Roth lectured on "Advanced Body Imaging"

Medical Center. Dr. Bernard addressed "Musculoskeletal MRI" and gave a nice overview of scan planes, sequence selection, and hardware needed for high quality MSK MRI. She went on to illustrate a wide selection of clinical cases representing both common findings and problem cases.

In addition to the speakers, Sentinelle Medical was onsite for the meeting with a learning station set up to demonstrate their breast coil and CAD system. This is the second year for Sentinelle Medical and we thank them for their continued support of technologist education and the SMRT.


Additionally, we would also like to thank Siemens Medical Solutions for their wonderful support and generosity



The University Conference Center was an excellent venue for the seminar

in support of our seminar. Also, we could not have been successful without the dedicated staff of the Penn State Milton S. Hershey Medical Center. The technologists always go above and beyond in prepping the room and assuring that all details are attended to. Again this year **Jason Hatter** worked behind the scenes as our audio-visual person, and he once again proved he is the right man for the job. Lastly, the SMRT office staff proved again this year

that they are the most organized and dedicated people we could ever hope to have on our team. Thank you for everything you did to make the meeting progress so smoothly.

The meeting adjourned on time and with all of the attendees well satisfied as expected. As the organizers and co-chairs of this memorial meeting, it has been our distinct pleasure to work with a dedicated group of core speakers as well as the new additions. Your professionalism and dedication is greatly appreciated and we hope to be able to call on you in the future. For all of our loyal attendees and newcomers, we thank you for spending one of the best days of the summer with us and promise that as long as you keep coming, we will keep hosting. We look forward to many more years in Hershey, Pennsylvania. 



The Sentinelle Medical Learning Station



The audience enraptured during a Q&A session

Implants and Devices

Labeling for MRI and an Explanation of the Terminology



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(This article represents the views of its author only and does not reflect those of the International Society for Magnetic Resonance in Medicine and are not made with its authority or approval)

Previous MRI Labeling Terminology

The terminology applied to implants and devices relative to the MRI environment has evolved throughout the years. In 1997, the Food and Drug Administration, Center for Devices and Radiological Health, proposed definitions for the terms "MR Safe" and "MR Compatible" (1). These terms were defined as follows:

MR Safe The device, when used in the MRI environment, has been demonstrated to present no additional risk to the patient or other individual, but may affect the quality of the diagnostic information. The MRI conditions in which the device was tested should be specified in conjunction with the term MR safe since a device which is safe under one set of conditions may not be found to be so under more extreme MRI conditions.

MR Compatible A device shall be considered "MR compatible" if it is MR safe and the device, when used in the MRI environment, has been demonstrated to neither significantly affect the quality of the diagnostic information nor have its operations affected by the MR system. The MRI conditions in which the device was tested should be specified in conjunction with the term MR safe since a device which is safe under one set of conditions may not be found to be so under more extreme MR conditions. Using this terminology, MRI testing of an implant or object involved assessments of magnetic field

interactions, heating, and, in some cases, induced electrical currents while MR compatibility testing required all of these as well as characterization of artifacts. In addition, it may have been necessary to evaluate the impact of various MRI conditions on the functional or operational aspects of an implant or device (2).

Revised Terminology

Over the years, manufacturers generally used the terms "MR safe" and "MR compatible" to label medical devices. However, in time it became apparent that these terms were confusing and were often used interchangeably or incorrectly (3). Therefore, in an effort to develop more appropriate terminology and, more importantly, because the misuse of these terms could result in serious accidents for patients and others in the MR environment, the MR Task Group of ASTM International Committee F04 on Medical and Surgical Materials and Devices developed standard ASTM F2503 which includes a new set of MR labeling terms with associated icons (4).

The revised terms, MR Safe, MR Conditional, and MR Unsafe are defined by the ASTM document, as follows:

MR Safe An item that poses no known hazards in all MRI environments. Using the new terminology, "MR safe" items include non-conducting, non-metallic, non-magnetic items such

as a plastic Petri dish. An item may be determined to be MR Safe by providing a scientifically based rationale rather than test data.

