Hybrid Imaging with PET/MR Offers Power, Potential

ALSO INSIDE:

Radiologists Extend Imaging Outreach to Developing Countries

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Residents Narrow Their Focus in Fourth-year Programs

Advances Improve Treatment, Detection of Head and Neck Cancer

RSNA 2012 Course Enrollment Begins July 11
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Society of Abdominal Radiology Formed from SUR, SGR Merger

After more than 35 years of existence, the Society of Gastrointestinal Radiologists (SGR) and the Society of Uroradiology (SUR) merged and formed the Society of Abdominal Radiology (SAR) in March. Stuart G. Silverman, M.D., a professor of radiology in the Department of Radiology at Brigham and Women’s Hospital, was named SAR’s inaugural president. The two founding societies had held combined meetings since 2000. The revolutionary impact that cross-sectional imaging has had on imaging the GI and GU tracts, as well as the benefits of a larger, and potentially more influential body, were among the reasons for the merger, Dr. Silverman said. For more information, go to www.abdominalradiology.org.

SIR Bestows 2012 Gold Medals

The Society of Interventional Radiology (SIR) recently presented gold medals at its annual meeting in San Francisco:

Kyoung J. Cho, M.D., is a professor of vascular/interventional radiology at the University of Michigan (UM) Health Systems, course director for “Practical Training in Vascular Interventions” at UM, a staff physician at UM Hospital and a consultant at Michigan Proton Treatment Center. At the annual meeting in San Francisco, he was honored with the SIR Gold Medal in Interventional Oncology.

Dimitris Kelikis, M.D., Ph.D., is a professor and chair of the Research Center of Radiology and Imaging at Eugenidion University Hospital in Athens, Greece, and a leader in developing Greek diagnostic and interventional radiology.

Louis G. Martin, M.D., is a professor of interventional radiology and image-guided medicine at Emory University Hospitals in Atlanta.

Gold Medals Awarded at AUR

The Association of University Radiologists (AUR) awarded gold medals at its recent annual meeting in San Antonio:

N. Reed Dunnick, M.D., is the Fred Jenner Hodges Professor and chair of the Department of Radiology at the University of Michigan Health System in Ann Arbor, where he has been since 1992. Dr. Dunnick has served on numerous AUR committees over the years and is currently chairman of the AUR Board of Directors.

Beverly P. Wood, M.D., Ph.D., M.S.Ed., is a professor emerita of radiology and pediatrics, Keck School of Medicine, University of Southern California, Los Angeles.

Be a Part of RSNA History—Submit Your Photos Now

RSNA is preparing to observe its centennial with a year-long celebration that will kick off at RSNA 2014 and culminate at RSNA 2015. While RSNA 2015 centennial events will look to the future and what might lie ahead in RSNA’s next 100 years, RSNA 2014 activities will focus on the Society’s achievements so far—and that’s where RSNA needs your help.

Do you have photos of past RSNA annual meetings, committee meetings or other gatherings? Other RSNA memorabilia? Please consider sharing these pieces of RSNA history for use in a commemorative book and other centennial celebrations. For more information on how you can contribute, e-mail centennial@rsna.org or call Marian Strauss at 630-571-7829.
Strategic Plan
The updated RSNA Strategic Plan reinforces RSNA’s goals of advancing the radiological sciences, fostering the development of new technologies, offering education in a variety of media, facilitating informatics strategies to improve the efficiency and effectiveness of healthcare, and serving as a worldwide leader in radiology.

Collaborations
RSNA will collaborate with the Radiological and Diagnostic Imaging Society of São Paulo for the São Paulo Radiological Meeting in 2014, 2016 and 2018 in São Paulo, Brazil. RSNA will help develop material and courses not traditionally covered at the meeting and support the travel of some North American speakers.

RSNA is working with the American Association of Physicists in Medicine (AAPM) to create two online education modules focusing on 1) estimating radiation risk from imaging procedures and 2) the regulatory/accountability environment of medical practice and its potential impact on radiologic practice and professionalism.

RSNA 2012
After a successful pilot at RSNA 2011, campus programming returns to RSNA 2012 with refresher and series courses, scientific presentations and education exhibits housed together to facilitate focused study during the meeting week. Subspecialties to be offered within campuses this year are pediatric radiology and nuclear medicine/molecular imaging.

Expanded for RSNA 2012 is the Virtual Meeting, which allows attendees to access content beyond the meeting day at McCormick Place. Live presentations will be offered Sunday through Friday. RSNA members may access the Virtual Meeting for free, non-members not attending the meeting and accessing education content will be charged a fee to participate.

New for RSNA 2012 will be additional scientific poster sessions presented in the Lakeside Learning Center on Monday, Tuesday and Wednesday, 5-6 p.m.

During this year’s “Citizen/RSNA” organized by the Interamerican College of Radiology (ICR) and presented in Spanish on Saturday, November 24, immediately before the annual meeting, RSNA will provide simultaneous translation into English. Topics for the 2012 session will be announced soon.

RSNA 2012 will see the debut of the RSNA 5K Fun Run, with all proceeds benefiting the Research & Education Foundation. Watch the annual meeting website and RSNA News for more details.

Annual meeting registration is under way for members and opens June 6 for non-members, and course enrollment begins July 11. This year’s theme is Patients First. I am already looking forward—and hope you are as well—to experiencing all the breakthrough science, education and networking that RSNA 2012 will offer.

