RSNA News™

December 2010 Volume 20, Number 12

Photo by Cmdr. Stephen Ferrara, M.D.

Soldiers' Strength Inspires Radiologists Serving in Afghanistan

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CELEBRATING 20 YEARS

RSNA News proudly celebrates 20 years of providing high-quality, timely coverage of radiology research and education and critical issues in private and academic practice, along with comprehensive information about RSNA programs, products and other member benefits.

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NLST Results Analyzed

Researchers continue to evaluate the impact of National Lung Screening Trial (NLST) results showing 20 percent fewer lung cancer deaths among those screened with low-dose spiral CT versus with chest X-ray.

The NLST trial design, imaging technique and dose considerations and false positive rate, as well as anticipated data analyses, were the subject of an RSNA 2010 Special Interest session. Coverage of that session appeared in the Wednesday, December 1, issue of the *Daily Bulletin* annual meeting newspaper and will be updated for the January issue of *RSNA News*.

The NLST, launched in 2002 and involving more than 53,000 current and former heavy smokers ages 55 to 74, was sponsored by the National Cancer Institute (NCI), a part of the National Institutes of Health, and conducted by the American College of Radiology Imaging Network (ACRIN) and the Lung Screening Study group.

NCI announced the findings in early November after the NLST's independent Data and Safety Monitoring Board determined that accumulated data provided a statistically convincing answer to the study's primary question.

"The National Lung Screening Trial: Overview and Study Design" was published in the November issue of *Radiology*. A more detailed NLST analysis is being prepared for publication in a peer-reviewed journal in the future.

Swischuk Receives ASER Gold Medal

Leonard E. Swischuk, M.D., received the 2010 gold medal from the American Society of Emergency Radiology (ASER) during its recent 21st Annual Scientific Meeting. Dr. Swischuk is a professor and chair of radiology and director for the division of pediatric radiology at the University of Texas Medical Branch in Galveston. Dr. Swischuk has also received gold medals from the American Roentgen Ray Society and the Society for Pediatric Radiology. He contributes to *RadioGraphics* and *Radiology*.

ASHNR Awards Gold Medal to Smoker

The American Society of Head and Neck Radiology (ASHNR) presented its 2010 gold medal to **Wendy R.K. Smoker, M.S., M.D.,** during the society's recent 44th Annual Meeting. Dr. Smoker is a professor of radiology, neurology and neurosurgery and director of the Division of Neuroradiology at the University of Iowa Hospitals and Clinics in Iowa City.

Harolds Receives APDR Academic Achievement Award

Jay A. Harolds, M.D., received the Academic Achievement Award of the Association of Program Directors in Radiology (APDR) at the 2010 Annual Meeting of the Association of University Radiologists. Currently the radiology residency director at Michigan State University in Grand Rapids, Dr. Harolds serves as a councilor at large and as a member of the Council Steering Committee for the American College of Radiology. Prior accolades include the Lifetime Achievement Award and the Distinguished Service Award from the Academic Council of the SNM and the President's Award from the American College of Nuclear Physicians. Dr. Harolds has served as a councilor for the RSNA.

HRICAK HONORED BY ISRAEL RADIOLOGICAL ASSOCIATION

2010 RSNA President Hedvig Hricak, M.D., Ph.D., Dr. h.c., was awarded honorary membership in the Israel Radiological Association (ISRA) at the organization's October annual meeting held in Eilat. Celebrating its 10th anniversary, the association also planted trees in the Galilee honoring Dr. Hricak and RSNA Executive Director Mark G. Watson in appreciation of their contribution to the success of the ISRA 2010 Annual Meeting. Right *(from left):* Watson and Dr. Hricak display certificates commemorating the planting presented by ISRA Chairman Moshe Graif, M.D. *(center).*

My Turn

Getting Off to an Appropriate Start

A simplified definition of "quality" in a product or service is that it meets or exceeds one's expectations. In radiology, this has been distilled down to "the right test, at the right time, in the right manner (which also implies best use of resources), and with the right outcome."

Despite general buy-in to this basic tenet, most of the focus on quality in radiology so far has been on the back end: catching errors and monitoring report turnaround times, particularly for critical results, with little attention paid to the front end.

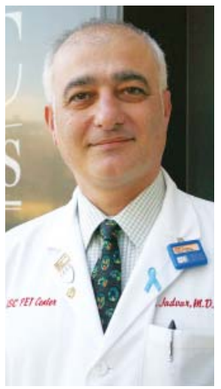
This is not unexpected. Radiologists are rarely consulted on what test is the most appropriate to order for a given situation. In fact, studies are often performed without a reason for the examination, and sometimes with no clinical history at all. The generic interpretations that result diminish any perceived value that radiologists might add. Our real task is mentoring clinicians and guiding the process that leads to the correct interpretation of the right study.

As we transition to computerized order entry, sometimes called computerized provider or physician order entry (CPOE), radiologists have an important role in designing how these systems are to function. CPOE must educate users as to the relative value of the tests being ordered—whether one test might be more appropriate than another, what is the most cost-effective strategy and how the answer to a question might be answered with the least radiation exposure. Clinicians need to know whether the same examination has already been performed and, if so, how many times. They need to know the risks associated with the tests they order.

CPOE provides a huge opportunity for radiologists to finally get vital clinical information and at the same time makes it easier for clinicians to make educated choices. If we view CPOE as just the "front end," and not a vital decision support tool for patient care, or we implement a system that is not user-friendly for clinicians, then we are missing the point of what appropriateness is all about.

David M. Hovsepian, M.D., is the editor of *RSNA News*. He is a professor of radiology and chief quality and safety officer for the Department of Radiology at Stanford University in California. Dr. Hovsepian also serves on the RSNA Quality Improvement Committee, the Structured Reporting Subcommittee of the RSNA Radiology Informatics Committee, the Public Information Committee and the Public Information Advisors Network.

UCLA Physicians Receive SNM Awards



Jadvar

Silverman

Schelbert

Three University of California, Los Angeles (UCLA) physicians were recognized at the recent Western Regional SNM annual meeting. Co-Distinguished Scientist Awards were presented to Hossein Jadvar, M.D., Ph.D., M.P.H., M.B.A., and Daniel Silverman, M.D., Ph.D., while Henrich Schelbert, M.D., Ph.D., received the Taplin Memorial Award. Dr. Jadvar is an associate professor of radiology and biomedical engineering and the director of radiology research at UCLA, and Dr. Silverman is head of the Neuronuclear Imaging Section in the Ahmanson Biological Imaging Division at UCLA Medical Center, associate director of the UCLA Alzheimer's Disease Center Imaging Core and associate professor in the Department of Molecular and Medical Pharmacology. Dr. Schelbert is the chief of nuclear medicine services at the UCLA Medical Center and a professor of pharmacology and radiological sciences at the UCLA School of Medicine.

Holzer Named SIR Executive Director

The Society of Interventional Radiology (SIR) has appointed Susan E. Sedory Holzer, M.A., CAE, its executive director. A chief executive with more than 20 years of experience working in association, corporate and federal government sectors, Holzer is currently a chief strategy officer at the American Academy of Otolaryngology – Head and Neck Surgery in Alexandria, Va. She succeeds Peter B. Lauer, who served as SIR executive director for more than seven years. Lauer died in February.

CARDIOPULMONARY LEADERS FORECAST SPECIALTY'S FUTURE

As part of the year-long celebration of the 25th anniversary of the *Journal of Thoracic Imaging (JTI),* 25 international leaders in cardiopulmonary imaging were asked "What will our specialty look like in 25 years?"

Personalized imaging and computer-rendered diagnosis as a routine part of practice were common themes among respondents. "I believe that cardiopulmonary imaging will become an important component of 'personalized medicine,'" wrote 2008 RSNA President Theresa C. McLoud, M.D. "A profile of a patient's genetic makeup will guide selection of drugs and treatment protocols and indicate susceptibility to certain diseases. Imaging at the molecular level as well as more traditional imaging will be used as an important biomarker in the diagnosis of disease, the quantification of disease and response to therapy."

McLoud

In a related editorial addressing the same question for radiology in general, James Thrall, M.D., president of the American College of Radiology, wrote: "Whether led by radiologists or pathologists, it is likely in the next 25 years that molecular imaging agents will be developed as screening tools for a wide variety of diseases. Imaging will become even more transcendent as the guiding hand of medical practice than it is today."

Thrall

Both open-access articles are featured in the November issue of *JTI* at *www.thoracicimaging.com.*

Numbers in the News

8

Compound annual growth rate (CAGR) in the number of image-guided biopsies performed by radiologists between 1997 and 2008. (Read "Biopsy Load Shifting to Radiologists," on Page 13.)

10

Number of medical personnel—a physician's assistant and nine medics—with whom a naval radiologist found himself working to care for 2,200 soldiers in Afghanistan. (Read "Soldiers' Strength Inspires Radiologists Serving in Afghanistan," on Page 5.)

52

Percent of interventional cardiologists in a recent study who had radiation-associated posterior lens opacities, prompting some to urge interventional physicians to implement more safety measures. (Read "Cataract Risk Points to Need for Better Safety Measures," on Page 9.)