MR Conditional An item that has been demonstrated to pose no known hazards in a specified MRI environment with specified conditions of use. Field conditions that define the MRI environment include static magnetic field strength, spatial gradient, dB/dt (time varying magnetic fields), radio frequency (RF) fields, and specific absorption rate (SAR). Additional conditions, including specific configurations of the item (e.g., the routing of leads used for a neurostimulation system), may be required.

For MR Conditional items, the item labeling includes results of testing sufficient to characterize the behavior of the item in the MRI environment. In particular, testing for items that may be placed in the MRI environment should address magnetically induced displacement force and torque, and RF heating. Other possible safety issues include but are not limited to, thermal injury, induced currents/voltages, electromagnetic compatibility, neurostimulation, acoustic noise, interaction among devices, and the safe functioning of the item and the safe operation of the MR system. Any parameter that affects the safety of the item should be listed and any condition that is known to produce an unsafe condition must be described.

MR Unsafe An item that is known to pose hazards in all MRI environments. MR Unsafe items include magnetic items such as a pair of ferromagnetic scissors.

Use of Terminology

The new terminology is intended help elucidate matters related to biomedical implants and devices in order to ensure the safe use of MRI technology. Importantly, it should be noted that this new terminology has not being applied retrospectively to implants and devices that previously received Food and Drug (FDA) approved labeling using the terms "MR safe" or "MR compatible" (i.e., in general, this applies to those objects tested prior to August, 2005).

Accordingly, this should be understood in order to avoid undue confusion regarding the matter of labeling as it has been applied to "older" or previously tested implants vs. "newer" or recently tested implants.

MR Conditional Labeling Information: Explanation of the Content

In addition to the frequent problems associated with understanding the MRI labeling, the actual content of the label is often misunderstood with respect to the conditions indicated for a given implant that is labeled "MR Conditional" (6). Therefore, the following is an example of "MR Conditional" labeling for an implant, Example Implant, along with an explanation of the content, provided for each aspect of the label:

MRI Information

Non-clinical testing has demonstrated the Example Implant is MR Conditional. It can be scanned safely under the following conditions:

-Static magnetic field of 3-Tesla

This is the static magnetic field for which the implant gave acceptable test results, generally the largest static magnetic field used for testing the implant. In some cases the labeling will state, "Static magnetic field of 3-Tesla or less" or "Static magnetic field of 3-Tesla, only" or static magnetic field of 1.5-Tesla or 3-Tesla." Therefore, carefully

reading and implementing this portion of the labeling for the implant is advised in order to avoid possible injuries to patients.

Spatial gradient field of 720-Gauss/cm or less

This is a frequently misinterpreted parameter because the MRI user sees the term "gradient field" and presumes that it refers to the time-varying or gradient fields used during MR imaging. However, the term, "spatial gradient field" for medical device labeling relates to the rate at which the static magnetic field strength changes over space per unit length (thus, indicated as dB/dx or, in this case, as 720-Gauss/cm for this example).

Notably, the point of the highest spatial magnetic gradient is the position where translational attraction (i.e., determined using the deflection angle method) is typically assessed for an implant or device, according to ASTM F2052 - 06e1. For example, the figure below shows the deflection angle measured for an intravenous catheter at the point of the highest spatial magnetic gradient (720-Gauss/cm for the 3-Tesla MR system utilized in this case). The MR system manufacturer is able to provide

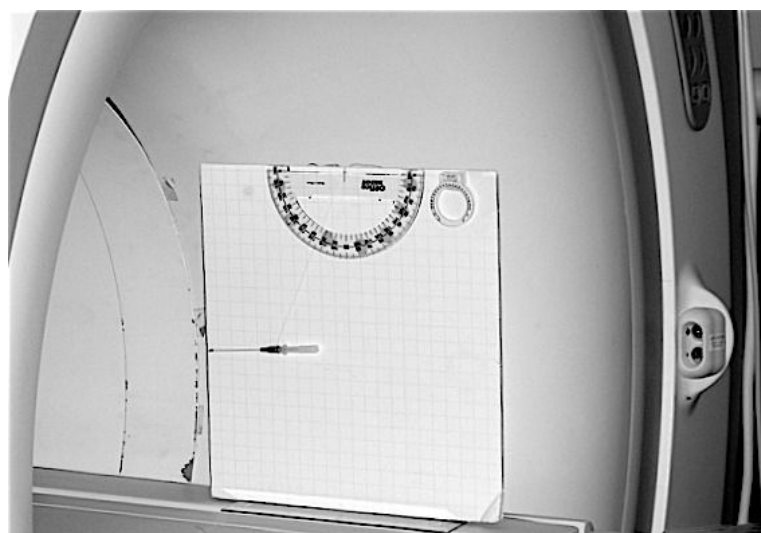
spatial gradient magnetic field information for a particular MR system or it may be determined using a Gaussmeter.