N. Reed Danovitch, M.D.
Chairman, 2012 RSNA Board of Directors

Editor’s note:
We thank Dr. Prasanna for his thoughtful letter to the editor and apologize for overlooking his position as lead author in the original article. We are grateful for his suggestions for taking achievable steps toward “greening radiology” and applaud his efforts in this important area.
**FEATURE**

**Radiologists Extend Imaging Outreach to Developing Countries**

Rapid, accurate and portable, ultrasound is fast becoming a vital diagnostic tool in developing countries that often rely heavily on it in busy emergency rooms. When Butaro Hospital opened its doors in Rwanda in 2011, the facility was equipped with much-needed state-of-the-art technology, including an ultrasound machine.

Unfortunately, many facilities like Butaro are short-staffed and the equipment either goes unused or is operated by nonradiologists, including many who have not been adequately trained. At Butaro, the remedy is a training curriculum for teaching ultrasound that was developed by Supriya Gupta, M.B.B.S., M.D., a radiologist fellows at Massachusetts General Hospital (MGH) in Boston, whose project was funded through a 2011 RSNA/AUR/AFR/SCARD Radiology Education Research Development Grant.

"Especially in remote areas, much of the work is done by a single person who reads the X-ray and performs the ultrasound," Dr. Gupta said. "As radiologists, we want to help these staff members by sharing our expertise and improving their skills.

In the Republic of South Sudan, which leads the world in maternal mortality, access to medical imaging—particularly ultrasound—can mean the difference between life and death, said MGH radiologist H. Benjamin Harvey, M.D., J.D., who taught ultrasound in Africa.

"It was inspiring to see how excited the South Sudanese providers were about learning to harness the power of hand-carried ultrasound," H. Benjamin Harvey, M.D., J.D.

In 2011, the MGH team collaborated with the P. H. Mithelahls Project in Haiti to begin providing teleradiology support. radiology education and technology planning. Also in 2011, Sanjay Saini, M.D., a professor of radiology, vice-chair for Health Systems Affairs and co-founder of the MGH Imaging's Global Health Program, began leadership training and CME development in countries including Haiti, Sri Lanka and India. This year, MGH Radiology Department Vice-chair Giles Boland, M.D., established a telelink and an international radiology exchange program between the MGH radiology department and Kenyatta National Hospital in Nairobi, Kenya.

Since 2008, the MGH team, in partnership with the International Radiology Exchange (See sidebar), has worked with PIH to provide teleradiology services to Butaro Hospital, where caregivers send images to MGH radiologists who provide at least one radiology consultation a day. "We have provided telemedicine support and consultation in more than 400 cases including ultrasound, X-rays and CT scans," Dr. Choy said.

In addition, Dr. Gupta, Choy and Sang Han Kim, M.D., served as contributing authors to the "Partners in Health Manual of Ultrasound in Resource Poor Settings" which has been used for training at several PIH sites in Haiti, as well as for training other organizations in Uganda and Kenya.

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H. Benjamin Harvey, M.D., J.D.

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H. Benjamin Harvey, M.D., J.D.
Error Disclosure is Radiology’s Next Step in Patient Care

As the movement toward more patient-centered care continues in radiology, reporting of medical errors is becoming an increasingly necessary measure to help patients achieve autonomy in their healthcare decisions.

“Patients know that errors occur and they want to be told when errors occur,” said Stephen D. Brown, M.D., a radiologist at Children’s Hospital Boston and co-author of “Stepping Out Further From the Shadows: Disclosure of Harmful Radiologic Errors to Patients,” published in the February 2012 issue of Radiology. “Not disclosing errors works against that patient’s autonomy. If done properly, a well-constructed disclosure process can potentially enhance the bond between a patient and healthcare provider.”

A strong patient-provider bond is especially important as radiologists continue to emerge from their behind-the-scenes role and engage in more one-on-one communication with patients. “Error disclosure is the next step,” Dr. Brown said. “If radiology leadership is going to promote the idea that radiologists can be better than any other specialty, we need to be upfront in our communication with patients.”

And while fear of malpractice remains a top reason for reluctance to disclose errors, experts point out that failure to communicate results of a radiologic examination is the second most common cause of malpractice litigation. Errors can stem from lack of communication between the radiologist and ordering physician or the primary physician and the patient.

“Research shows that communication problems are at least a causative factor in up to 50 percent of medical malpractice cases,” said Leonard Berlin, M.D., a radiologist at Skokie Hospital, Illinois, and a professor of radiology at Rush University and the University of Illinois, Chicago, who will present an Annual Oration in Diagnostic Radiology, “To Disclose or Not to Disclose Radiologic Errors: Should ‘Patient First’ Supersede Radiologist Self-Interest?” at RSNA 2012. “Communicating directly with the patient could eliminate that risk.”

Chances of Radiologic Errors Increasing

Over the years, changing technology has heightened the chance for errors in radiology. Today’s radiologists may be looking at 200 different images from a single CT scan, which increases the likelihood of error—especially compared to 30 or 40 years ago. Nevertheless, the day-to-day error rate is closer to 3 percent, Dr. Berlin said. “And while the majority of physicians believe those errors should be reported, many don’t follow through with that conviction,” he said. He pointed to a study showing that 90 percent of physicians said errors should be reported, but, when asked if they had reported their own errors, only 30 percent said they had.

In a 2009 Radiology study led by researcher Thomas H. Gallagher, M.D., 243 radiologists who interpret mammograms were given a vignette describing how a delay in breast cancer diagnosis was caused by placing comparison screening mammograms on a view box in the wrong order, leading a hypothetical radiologist to conclude that calcifications were decreasing in number when, in fact, they were increasing.

Study participants were asked about the likelihood of disclosing this error to the patient and what, if any, information they would offer. Results showed that only 15 percent would disclose an error with full transparency, while the remaining 85 percent would remain silent, would not tell the whole truth or would simply tell a falsehood.

