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## President's Letter

Maureen Ainslie, M.S., R.T. (R)(MR)

### SMRT – Invest in Yourself!

The verb “invest” as defined in the World English Dictionary is to “spend money on something in the hope of a future return or benefit” or to “contribute time, energy, or effort to an activity or project, or undertaking in the expectation of a benefit.” Further, a benefit can be defined as “something that has a good effect or promotes well-being.”



There are numerous publications that address this topic. While their focus is often financial, sometimes the focus is continued employment. Such commitments involve fostering relationships and building partnerships. It often requires an investment in continuing education.

### Strategic business advisors count these topics among the top critical investments you must make in order to succeed:

1. Invest in yourself– by attending the best seminars and talking with the best people.
2. Invest because the “most skilled and competent people are never unemployed.”
3. Invest in Technology.
4. Invest in Communication.

Compiled by Taidin Suhaimin: [www.ugmc.bizland.com](http://www.ugmc.bizland.com)

In that sense, there are several investments included in your SMRT membership. Members invest their hard-earned dollars to receive benefits. Benefits are both abstract and concrete. Abstract benefits are usually individual and revolve around positive experiences with SMRT members and staff. They help to keep us invested in our own personal goals.

### Concrete benefits include:

1. Home study publications to increase knowledge and earn continuing education credits (CEU'S).
2. SMRT quarterly newsletter, *Signals*, provides information regarding current technology and communication with peers.
3. Reduced fees for SMRT-sponsored regional meetings to increase knowledge, learn new applications and interact with peers.
4. Tracking of SMRT-earned credits through the SMRT database for CEU documentation.

When I think of my personal investment in the SMRT, I reflect on my growth as a technologist and MR professional. As a member I think the cost of 21 cents a day to invest in my professional development is a small price to pay. My membership also increases my exposure to educational opportunities and helps me to develop enriching professional relationships. I believe this is money well spent. For me, the maximum benefit is the satisfaction of my continued interaction with the premier professional organization created and sustained by MR technologists whose mission is to promote and expand educational opportunities. My personal investment is enriched by the association with SMRT professionals who continue to support each other in our common goal of reaching technical excellence and providing quality patient care.

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The final investment that occurs on a daily basis in SMRT is the support provided by the volunteer individuals and the staff in the ISMRM/SMRT office in Berkeley, California. These investors include:

- The Executive Committee and members of the Policy Board who work to provide benefits that bring added value to your membership.
- The volunteers who host regional seminars and organize Local Chapters to provide educational opportunities at a local level.
- The individuals who serve on a committee, review home study publications and write articles for our quarterly newsletter.
- The speakers who volunteer their time to present at regional and annual meetings.
- The vendor support we receive that helps us keep costs down and maximize your benefits.
- The staff in the ISMRM/SMRT office that work to help us fulfill our commitments to the membership.

**All these individuals are making an investment in you.**

I encourage all SMRT members and MR professionals to examine their investment in their profession. I welcome you to expand your commitment to quality MR education by reaching out to your fellow technologists and inviting them to join SMRT. As always, the Executive Committee welcomes any suggestions from you which serve to enrich your membership. ●

## Update on SMRT Educational Seminars

Kelly D. Baron B.S., R.T. (R)(MR), Editor, SMRT Educational Seminars



**W**e are proud to present the home study for this quarter, "Diffusion-Weighted MR Imaging of the Pediatric Brain." Authors Kirsten Forbes, James G. Pipe,

Roger Bird, Volkher Engelbrecht, Axel Scherer, Margarethe Rassek, Hans J. Witsack, and Ulrich Mödder have provided the material for this offering.

## Editor's Letter

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



**G**reetings.

This issue of *Signals* is packed with news and information for you.

We begin with motivational words from President **Maureen**

**Ainslie** and details of the workings of the Publication Committee by Chair, **Greg Brown**. SMRT member, **Catherine Larson** shares how the home studies helped in her daily practice of MR Imaging. **Kelly Baron**, Editor of the *SMRT Educational Seminars* home studies, announces the latest offering. **Todd Frederick**, Membership Chair, presents the slogan for this year. The 2004 annual meeting is in planning stages as indicated by **Julia Lowe**, Education Chair and **Jim Stuppino**, Program Chair. External Relations Chair, **Maureen Hood** reports the news of the healthcare community.

SMRT Regional Seminars co-hosts: **Nanette Keck**, South Central; **Jennifer Petruski**, Northeast; **Denise Echelard**, Northwest; and **Bobbie Burrow**, Southeast, relate their respective programs. Abstracts from the 2003 meeting by **Dave Stanley** and **Randy Earnst** are included for your information. Regular columnists, **Bill Faulkner** and **Frank Shellock** submit material relevant to the work place.

Be sure to check the calendar and other announcements for upcoming events of interest to you! ●

Pediatric MR Imaging can be challenging due to the developmental considerations of the brain anatomy. This educational material is intended to provide instruction on this topic. Thank you to question authors, William Faulkner, Gina Greenwood, and Scott Kurdilla. Thanks to Gregory Brown and Michael Kean for reviewer liason and to Lee T. Coleman for reviewing this piece. ●

## SMRT Publications News

Gregory C. Brown, R.T., 2004 Publications Committee Chair



**T**he SMRT was founded to "provide a forum for education, information, and research in the field of magnetic resonance," and our publications effort constitutes a major part of achieving that mission.

The Publications Committee works to get information and educational material out to our membership through as many avenues as possible. The regular newsletter, *Signals*, (which you are reading now), the *SMRT Educational Seminars* (a.k.a. the home studies program) are mailed direct to every member four times a year, but the Internet also plays an important part in SMRT publications.

The dedicated staff in the Berkeley office maintains the web pages for SMRT and the parent organization, ISMRM, but the content of these pages is managed by President-Elect Cindy Hips and her Electronics Submissions sub-committee. They also produce the "Highlight Your Site" page ([www.ismrm.org/smrt/highlight](http://www.ismrm.org/smrt/highlight)), where members can post a snapshot of their workplace and share the diversity of our MR experience. *Signals* is now published on-line ([www.ismrm.org/smrt/signals](http://www.ismrm.org/smrt/signals)) just before the mail-out allowing quicker access to the current issue, especially for our 165 overseas members, as well as back issues. The on-line version boasts full color photos, and the pdf files can be downloaded for a space efficient storage.

Cindy and the SMRT Executive Committee also manage the international MRI-Technologists list server under the publications activities of the SMRT. "The list" is an on-line community of over 700 MR technologists, doctors, scientists, and industry workers who communicate in an open e-mail discussion group. Questions are raised and answered, perspectives shared, and differences aired in this global forum. Richard Helsper, winner of the SMRT Distinguished Service Award 2003, started the list back in the mid 90's and when a career change saw Richard leave Duke University in early 2003 the SMRT agreed to take on the manage-

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ment and funding of the list and the hardware that makes it work. Participation in the MRI-Technologist list isn't restricted to SMRT members. We recognise its importance to the development of MR technologists worldwide, and see the SMRT as uniquely positioned to continue this service. You can join the MRI-Technologists list through our website at [www.ismrm.org/smrt/listserv.htm](http://www.ismrm.org/smrt/listserv.htm).