118

Days from the end of RSNA 2010 until abstracts are due for RSNA 2011. The new, earlier abstract submission deadline is 12 p.m. Central Time on March 31, 2011. (See Annual Meeting Watch on Page 21.)

SCCT Collaborates on Cardiac CT Criteria Update

The Society of Cardiovascular Computed Tomography (SCCT) has collaborated with the American College of Cardiology Foundation and other societies on an update to the Cardiac CT Appropriate Use Criteria.

The criteria published in this version have increased from 37 to 93 on the basis of significant technical advances and clinical evidence development for cardiac CT since the criteria were originally published in 2006.

"These advances are reflected in progression in the criteria considered appropriate for imaging, and new clinical scenarios which reflect a broader range of considerations to utilize cardiac CT," said Allen J. Taylor, M.D., chair of the writing committee and a professor of medicine at Georgetown University in Washington. "Performance and optimal use measures represent the new reality in healthcare and cardiovascular imaging. These criteria provide a pathway towards optimal utilization of imaging technology."

The new criteria establish a new level of acceptance for cardiac CT and should be met favorably by clinicians and payers, added Matthew J. Budoff, M.D., president of SCCT, a professor of medicine at the David Geffen School of Medicine at UCLA and director of Cardiac CT at Los Angeles Biomedical Research Center at Harbor UCLA Medical Center in Torrance, Calif.

The report outlining the criteria appears in its entirety in the November/December issue of the *Journal of Cardiovascular Computed Tomography,* online at *www.cardiacctjournal.com.*

BERMAN RECEIVES PIONEER AWARD

Considered by many to be a founding father of nuclear cardiology, Daniel S. Berman, M.D., was awarded the Pioneer in Medicine Award from Cedars-Sinai Medical Center in Los Angeles. The award is presented to those who have significantly contributed to scientific advancement in medicine and image-guided therapy through a multidisciplinary approach. Dr. Berman is director of cardiac imaging at Cedars-Sinai and a professor of medicine at the University of California, Los Angeles. Dr. Berman is a past-president of the Society of Cardiovascular Computed Tomography.

RSNA Media Relations Efforts Lauded

The Association of Marketing & Communication Professionals has awarded RSNA the Gold Award in its MarCom award competition for the RSNA 2009 Media Kit.

RSNA also received an Honorable Mention for the placement of a news story on mammography, featuring an interview with RSNA Public Information Committee Chair Mary C. Mahoney, M.D., on NBC Nightly News during RSNA 2009.

The Gold Award is presented to those entries judged to exceed the high standards of the industry norm. Only 18 percent of entries were gold winners. Ten percent of entries won honorable mention.

Federal Standards for Safe MR Imaging Practice Not Necessary

Letter to the Editor

I MUST TAKE EXCEPTION to the article "Spike in MR Imaging Accidents Underscores Need for Regulation" in the October issue of *RSNA News.*

The experts interviewed for the article give a mixed message in that they seem to be particularly concerned that the "lack of federal regulation" has created a safety issue and that "no mandatory MR imaging standards exist."

While the article does mention that "it would be best if the MR imaging community would implement standards rather than wait for the government to do it," the experts seem to have little faith in the American College of Radiology's (ACR) program to set practice guidelines and technical standards or their new accreditation program. They would prefer to have the federal government set standards for this and perhaps other radiological procedures such as fluoroscopy, ultrasound, etc., that we practice on a daily basis.

I am strongly opposed to federal standards and feel that the ACR has done a fine job in setting technical guidelines and standards for performance of MRI and in establishing a new accreditation program. If further modifications to the ACR efforts are required, I would strongly support this approach. In asking for the federal government to provide standards, we would be doing irreparable harm.

MURRAY L. JANOWER, M.D.
Boca Raton, Fla.

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Soldiers' Strength Inspires Radiologists Serving in Afghanistan

Last Christmas day in war-torn Afghanistan is one that Cmdr. Ronald Boucher, M.D., will never forget.

It was cool in the desert, with no snow—an unusually nice day in the city of Kandahar. Dr. Boucher spent most of the day treating the sick and wounded while trying to enjoy the holiday as best he could. The 20-year military veteran and chair of radiology at the Naval Medical Center in San Diego had been deployed in August as an active duty U.S. Navy physician in a multinational medical unit comprised of Americans, Canadians, British, Danish, Dutch and Australians.

That Christmas day, Dr. Boucher and his fellow medics were bonding as they celebrated—smiling, laughing, sharing stories, gifts and cookies sent from home.

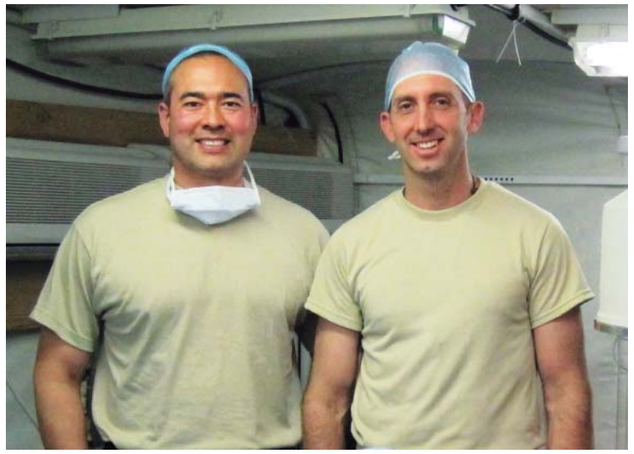
"The Christmas spirit was upon us," Dr. Boucher recalled. "We were all thinking about our kids and families at home, missing them dearly, wanting that one hug and kiss good night."

The festivities were abruptly halted, however, when a young coalition soldier struck by an improvised explosive device (IED) was brought into the battlefield hospital, a M.A.S.H.-like unit at Kandahar Airfield. The soldier's considerable injuries included bilateral traumatic above-the-knee amputations, extensive soft tissue loss of the buttock and perineum and a shattered pelvis.

Once in the hospital, radiologists performed a focused assessment with sonography in trauma (FAST) scan that revealed internal bleeding, while field medics skillfully placed high tight bilateral lower extremity tourniquets to maintain critical central blood volume.

Suddenly, the young soldier lost consciousness. He was taken immediately to the operating room, where surgeons from different nations worked to stabilize his lower extremity bleeding from the amputations, simultaneously performing an emergent open laparotomy and thoracotomy while anesthesiologists managed his airway and blood pressure. The soldier's wounds were so extensive, however, that it was impossible to stop the bleeding. He died after four hours of intense effort, forever changing Dr. Boucher and fellow medics.

"This young gentleman had the best possible chance of survival, anywhere in this theater or arguably even in our homeland," Dr. Boucher said. "I was part of and witnessed an amazing feat—a pool of highly talented individuals all focused on a unified front, 31 people of different nations and specialties in the operating room."



Part of a multinational medical unit assigned to a battlefield hospital at Kandahar Airfield in Afghanistan, *(from left)* Navy Cmdrs. Ronald Boucher, M.D., and Stephen Ferrara, M.D., provided life- and limb saving radiology procedures to coalition force casualties as well as local nationals.
Photo courtesy of Cmdr. Stephen Ferrara, M.D.

Radiologists Fill Medical, Humanitarian Roles

Dr. Boucher's experience with the young soldier was the most memorable of what would be his first and only wartime deployment. Considering the challenges he faced, Dr. Boucher felt fortunate to share the experience with another radiologist assigned to the hospital—Cmdr. John York, M.D., an interventional radiologist in the U.S. Navy. Cmdr. Steven Ferrara, M.D., an interventional radiologist also stationed at the Naval Medical Center in San Diego, was deployed as a General Medical Officer (GMO), arriving a few months before the U.S. took control of the NATO Multinational Medical Unit.

> "I felt a greater sense of community through this experience. Much of this effort served as an opportunity to win the hearts and minds of the local people and Afghan leaders."
> **Cmdr. Ronald Boucher, M.D.**

The three radiologists were deployed by the Navy as individual augmentees, commonly referred to as "IA's," to support the Army. The augmentees are Navy personnel "on loan" to Army units, where they fulfill jobs in fields such as medicine, information technology and intelligence.

As a diagnostic radiologist, Dr. Boucher's primary duty was providing radiology services for coalition force casualties, yet he also filled a secondary humanitarian role, caring for local nationals, many of whom were children.

"The Americans brought 'first world' equipment and medical care to a 'third world' country," said Dr. Boucher, who trained six weeks to prepare for living and working in a wartime environment.

Most patients suffered either life- or limb-threatening injuries and illnesses, Dr. Boucher said. He saw children who picked up munitions left from previous wars—items that exploded in their faces or hands—and local Afghans burned from a fuel truck intentionally detonated by an insurgent.

Other duties included providing women's health and prenatal care and mentoring Afghan physicians in radiology—a specialty that does not exist in the country's healthcare system, Dr. Boucher said. By teaching local physicians to use ultrasound for diagnosis, Dr. Boucher developed the first radiology-physician mentor program in Kandahar.

"I felt a greater sense of community through this experience," he said. "Much of this effort served as an opportunity to win the hearts and minds of the local people and Afghan leaders."