Benefits Stem From Error Disclosure

In addition to malpractice fears, radiologists worry that by disclosing errors to patients, they will lose their credibility and their ranking within their specialty or workplace. In addition, risk managers have traditionally advised against disclosure. “All of these factors—both personal and institutional—play into not disclosing errors,” Dr. Brown said.

However, researchers cite a number of benefits associated with disclosing errors to patients. Along with showing respect for the patient’s autonomy, disclosure reinforces the patient-provider relationship and maintains the patient’s confidence in the honesty and integrity of the physician and the healthcare system. In addition, error disclosure can prevent misconceptions patients might have about what caused the adverse event, facilitating informed consent about future care.

Full disclosure is also central to upholding professional standards. Dr. Berlin noted that the Code of Ethics of the American Medical Association states that physicians are “required to inform the patient of any complication or mistake and should offer ‘professional and compassionate’ concern toward patients who have been harmed, regardless of whether the harm was caused by a physician’s error.”

“Radiologists and all other physicians are ethically and morally obligated to place the needs of their patients first—before their own self-interest and personal needs,” Dr. Berlin said.

Guidelines, Education, Key to Error Disclosure

Establishing radiology-specific professional guidelines in reporting errors is key to facilitating error disclosure. “Policy guidelines developed by the major radiologic professional organizations ideally would define what constitutes radiologic error and when errors should be disclosed to patients,” Dr. Brown said.

Individual institutions are developing their own programs. After issuing a 2006 consensus statement, “When Things Go Wrong,” Harvard University commissioned the risk management provider CRICO to develop a program of active encouragement of disclosure of errors. “They are actively seeking to educate physicians and promote the idea of error disclosure as a best practice,” Dr. Brown said.

Other institutions that have adopted successful guidelines include the Lexington, Ky., Veteran Administration (VA) system and the University of Michigan (UM). The VA discovered that its malpractice payments dropped after the guidelines were implemented in the 1980s. UM, which reported its findings in 2010, also experienced a favorable impact on malpractice outcomes.

“You can’t necessarily extrapolate these experiences to all of the practice settings that radiologists find themselves in,” Dr. Brown said. “But it is encouraging information and folks are taking it to heart.”

Although education is also critical to implementing effective error disclosure, traditional methods may not adequately address the multifaceted nature of the issue, Dr. Brown said. Newer programs utilizing educational videos and improved role playing between participants and professional actors are among the new techniques beginning to emerge, he said. In addition, Web-based “e-learning” programs, featuring interactive online reviews of essential disclosure principles, can provide timely support to physicians in the immediate aftermath of errors, he said.

“These innovative approaches to teaching disclosure skills and strategies have been applied across a number of disciplines and could be adapted for radiology-specific purposes,” Dr. Brown said.

“Radiologists and all other physicians are ethically and morally obligated to place the needs of their patients first—before their own self-interest and personal needs,” Dr. Berlin said.

Although many physicians are reluctant to report medical errors, doing so yields a number of benefits, including reinforcing the patient-provider relationship, showing respect for the patient’s autonomy and maintaining the patient’s confidence in the honesty and integrity of the physician and the healthcare system. Disclosure is also central to upholding professional standards. “Radiologists and other physicians are ethically and morally obligated to place the needs of their patients first—before their own self-interest and personal needs,” said Leonard Berlin, M.D.

If done properly, a well-constructed disclosure process can potentially enhance the bond between a patient and healthcare provider.”

Stephen D. Brown, M.D.
Residents Narrow Their Focus in Fourth-year Programs

In his third year of residency at Massachusetts General Hospital (MGH), Sharjeel Sabir, M.D., was seeking to deepen his knowledge of abdominal imaging and skills in interventional radiology beyond the required rotations offered in the core residency.

Forty years ago, such an option was available at MGH, the largest teaching hospital of Harvard Medical School in Boston. Dr. Sabir enrolled in the “focused-year program” that allows fourth-year residents to focus on one or two disciplines for up to six months each. The program was more helpful than he ever imagined it would be, Dr. Sabir said. “In some respects, I learned more during that one year of focused training than during the three previous years of residency,” said Dr. Sabir, now a fourth-year radiology resident at MGH. “I grew as a physician because I was given even more responsibility for my patients.”

Focused-year programs, often called “mini-fellowships,” have been extremely popular since they were developed at MGH 25 years ago, said Theresa C. McLoud, M.D., director of Massachusetts General’s radiology residency program. The program was created after residency training expanded from three to four years in the mid-1980s and some educators were concerned residents would not pursue subspecialty training, she said. “Frankly the program has provided Massachusetts General with a recruitment advantage for resident applicants,” said Dr. McLoud, a professor of radiology, associate vice-chair of education at MGH and an RSNA past-president. “Most applicants recognize the need for early subspecialty training, although more than 90 percent of our residents complete a formal fellowship after residency.”

While only a handful of institutions now offer focused-year programming, the time is ripe for others to tap into the considerable benefits offered by the focused-year concept, Dr. McLoud said. “I expect that these programs will become much more widespread with the advent of the new ABR exam changes. In addition to offering concentrations in radiology subspecialties, the medical center is expanding its curriculum to offer focused-year programs in medical education, global health, quality improvement, research and health policy/economics. “It is quite exciting to be offered a wide range of possible projects and learning opportunities.”

One institution, Beth Israel Deaconess Medical Center (BIDMC) in Boston, is expanding its focused-year radiology programming specifically to accommodate ABR exam changes. In addition to offering concentrations in radiology subspecialties, the medical center is expanding its curriculum to offer focused-year programs in medical education, global health, quality improvement, research and health policy/economics.