All these activities take a lot of volunteer work to keep them alive, and the structure of our Publications Committee has recently been changed to supplement the creative talents of key members with a supporting Publications Chair charged with finding new team members to share the production work, and inject vigour and topical content. The editors and their teams along with the production staff of the Berkeley office do the real work.

SMRT Fellow and Crues-Kressel awardee 1993, Julie Peay is our sixth *Signals* Editor and has held the role since 2001. Like all good editors Julie is always looking for new material and reviewers. If you can help with either, please contact her through [smrt@ismrm.org](mailto:smrt@ismrm.org), and include "Attn Julie Peay" in the subject line.

SMRT Fellow and Crues-Kressel awardee 2000, Kelly Baron has edited, produced, and managed the *SMRT Educational Seminars* since their inception in 1998. Kelly will be handing the reins to Anne Sawyer-Glover, Crues-Kressel awardee 2001, in early 2004. The recent editions are a "survival guide" for imaging head, neck, and spine, paediatric brain diffusion, while issues on cardiac, and knee imaging are in final stages of production. Anne will be looking for new areas of interest to our membership as well as offers to produce and review materials. The Educational Seminars programme continues to offer members topical MR information and ASRT accredited continuing education credits with the generous financial support of MRI Devices.

Bottom line? The Publications Committee is dedicated to bringing members topical, interesting and useful resources to expand your experience of MRI and deliver educational outcomes. We welcome suggestions and offers of help from our members and hope the publications provide incentives for other MR technologists to join SMRT. ●

## Member Put SMRT Educational Seminars to Good Use

Gregory Brown, R.T., 2004 Publications Committee Chair

Recently our Berkeley office received a note of appreciation from Catherine Larson of Moorpark, California, regarding the home studies material. She said, "I find the *SMRT Educational Seminars* so helpful. Just the other day I scanned a patient that had an abnormal liver on a CT. I remembered the seminar on the liver said that it was important to run a GE in-and-out of phase, so I did. The abnormality showed up so well on the out-of-phase GE and did not show up well on the other sequences (even on the T2) and could have been missed by the Radiologist."

Catherine was referring to "Directions in MRI of the Liver" *SMRT Educational Seminars*, Volume 4, No. 2, sent to members in 2001 and still available for continuing Education credits. It is one of the twenty-one home study guides produced by Kelly Baron and her team. Members receive four new *Educational Seminars* per year covering current topics of interest and you can now order back issues for those published before you became a member. The full list of issues is on the SMRT website at [www.ismrm.org/smrt/homestudy](http://www.ismrm.org/smrt/homestudy). "Techs make it happen" as Catherine has shown. The *Educational Seminars* are a key component of the SMRT's mission to advance education and training for MRI technologists around the world. ●

## The Reluctant MR Liver Lesion

Catherine Larson, R.T. (R)(MR), SMRT Member, Moorpark, California, USA



Patient presented for Liver MRI to further investigate a 4cm enhancing lesion in the right lobe of the liver. MRI scans were performed on a Hitachi MRP 7000. 0.3 Tesla.



Figure 1. Post contrast CT.

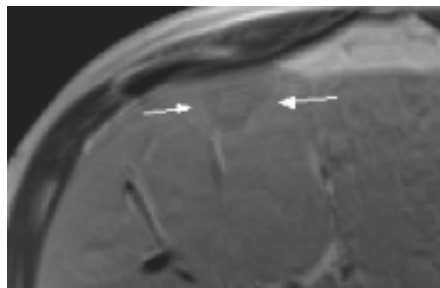


Figure 2. T1 Pre-contrast Spin Echo. TR, 750ms; TE, 25ms.

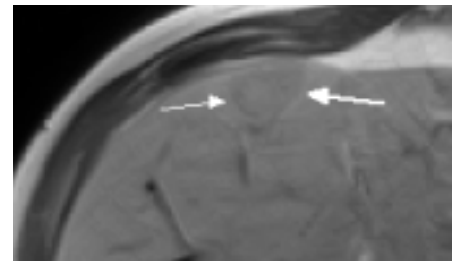


Figure 3. T1 Post contrast Spin Echo.

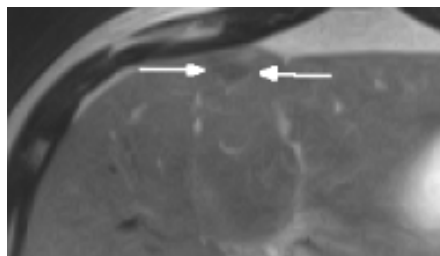


Figure 4. T2 Fast Spin Echo. TR, 4750ms; TE, 117ms; ETL, 8.

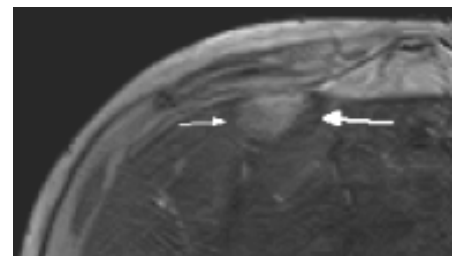


Figure 5. Pre contrast T1 Out of Phase Spoiled Gradient Echo. TR, 740ms; TE, 15ms; FA, 35.

# Call for Papers

Julia Lowe, B.S., R.T. (R)(MR), 2004 Education Committee Chair



The SMRT Program and Education Committees would like to announce a Call for Papers for the 13<sup>th</sup> Annual Meeting of the Section for Magnetic Resonance Technologists (SMRT) in Kyoto, Japan, 14-16 May 2004. We wish to welcome and encourage technologists/radiographers to submit abstracts for presentation in oral and poster sessions at the annual meeting. The deadline for submission is **21 January 2004**.

Abstracts may be submitted electronically, via the ISMRM/SMRT Website: [www.ismrm.org/smrt](http://www.ismrm.org/smrt). Detailed instructions are posted on the website and abstracts should be submitted according to these instructions. Topics may describe clinical applications or explain scientific research. Abstracts should state the **purpose** of the research or clinical study, outline the **methods**, summarize the **results**, and finally discuss the **conclusion** from the results. All abstracts that are submitted and pass the criteria will be displayed as a poster or included as a talk in the annual meeting agenda.

The SMRT is committed to promoting the communication and dissemination of information regarding current and emerging technological advances to its members. The abstracts that are submitted by technologists/radiographers are an effective way of disseminating this information. Each year the quality and number of abstract submissions has increased. We can certainly learn from invited speakers at the annual meetings, but we can also learn a great deal from our fellow technologists. So please take this opportunity to formally write up the ideas that you've had and submit them as abstracts for 13<sup>th</sup> Annual Meeting of the SMRT! ●

## “Each One Reach One”

Todd Frederick, R.T. (R)(MR), 2004 Membership Committee Chair



During the Annual Meeting, incoming President, Maureen Ainslie, presented the slogan “Each One Reach One” as a means to promote the benefits of the SMRT and to increase our membership.