Despite what he describes as "trauma as horrific as you can ever imagine," with soldiers suffering single, double and triple amputations and extensive musculoskeletal and neurological injuries, Dr. Boucher was able to draw inspiration from the experience.

"The determination and optimism of these young soldiers and sailors gave me strength though this deployment," Dr. Boucher said. "The coordinated care and collaboration we shared with our NATO forces is admirable. It was inspiring to see so many countries combine strength and knowledge for a common cause."

Radiologist Doubles as General Medic

Although he was first deployed as a GMO working with one physician's assistant and nine medics, caring for approximately 2,200 soldiers, Dr. Ferrara also ended up providing radiology services once he saw the opportunity to use his special skills on the battlefield.

"Our primary mission was to provide medical support to these soldiers on combat missions 'outside the wire' as we pushed the fight to the Taliban," Dr. Ferrara said. "We also were responsible for the routine health of these soldiers, caring for both their acute illnesses as well as preventive medicine and ongoing health maintenance, resulting in about 30 patient encounters a day."

Radiologists serving in Afghanistan observed "trauma as horrific as you can imagine," according to Cmdr. Ronald Boucher, M.D., top, manning the multinational hospital in southern Afghanistan. "It was not unusual to undergo incoming fire while in the midst of treating patients," said Cmdr. Stephen Ferrara, M.D., far right, treating patients with, from left, Dr. Boucher and Cmdr. John York, M.D.
Photos courtesy of Cmdr. Stephen Ferrara, M.D.

Although the battlefield hospital where Dr. Ferrara volunteered consisted of three operating rooms, a small ward and intensive care unit, he soon learned that there was only one general radiologist covering a service that included around-the-clock CT, plain-film and ultrasound. From then on, Dr. Ferrara offered radiology assistance anytime he could break away from his other duties. Theater commanders

Continued on Page 8

ON THE COVER

Radiology played a major role in the treatment and recovery of many wounded soldiers in Afghanistan.

Image Wisely™ Focuses on Dose Reduction in Adults

At RSNA 2010, the RSNA/American College of Radiology (ACR) Joint Task Force on Adult Radiation Protection launched Image Wisely™, a high-visibility campaign that seeks to deepen understanding of adult radiation protection among radiologists, referring practitioners, medical physicists and radiologic technologists. While the educational component is sweeping in scope, perhaps even more noteworthy is the Image Wisely™ call to action.

"Radiation awareness has increased exponentially in the last few years, but now Image Wisely™ is asking stakeholders to actually commit—by pledging their support and utilizing the radiation safety resources available on its new website," said James A. Brink, M.D., chair of diagnostic radiology, Yale University School of Medicine. Dr. Brink co-chairs the Image Wisely™ Joint Task Force with E. Stephen Amis, Jr., M.D., chair of radiology, Albert Einstein College of Medicine.

Image Wisely™ is a collaborative effort on the part of four charter members: RSNA, ACR, the American Association of Physicists in Medicine and the American Society of Radiologic Technologists (ASRT). Image Wisely™ follows on the remarkable success of Image Gently™, which since its January 2007 start continues to focus attention on safe imaging of pediatric patients.

"Image Wisely™ seeks to raise awareness of opportunities to eliminate unnecessary imaging examinations and to lower radiation in necessary imaging examinations to only that needed to acquire appropriate medical images," Dr. Brink noted. "Initially, the campaign will focus on CT, but will broaden to include nuclear medicine procedures, fluoroscopy, and radiography," said medical physicist William R. Hendee, Ph.D., distinguished professor of radiology at the Medical College of Wisconsin.

Through education and networking, the Joint Task Force anticipates the campaign will significantly expand participation among affiliated healthcare organizations, educational institutions, government agencies, and vendors. The campaign's logo, a wise owl, is expected to give Image Wisely™ instant brand recognition.

Imaging stakeholders will have at their fingertips an exceptional array of electronic and print resources, including a new, state-of-the-art website linked to *www.RadiologyInfo.org* for patient information. This highly successful website, a joint effort of RSNA and ACR, will give patients and the general public access to an interactive resource guide outlining the benefits of medical imaging vis-à-vis the risks of exposure to ionizing radiation. In addition, the Image Wisely™ website will provide links to vendor microsites that outline dose-reduction techniques on specific equipment. Combined, these user-friendly resources—described as "the best of the best" by Dr. Amis—will foster greater insight among imaging professionals, patients and the public at large, while underscoring the reality that radiation dose in adult imaging requires further study and is impacted by numerous factors.

Brink

Amis

In its calls to action, Image Wisely™ asks stakeholders (individuals and groups) to demonstrate their involvement by electronically signing formal online pledge cards "that demonstrate their commitment to the campaign's overarching principles," Dr. Amis said.

Dr. Amis also encouraged facilities to enroll in ACR accreditation programs and participate in national dose index registries. Dr. Brink noted that ACR has "a vigorous radiation protection process as part of its CT accreditation program," and said ACR Appropriateness Criteria™ enhance quality of care by providing evidence-based guidelines so that referring physicians and other professionals can make the most appropriate imaging decision for a specific clinical condition.

Image Wisely™ reminds everyone that the radiation received from medical imaging scans could, over time, have adverse effects, but these advanced technologies also save lives, reduce the need for surgery and speed recovery. "CT, nuclear medicine procedures, angiography and interventional imaging methods give us powerful tools, but do deliver fairly high doses of radiation" said Dr. Hendee. "We, as medical physicists, need to ensure the protocols we use are optimized according to the as low as reasonably achievable (ALARA) concept, without compromising quality."

Greg Morrison, chief operating officer of ASRT, sees the nation's 300,000 registered technologists as central to dose reduction. "As the final imaging professional that can make a difference before exposure, it is the technologist's responsibility to take an active role and ensure that dose is reduced through every means possible," Morrison said.

A special interest session at the RSNA Annual Meeting provided additional details about the Image Wisely™ campaign. The session will be covered in the January issue of *RSNA News*. □

> "Image Wisely™ is asking stakeholders to actually commit—by pledging their support and utilizing the radiation safety resources available on its new website."
>
> **James A. Brink, M.D., co-chair, Image Wisely™ Joint Task Force**

Editors Note: This article is being published in the member news magazines of the Image Wisely™ charter member organizations.

Soldiers' Strength Inspires Radiologists Serving in Afghanistan

Continued from Page 6

quickly understood the importance of interventional radiology to casualties on the front lines.

As a result, the first dedicated interventional radiology position in the Afghanistan theater was born, fostering the creation of a dedicated equipment and supply chain that brought full-service capabilities including angiography, IVC filters, embolization and stent-graft placement.

Over the next several months, the interventional radiology team performed dozens of life- and limb-saving angiograms and interventional procedures, and even served as a referral center for wounded casualties across southern Afghanistan. That led to the creation of the permanent interventional radiology position in Kandahar, Dr. Ferrara said.

Attacks Spur Equipment Improvements

"It was not unusual to undergo incoming fire while in the midst of treating patients," Dr. Ferrara said. "While standard procedure during rocket attacks is to don body armor and take cover in concrete shelters, that was not always possible. Patient care always comes first and it is one of a doctor's duties to first protect their patient from that same incoming threat."

Dr. Ferrara took on another, somewhat unexpected role as an inventor of sorts. While reading trauma films, he began to notice a predictable pattern of injury: blast-related spine injuries in soldiers whose tactical vehicle had driven over and detonated an IED. The explosion would lift the vehicle straight up from the ground, Dr. Ferrara noted, resulting in multiple vertebral compression factors. Working with a civilian friend, the pair designed a modification to the underside of the seats that would redirect the explosive forces away from the soldiers in the vehicle.

This invention is an example of how the battlefield "gives me the opportunity to do what every doctor wants to do—make a substantial difference in the lives of their patients," especially those who "selflessly risk their lives for their country," Dr. Ferrara said.

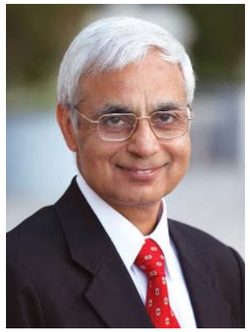
The multinational team of medics provide coordinated care to wounded patients. "It was inspiring to see so many countries combine strength and knowledge for a common cause," said Cmdr. Ronald Boucher, M.D.
Photo courtesy of Cmdr. Stephen Ferrara, M.D.

"Being able to care for Americans injured on the battlefield is the realization of my purpose for joining the military at the onset of the first Gulf War in 1991," said Dr. Ferrara. "It is also the culmination of my reason to be a physician, which is to care for the sick and injured for the sheer purpose of helping others, putting your skills to meaningful use, exclusive of the business and bureaucracy of medicine which can pervade a traditional practice."

Perhaps most importantly, Dr. Ferrara's experience in Afghanistan has helped to prioritize his life and improve his perspective. "The simple things gain greater meaning and make it much easier to find patience with the trivial frustrations of daily life." □

Cataract Risk Points to Need for Better Safety Measures

In light of new research showing increased risk for developing cataracts, interventional personnel are being urged to adopt a number of safety measures. Researchers have found that eye lens opacities can occur even at radiation levels below the currently known threshold values for cataracts.