-Maximum MR system reported, whole body averaged specific absorption rate (SAR) of 2-W/kg for 15-minutes of scanning.

Confusion commonly exists with respect to this stated parameter insofar as the term "scanning" is presumed to apply to the entire MRI procedure when, in fact, it applies to only each particular pulse sequence that is used and, of course, multiple sequences are utilized when performing the MRI examination. Therefore, to adequately safeguard the patient, the whole body averaged SAR for each scan sequence must be maintained at or below 2-W/kg for each scan sequence.

-In non-clinical testing, the Example Implant produced a temperature rise of less than 2.0°C at a maximum MR system reported, whole body averaged specific absorption rate (SAR) of 2-W/kg for 15 minutes of MR scanning in a (static magnetic field strength _____) (model _____) (MR system manufacturer _____) (software version _____) MR scanner.

The labeling for the implant has additional information with respect to the temperature rise that is associated with certain MRI



Example of the position of the highest spatial magnetic gradient (720-Gauss/cm for the 3-Tesla MR system utilized for testing in this case) used for the deflection angle measurement performed on an intravenous catheter. This point was slightly inside and near the inner part of the bore of the MR system. Note the deflection angle of 24-degrees.

parameters, that is based on the findings obtained in the MRI-related heating test. Therefore, as seen in this example, the expected “worst case” temperature rise is 2.0°C or less during MRI performed at a whole body averaged SAR of 2-W/kg for 15-min., using a particular MR system type (i.e., with the make, model, and software of the scanner indicated). The MR system reported, whole body averaged SAR of 2-W/kg is the level specified in the ASTM F2182 - 02a and is the level commonly reported in device labeling, although higher or

lower SAR levels may also be indicated. (It should be noted that, in this labeling section, certain labels for implants and other medical devices may state that this information applies to the use of a particular type of transmit RF coil that should be used, such as a transmit body or transmit head RF coil.)

Image Artifact

MR image quality may be compromised if the area of interest is in the same area or relatively close to the position of the device. Therefore, it may be necessary to optimize MR imaging parameters for the presence of this implant.

This is a common statement for many different implants and devices. Since the size of the artifact for an implant or device may impact the diagnostic use of MR imaging, information is typically provided in the label that characterizes the size and shape of the artifacts associated with certain pulse sequences (e.g., T1-weighted spin echo and gradient echo), according to ASTM F2119 - 07 or an equivalent method. For devices with a lumen (e.g., stent), the labeling may indicate whether the lumen is obscured by the size of the artifact (6). [S]

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- (1) United States Food and Drug Administration, Center for Devices and Radiological Health, A Primer on Medical Device Interactions with Magnetic Resonance Imaging Systems. <http://www.fda.gov/cdrh/ode/primerf6.html>, 1997.
- (2) Shellock FG. Reference Manual for Magnetic Resonance Safety Implants and Device: 2008 Edition. Biomedical Research Publishing Group, Los Angeles, CA, 2008.
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- (4) American Society for Testing and Materials (ASTM) International, Designation: F2503-05. Standard Practice for Marking Medical Devices and Other Items for Safety in the Magnetic Resonance Environment. ASTM International, West Conshohocken, PA, 2005.
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- (6) Shellock FG, Woods TO, Crues JV. MRI Labeling Information for Implants and Devices: Explanation of Terminology. Radiology (in press, 2009)





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AS21 8:30 AM – 10:00 AM
Where Is the Radiologist? Radiology's Changing Dynamics: Operations in Today's Economy —Balancing Viability and the Regulatory Minefield
Valerie R. Cronin, CNMT, Moderator
William A. Sarraile, JD
Paramjit S. Chopra, MD

AS22 10:30 AM – 12:00 PM
Where Is the Radiologist? Radiology's Changing Dynamics: The Present and Future Medical/Legal Issues That We Face
Claudia A. Murray, Moderator
James P. Borgstede, MD
Patricia Kroken, FACMPE, CRA
Hilary Cohen