There is strength in numbers! The more people participate in an organization, the stronger the organization is, and the SMRT is no exception.

Think about why you belong to the SMRT and share these benefits with a colleague. The members of the SMRT are the best recruiting tool we have.

The SMRT is made up of dedicated professionals from all over the world, but the membership represents a very small percentage of all MRI technologists that are working today. The SMRT can better represent our profession if your colleagues are actively involved. The Policy Board is asking you to share the news about the SMRT with other MRI technologists. **Each One Reach One!** ●

# Update on the SMRT 13<sup>th</sup> Annual Meeting

James Stuppino, B.S., R.T. (R)(MR), 2004 Program Committee Chair



On behalf of the 2004 SMRT Program Committee, I would like to invite you to join us at the 13<sup>th</sup> Annual Meeting of the Section for Magnetic Resonance Technologists, in Kyoto, Japan, at the Kyoto International Conference Hall. This meeting will be held the 14<sup>th</sup>, 15<sup>th</sup>, and 16<sup>th</sup> of May 2004, in conjunction with the Twelfth Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine. Building upon a very successful architecture of past meetings, the Kyoto program will be designed to fulfill the needs and aspirations of MR technologists/radiographers in both a research and clinical setting. The goal of the SMRT is to provide quality educational opportunities for the MR technologist/radiographer and to establish and maintain a high level of professionalism in the field.

The objective of this educational program is to provide technologists/radiographers the best possible forum for magnetic resonance education and an understanding of principles and clinical applications of MR. The meeting will commence with a poster exhibit, poster presentations, and walking tour reception at 18.30 on Friday evening, 14 May 2004. This will be a great way to learn about new and innovative clinical and research studies that are being performed by our colleagues worldwide. It also provides a great opportunity to interact with the poster authors and to meet and share ideas with fellow technologists from around the world.

An important aspect of the meeting remains the submission of abstracts for oral and poster presentations by technologists/radiographers. Proffered papers will be interlaced throughout the sessions. We strongly encourage all technologists/radiographers to participate in the meeting by submitting an oral or poster abstract. For assistance please see instructions posted on the SMRT Website. The deadline for SMRT abstract submissions will be **21 January 2004**. Online abstract submissions will be available on the SMRT Website: [www.ismrm.org/smrt](http://www.ismrm.org/smrt). The proffered papers and posters have been one of the highlights of past SMRT meetings.

On Saturday, during the Business Meeting, awards will be presented to the most outstanding papers and posters submitted in both the clinical and research arenas. Many of this year's topics were chosen based on comments and feedback received from attendees of previous annual meetings.

Some of the presentations will include: Virtual Colonoscopy, Breast Imaging, Diffusion Tensor MR Tractography, Ischemic Heart Disease Imaging, MR Spectroscopy, Functional Assessment of the Joints using Kinematic MRI, and many other advanced MR topics. The meeting will conclude with an expert panel, MR Safety Forum, moderated and chaired by Frank G. Shellock, Ph.D.

As Chair of the 2004 Program Committee, it is my pleasure to invite you to attend this meeting and join the SMRT in bringing to technologists/radiographers, an exciting, quality, educational weekend in the wonderful city of Kyoto, Japan. ●

## SMRT 13th Annual Meeting "Rising to Excellence" Preliminary Program

### FRIDAY, 14 May 2004

18.30 **Poster Exhibit, Poster Presentations, and Poster Walking Tour Reception**

### SATURDAY, 15 May 2004

07.45 Welcome and Announcements

08.00 **MR Colonography and Virtual Colonoscopy**  
*Silke Bosk, R.T.*

08.55 **3T Imaging**  
*David Stanley, B.S., R.T. (R)(MR)*

09.50 Break

10.00 **Proffered Papers**

11.00 Awards Luncheon & SMRT Business Meeting

13.15 **MRI for the Management of Haemochromatosis**  
*Gregory Brown, R.T.*

14.10 **State of the Art in Breast Imaging**  
*Anne Sawyer-Glover, B.S., R.T. (R)(MR)*

15.05 Break

15.20 **Male Pelvis**  
*E. Scott Pretorius, M.D.*

16.15 **Proffered Papers**

### SUNDAY, 16 May 2004

07.45 Welcome and Announcements

08.00 **Diffusion Tensor MR Tractography**  
*Roland Bammer, Ph.D.*

08.55 **Advances in Abdominal Imaging**  
*Carolyn K. Roth, R.T. (R)(MR)(CT)(M)(CV)*

09.50 Break

10.05 **One Stop Shopping: The 30 Minute Ischemic Heart Disease Exam**  
*Michaela Schmidt, R.T.*

11.00 **Functional Assessment of the Joints using Kinematic MRI**  
*Frank G. Shellock, Ph.D.*

11.55 **Contrast MRA and New Blood Pool Agents**  
*Martin A. Prince, M.D., Ph.D.*

12.50 Lunch

13.30 **Clinical and Research Spectroscopy**  
*H. Cecil Charles, Ph.D.*

14.25 Break

14.45 **Proffered Papers**

15.30 **MR Safety Forum**  
*Frank Shellock, Ph.D., Chair and Moderator*

17.30 Adjournment

## SMRT and ISMRM Joint Presentation: Managing MR Artifacts and Pitfalls

Kim Butts, Ph.D. and John Christopher, B.A., R.T., Organizers

Monday, 17 May, 14.00 - 16.00

**Overview:** This course will describe the physical bases for artifacts in MR imaging. Building upon this information, it will describe how artifacts serve as pitfalls for clinical interpretation of MR images.

### Speakers:

*William G. Bradley, Jr., M.D., Ph.D.*

*Gregory C. Brown, R.T.*

*David N. Firmin, Ph.D.*

*Katsuyoshi Ito, M.D.*



Kyoto, located in the Kansai Region of Japan, is the country's seventh largest city, with a population of 1.4 million people. Steeped in history, Kyoto is home to roughly one quarter of Japan's national treasures, countless shrines and temples, and seventeen sites recognized by UNESCO as World Heritage Sites.

Travelers to Kyoto can easily spend a week visiting the city's historical attractions such as the Kyoto Imperial Palace, Kinkakuji (Golden Pavilion), and Sanjusangendo. All sections of the city contain more than one locale well worth a thorough visit. Notably, some of Japan's oldest traditions, such as the tea ceremony, flower arranging, and geisha schooling originated in the city. These ancient customs, while still practiced throughout Japan, can only be observed in their original setting in Kyoto. Japan's capital city and the emperor's residence from 794 to 1868, Kyoto is known throughout the world for its stunning beauty. Tourists are drawn year-round by the majestic palaces, statues, and villas, as well as by the carefully tended gardens; each spring, dozens of varieties of cherry trees bloom in Kyoto, and visitors are treated to time-honored hanami (blossom viewing) parties.