Rehani

From left: **Dauer, Thornton**

A STUDY REPORTED during the 2009 meeting of the National Heart Association of Malaysia in Kuala Lumpur showed that interventional personnel have about five times the rate of lens opacities as compared to controls. Published in the June 2010 online version of *Catheterization and Cardiovascular Interventions,* the study showed a dose-dependent, increased risk of posterior lens opacities for interventional cardiologists and nurses when radiation protection tools were not used. Another study from the same group of researchers, published in the October 2010 issue of *Radiation Research,* found similar results.

"With respect to ocular exposure, the increasingly larger workload typical of many modern catheterization suites, a lack of training in radiation protection, and unavailability or nonuse of radiation protection for the face and head may result in doses to the eye sufficient to cause cataracts," researchers reported.

To date, cataract formation has been considered a deterministic effect with threshold. The International Commission on Radiological Protection (ICRP) and the U.S. National Council on Radiation Protection & Measurements (NCRP) have published threshold values for detectable opacities of 5 Sv for chronic exposure and 0.5 to 2 Sv for acute exposure.

Interventional radiologists/cardiologists work in situations where radiation doses are high enough to cause lens opacity after a few years if protection is not used, according to study coordinator Madan M. Rehani, Ph.D., radiation safety specialist with the International Atomic Energy Agency in Vienna, Austria.

"We anticipated an increased incidence of opacities in interventional staff due to earlier, preliminary studies, but data needed to be verified through scientifically planned, detailed research," Dr. Rehani said.

The study comprised 67 physicians and nurses working in interventional cardiology and a control group of 22 age- and sex-matched healthcare professionals who had no reported occupational or medical history of ionizing radiation exposure to the head or neck.

After examining the prevalence of radiation-associated lens opacities among interventional cardiologists and nurses, Dr. Rehani and colleagues correlated the exam results with cumulative radiation exposure estimates calculated from responses to a questionnaire and personal interviews with each subject. Researchers carefully examined the eyes of the interventional cardiologists and nurses, as well as the age- and sex- matched unexposed controls, using a slit lamp examination.

Because researchers felt that past studies of interventional radiologists did not include satisfactory dose assessment, Dr. Rehani and colleagues estimated the lens dose from details gathered through personal interviews.

> "We anticipated increased incidence of opacities in interventional staff due to earlier, preliminary studies, but data needed to be verified through scientifically planned, detailed research."
>
> **Madan M. Rehani, Ph.D.**

"These details included the number of procedures performed per week, type of machine used, typical times for fluoroscopy, protection used and assuming dose-per-procedure without protection, as established in earlier publications," Dr. Rehani said.

Findings Show Need for Protection Tools

Results showed lens changes in 34 subjects, including 29 interventional cardiologists and five nurses. A strong dose-response relationship was found between exposure and the prevalence of radiation-associated posterior lens changes. The prevalence of radiation-associated posterior lens opacities peaked at 52 percent for interventional cardiologists, 45 percent for nurses and 9 percent for controls.

The findings in this small cohort "suggest that X-ray exposures to the lens of interventional cardiology personnel are sufficient to result in radiation-associated, posterior lens opacities after several years of work if ocular radiation protection devices are not utilized," researchers reported. "These findings do not support the currently assumed 5 Sv threshold for 'detectable opacities' from protracted exposures, but point to a significantly lower dose-effect threshold."

One key finding demonstrated by the research is the increased incidence of opacities in nurses, Dr. Rehani said. "While we were not surprised by the results we found for interventional cardiologists, we were surprised by values for nurses because distance was thought to be a good protector," Dr. Rehani said. "We didn't think nurses would have higher risks, but they did."

Based on study results, Dr. Rehani and colleagues suggest interventional radiologists and support staff take the following protective measures:

- Properly utilize ceiling suspended (or similar) lead glass protective screens.
- Use three protective screens in the interventional radiology suite rather than just one. In addition to the main operator, nurses and the supporting operator should also be protected by the screens.
- Staff should wear lead glass eyewear, especially when dealing with large workloads.

Researchers also urge manufacturers to develop better methods of monitoring eye lens dose. Possibilities include wireless devices that provide online displays of radiation dose, Dr. Rehani said.

Study Shows Need for Eye Shielding

Two studies conducted at Memorial Sloan-Kettering Cancer Center (MSKCC) in New York, presented at the Society of Interventional Radiologists in 2009 and published online in the *Journal of Vascular Interventional Radiology,* offer results similar to findings in the Malaysia research. Working as a team on both research projects, Raymond H. Thornton, M.D., an interventional radiologist and vice-chair for quality, safety and performance improvement of MSKCC's radiology department, served as lead author of the first study, and Laurence T. Dauer, Ph.D., a physicist at MSKCC, served as lead author on the second study.

In both studies, researchers found that unprotected operator eye lens dose can be clinically significant, and called for the use of scatter-shielding drapes or leaded glasses to prevent vision problems in radiologists.

Research published online in the *Journal of Vascular Interventional Radiology* found that using scatter-shielding drapes or leaded glasses decreases operator lens dose by a factor of five to 25, but the use of both barriers together, or the use of leaded shields, provides maximal protection to the interventional radiologist's eye. *Above:* In this image of the operator phantom, the dose detector is fixed at the left eye, behind leaded glasses.

(*J Vasc Interv Radiol* 2010; 21:1703–1707) Printed with permission.

"After recognizing the importance of dose reduction strategies in eye safety, we wanted to understand the efficacy of various shielding strategies for protection of the physician's eyes in the interventional radiology suite," Dr. Thornton explained. "We examined leaded glasses, scatter-shielding drapes and leaded shields in various combinations and in different (characteristic) operator positions."

LEARN MORE

For more information on the studies cited in this article, go to *rsnanews.org.*

Results of the first study showed that the dose-effect threshold for cataract information could be surpassed for some physicians within 11 years if lens dose-mitigating strategies were not routinely followed. In the second study, researchers found that the use of leaded glasses alone reduced the lens dose rate by a factor of five to 10, while scatter-shielding drapes alone reduced the dose rate by a factor of five to 25. Using both eye-shielding implements together reduced the dose rate by a factor of 25 or more and always proved more protective than either used alone, according to researchers. Lens dose was routinely undetectable when a suspended shield was the only barrier used during low-dose fluoroscopy.

Sloan-Kettering researchers concluded that patient-delivered skin doses directly correlated to operator eye lens doses and that using scatter-shielding drapes and leaded glasses together—or using leaded shields—provides maximum protection to the interventional radiologist's eye. □

Education Upgrades Key to Evolution of myRSNA®

Ever more sophisticated upgrades to myRSNA®, the personalized online portal for RSNA members, enable radiologists to instantly access information when and where they need it most and even claim continuing medical education (CME) credit in the process.

"The interface has been enhanced and performance has been improved," said Paul Chang, M.D., professor and vice-chair of radiology informatics at the University of Chicago School of Medicine and member of the RSNA Radiology Informatics Committee. "It's a more responsive site."

By providing users search results through radiology-specific search engine Yottalook™ and—new this year—a subset of resources identified on the point of care (PoC) CME tab—myRSNA lowers the "hassle factor" for radiologists who want keep up with the newest techniques and discoveries, Dr. Chang said.

Earn CME Using PoC

Addressing increasing demand from users, education-related upgrades and new features are among the most significant changes to the site. In fact, education-related terms—self-assessment modules (SAMs) and CME—took the top two spots in a survey of the top 100 terms searched on myRSNA since November 2007. (See sidebar)

Recently incorporated into the mySearch feature, PoC CME allows members to research procedures while earning CME credit at the same time—a feature that is already gaining in popularity, according to Dr. Chang.

"Right now, for example, I'm looking at a case with an interesting splenic lesion," Dr. Chang said. "By using PoC CME when I'm caring for the patient—the time I'm most motivated to learn—I can claim credit for the article right after I review it. I use it every day."

Entirely self-directed and driven by the needs of the individual physician's practice, PoC learning also conforms to American Medical Association standards. The structure tracks the original clinical questions, relevant sources identified from among those consulted and the application of the findings to practice.

While a simple query on a search engine such as Google yields many sources of no use to the physician learner, myRSNA's search tool "pre-filters" results by listing first those from appropriate, evidence-based, peer-reviewed literature. myRSNA's PoC tool also offers a step-by-step form to ensure credit can be claimed, enables the user to instantly print a CME certificate and files the credit in the RSNA CME Credit Repository for access at any time.

MyRSNA is becoming more valuable every year for attendees who took advantage of the hands-on workshops led by RSNA staff at RSNA 2010. *Above:* Attendees are able to extend the value of the meeting through the portal.

> "By using PoC CME when I'm caring for the patient—the time I'm most motivated to learn—I can claim credit for the article right after I review it. I use it every day."
>
> **Paul Chang, M.D.**

"I encourage people to try this myRSNA feature," Dr. Chang said. "It's right there on your PACS workstation, so you can quickly go to the portal, get the information you need, apply it to your patient care, and get credit for it right on the spot."

Another new feature, myEducation, allows members to customize, organize and track education resources and content from one easy-to-access location. Users can also track SAMs, Refresher Courses and Cases of the Day from RSNA annual meetings, current and completed CME courses and view, print or generate reports of CME from multiple societies using CME Gateway.