AS23 1:30 PM – 3:00 PM
Compliance with the Supervision Rules and Accreditation Requirement: The Impact on Reimbursement
Judy LeRose, RT(R), CRA, Moderator

- A) Physician Supervision Requirements**
Melody W. Mulaik
- B) Accreditation Guidelines Set Forth in MIPPA**
Thomas W. Greeson, JD
Barbara Rubel, MBA

AS24 3:30 PM – 5:00 PM
Architecture That Makes a Difference: Design Guidelines for Tomorrow's Imaging Environment
Bill Rostenberg, FAIA, FACHA, Moderator
Morris A. Stein, FAIA, FACHA
Bill Rostenberg, FAIA, FACHA
Steven C. Horii, MD

Tuesday, December 1, 2009

AS31 8:30 AM – 10:00 AM
Molecular Imaging: Here to Stay
Charles Stanley, RT(R)(CT)(MR), Moderator

A) New PET/CT Applications
Valerie R. Cronin, CNMT

B) Updates in PET/MR Imaging
David Gilmore, MS, CNMT, NCT, RT(R)(N)

AS32 10:30 AM – 12:00 PM
Managing Risk for Optimal Patient Safety
Ellen Lipman, MS, RT(R)(MR), Moderator

- A) Enhancing Patient Safety: A Team Approach**
Karen L. Green, RN, BSN, MHA, CRN
- B) Risk Management in Radiology: An Essential Part of Quality**
Robert P. George

AS33 1:30 PM – 3:00 PM
Imaging through a Cross-cultural Lens: A Global Perspective on Values, Norms, Mystiques, and Fears
Arlene M. Adler, MEd, RT(R), FAERS, Moderator
Cynthia Cowling, ACR, BSc, MED
Lori Boyd, MRT(R), BA, MA, MED

AS34 3:30 PM – 5:00 PM
Radiation Dose: Are We at Crisis?
Karen J. Finnegan, MS, RT(R)(CV), FAVIR, Moderator

- A) Radiation Risk in Interventional Radiology**
John F. Angle, MD
- B) Low-Dose CT: Practical Applications**
Narinder S. Paul, MD
- C) Pediatric Dose**
Donald P. Frush, MD

Wednesday, December 2, 2009

AS41 8:30 AM – 10:30 AM
Why and How Far Health Care IT is Behind Our Non-Health Care IT Brethren: Continued from RSNA 2008
Judy LeRose, RT(R), CRA, Moderator
Stuart Gardner

AS42 10:30 AM – 12:00 PM
Imaging in the Operating Room
Charles Stanley, RT(R)(CT)(MR), Moderator

- A) Multimodality Imaging in the Operating Room**
Ferenc A. Jolesz, MD
- B) Multidisciplinary Imaging in the Operating Room**
Michael D. Dake, MD

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MRI — Advanced Technology

Douglas E. Pfeiffer, MS, Moderator
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2009: 17
OCTOBER

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SMRT New England Chapter, Massachusetts College of Pharmacy and Health Sciences,
Boston, Massachusetts, USA

2009: 7
NOVEMBER

SMRT NORTHEAST REGIONAL EDUCATIONAL SEMINAR

SMRT NY/NJ Chapter, New York University Medical Center, New York, New York, USA

2009: 7-8
NOVEMBER

4TH ANNUAL AUSTRALIA/NEW ZEALAND CHAPTER MEETING

Adelaide Convention Centre, Adelaide, Australia

2010: 13
FEBRUARY

WEST REGIONAL

University of California Los Angeles Medical Center, Los Angeles, California, USA

2010: 13
MARCH

PRESIDENT'S REGIONAL EDUCATIONAL SEMINAR

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2010: 27
MARCH

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OCTOBER

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Santa Cruz, California, USA

2010: 20-21
FEBRUARY

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Miami, Florida, USA

2010: 25-28
FEBRUARY

WORKSHOP ON MOTION CORRECTION IN MR

Kitzbühel, Tyrol, Austria

2010: 25-27
JUNE

ADVANCED BODY MRI COURSE

Omaha, Nebraska, USA

2010: 15-17
OCTOBER

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