Kyoto is dedicated to preserving Japan's oldest traditions, yet it is also a dynamic, contemporary city. Modern conveniences are readily available, making Kyoto a perfect destination for visitors seeking to explore Japan's past without sacrificing the comforts of today. Known as a national dining mecca, Kyoto proudly offers traditional Japanese cuisines, such as sushi, tofu and obanzai (Kyoto home-style fare). In addition, a variety of restaurants serve everything from Korean barbecue to French cuisine. Shopping is also a unique experience in Kyoto, with merchandise ranging from traditional Japanese crafts made by local artisans to cutting-edge couture. Among Japan's many assets, Kyoto is one of the most prized, comparable only to the world's most dazzling places.

### Customs/Visa

If you come from one of the over 50 countries with which Japan has arranged a "general visa exemption arrangement," you only need a valid passport in order to enter as a tourist (usually for up to 90 days); otherwise, you need to apply for a visa before coming to Japan. All foreign tourists in Japan are required to carry their passports with them at all times. Please contact your closest Japanese embassy or consulate to make sure you have all the required documents before traveling to Japan.

# External Relations News and Updates

Maureen Hood, M.S., R.N., R.T. (R)(MR)



**T**he American College of Radiology (ACR) and the American Society of Radiologic Technologists (ASRT) are working together to draft requirements and guidelines for advance practice technologists. The current statement “*The Radiologist Assistant: Improving Patient Care While Providing Work Force Solutions*” can be viewed on the ASRT Professional Development webpage: [www.asrt.org/asrt.htm](http://www.asrt.org/asrt.htm).

This is a first attempt to advance the role of the technologist in the clinical setting and is focusing on diagnostic radiography. This initiative is still in draft form and the ASRT is looking for public comment. For those attending RSNA 2003, the Associated Sciences Consortium is offering a course called “*Advanced Radiologic Practice—UK Red Dot Practice, Plus ASRT Information*” on Tuesday from 08.30-10.10. Stay tuned to *Signals* for further updates.

Allied Health Week is 2-8 November 2003, the same week as Radiologic Technology Week. These are two great excuses to get your hospital or clinic to do something special for the hard working staff. Ideas for celebrating allied health week are available through the Health Professions Network at: [www.healthpronet.org](http://www.healthpronet.org).

The Health Professions Network (HPN) fall meeting took place in Dallas, Texas, in September. Highlights of the meeting included issues such as licensure, health literacy, allied health leadership and an update from the American Medical Association. The Association of Schools of Allied Health Professions is still trying to push through the Allied Health Reinvestment Act. However, things look bleak, especially since Congress cut funding to Titles VII and VIII of the Public Health Service Act by over 50%. The lack of funding for Titles VII and VIII is going to impact educational programs all across the US in allied health, nursing and pharmacy. Radiological technology and imaging programs are included in the allied health programs. Interested people are encouraged to write their representatives to voice their opinion on funding for training healthcare personnel.

The HPN is building better ties with the American Medical Association. Dr. Plested, from the AMA, addressed the HPN in Dallas about issues of interest to the AMA and allied health professions. The AMA speculates that Health Care Reform will be a hot topic in the next US Presidential election, especially due to the aging of the US population. Another issue of importance to the AMA is patient safety

and how it is not given enough consideration in health care. A bill is in the US Congress right now to set up an anonymous reporting system for patient safety. It is hoped that an anonymous reporting system will help the medical community see more scientifically how errors are occurring and hopefully find the root causes of the errors so that they can be corrected or minimized. Improving patient safety is expected to reduce unnecessary health care costs.

Believe it or not, health literacy is a serious problem in the United States and is most likely a problem in most other countries as well. Nearly 48% of all Americans are inadequate to marginal in literacy. This group has been found to statistically avoid the medical system until it is an emergency; they don't understand how to take their medications or follow self-care orders, or even understand what their tests and medications are for. The lower the literacy rate group has been correlated to a higher cost burden on our health care system. Teaching materials to help health care professions better address this section of the population are available **free** from: [heathliteracy@ama-assn.org](mailto:heathliteracy@ama-assn.org), [www.amafoundation.org](http://www.amafoundation.org) or by writing to the AMA Foundation, 515 N. State Street, 7th Floor, Chicago, IL 60610, USA. Be creative! This could be a great topic for a continuing education program at your site.

The Health Occupational Students of America is a student organization in high schools and junior colleges that help students gain exposure to health care fields in their local communities. HOSA chapters are associated with career and technology classes in the schools and are a great way to let young people know more about career opportunities in health care. To start a chapter in a school near you go to the HOSA website at: [www.hosa.org/](http://www.hosa.org/). Over 70,000 students across the US are involved in this program in 38 states. Each spring, students compete at the local, state, and national levels. This is also a good opportunity for MR techs to get involved at the community level to built interest in MR as a career. HOSA is often looking for speakers and judges for their competitions throughout the USA.

The Alliance for Radiologic Excellence is continuing to work on the Consumer Assurance of Radiologic Excellence (CARE) Act. The CARE Act (HR 1214) has 52 co-sponsors in the House and is currently in the House Subcommittee on Health. The “RadCARE,” S1197 has five co-sponsors and has been referred to the Committee on Health, Education, Labor, and Pensions. The next Alliance meeting is scheduled for 26 January 2004 in Washington, D.C. ●

# SMRT South Central Regional Educational Seminar

Nanette Keck, R.T. (R)(MR), Salt Lake City, Utah, USA



The South Central Regional Educational Seminar was held in the auditorium of Primary Children's Hospital, Salt Lake City, Utah. Technologists representing Utah, Wyoming, and Washington attended the

program. Topics for this one-day seminar, Saturday, 6 September 2003, provided state-of-the-art imaging and techniques.

The first speaker was Maryellen Gilfeather, M.D., from St. Mark's Hospital. Her presentation, "MR of the Female Pelvis," presented images of pathology and the techniques required to show those abnormalities with the best results. Knowing these subtle and not-so-subtle details, we as technologists can be better prepared to scan our patients properly.

Next, Ulrich Rassner, M.D., from University of Utah Hospital, spoke about "MRA Techniques." He explained the physics behind the pulse sequences to help the technologist choose the right technique for optimizing the vessels in the head, abdomen and the chambers of the heart. He also delivered a great explanation of spectroscopy giving details of how to read a spectrum and what the various peaks mean.

William Faulkner, B.S., R.T. (R)(MR)(CT) from Chattanooga, Tennessee, gave four talks. His first topic was "Fast Imaging Techniques." He explained the physics behind zero interpolation, rectangular field-of-view which led into receiver bandwidth.

All this comes into play when imaging fast 3D imaging in the brain and abdomen. Comparisons were shown to demonstrate the benefits of these techniques improving imaging quality and saving time.