“Growing in popularity, focused-year programs that allow fourth-year residents to focus on one or two disciplines for up to six months each offer a number of advantages, including allowing early subspecialty training and a concentrated period of time to pursue research activities. Our rationale is that although there are many superb clinical radiologists, there are relatively few with expertise in these other fields, and there is a growing need for radiologists to possess and impart these skills to others,” said Priscilla J. Slanetz, M.D., M.P.H., program director of the medical center’s Radiology Residency Program. “Therefore, each of these non-clinical mini-fellowships will enable residents to develop a unique skill set. They will graduate from our program with strong clinical skills and expertise in one or two unique areas.”

Although the specific curriculum is still in development, the basic framework will consist of formal didactic courses followed by focused programming in which students undertake a specific project to apply their new skills, said Dr. Slanetz, who received a Research Fellow Grant from the RSNA Research & Education (R&E) Foundation in 1995 for her study of spiral CT and MRA in preoperative assessment of abdominal aortic aneurysms. “This new approach will provide residents with protected time to develop critical skills for successful careers in academic radiology,” she said.

Residents Tout Benefits of Focused Subspecialty Training

Residents and faculty say the focused-year concept offers several advantages. “First of all, it allows early subspecialty training.” Dr. McLoud said. “It may give a resident the opportunity to condense training time.” For fellowships with a two-year requirement, such as neuroradiology, the focused year allows one year of subspecialty training before the post-residency year, she added. “We have other two-year programs, such as an abdominal interventional fellowship in our residency, that offer the same advantage,” she said.

The focused year also allows a concentrated period of time to pursue research activities. Residents enrolled in the program say the focus provides the chance to create a unique, personal curriculum that provides a solid foundation for future success. “This is the best way to acquire this level of knowledge during residency,” said Florian Forsttann, M.D., a radiology resident at MGH. “It is a wonderful opportunity as it allows us to self-design a curriculum that is best tailored for our individual strengths and interests,” added Tamana Chadashvilli, M.D., a second-year resident at BIDMC. “It is quite exciting to be offered a wide range of possible projects and learning opportunities.”

WEB EXTRAS

ABR Prepares to Launch New Exams

The American Board of Radiology (ABR) Core Exam, which debuts in October 2013, will test knowledge and comprehension of anatomy, pathophysicsiology, all aspects of diagnostic radiology, and physics concepts important for diagnostic radiology. The Certifying Exam, to debut in fall 2015, will emphasize synthesis of information, differential diagnosis, and patient management, according to ABR, with all aspects of physics and basic sciences that are important in imaging to be included.

To read the RSNA News article “A New Core Examination in Diagnostic Radiology and the ‘Major Culture Change’ in ABR Examinations,” go to www.rsna.org.

To see a video of ABR Executive Director Gary J. Becker, M.D., discussing the new Core Examination in Diagnostic Radiology and the “major culture change” taking place in ABR examinations, go to www.rsna.org.

rsnanews.RSNA.org
Walter PET has been used with CT for more than a decade, PET/CT technology only arrived when engineers overcame the challenge of combining the two modalities. In 2011, the European Union and the U.S. Food and Drug Administration (FDA) granted approval to the first two commercially available PET/CT systems: the Siemens Biograph mCT and the Philips Ingenuity TF.

Although the technology, with a price tag of about $7 million, is in use only at a handful of U.S. medical institutions, including Mallinckrodt Institute of Radiology at Washington University in St. Louis, and its clinical role is still evolving, researchers are not wasting time heralding the potential of hybrid imaging with PET/MR.

“MR is more functional than CT,” said Homer A. Macapinlac, M.D., chair of the Department of Nuclear Medicine at the University of Texas, MD Anderson Cancer Center in Houston. Dr. Macapinlac chairs the nuclear medicine subgroup committee of the RSNA Scientific Program Committee. “MR spectroscopy (MRS) allows you to examine metabolic changes and tell if tissue is malignant or benign. MR provides very exquisite anatomical detail, particularly in the brain,” Dr. Macapinlac said. PET/MR offers the ability to use different types of radiotracers—not just one like CT for osteoarticular disease in the spine and for detecting breast cancer as well.” MR is also better than CT at differentiating tissue of very similar density, said Satoshi Minoshima, M.D., Ph.D., professor and vice-chair in the Department of Radiology at the University of Washington in Seattle. Dr. Minoshima chairs RSNA’s Molecular Imaging Abstract Review Committee and serves on the Quantitative Imaging and Molecular Imaging Abstract Review Committee. “MR spectroscopy (MRS) allows you to examine metabolic changes and tell if tissue is malignant or benign. MR provides very exquisite anatomical detail, particularly in the brain,” Dr. Minoshima said. “With the combination of MR, functional MR, MRS and PET, high-resolution anatomy and multimodal functional information can be obtained simultaneously with emerging applications for unique research studies.”

“At Mallinckrodt’s Center for Clinical Imaging Research, radiologists have been conducting PET/MR research on patients with cancer who have already undergone PET/CT. Above, from left: Simultaneous acquisition of EXG-gated PET and delayed contrast-enhanced (DCE) cardiac MR images. Simultaneous acquisition of MR 2-point Dixon also acquired for AC. PET data acquired in list mode and binned. DCE-MR acquired in diastole are fused with diastolic PET data to create the center image. The patient has a normal heart.”

“Combining high soft tissue contrast obtained from MR and functional information from PET is potentially ideal for certain clinical applications, such as neurology, head and neck, musculoskeletal and body imaging,” Dr. Minoshima said. “Combining high soft tissue contrast obtained from MR and functional information from PET is potentially ideal for certain clinical applications, such as neurology, head and neck, musculoskeletal and body imaging.”