"myRSNA really is a one-stop portal now," Dr. Chang said. "It makes it more efficient to meet maintenance of certification (MOC) and SAMs requirements."

View Files Without the Software

The myRSNA feature called myFiles was recently upgraded to offer a higher level of user responsiveness, Dr. Chang said. Users are now able to upload, store and access their files—everything from images and documents to videos and PowerPoint presentations—from any computer with an Internet connection.

"The nice thing about myFiles is that you can access files without having to worry about whether you have the software to open them," Dr. Chang said. "All the viewers, including video viewers, are built into the portal—and that's a big thing because of security issues. While other portals may require a PowerPoint or video viewer application to be installed, with myRSNA, all the viewers are built in."

Extending the Value of RSNA Annual Meetings

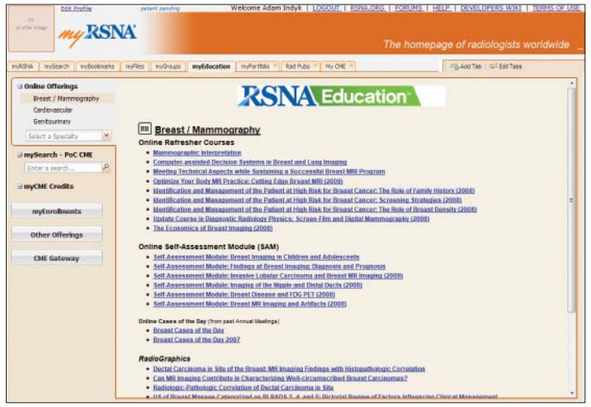
As many attendees are discovering, myRSNA is becoming more valuable with each RSNA annual meeting.

Using myRSNA and a laptop, participants in select refresher courses at RSNA 2009 were able to follow along with the presentation, take notes and save slides for later viewing. For the past three years, attendees have used myRSNA to bookmark education exhibits, saving them within the user portal for viewing throughout the year.

"I use that function every day—when I want to show my residents a particularly good presentation, it's right here," Dr. Chang said. "Often on the last day of the meeting, I'll bookmark the award-winning presentations, so I'll have them all year. We're extending the value of the meeting through the myRSNA portal."

At RSNA 2010, participants in several informatics courses experienced a new level of interactivity between the audience and the presenters.

"Typically the audience response system is a little device that lets you select different options that are basically a multiple choice question," said Dr. Chang. "With myRSNA you can do much more—you can actually point to images and discuss where the abnormality is located." □



TOP SEARCH TERMS ON MYRSNA

RANK	# HITS	SEARCH TERM
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3	173	ultrasound
4	156	breast
5	152	radiographics
6	146	sams
7	140	physics
8	131	abstract
9	125	case of the day
10	118	liver
11	115	diffusion
12	113	portfolio
13	112	mri
14	108	pancreas
15	102	physics modules

Biopsy Load Shifting to Radiologists

As a result of the dramatic shift toward image-guided biopsies in the past decade, radiologists are performing an increasing share of biopsies across all anatomic regions, according to researchers, who added the trend is likely to continue.

Analyzing Medicare claims data from 1997 to 2008 for 10 anatomical regions, researchers found that the number of image-guided biopsies increased at a compound annual growth rate (CAGR) of about 3 percent, while the total number of all biopsies performed by radiologists increased at an 8 percent CAGR in that time period, according to a study published in the September issue of *Radiology*.

Those increases are tied to the relatively recent proliferation of imaging techniques that have impacted the overall approach to performing biopsies, according to lead author Sharon Kwan, M.D., a fellow at the University of California, San Francisco.

"The development of CT, ultrasound and MR imaging ushered in the era of imaging-guided percutaneous needle biopsies (IGPNBs), which enabled greater precision in targeting lesions, while improving diagnostic accuracy and reducing complication rates," Dr. Kwan said. "Breast core biopsy is one example of where this especially holds true."

The shift from surgical to noninvasive biopsies is tied not only to technology but cost, according to Jonathan B. Kruskal, M.D., Ph.D., a professor of radiology at Harvard Medical School and chair of the Department of Radiology at Beth Israel Deaconess Hospital, both in Boston.

"Not surprisingly, radiologists have performed an increasing number of biopsies, largely because more and more of these are being performed with image guidance, avoiding the expenses and additional resources required for surgical biopsies," said Dr. Kruskal, who serves on the *RSNA News* Editorial Board.

Nevertheless, biopsy trends are still evolving and in terms of image-guided fine needle aspirations (FNA), nonradiologists are increasing their share of biopsies, researchers found.

Kwan

In that time, biopsy procedures per 100,000 Medicare enrollees increased from 1,380 in 1997 to 1,945 for a 3 percent CAGR, which Dr. Kwan describes as a "relatively modest growth."

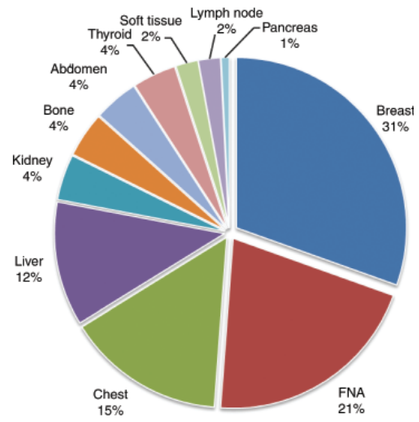
Also during that time, the number of IGPNBs as a percentage of all approaches increased in six of 10 anatomical areas: breast, chest, liver, lymph node, pancreas and musculoskeletal soft tissue. Excluding breast biopsies, which underwent a coding change in 2001 that affected the reported distribution of open and percutaneous biopsies, IGPNBs increased from 59 to 67 percent of all biopsies during that time period.

Trend Shifts to Noninvasive Biopsies

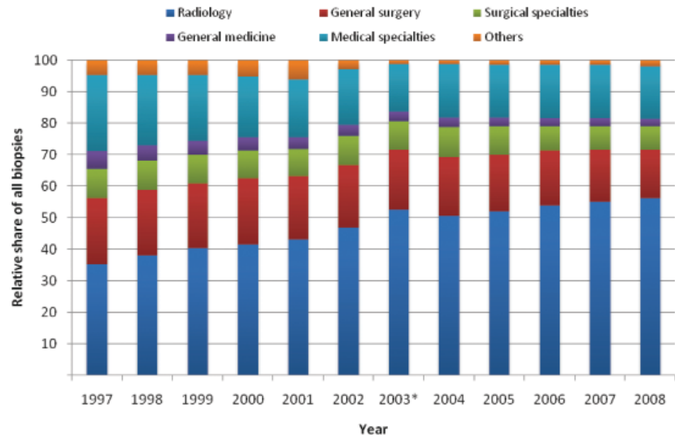
While previous research has primarily focused on radiologists and their biopsy work in specific organ systems, Dr. Kwan and colleagues analyzed overall biopsy trends and the impact of new imaging technology on the performance of a variety of biopsy procedures in and outside radiology.

Researchers focused on biopsy trends in the abdomen and retroperitoneum, bone, breast, chest, kidney, liver, musculoskeletal soft tissue, pancreas, superficial lymph node and thyroid.

> "The development of CT, ultrasound and MR imaging ushered in the era of imaging-guided percutaneous needle biopsies (IGPNBs), which enabled greater precision in targeting lesions, while improving diagnostic accuracy and reducing complication rates."
>
> **Sharon Kwan, M.D.**



Pie chart shows biopsies according to anatomic region as a percentage of all biopsies performed by radiologists in 2008. *Lymph node* = superficial lymph nodes, *Soft tissue* = soft tissue of the musculoskeletal system.



Graph shows relative share of all biopsies performed according to specialty from 1997 to 2008. ✱ = Data in 2003 were affected by a coding discrepancy for fine needle aspirations.

Use of IGPNBs was particularly prevalent in the kidney and liver, representing 96 and 90 percent of all biopsy approaches, respectively, in 2008, the study showed.

IGPNBs did not represent the majority of biopsies for only two areas, superficial lymph nodes and musculoskeletal soft tissues. Open biopsies are more feasible for these superficial regions, and the areas of concern are more likely to be palpable and less in need of imaging guidance during biopsy, Dr. Kwan said.

Biopsy Role Evolves for Non-Radiologists

Describing it as "robust growth," researchers found that the share of all biopsies performed by radiologists increased from 35 to 56 percent and the total number of biopsies performed by radiologists increased at a CAGR of 8 percent between 1997 and 2008. However, the CAGR fell off to 6 percent in the second half of the study as certain specialties performed a larger percentage of biopsies, Dr. Kwan said.

After radiology, the top specialties involved in performing all biopsy procedures from 1997 to 2008 were general surgery and pulmonology, researchers found.

The increasing share of certain biopsies performed by some specialists, such as fine needle aspirations (FNAs) performed by endocrinologists, is likely due to a combination of factors, Dr. Kwan said. "First, specialists are acquiring imaging tools such as ultrasound and are becoming more comfortable using them. Second, specialists control the referral of their patients, in contrast to radiologists who depend solely on referrals from other physicians."