Our next speaker was Gary Hedlund, D.O., from Primary Children's Hospital. His talk was on "Diffusion Imaging in Infants and Children." Scanning children is not only challenging due to the chance of patient motion, but different sequences are important when imaging the pediatric brain. Diffusion is proving to be a very important sequence in diagnosing ischemic cerebral injury, abscess vs. tumor, migraines, seizures and other metabolic disorders. This allows the child to be treated sooner with a better chance of a full recovery

A sandwich bar lunch allowed mingling between technologists from different sites. Several gift items donated by the vendors were given away at the end of the day during random drawings.

Leading us into the afternoon session Bill Faulkner presented "Cardiac Imaging." He described double and triple IR techniques and explained why they are helpful. Examples were shown comparing these two sequences making the cardiac image to appear like those found in an anatomy book. He also showed images from a popular pulse sequence using fast imaging in a steady state. Advanced analysis and tagging techniques were also shown.

MRI is the best imaging choice to image heart anatomy, cardiac and valvular function, and myocardial viability.

After the break, Bill gave another presentation on "MRI Safety." Images were shown to emphasize the realization that your scanner is more dangerous than you think. He also pointed out that we cannot take magnet safety for granted and to make sure that we are the last ones to protect the scanner room. He showed several examples of a quench demonstrating the impact of the pressure between the walls and the ceiling, blowing the room apart.

The last presentation was on "New Technology." Bill chose to talk about 3T. The speed allows for more detail and better resolution, but at a price of signal-to-noise and SAR issues. Coil technology is where you will be able to regain the signal. Unfortunately, there aren't many 3T coils out yet.

Special thanks go to our sponsors who provided their coils to show at the meeting: Medrad and MRI Devices. Other commendable sponsors include Berlex, Bracco, Fuji, GE Medical Systems, and Merry X-Ray.

This seminar would not have been possible without the diligent help from Co-Chair, Jeannette Pay. The administrative help from Jennifer Olson and the SMRT office made all the difference in accomplishing the goals of a successful meeting. Thanks to all. ●



South Central workshop speakers. Left: Maryellen Gilfeather, M.D. Right: (l. to r.) Gary Hedlund, D.O., William Faulkner, B.S., R.T. (R)(MR)(CT), and Ulrich Rassner, M.D. in a group photograph with workshop co-chair, Jeannette Pay, R.T. (R)(MR).



# Report on the SMRT Northeast Regional Seminar

Jennifer Petruski, B.A., R.T. (R)(MR)

The SMRT Northeast Regional Seminar was held in Pittsburgh, Pennsylvania on September 28, 2003. MRI technologists came from near and far and were awarded 7 ECE credits for attending.

After registration and a continental breakfast, Denise Davis, Co-Chairperson, introduced William Faulkner as our first speaker. Bill, as customary, gave a very thorough lecture on *“Fast Imaging Techniques.”* He also stayed on and presented the next lecture entitled *“Diffusion / Perfusion Imaging.”* After Bill’s lecture, there was an interactive question and answer session.

Next, Frank Shellock, Ph.D. covered *“MRI Safety Update 2003”* and *“The Functional Assessment of the Joints Using Kinematic MRI.”* Safety information is always well received and the lecture demonstrating kinematic MRI added a glimpse into the future of MRI applications.



A SMRT tee-shirt is awarded to a happy member for 5 years of attendance to the Northeast Regional Seminar.



William Faulkner explains the Principles of Diffusion-Weighted Imaging.

Once again, the attendees showed their interest with many questions for Dr. Shellock.

The lunch break allowed time for a chance to network and catch up with old friends. Derek Armfield, M.D., a radiologist at The University of Pittsburgh Medical Center, gave a great anatomy review and provided helpful imaging techniques through his *“Musculoskeletal MRI”* lecture. The material presented complemented nicely, the earlier lesson from Frank Shellock’s presentation on kinematic imaging.

The next lecture was given by Brian Chapman, Ph.D. He discussed *“MR Angiography.”* Dr. Chapman covered the basic physics of MRA, techniques, hardware, sampling techniques and applications.

Our final speaker was Stuart Derbyshire, Ph.D., who touched on something a little different by giving a lecture on *“fMRI of Pain.”* For technologists interested in research, this was a nice example of how one can use MRI skills for collecting other types of data besides imaging.

Our thanks go to Denise Davis for her efforts in organizing the seminar, recruiting renowned speakers, and selecting The Biomedical Science Tower at UPMC as our venue. All contributed to a successful program and were appreciated by the attendees. Special thanks go to Bracco, GE Medical Systems, Magmedix, and Mallinckrodt, Inc., for their support. ●



Northeast Regional speaker Brian Chapman.



SMRT Regional Seminars allow time during the lunch break to network, catch up with fellow MR technologists and of course, to meet new colleagues.



# Northwest SMRT Regional Educational Seminar

Denise Echelard, R.T. (R)(MR)



**O**n Saturday, September 27th nearly 50 participants gathered for the Northwest SMRT Regional Educational Seminar in Seattle, Washington, USA. The seminar was held in the Pelton Auditorium of

the Fred Hutchinson Cancer Research Center, a beautiful facility sporting sunny courtyards and waterfalls on the south shore of Lake Union.

The meeting got off to a rousing and amusing start with Frank Wessbecher, of Tacoma Radiology Associates, introducing *“Interesting Neurology Case Studies.”* He brought us up to date on the many pathologic processes that we scan everyday and how we can optimize our protocols for better imaging. Thomas Kim, of the University of Washington, followed with an in-depth discussion of *“Clinical Spectroscopy,”* a subject that is beginning to become more relevant in clinical imaging sites. Dr. Kim also graciously agreed to brush on the topic of Perfusion scanning and brought home many useful tips and distinctions for the attendees.



SMRT President, Maureen Ainslie (l.) joins workshop organizers John McCloskey, Denise Echelard, and Vern Terry.



Attendees enjoy an outdoor setting to chat with fellow MRI technologists during the lunch break.

After a quick break the late morning kicked off with Lloyd Heller, of Providence Hospital, Portland, Oregon. Dr. Heller presented comprehensive coverage of *“Cardiac MRI Imaging,”* not missing a beat, as a projector had to be replaced mid-talk. He is to be commended not only for his poise but also for his logical presentation of a difficult topic. Petra Lamon, of the University of Washington, complemented Dr. Heller’s talk with a thorough review of *“Chest Anatomy.”*

The lunch break allowed us to snatch some sunshine and catch up with friends and colleagues. We resumed the afternoon session with Daniel Heller, of Tacoma Radiology Associates, and his lively presentation of *“Interesting Body MRI Case Studies.”* Many attendees took great ideas back to their sites for imaging extremities and congratulations to Gene Nelson for winning Dr. Heller’s door prize.