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Advances Improve Detection, Treatment of Head and Neck Cancer

Although head and neck cancer remains a major therapeutic challenge, research shows that new treatment options and imaging modalities are enabling earlier detection of cancer and improving the quality of life among long-term survivors.

In two studies presented at the Multidisciplinary Head and Neck Cancer Symposium in January, researchers demonstrated that using PET/CT scans in head and neck cancer patient follow-up can enable detection of local recurrences before they become clinically apparent and that intensity-modulated radiotherapy (IMRT) can improve the quality of life for long-term head and neck cancer survivors.

PET/CT Detects Head and Neck Cancer Sooner

In the first study, Yasir Rudha, M.D., M.B.Ch.B., and colleagues evaluated the use of PET/CT in the routine follow-up of patients treated for squamous cell carcinoma of the head and neck. Researchers reviewed the cases of 234 patients who were treated with radiation between 2006 and 2010 and received post-therapy PET/CT scans.

Researchers retrospectively reviewed the charts of 45 patients who had no clinical evidence of disease at the time of imaging. Thirty of the patients exhibited negative PET/CT scans, which remained negative for the entire follow-up period. “The negative predictive value is extremely high, meaning that patients are free of disease and there is no need for more frequent diagnostic imaging,” Dr. Rudha said.

Essentially the findings support the continued use of PET scans for routine follow-up of patients with head and neck cancer, Dr. Rudha concluded.

While the false positive rate was lower than researchers expected, a positive finding should be treated cautiously to avoid unnecessary biopsies, Dr. Rudha said. “We can do another PET scan after three months or we can refer the patient to another imaging modality like MR imaging,” he said.

Use of PET/CT scans for routine follow-up of patients with head and neck cancer, Dr. Rudha concluded.

Use of IMRT Improves Outcomes

While IMRT has become widely adopted in managing head and neck cancer, limited clinical data exist on its potential impact on long-term quality of life, said lead researcher Allen M. Chen, M.D., an assistant professor and director of the radiation oncology residency training program at the University of California, Davis, School of Medicine.

“Radiation therapy for head and neck cancer has historically been very difficult for patients,” Dr. Chen said. “Many patients come into it expecting the worst case scenario. They envision a debilitating condition of treatment that can result in pronounced side effects such as dry mouth, oral ulcers, taste distortion and difficulty swallowing—and often believe that radiation therapy can permanently diminish quality of life.”

In their research, Dr. Chen and colleagues compared long-term quality of life among patients treated with and without IMRT for head and neck cancer. The team retrospectively reviewed scores gathered from quality of life questionnaires completed by patients returning for follow-up after completion of radiotherapy treatment. Of the 155 patients evaluated, 84 were treated with IMRT and 71 with 3D conformal radiotherapy (3DCRT).

Dr. Chen said that while many investigators had long speculated that IMRT has the potential to preserve function by more precisely delivering radiation compared to older techniques, he wasn’t sure that this advantage would necessarily translate into a higher quality of life, as the subjective concept is affected by many compounding factors.

However, the research demonstrated significant quality of life gains associated with IMRT in the period immediately following treatment, which apparently increased over time. One year after completing radiation therapy, the number of patients who rated their quality of life as “very good” or “outstanding” was 51 percent and 43 percent among patients treated by IMRT and 3DCRT, respectively. At two years those percentages increased to 73 and 49 percent, respectively.

Consistent with previously published data, IMRT makes its most substantial quality of life impact when it comes to producing saliva. In this sub-category, 71 percent of IMRT patients (compared to 51 percent of 3DCRT patients) rated their quality of life as either “very good” or “outstanding” one year after treatment, with the percentage increasing to 77 percent (53 percent of 3DCRT patients) at two years.

Dr. Chen suggested the improved ability of patients to produce saliva after treatment with IMRT has a profound effect on a patient’s overall attitude towards quality of life, pointing out that chronic dry mouth can impair a patient’s ability to eat, swallow and speak.

The new research should reassure patients that IMRT has the ability to preserve quality of life, Dr. Chen said. “The results of this study provide further evidence that IMRT should be the standard treatment for head and neck cancer,” he added.
The American Board of Radiology (ABR) has announced new pilot programs in Focused Practice Recognition, offering unique opportunities previously unavailable through conventional American Board of Medical Specialties (ABMS) primary and subspecialty certification. The programs are designed to recognize radiologic expertise that maintain a significant practice emphasis in cardiac CT or radiation oncologists whose practices focus on brachytherapy. In addition to other requirements, candidates must be ABR diplomats and active participants in Maintenance of Certification (MOC). Focused Practice Recognition is suitable for elements of clinical practice that are an integral part of general training, but for which there are no Accreditation Council for Graduate Medical Education (ACGME)-accredited fellowships. ABR diplomats with a practice concentrating on either cardiac CT or brachytherapy should strongly consider participating in these programs. Participants will receive recognition of their additional expertise in one of these areas, including online acknowledgement on the ABMS and ABR websites.

"Organized medicine has blessed these pilot programs, and as a result, ABR diplomats who participate are the only physicians who can receive such recognition," said ABR Executive Director Gary J. Becker, M.D. "This credential is an enormous opportunity and will be very valuable to patients, credentialers, referring physicians, peers, and Focused Practice participants themselves."

Applications are made through the diplomat’s ABR Personal Database (PD3), which may be accessed at www.abr.org. Diplomates with lifetime certification may participate by first enrolling in MOC. For more information and specific requirements, please visit the ABR website pages for Focused Practice Recognition in Cardiac CT (www.theabr.org/FP-cardiac) or Brachytherapy (www.theabr.org/FP-brachy).
Molecular Body Imaging: MR Imaging, CT, and US. Part I. Principles

Techniques that allow imaging of molecular and cellular events facilitate and go hand in hand with the development of molecular therapies, offering promise for successfully combining imaging with therapy. While PET represents the mainstay of molecular imaging in current clinical practice, several noninvasive imaging approaches hold promise for translation in the future.