These findings could also be at least partly linked to healthcare regulations, Dr. Kwan said. Possibly related to stricter regulatory rules for mammography, the share of IGPNBs performed by radiologists increased from 70 to 75 percent between 2002 and 2008, she said. Facilities must go through a rigorous accreditation process to perform mammography, and accreditation for breast biopsy may become mandatory in the near future.

In contrast, the more lenient regulations for ultrasound—the modality used most often for FNA guidance—played a significant role in the trend toward endocrinologists performing more of the image-guided FNAs, Dr. Kwan said.

Another factor impacting the increasing number of biopsies performed by non-radiologists is the high reimbursement rates for many image-guided procedures, coupled with lower costs for purchasing equipment such as portable ultrasound, Dr. Kruskal said.

"This encourages non-radiologists to do an increasing number of these biopsies, especially ultrasound-guided thyroid and other superficial biopsies, as well as renal biopsies," Dr. Kruskal said.

Even as non-radiologists perform more biopsies, Dr. Kwan said she does not expect to see a major impact on the overall role of radiologists in the biopsy field.

"If the shift continues toward IGPNB as a preferred route of tissue sampling, radiologists most likely will continue playing an important role in the provision of these services," she said.

Concurred Dr. Kruskal: "Deeper, more challenging biopsies such as targeted liver biopsies will still rely on the radiologist's expertise, as long as we continue to provide a high quality of care and service. Maintaining this high quality of care is where our focus should be right now." □

LEARN MORE

For more information on the study cited in this article, go to *rsnanews.org*.

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Stuart H. Mansfield, M.D.
Neil J. Mardis, D.O.
Chae O. & James E. Masten, M.D.
Judith & Kenneth W. Matasar, M.D.
Marie V. Spagnoli, M.D. & Henry L. Maxwell Jr.
Jennelle & Alexander M. McKinney IV, M.D.
Alec J. Megibow, M.D., M.P.H.
John R. Mernagh, M.D.
Kimberly Kelly & Daniel G. Mickelson, M.D.
Michael R. Middlebrook, M.D.
Romney Miller, M.D.
Jerrold H. Mink, M.D.
Shachi & Malay K. Mody, M.D.
David E. Moody, M.D.
Jen & Michael Moore, M.B.B.Ch.
Beth D. Kruse, M.D. & Thomas Moore
Jonathan S. Moulton, M.D.
Andrea & Stacy J. Moulton, M.D.
William F. Muhr Jr., M.D.
Amol Mujoomdar, M.D.
William J. Mullin, M.D.
Gerardine & Richard G. Murray, M.D.
Roel D. Mus, M.D.
Adam P. Myhre, M.D.
Dean A. Nakamoto, M.D.
Elimari Sanchez & Javier A. Nazario, M.D.
Anne & Rory M. Nelson, M.D.
Steven R. Nokes, M.D.
Karen & Russell W. Norwood, M.D.
Zofia B. Nowicki, M.D.
Malak & Abdulmounhem K. Obaideen Sr., M.D., D.I.S.
Pamela K. Woodard, M.D. & Edward O'Donnell
Tien-Hay Oei, M.D.
Maimu L. Ohanian, M.D.
In honor of Mark Ohanian
Patricia & William W. Olmsted, M.D.
Robert E. O'Mara, M.D.
Satomi & Hiroaki Onaya, M.D.
Howard K. O'Neil, M.D.
Timothy J. O'Neill, M.D.
Kingsley A. Orraca-Tetteh, M.D.
Laura Otto & Nicholas P. Otto, M.D.
Randolph K. Otto, M.D.
Jelle Overbosch, M.D.
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Stanley L. Parker, M.D.
Amy A. Davidson & Nimish H. Patel, M.D.
Deborah B. & Barry R. Paull, M.D.
Tatjana Pavlovic, M.D. & Zivojin Pavlovic, M.D.
J. Michael Pearson, M.D.
Todd R. Peebles, M.D.
James B. Philipps, M.D.
Melissa & Kevin D. Phillips, M.D.
Catherine W. Piccoli, M.D.
Cynthia & Uwe Piepgras, M.D.
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Vikash Prasad, M.D.
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Daniel J. Quenneville, M.D.
Michael F. Quinn, M.D.
Liat Kishon-Rabin & Andrew M. Rabin, M.D.
Vanessa M. Zayas-Colon, M.D. & Walter Radosta
Ruthe M. & Ernest G. Raines, M.D.
Bolar R. Rao, M.D.
Meera & Kishore G. Rao, M.D.
Stephanie A. Reddick, M.D.
Chery B. & Alan R. Reeves, M.D.
Guenther Rettl, M.D.
David H. Riggans, M.D.
George T. Ripeckyj, M.D.
Barbara P. Biber, M.D. & Charles Rizzi
Hugh J. Robertson, M.D.
Clinton Rogers, M.D.
Elizabeth A. Krupinski, Ph.D. & Michel M. Rogulski, Ph.D.
Pablo R. Ros, M.D., M.P.H.
William F. Rosner, M.D.
Trenton D. Roth, M.D.
Jaap G. Roukema, M.D.
Allen J. Rovner, M.D.
Eric J. Roy
Rhesa & Geoffrey D. Rubin, M.D.
Phillip G. Russell, M.D.
Leon D. Rybak, M.D.
Barry A. Sacks, M.D.
Ayesha & Maqbool A. Salam, M.D.
Mehran Salari, M.D.
Kenneth V. Salce, M.D.
Francesco Sardanelli, M.D.
Barbara L. Savader, M.D. & Scott J. Savader, M.D.
Nicole Lebon-Scagnelli & Thomas Scagnelli, M.D.
Anabel M. Scaranelo, M.D.
Irene & James H. Scatliff, M.D.
Anna Scheurecker, M.D.
Sari R. & Neil F. Schneider, M.D.
Barbara & Lloyd B. Schnuck Jr., M.D.
Martin A. Schwartz, M.D.
Ryan B. Schwope, M.D.
Anthony J. Scuderi, M.D.
Lewis I. Segal, M.D.
Kathryn F. & Michael J. Seider, M.D., Ph.D.
Howard M. Seigerman, M.D.
Rajshri N. Shah, M.D. & Sachin Shah
Deborah R. Shatzkes, M.D.
Joshua S. Shimony, M.D., Ph.D.
Mark S. Shiroishi, M.D.
Dale G. Sickles, M.D. & Edward A. Sickles, M.D.
Anisa Mnyusiwalla, M.D. & Collan Simmons
Monica & Malwinder S. Singha, M.D.
Michael E. Smith, M.D.
Rachael E. Gordon, M.D. & Donald Snyder
Ronald M. Sokoloff, M.D.
Karen & Andrew H. Sonin, M.D.
Cande L. Sridhar, M.D.
Mellisa & Brandon S. St Amant, M.D.
Jody & Michael G. Stebbins, M.D.
Phyllis & Mark A. Stein, M.D.
Andreas Sternberg, M.D.
Edward M. Stevens, M.D.
Bruce G. Stewart, M.D.
David R. Stoppenhagen, M.D.
Robert L. Stubbs, M.D.
Daniel Stucker, M.D.
Louis Sulman, M.B.B.Ch.
Jonathan O. Swanson, M.D.
Gary W. Swenson, M.D.
Keng-Gii Tai, M.D.
Neomi S. & Walter S. Tan, M.D.
Takashi Tanaka, M.D.
Lynne F. Taus, M.D.
Jennifer Tomczak, M.D.
Maria Sarmiento & Carlos H. Torres, M.D.
Faith B. & Theodore A. Tristan, M.D.
Susan & Evan C. Unger, M.D.
Gert J. Van Der Westhuizen, M.B.Ch.B.
Bonny Varghese, M.D.
Vinodkumar Velayudhan, D.O.
Patricia & Richard I. Vigran, M.D.
Mark S. Wadina, M.D.
Helen & Johnny D. Walker, M.B.B.S.
Henry Z. Wang, M.D., Ph.D.
J'Andre O. Ward, M.B.B.S.
Carol M. & Bill H. Warren, M.D.
Jeffrey D. Way, M.D.
Irwin D. Weisman, M.D.
Ann & Robert C. Weissmann III, M.D.
Lewis Wexler, M.D.
Harold A. White, M.D.
Scott S. White, M.D.
Anthony R. Whittemore, M.D.
Phoebe & Dexter H. Witte III, M.D.
Robin & Clifford R. Wolf, M.D.
Susan T. & James H. Wolfe, M.D.
Ira S. Wolke, M.D., Ph.D.
Sheralyn & David A. Wood, M.D.
Richard J. Wunder, M.D.
Caryn C. Wunderlich, M.D.
Rosemary & Danilo A. Wycoco, M.D.
Richard S. Young, M.D.
Steven A. Young, M.D.
Andrej J. Zajac, M.D.
Donald C. Zajick, M.D.
Olga & Christoph L. Zollikofer, M.D.

YOUR DONATIONS IN ACTION

With an RSNA R&E Foundation grant, **Lidia Nagae, M.D., Ph.D.**, is conducting a multimodal neurobiological imaging study of pediatric mild traumatic brain injury to better guide treatment and improve outcomes.