Connie Lehman, of the University of Washington and the Seattle Cancer Care Alliance, followed with a timely and interesting review of *“MR Guided Breast Biopsy.”* While many of us do breast imaging she was able to provide

us with a broader view of MR’s potential in the fight against breast cancer.

After a quick break we returned to contemplate the *“Future Horizons of MRI”* with Bill Thoma of IGC Medical Advances. He challenged us to look ahead by presenting examples of SMASH/SENSE and all of the new adventures to come.

Saving the best for last Anne Sawyer-Glover, of Stanford University School of Medicine, did a wonderful job of bringing us all up to speed on the recent events in *“MRI Safety.”* A timely reminder that we are the gatekeepers of MRI and the important responsibility we have in keeping not only our patients and co-workers safe but ourselves as well.

A grateful thank you to all of our sponsors for being so generous in their support of this meeting and to the speakers for giving so willingly of themselves and their knowledge. The positive feedback that was given by the attendees speaks volumes in how important these meetings are to the MRI community and guarantees that future meetings will be more frequent. ●

# Atlanta Chapter of SMRT Hosts Seventh Annual Regional Seminar

Bobbie Burrow, R.T. (R)(MR)(CT), Carolyn Brown, R.T.(R)(MR), and Donna O'Brien, R.T. (R)(MR)(CT), Co-Chairs



The Atlanta Local Chapter of the SMRT hosted the Southeast Regional Seminar on September 20th, 2003, at St. Joseph's Hospital Auditorium. This was our seventh annual local chapter meeting and we were pleased to have 85 attendees.

Longtime SMRT members and well known MRI lecturers, Carolyn Roth and William Faulkner provided the educational material for the day. The program was designed to present information relative to all aspects in the field of MRI.

The morning session included the following topics: "High Field MRI," "Advanced Brain Imaging: Perfusion and Diffusion," "What is Spectroscopy," and "Enhanced Peripheral MRA."

Lunch in the food court allowed ample time for networking and sharing MRI experiences with each other. We also had several vendors that set up booths that the attendees could investigate. Everyone seemed to enjoy the opportunity for interaction.

The afternoon session included four more topics of interest. Carolyn started the afternoon session with "MRI of the Abdomen," followed by Bill who spoke on "Cardiac and Thorax MRI." Rounding out the educational session were lectures on "Male and Female Pelvis Protocols" and "Low Field MRI."

Responses from the attendees indicate that the day was filled with information and enjoyable as well.

The Atlanta Local Chapter has always had superb support from its local vendors. This year, we would especially like to thank all of our sponsors for their help and the

wonderful contributions they provided. We are very grateful for all of the high quality door prizes that were donated. Our attendees appreciated the fantastic items they received and expressed their thanks to the contributors. We would also like to thank St. Joseph's Hospital for hosting this meeting, and to everyone who was so generous in making our meeting a great success.

The co-hosts Donna O'Brien, Carolyn Brown and Bobbie Burrow have produced another successful SMRT Southeast Regional Seminar. In fact, this has become an annual event held on the 3rd Saturday in September. We invite you to mark your calendars now for 2004. Hope to see you there next year. ●

**Editor's note:** to form a Local SMRT Chapter or to Host a SMRT Regional Educational Seminar, contact the SMRT office or visit the SMRT website for information. [www.ismrm.org/smrt](http://www.ismrm.org/smrt)

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2003 3rd Place Proffered Paper- Clinical Poster

## Evaluation of Abdominal Veins using 2D Fiesta

David Stanley<sup>1</sup>, James Glockner<sup>2</sup>, Bernice Hoppel<sup>1</sup>, and Jason Polzin<sup>1</sup>  
1Applied Science Laboratory, GE Medical Systems; <sup>2</sup>Mayo Clinic, Rochester, Minnesota, USA

### Purpose

Demonstration of abdominal and pelvic venous disease with MRI has gained wide acceptance in the past 15 years. In the early years, single slice acquisition gradient echo (GRE) scans were utilized to make blood flow bright and disease dark (thrombus). Contrast-enhanced 2D and 3D spoiled gradient echo sequences are a more recent development and are very accurate in detecting thrombosed veins. Even though CE MRV is a widely accepted method for evaluation of abdominal and pelvic veins, the contrast agent adds cost to the exam and a small percentage of patients can have an allergic reaction to the contrast media. Therefore, it is the purpose of this paper to present an alternative imaging technique that evaluates abdominal veins using a 2D steady state free precession sequence that does not require the use of a contrast agent.

### Method

2D Fiesta (Fast Imaging Employing STEADY-state Acquisition) sequence is a fully balanced steady state coherent imaging pulse sequence designed to produce high SNR images at very short sequence times (TR). A sequential 2D FIESTA sequence was performed in addition to standard axial 2D post-contrast SPGR and 3D coronal oblique gadolinium-enhanced SPGR sequences in 10 patients referred for MRI (1.5T Signa General Electric Medical System,

Milwaukee, Wisconsin, USA) to evaluate for abdominal-pelvic DVT. 2D FIESTA sequence parameters included: TR 3.7 ms, TE 1.5 ms, flip angle 50, bandwidth 125 kHz, matrix 256x384, FOV 28-42 cm. Acquisition time was approximately 1.5 sec/image, and the number of images acquired per breath hold was adjusted according to the patient's breath hold ability. Sequences were evaluated in random order by a board certified radiologist experienced in abdominal MRI. Each sequence was evaluated for overall image quality on a scale of 0-4, where a score of 4 represents the optimal image in all cases. Additionally, sequences were ranked in order of preference for each case. The presence or absence of thrombus was noted and any discrepancies between sequences recorded.

### Results

Thrombus was seen in 6/10 studies on one or more of the sequences (using the post contrast enhanced SPGR as the gold standard). Thrombus was identified in 4/6 cases with 2D Fiesta. Of the two cases where thrombus was not identified, visualization was obscured by susceptibility artifact from an adjacent hip prosthesis in one case, and a very small amount of thrombus was not seen in the second patient.

The preferred sequence ranking was based on which pulse sequence best demonstrated the DVT and abdominal

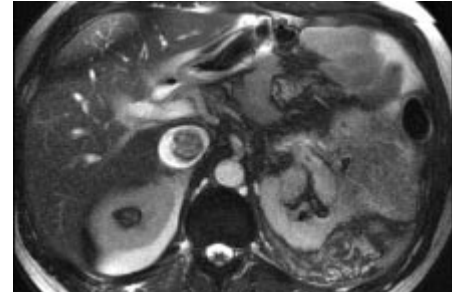


Figure 1. Axial 2D Fiesta image in a patient with renal cell carcinoma and extensive thrombus in the IVC.

veins. 2D Fiesta had an average score of 2.0, slightly above 2D CE Fast SPGR (1.9) and 3D CE Fast SPGR (1.7). The 3D CE Fast SPGR was rated the highest in image quality with an average score of 3.3 followed by the 2D Fiesta (3.1). The 2D CE Fast SPGR had an average score of 2.9.