In the first part of a review series in the June issue of Radiology (RSNA.org/Radiology), Morris Fincher, M.D., of Memorial Sloan Kettering Cancer Center, New York City, and Jürgen K. Wilmann, M.D., of Stanford University, highlight recent noninvasive molecular imaging approaches that use technologies traditionally employed in routine clinical radiologic practice and have potential for clinical translation in the future. Specifically, the authors discuss the principles of:

- MR, CT- and ultrasound-based molecular imaging strategies
- Molecular MR, CT and ultrasound contrast agents
- Quantification of molecular ultrasound signal by using ultrasonic contrast microbubbles

"The coalescence of major advances in engineering, molecular biology, chemistry, immunology, and genetics has fueled multi- and interdisciplinarity innovations with the goal of driving clinical noninvasive imaging strategies that will ultimately allow disease identification, risk stratification, and monitoring of therapy effects with unparalleled sensitivity and specificity," the authors write.

MR Imaging of Hypervascular Lesions in the Cirrhotic Liver: A Diagnostic Dilemma

Depicting and characterizing hypervascular lesions in patients with cirrhosis with any imaging method is challenging, especially when lesions are small. Nevertheless, differentiating hepatocellular carcinoma (HCC) from other hypervascular lesions is a key step in treating patients and is the radiologist's responsibility.

In an article in the May–June issue of Radiographics (RSNA.org/Radiographics), Daniella B. Parente, M.D., of the Federal University of Rio de Janeiro, Brazil, and colleagues discuss the spectrum of hypervascular lesions that occur in the cirrhotic liver, their MR imaging characteristics and, the difficulty in characterizing small lesions. The authors also provide case scenarios.

Specifically, the authors:

- Describe the pathophysiologic mechanisms that occur in the cirrhotic nodules through the multistep process of carcinogenesis
- Discuss the treatment of hypervascular lesions on the basis of the Barceloña Clinic Liver Cancer system
- Accurate diagnosis relies on radiologists' familiarity with the multistep process of HCC development and the imaging findings associated with each stage, the authors write. "The major changes that characterize the progression from regenerative nodules through the steps of HCC development are progressive loss of portal vascularity and increased arterial blood flow.

Mechanism of action for lymphotropil superparamagnetic nanoparticles, one of first clinically used cellular MR contrast agents. Systemically injected particles gain access to the interstitium and are drained through lymphatic vessels. In normal lymph node, iron oxide nanoparticles are taken up by phagocytic cells, which cause the lymph node to become dark on T2-weighted images due to susceptibility artifacts from iron. If a lymph node is partially or fully replaced by metastatic cells, fewer nanoparticles are retained in the lymph node, which therefore remains bright on T2-weighted images.

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Radiology in Public Focus

Media Coverage of RSNA

From mid-February through March, media outlets carried 1,051 RSNA-related news stories. This total reached an estimated 731 million people.

A study published online in Radiology received widespread attention in the press in March. "Orbital and Intracranial Effects of Microgravity: Finasteride Imaging," was covered by more than 437,430 print, broadcast and online outlets, including newspaper articles in The New York Times, Pittsburgh Tribune-Review, Charlotte Observer and San Antonio Express-News; and broadcast news stories on KNX-AM (Los Angeles), WPVI-TV (Philadelphia), KPBC-AM (Houston), WKSF-TV (Orlando) and KGTV-AM (San Francisco).

Print and broadcast coverage of other studies included Plain Dealer, News & Observer, Sarasota Herald-Tribune, Aauke Stateeman, KHOU-TV (Houston), KHON-TV (Honolulu), WTVT-TV (Nashville), WFAA-TV (Dallas), WINS-TV (Milwaukee) and WQFX-TV (Orlando).


The third introduction of legislation calling for free access to federally funded research is drawing opposition from health care providers, researchers and industry. The proposed legislation simplifies how to access the latest research with little or no cost, and the authors estimate a ‘one-size-fits-all’ mandate for public access that will discourage future publisher collaboration with federal agencies," they wrote. "Journal publishers support reasonable efforts by the federal government to make the results of publicly-funded research widely available, and are ready to continue collaboration with federal agencies to achieve that objective," according to the letter.

RSNA publishes Radiology, the leading monthly peer-reviewed science journal and RadioGraphics, a bimonthly journal devoted to continuing medical education in radiology. Articles in both journals are free one year after publication. Articles may also be accessed without a subscription through Pay-per-View, which provides 24-hour article access for $15. Articles are also available through DeepDye for a modest 99-cent fee. Finally, RSNA deposits the final, published version of all articles stemming from NIH-funded research in the NIH Depository, PubMed Central. To access the Federal Research Public Access Act, H.R.400 and S.2096 and track the status, go to www.thomas.loc.gov. To access the letter and view the full roster of signatures, go to www.publishers.org.

Scholarly Journal Publishers Oppose Federal Research Public Access Act

The act would extend the National Access Act, H.R.400 and S.2096 to access the final, published version of all articles stemming from NIH-funded research in the NIH Depository, PubMed Central. To access the Federal Research Public Access Act, H.R.400 and S.2096 and track the status, go to www.thomas.loc.gov. To access the letter and view the full roster of signatures, go to www.publishers.org.