PREPARE 2011–2012 R&E GRANT APPLICATION NOW

The R&E Foundation is now accepting applications for research and education grants. RSNA membership is required. Application deadlines are:

- January 10: Education Grants
- January 15: Research Grants
- February 1: Research Medical Student Grant

The Foundation offers funding opportunities for medical students, trainees and faculty, with grants up to $150,000. Research and education grants cover a virtually limitless spectrum of projects, from traditional hypothesis-driven basic science and clinical investigations to topics such as drug, therapy and device development, informatics, comparative effectiveness and cost-effectiveness, quality improvement and ethics and professionalism.

For more information, go to *RSNA.org/Foundation* or contact Scott A. Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or *swalter@rsna.org*.

Radiology in Public Focus

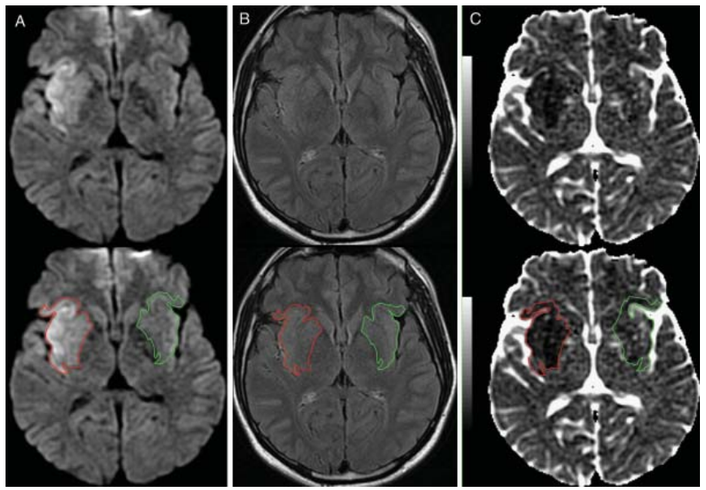
Press releases were sent to the medical news media for the following articles appearing in the latest issue of *Radiology*.

MR Imaging Helps Predict Time from Symptom Onset in Patients with Acute Stroke: Implications for Patients with Unknown Onset Time

Qualitative or quantitative analysis of stroke signal intensity changes on fluid-attenuated inversion recovery (FLAIR) images can help determine—with a sensitivity and specificity of more than 90 percent—whether patients were imaged within the first three hours after stroke onset.

To assess the value of MR imaging parameters as surrogate markers of stroke duration, Mina Petkova, M.D., of the Université Paris Descartes, and colleagues studied 130 patients with acute stroke of known onset time who underwent 1.5 T MR imaging within 12 hours of the onset of stroke symptoms. The accuracy (sensitivity, specificity and 95 percent confidence intervals) of lesion visibility on FLAIR images in the prediction of a stroke onset time of less than three hours was assessed by two independent observers.

"Signal intensity changes on 1.5 T FLAIR MR images can be used as a surrogate marker of stroke age, either qualitatively or quantitatively," the researchers concluded. "This suggests that MR imaging might be used as a 'clock' for determining stroke age in patients with an unknown onset time, potentially increasing the number of patients who are eligible for thrombolysis."



Axial, *A.* diffusion-weighted MR images, *B.* fluid-attenuated inversion recovery (FLAIR) MR images, and *C.* Apparent diffusion coefficient (ADC) maps obtained in a 41-year-old man with right insular and putaminal ischemic infarct 70 minutes after symptom onset. The red line corresponds to the manually corrected region of interest (ROI) outlining the ischemic infarct on one section of the diffusion-weighted mage and then projected onto the FLAIR image and the ADC map; the green line corresponds to the manually corrected ROI flipped onto the contralateral brain.

Media Coverage of RSNA

In October 2010, media outlets carried 551 RSNA-related news stories. These stories reached an estimated 439 million people.

October print and broadcast coverage included *Chicago Tribune, Orlando Sentinel, The Hamilton Spectator* (Ontario), *The Daily Courier* (British Columbia), WLS-TV (Chicago), WCAU-TV (Philadelphia), WTVF-TV (Nashville), KDKA-TV (Pittsburgh), WBBM-TV (Chicago), KGO-TV (San Francisco), KFOR-TV (Oklahoma City), WLWT-TV (Cincinnati), KCRA-TV (Sacramento, Calif.), KCTV-TV (Kansas City) and WREG-TV (Memphis, Tenn.).

Online coverage included Yahoo! News, Reuters News, *Chicago Tribune* Online Edition, ABC News Online, MSN Health, Medscape, iVillage, Everyday Health, FOX News Online, Medical News Today, *Businessweek.com, Examiner.com, Health.com, DocGuide.com, MedicineNet.com, Drugs.com, ScienceDaily.com* and *AZCentral.com.*

December Outreach Activities Focus on Abdominal Aortic Aneurysms

In December, RSNA's "60-Second Checkup" radio program focused on the diagnosis and course of treatment for abdominal aortic aneurysms.

RADIOLOGYINFO.ORG LAUNCHES MOBILE SITE

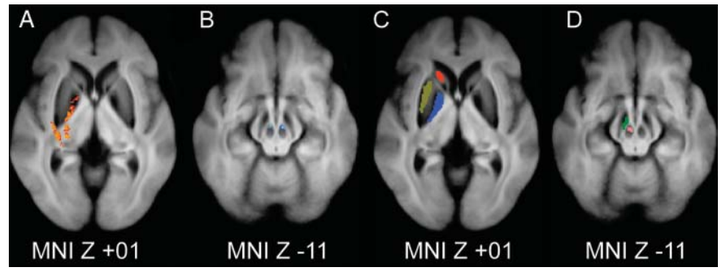
Access information about more than 100 radiology tests and treatments on the go. Visit *RadiologyInfo.org* from your mobile device to get information on diagnostic, interventional, nuclear medicine and radiation therapy procedures, the latest radiology news, video clips from the Image Wisely™ initiative and more.

Cerebral Microhemorrhage and Iron Deposition in Mild Cognitive Impairment: Susceptibility-weighted MR Imaging Assessment

Analysis of iron deposition at baseline performed with a support vector machine (SVM) might help identify individual patients with mild cognitive impairment (MCI) at risk for cognitive decline.

In a prospective study of 35 healthy controls and 69 patients with MCI to determine whether susceptibility-weighted MR imaging at baseline may help predict cognitive decline, Sven Haller, M.D., M.Sc., of the University Hospitals of Geneva in Switzerland, and colleagues analyzed cerebral microhemorrhage in consensus and assessed iron deposition in deep gray matter with voxel-wise and region-of-interest analysis after nonlinear spatial registration. Researchers also analyzed individual classification of mild cognitive impairment by using an SVM.

"Findings reveal an accumulation of cerebral microhemorrhage in patients with MCI that is present at baseline, independent of subsequent cognitive decline, as well as an altered iron distribution in subcortical nuclei between the healthy control subjects and patients with mild cognitive impairment," the researchers concluded.



***A–D:* Susceptibility-weighted MR imaging voxel-wise comparison between control subjects and patients with mild cognitive impairment. Control subjects had higher susceptibility-weighted imaging values (or less susceptibility/iron deposition) in the right pallidum and the thalamus (*A, B,* yellow-red; threshold-free cluster enhancement, *P* < .05 corrected). The inverse comparison (mild cognitive impairment vs. control subjects) yielded no suprathreshold voxels. For illustrative purposes, we used a noncorrected *t* value greater than 2 for this comparison (blue-light blue). Images *C* and *D* illustrate the volumes of interest used: blue, pallidum; red, (head of) caudate; olive, putamen; green, substantia nigra; pink, red nucleus. Analyses are depicted over the group-average susceptibility-weighted image (gray). Radiologic convention is used, with right hemisphere on left side. *MNI* = Montreal Neurological Institute**

Media Take Note of RSNA 2010

More than 170 members of the news media attended RSNA 2010, generating thousands of stories appearing in print and electronic media in the U.S. and around the world. Addressing the media during 2010 press conferences, were clockwise, from top left, Elvira V. Lang, M.D., speaking on "Diagnosis Uncertainty Increases Anxiety in Patients," Washeem A. Bashir, M.D., speaking on "Researchers Use Patients' Own Blood to Treat Hamstring Injury," and Patricia Flach, M.D., speaking on "CT Best at Uncovering Drug Mule Payload."

Journal Highlights

The following are highlights from the current issues of RSNA's two peer-reviewed journals.

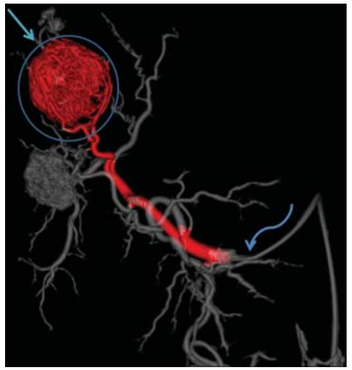
Imaging in Interventional Oncology

Although medical imaging generally plays five key roles in image-guided therapy—and interventional oncology in particular—these roles are rapidly evolving as a result of new technology and innovative treatment methods.