### Conclusions

The non-contrast 2D FIESTA sequence performed almost as well as the 2D and 3D contrast-enhanced sequences. Thrombus was identified in most cases, and qualitative assessment of images revealed only small differences between the 3 sequences. 2D FIESTA offers the additional advantage of rapid sequential acquisition, so that motion artifact is limited in patients unable to suspend respiration as well as a contrast agent is not needed. ●

## SMRT Members are Reminded to Vote

Ballots are to be post marked no later than 1 December 2003.

Follow the directions carefully and vote for:

- President-Elect
- Policy Board Members
- Crues-Kressel Award Recipient



SMRT members are reminded to contact the SMRT when contact information changes. This includes mailing addresses so that you will obtain your *Signals* newsletters and the *SMRT Educational Seminars* home studies. Be sure to also update your e-mail address to receive timely messages from the SMRT.



2003 2nd Place-Tie Proffered Paper- Research Poster

## Magnetic Resonance Angiography with Blood Pool Agent MS-325: Results from a Phase III Clinical Trial

Randy Earnst, Senior MR Applications Specialist, EPIX Medical Inc.,  
Cambridge, Massachusetts, USA

### Purpose

Clinical trials for a new blood pool contrast agent, MS-325 (EPIX Medical, Cambridge, Massachusetts, USA/Schering AG, Berlin, Germany), are underway for the diagnosis of Peripheral Vascular Disease (PVD), and have the very real potential of changing the way MR angiography is performed. Reported here are Phase III results from MS-325-12, a clinical trial involving 25 sites in North and South America. Peripheral Vascular Disease of the aorto-iliac region was the focus and included the infra-renal abdominal aorta, common Iliac, external iliac, and common femoral arteries.

### Methods

Patients at sites using Philips, Siemens and General Electric 1.5T scanners participated in this trial. Patients 18 and older with suspected or known peripheral vascular disease and meeting all other inclusion and no exclusion criteria were admitted into the study. All study participants received an X-RAY angiogram as part of their normal care, which served as the standard of reference. The MR exam consisted of 2D-TOF MRA, an MS-325 dynamic scan, and a higher resolution MS-325-enhanced scan in equilibrium (the steady-state phase in which the contrast has distributed throughout the vascular system, a new concept for MRA imaging), performed within 15 minutes of MS-325 injection. Specific sequence parameters were provided and adhered to by each clinical site. The parameters were developed in such a way as to standardize the different modalities and platforms within each modality. Standard gradient echo sequences were used and all software and hardware was 510k approved and commercially available.

Patients were injected with a single 0.03 mmol/kg dose of MS-325, a chelated gadolinium compound that binds reversibly to albumin, creating a complex that resides in the blood pool for extended periods of time. MS-325 has a blood half life of approximately 13-15 hours, and provides an imaging

window of approximately one hour. An MS-325 dose of 0.03 mmol/kg results in relaxivity at 1.5T about 4X greater than that of current contrast agents.

Blinded readers who had expertise specific to the region of interest and modality (i.e. X-ray, MRA, or Vascular Surgery) evaluated the imaging data and included: 2 X-ray readers with 1 adjudicator, 3 independent MRA readers (who read both the MS-325 enhanced and non-contrast MRA images independently), and 2 vascular surgeon readers (who read all XRA, MS-325 enhanced MRA, and non-contrast MRA data, independently, and determined a course of treatment, if any).

### Results

A total of 251 patients were evaluated for efficacy. The average accuracy of MS-325 enhanced MRA was 88% (84%, 90% and 90%), sensitivity of 71% (61%, 73% and 80%), and specificity of 91% (84%, 85% and 93%). The average accuracy of 2D-TOF imaging was 76% (74%, 82%, 71%), sensitivity 58% (63%, 67%, 43%), and specificity 78% (75%, 85%, 75%). In the vascular surgery blinded read, for treatment planning, MS-325 enhanced images had an accuracy of 84% and 85% as compared to the accuracy of 2D-TOF imaging with 58% and 60%. In this first pivotal Phase III trial, MS-325 demonstrated an overall accuracy of 88%, which approached the 90% agreement rate found between the two X-RAY blinded readers. MS-325 was well tolerated with only a small percentage of patients experiencing any adverse effects. A total of 77 adverse events that were considered probably/possibly related to the study drug were reported in 52 patients (19%), with 95% of these reactions rated of mild intensity. No serious events were considered related to the study drug.

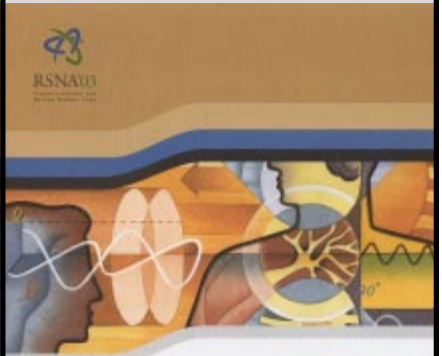
### Conclusion

MS-325 was shown to be safe and effective for the evaluation of PVD in the aorto-iliac region using a single 0.03 mmol/kg dose. ●

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# RSNA'03

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The Associated Sciences Consortium is a working group of the RSNA representing eleven professional societies in radiologic sciences, technology, and administration. The Group conducted its first workshop in 1980, with refresher courses added in 1984.

Once again, the Associated Sciences Consortium will be offering three symposium lectures as part of the RSNA Scientific Assembly and Annual Meeting. This year's theme is "Shaping Our Future—Forces at Work." In addition to the three symposia, a complete series of refresher courses will take place throughout the week. The courses discuss issues of interest to the consortium membership and RSNA registrants.

## MR Safety: Hearing Aids and Other Hearing Systems

Frank G. Shellock, Ph.D., Adjunct Clinical Professor of Radiology, University of Southern California; Founder, Institute for Magnetic Resonance Safety, Education, and Research; President, Magnetic Resonance Safety Testing Services, Los Angeles, California, USA  
www.MRIsafety.com www.IMRSER.org

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.



**E**xternal hearing aids are included in the category of electronically-activated implants or devices that may be found in patients referred for magnetic resonance (MR) procedures. Exposure to the electromagnetic fields used for MR examinations can easily damage these devices. Therefore, a patient or other individual with an external hearing aid must not enter the MR environment due to the possible risk of damage to the device. Fortunately, an external hearing aid can be readily identified and removed from the patient or individual prior to permitting entrance to the MR environment in order to prevent damage or other problems.

Other hearing devices exist that have external components as well as components that are surgically implanted in the middle ear. Typically, these devices are used to treat patients with moderate to severe sensorineural hearing loss. Hearing devices with external and internal components may be especially problematic for patients and individuals with regard to the MR environment.