Feedback Sought on Magazine Delivery

RSNA is assessing the quality of its mailing services for the print version of RSNA News. Does your copy regularly arrive torn, crumpled or otherwise damaged? Let us know by emailing trf@rsna.org. Please include your mailing address in your message.

JUNE OUTREACH ACTIVITIES FOCUS ON IMAGING CHILDREN

In June, RSNA’s Kid’s Checkup radio program focuses on how radiologists play a role in diagnosing children with ADHD.
Final Call to Apply for RSNA Clinical Trials Methodology Workshop

Over the course of this 6½-day workshop, each trainee will be expected to develop a protocol for a clinical study, ready to include in an application for external funding. Participants will learn how to develop protocols for the clinical evaluation of imaging modalities. A dynamic and experienced faculty will cover topics including:

- Principles of clinical study design
- Statistical methods for imaging studies
- Design and conduct of multi-institutional studies
- Sponsorship and economics of imaging trials
- Regulatory processes
- Demonstrates the importance of research in diagnostic radiology
- Introduces residents to successful clinical research

Successful applicants will be assigned to either a seminar held during the RSNA Scientific Assembly in Chicago, November 25-29, 2012 or the AUR Scientific Meeting in Washington, DC, April 14-19, 2013.

More information is available at RSNA.org/Introduction_to_Academic_Radiology or contact Fiona Miller at 1-630-590-7741 or fmiller@rsna.org.

Radiotherapy Headlines

Cryoblation Therapy Spot-Freezes Breast Cancer Tumors

Patients fighting metastatic breast cancer may finally have another weapon in their arsenal: percutaneous cryoblation. The cancer treatment could potentially be used as a last line of defense to halt individual spots of remaining metastatic disease by freezing and destroying tumors, according to new research presented at the recent Society of Interventional Radiology’s (SIR) recent annual meeting in San Francisco.

“Cryoblation as a targeted therapy is beneficial because it can significantly reduce discomfort and incidence of disease,” Peter J. Littrup, M.D., director of imaging core and radiology research at the Karmanos Cancer Institute in Detroit, said in a press release. “It’s a better option, we think, than surgery, especially since many metastatic patients are not candidates for surgery, and it may potentially lead to longer survival if it coincides with more data concerning primary metastases in other regions of the body.”

In the study, eight patients with nine tumors received percutaneous cryoblation procedures guided with CT, ultrasound or a combination of both methods. Six of the eight subjects had formerly undergone at least a single mastectomy prior to treatment with percutaneous cryoblation. Secondary tumors in the patients were found in the liver, lung and kidney.

No serious complications resulted and all procedures were considered successful. All individual tumors remaining in the body were found and the local cancer did not recur. The median overall survival for those in the study was 46 months and 25 percent survived past the five-year anniversary of treatment.

Researchers conclude that percutaneous cryoblation could potentially be used as an effective alternative treatment for metastatic breast cancer.

“This is a preliminary study, and at this point we’re hoping that the evidence could be a stepping stone for a bigger study to look at more patients,” Dr. Littrup said. “It can get more data that supports percutaneous cryoblation for metastatic breast cancer, it could be a huge finding.”
Course Enrollment Begins July 11

The RSNA 2012 Advance Registration, Housing and Course Enrollment brochure will be mailed in late June to all RSNA members and 2012 non-member meeting registrants and will be available starting July 11 online at RSNA2012.RSNA.org. Those registering for RSNA 2012 prior to June 15 who wish to view course enrollment information online only can "opt out" of receiving the copy by mail during online registration. Use this brochure to make the most of your RSNA 2012 experience. With information organized to help you complete your enrollment in just a few steps, find the courses you need, build your schedule and enroll quickly and easily online or via the print form.

RSNA 2012 Registration

There are four ways to register for RSNA 2012:

1. INTERNET—Fastest way to register! Go to RSNA.org/register
2. FAX (24 hours) 1-888-772-3388, 1-301-944-5134
3. TELEPHONE 1-800-650-7018 (24 hours) 1-877-613-1192, international +1 011 630-300-750
4. MAIL Experient/RSNA 2012 P.O. Box 4288 Frederick, MD 21705 USA

How to Register

Registration Fees

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<tr>
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Important Dates for RSNA 2012

- June 6: Non-member registration and housing open
- July 1: Course enrollment opens
- Oct 19: Deadline for international badge mailing
- Nov 2: Deadline for housing and discounted registration
- Nov 21: Deadline for guaranteed seating to all ticketed courses
- Nov 25 – 30: RSNA 98th Scientific Assembly & Annual Meeting

Guarantee Your Seat!

Tickets are required for various meeting components, including refreshers, multi-session, informatics workshops and RSNA tours and events.

All ticketed courses must be confirmed prior to November 21 to guarantee a seat. RSNA ticketed courses fill up fast, so ensure you get the courses you need by enrolling at RSNA.org/register. There is no onsite course ticketing. Registrants without tickets will be allowed entrance into a course after all ticketed registrants have been seated.

“CME Update” This live activity has been approved for AMA PRA Category 1 CME Credits™

Save on This Year’s Airfare, Enter to Win Future Travel Credit

RSNA attendees who book air travel through Gant Travel by September 28 will be entered into a drawing to receive a $500 (USD) travel credit good toward future airfare on United Airlines. Benefits of using Gant Travel for RSNA 2012 include:

- Fare-checker technology (checking for lower fares until your return flight home)
- Seat-checker technology (checking for the best available seats per your preference)
- Emergency assistance available by phone
- Flight monitoring alerts

For more information, contact Gant Travel at 1-877-613-1192, international +1 011 630-227-3873 or rsnaganttravel.com.

Buy Bistro RSNA

Tickets Now

Avoid long lines and save money by purchasing Bistro RSNA tickets early this year.