The SOUNDTEC Direct Drive Hearing System (SOUNDTEC, Inc., Oklahoma City, Oklahoma, USA) has an external component that changes sound into an electronic signal that is sent to an implanted magnet attached to the bones of the middle ear. This causes the middle ear bones to vibrate, sending sound to the brain. Because the strong magnetic field of an MR system may affect this device, a patient with the SOUNDTEC Direct Drive Hearing System is not allowed to undergo an MR procedure until the

device has been surgically removed. Similarly, patients with the Vibrant Soundbridge (Symphonix Devices, Inc., San Jose, California, USA), which is also a specialized hearing device with an implanted magnetic component, may not have MR procedures of any type. Furthermore, patients and individuals with these particular hearing devices are not allowed to enter the MR environment because of possibly damaging the internal components. ●

### References

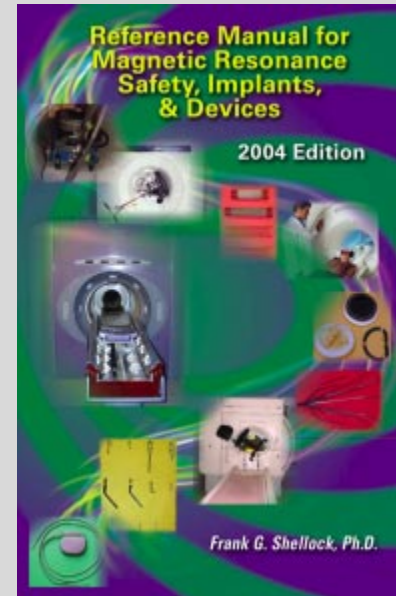
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2. Shellock FG. Pocket Guide to MR Procedures and Metallic Objects: Update 2001, Seventh Edition, Lippincott Williams & Wilkins Healthcare, Philadelphia, 2001.
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The **Institute for Magnetic Resonance Safety, Education, and Research (IMRSER)** is an independent, multi-disciplinary, professional organization devoted to promoting awareness, understanding, and communication of magnetic resonance (MR) safety issues through education and research.

It should be noted that the MRI safety guidelines developed by the IMRSER are educational in nature and not specifically intended to be legal standards of care. Accordingly, these MRI safety guidelines may be modified as determined by individual circumstances, currently available resources, differences or changes in technology, and other relevant information.

[www.IMRSER.org](http://www.IMRSER.org)

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## Reference Manual for Magnetic Resonance Safety, Implants and Devices: 2004 Edition

Frank G. Shellock, Ph.D.

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MRI Safety Guideline Developed by the Institute for Magnetic Resonance Safety, Education, and Research.

## Guidelines for the Management of the Post-Operative Patient Referred for a Magnetic Resonance Procedure

Frank G. Shellock, Ph.D., Adjunct Clinical Professor of Radiology, University of Southern California; Founder, Institute for Magnetic Resonance Safety, Education, and Research; President, Magnetic Resonance Safety Testing Services, Los Angeles, California, USA  
www.MRIsafety.com www.IMRSE.org

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.



There is controversy and confusion regarding the issue of performing a magnetic resonance (MR) procedure during the post-operative period in a patient with a metallic implant or device.

Studies in the peer-reviewed literature have supported that, if a metallic object is a “passive implant” (i.e., there is no electronically- or magnetically-activated component associated with the operation of the device) and it is made from a nonferromagnetic material (e.g., Titanium, Titanium alloy, Nitinol, etc.), the patient with the object may undergo an MR procedure immediately after implantation using an MR system operating at 1.5-Tesla or less. In fact, there are several reports that describe placement of vascular stents and other implants using MR-guided procedures that include the use of high-field-strength (1.5-Tesla) MR systems. Additionally, a patient or individual with a nonferromagnetic, passive implant is allowed to enter the MR environment associated with a 1.5-Tesla or less MR system immediately after implantation of such an object. Currently, there is little data to provide guidelines for MR environments using scanners operating at 3-Tesla or higher.

For an implant or device that exhibits “weakly magnetic” qualities (e.g., certain stents, atrial septal defect occluders, ventricular septal defect occluders, patent ductus arteriosus occluders, etc.), it is typically necessary to wait a period of six to eight weeks after implantation before performing an MR procedure or allowing the

individual or patient to enter the MR environment associated with a scanner operating at 1.5-Tesla or less. For example, certain intravascular and intracavitary coils, stents, filters, and cardiac occluders designated as being “weakly” ferromagnetic become firmly incorporated into tissue six to eight weeks following placement. In these cases, retentive or counter-forces provided by tissue ingrowth, scarring, or granulation essentially serve to prevent these objects from presenting risks or hazards to patients or individuals in the MR environment. Those implants or devices that may be “weakly magnetic” but are rigidly fixed in the body, such as a bone screw, may be studied immediately after implantation. Specific information pertaining to the recommended post-operative waiting period may be found in the labeling or product insert for a “weakly magnetic” implant or device.

**Special Note:** If there is any concern regarding the integrity of the tissue with respect to its ability to retain the implant or object in place or the implant cannot be properly identified, the patient or individual should not be exposed to the MR environment. ●

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## Preprocessing in a Vertical Field: Throughput on a Low-Field System

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“**H**ow’s throughput on a low field system?” I’m often asked that question. My response is simply– “it is.” What is throughput anyway? I guess it could be defined as how many patients one can scan in a given period of time. Field strength alone does not determine throughput but rather is only a small portion of the equation. There are sites out there that do less than six patients in a 10-hour day on a 1.5 T system.

I was having a conversation with a friend of mine recently and we were talking about the good-ole days. Some of you may remember those; when your axial dual-echo sequence through the brain took over 17 minutes on a fully loaded 1.5 T system. You may also remember when a 10-minute scan on a 1.5 T was referred to as a “fast-scan.” I remember when a radiologist once told me to increase the NSA so the scan time would be closer to five minutes because the 2.5 minute scan we were doing just couldn’t possibly be as good as one that took five minutes.

Going back to those days of 17-minute dual-echo brain images, a standard brain study was three, maybe four sequences. In all, it would take around 45 minutes to scan a brain. Now that our 17-minute sequence is done in around two

minutes, do we get the patients off the table in 15 minutes?– Absolutely not. We now do as many sequences as we can in that same 45-minute time slot. Sites take their 1.5 protocols and insist on doing the same number of sequences on their low field system and expect to do them in the same time frame, most often, sacrifice SNR or spatial resolution.

If a T2-weighted FSE of the lumbar spine takes three minutes to do on a current 1.5 T system, then is a six minute T2-weighted FSE at 0.2 T that much out of reason? I don’t think so since at 0.2 T one is scanning with a 7.5 times less field strength than at 1.5 T. In fact, SNR is pretty much linear with field strength so I don’t think a six minute scan is out of line.

My point is this, if our sequences take longer on a low field system (which they should in order to get adequate SNR and spatial resolution), then we should do a better job of tailoring the studies to meet the need of the particular patient as we did in those days when you had longer scan times. Use your technical skills, and start tailoring the study so you get the “money” shots before the patient wears out and starts moving.

Next issue I’ll talk about other approaches sites can take to increase their throughput. ●

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