Advance tickets for Bistro RSNA—which provides a comfortable setting for attendees to eat, meet and network during the annual meeting—are only $21.

Bistro RSNA is located in all three Technical Exhibit Halls and the Lakeside Learning Center. The daily lunch menu includes salads, soup, entrée choices, vegetables, pasta and more. Menu price includes full meal, beverage choices and dessert.

Purchase tickets in advance during online registration at RSNA.org/register.

Bissert Featured in Online Meeting Video

Visitors to the newly redesigned annual meeting page at RSNA2012.RSNA.org can view a message from 2012 RSNA President George S. Bisset III, M.D., discussing highlights of the RSNA 2012 Annual Meeting. Also featured:

- “Learn Why Exhibiting Works” video spotlighting the RSNA Technical Exhibition
- “RSNA 2012” video capturing various facets of the RSNA annual meeting experience

Be sure to visit RSNA2012.RSNA.org regularly to access new information updated throughout the year.

International Visitors

International Invitation Letters Available—Act Now for Visa

Personalized letters of invitation to RSNA 2012 are available by request during online registration. In addition, the International Visitors' section of RSNA2012.RSNA.org includes important information about the visa application process. Visa applicants are advised to apply as soon as they decide to travel to the U.S. and at least three to four months in advance of their travel date. International visitors are advised to begin the visa process now.
The Value of Membership

RSNA 2011 Refresher Courses Now Online

A great addition to your education library, 20 refresher courses recorded at RSNA 2011 are now available online and for purchase on CD-ROM. This year, an additional 10 refresher courses have been added to the online self-assessment modules (SAMs) library.

Each year, RSNA records a limited number of annual meeting refresher courses for future interactive, online sessions. Each course is presented in an audiovisual format, including slides and audio from each presentation. A course transcript and a detailed outline are available throughout the presentation. Using an integrated search feature, users can search a presentation for specific terms that redirect them to a relevant portion of the course for enhanced learning.

Although refresher courses can be viewed free online, only RSNA members have the added benefit of earning AMA PRA Category 1 Credit™ for each course. Online SAMs refresher courses are available free to all members; nonmembers pay $50 to access the course and earn CME/SAM credit.

To view the newest courses, visit RSNA.org/education and click on “Online Education” or call 1-800-272-2920 for more information.

Job Seekers, Employers Benefit from Career Connect

Whether you’re looking for that ideal radiology job or the perfect candidate to fill such a position, RSNA’s Career Connect is your one-stop resource for the radiology profession.

Job seekers can post resumes for free, create a Search Agent to filter out unwanted positions and receive e-mails when the perfect job becomes available. Job ads are updated daily with the latest job listings in the field.

Employers can post job positions, receive e-mail notification when someone applies to an ad and access a large resume database. Employers can also enhance their candidate search for a minimum fee by placing an ad in the Employer Spotlight that runs along the top of all job search results pages.

For more information on Career Connect, go to RSNA’s newly redesigned Web page at careers.rsna.org, featuring news and updates, a list of FAQs, feedback/contact button and more.

Transitioning Members Offered Graduated Dues

RSNA members-in-training have an opportunity to take advantage of the RSNA Graduated Dues Program as they transition into a paid membership.

Beginning with the first year in practice, dues for transitioning resident and fellow members are $100, and $200 in the second year, allowing them time to settle into the profession through the Graduated Dues Program. Full dues are not required until their third year.

Under the program, transitioning members receive all the benefits of full membership, including subscriptions to Radiology, RadioGraphics and RSNA News, free admission to the annual meeting and free access to CME credit on InteractED®.

For more information, go to RSNA.org/Transitioning_Members.aspx or contact the Membership Department at 1-877-RSNA-MEM (1-877-776-2636) or membership@rsna.org.

Member Portal is Your Hub for RSNA Resources

It’s well known that RSNA membership has its benefits. Now access them even more readily with the member portal on the redesigned RSNA.org.

The all-new RSNA member portal—accessible on the top menu bar above the search field—consolidates the resources members use most in one convenient location, including:

- **Member Highlights**: Access links to resources including the RSNA Annual Meeting, myRSNA® and journals pages.
- **Member Resources**: Your connection to a host of popular RSNA resources, including:
  - **Quality Improvement**: Discover programs and tools designed to support practice assessment and improve the delivery of healthcare in radiology.
  - **Educational Opportunities**: Earn instant CME credit online in many subspecialty areas with hundreds of CME and self-assessment module (SAM) opportunities.
  - **R&E Foundation**: Launch your research and education career with grant opportunities or make a gift to support radiologic research.
  - **Grant Writing and Research Development Programs**: Apply for workshops, programs and courses to help you develop grant writing skills and further your career in radiologic research.

In addition, colorful icons at the bottom of the page direct users to the RSNA annual meeting, myRSNA and educational offerings. Social media links are your resource for starting and joining conversations.

COMING NEXT MONTH

Adding further data to the debate over self-referral, new research shows that radiologists’ recommendations for follow-up exams account for less than 6 percent of high-cost outpatient imaging exams. Read our report in next month’s RSNA News.
The finest breakthroughs in medical imaging emerge here.

- FREE advance registration for RSNA/AAPM members.
- Unparalleled continuing education opportunities.
- Technical exhibition showcasing nearly 700 exhibitors.
- Networking with professionals from more than 125 countries.
- Magnificent Chicago entertainment, dining and shopping experiences.

Member Registration Now Open
General Registration Opens June 6

Register online at RSNA.org/register

RSNA2012.RSNA.org

Radiological Society of North America
98th Scientific Assembly and Annual Meeting
November 25–30
McCormick Place, Chicago