In a State of the Art review article in the December issue of *Radiology (RSNA.org/Radiology)* Stephen B. Solomon, M.D., of Memorial Sloan-Kettering Cancer Center in New York, and Stuart G. Silverman, M.D., of Brigham and Women's Hospital in Boston, describe the current state of medical imaging for intervention in oncology and examine directions for future development. In addition, authors discuss key roles medical imaging plays in interventional oncology:

- Preprocedure planning
- Intraprocedural targeting, monitoring and control
- Postprocedure assessment

"Although many of these roles are still not fully established, as research and development in medical imaging focus on interventional needs, it is likely that the role of medical imaging in intervention will become even more integral and more widely applied," Drs. Solomon and Silverman concluded.



An embolization treatment planning system. Rapid segmentation from a cone-beam CT study identifies the hepatic vessels. With this software design, the user selects the tumor by using a circle *(straight arrow)*, and then the path *(red)* from the end of the catheter *(curved arrow)* to the tumor is rapidly identified by the software. Other gray tumors can be selectively embolized independently to limit collateral damage.

(*Radiology* 2010;257;3:624–640) ©RSNA, 2010. All rights reserved. Printed with permission.

CME DEBUTS IN JANUARY *RADIOLOGY*

Beginning in January, up to one article in *Radiology* will be designated for CME activity. Readers who successfully complete a CME test associated with a review-style ("Review," "State of the Art") article in *Radiology* will be given *1.0 AMA PRA Category 1 Credit™.*

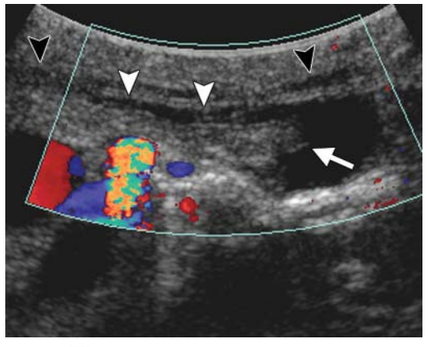
The test will be accessible through the Education Center portal at *RSNA.org*. CME is a free benefit of membership; nonmembers will be charged a $15 fee.

Intraoperative Ultrasonography of the Pancreas

A versatile technique that provides excellent spatial and contrast resolution and real-time imaging capabilities, intraoperative ultrasonography of the pancreas is useful for diagnostic imaging as well as for guidance of laparoscopic and open operative procedures.

In an article in the November-December issue of *RadioGraphics (RSNA.org/RadioGraphics),* Maryellen R.M. Sun, M.D., of Beth Israel Deaconess Medical Center in Boston, and colleagues provide an overview of intraoperative ultrasound based on more than 20 years of experience performing open surgical and laparoscopic ultrasound examinations. Along with reviewing pancreatic surgical procedures commonly performed with ultrasound guidance and describing and illustrating appearances of the normal pancreas and pancreatic lesions commonly seen at intraoperative ultrasound, the authors discuss:

- Transducer selection and machine requirements
- Sterilization techniques
- Scanning methods
- Potential pitfalls



Use of intraoperative ultrasonography to localize side branch intraductal papillary mucinous neoplasm (IPMN) at laparotomy and to plan the surgical approach for partial pancreatectomy in an 80-year-old woman. At surgery, the lesion could not be palpated. A transverse ultrasound image shows a dilated pancreatic duct side branch *(white arrowheads)* that contains a small mural nodule *(arrow).* The side branch courses parallel to the nondilated main pancreatic duct *(black arrowheads)* for a short distance. After the lesion was localized, a distal pancreatectomy was performed. At pathologic analysis, IPMN with a focal region of low-grade dysplasia was found.

(*RadioGraphics* 2010; 30;1935–1953) ©RSNA, 2010. All rights reserved. Printed with permission.

"With increasing clinical demands for intraoperative ultrasound, it is essential that radiologists be familiar with its uses and technique," the authors concluded. "In addition, to properly perform intraoperative ultrasound and accurately interpret the images, knowledge of normal and variant pancreatic and vascular anatomy and relevant landmarks is needed."

Education and Funding Opportunities

IHE® Connectathon 2011 Conference

The 2011 Integrating the Healthcare Enterprise (IHE®) Connectathon will include a one-day conference including presentations by leaders in the movement to adopt electronic health records, personal health record systems and national health information networks.

Attendees will also learn about IHE's support for these critical improvements and receive an introduction to the IHE interoperability testing process. Attendees will have the opportunity to observe the IHE Connectathon, to be held January 17–21, as it takes place and learn about its significance in enabling the connected health system.

January 17-21, 2011
• Hyatt Regency Chicago—Wacker Drive

Companies at the Connectathon test the interoperability of their health information systems by exchanging information with complementary systems of multiple vendors. Thousands of vendor-to-vendor connections have been tested since the first Connectathon was held in 1998.

Many of the capabilities tested at the Connectathon are closely aligned with the criteria for achieving "meaningful use" of electronic health records as recently published by the U.S. Department of Health and Human Services. More than 3,500 tests of IHE Integration Profiles were successfully completed by more than 150 health information technology systems at last year's event.

Registration is limited; the fee is $150 per conference attendee. For more information, go to *www.ihe.net/connectathon/.*

CD-ROM COLLECTIONS AVAILABLE IN RSNA EDUCATION CENTER 2010-2011 PRODUCT CATALOG

Made available for the first time at RSNA 2010, the new assortment of CD-ROM collections of recorded refresher courses from previous RSNA meetings are among the items included in the RSNA Education Center's new 2010-2011 product catalog.

Bundled into topical sets and sold at significant savings, the collections offer a cost-effective way for radiologists to build a library of the best educational content.

Each course is offered on CD-ROM and can be viewed on most PCs or laptop computers. Audio recordings of speakers and their slides are accompanied by optional written transcripts for easy reference. *AMA PRA Category 1™ credits* are available for all recorded refresher courses. This year, the collection has expanded to more than a dozen sets available for purchase.

Those who did not get a catalog in their RSNA 2010 bag this year, or for more information or to purchase the CD-ROM collections, go to *RSNA.org/Education/catalog* or call the Education Center at 1-800-272-2920.

Medical Meetings

January – April 2011

JANUARY 17–21
Integrating the Healthcare Enterprise (IHE®) North American Connectathon, Hyatt Regency Chicago
• *www.ihe.net/Connectathon*

JANUARY 28–31
Indian Radiological & Imaging Association (IRIA), 63rd Annual Congress, Hotel Ashok, Chankya Puri, New Delhi, India
• *www.iriadelhi2011.com*

JANUARY 29–30
Society of Breast Imaging (SBI), Applications and Interpretation of Breast MRI; Fairmont, Miami
• *www.sbi-online.org*

FEBRUARY 12–17
International Society for Optics and Photonics (SPIE), Medical Imaging 2011, Lake Buena Vista Orlando, Fla.
• *www.spie.org*

FEBRUARY 20–24
Healthcare Information and Management Systems Society (HIMSS), Annual Conference and Exhibition, Orlando, Fla.
• *www.himssconference.org*

MARCH 6–9
Society of Thoracic Radiology, Annual Meeting, Hyatt Regency Coconut Point, Bonita Springs, Fla.
• *www.thoracicrad.org*

MARCH 20–25
Society of Gastrointestinal Radiologists (SGR) and Society of Uroradiology (SUR), Abdominal Radiology Course, Four Seasons Resort-Aviara, Carlsbad, Calif. • *www.sgr.org*

MARCH 26–31
Society of Interventional Radiology (SIR), 36th Annual Scientific Meeting, Chicago • *www.sirweb.org*

APRIL 3–8
IDKD's 43rd International Diagnostic Course, Davos, Switzerland. Main Course Topics: Diseases of the heart and chest, including breast satellite courses • *www.idkd.org*

Education and Funding Opportunities

Writing a Competitive Grant Proposal

Registrations are being accepted for the 2011 RSNA Writing a Competitive Grant Proposal program, a grant writing session for researchers in radiology, radiation oncology, nuclear medicine and related sciences who are interested in actively pursuing federal funding.

February 11-12, 2011 • RSNA Headquarters, Oak Brook, Ill.
Registration Deadline—January 5

A limited number of slots are available for this 1½-day intermediate-level course that combines didactic and small group interactive sessions and is designed to help radiologic researchers understand and apply the key components of writing a competitive grant proposal. Topics to be covered are the NIH grant review process, developing specific aims and funding opportunities.

Guided by a faculty of leading researchers with extensive experience in all aspects of grant applications and funding, the program will focus on developing realistic expectations of and tools for getting started on the grant process. Faculty includes: G. Scott Gazelle, M.D., Ph.D., M.P.H., of Massachusetts General Hospital in Boston, Robert Nordstrom, Ph.D., of the National Cancer Institute in Bethesda, Md., Ruth Carlos, M.D., of the University of Michigan Health System in Ann Arbor, and Elizabeth Burnside, M.D., M.P.H., of the University of Wisconsin in Madison.

RSNA Education

The course fee is $175. Registration forms can be found at *RSNA.org/CGP.* Contact Fiona Miller at 1-630-590-7741 or *fmiller@rsna.org* for further information.

Annual Meeting Watch

News about RSNA 2011

RSNA 2011 Abstract Deadline Moved to March 31

The online system to submit abstracts for RSNA 2011 will be activated in mid-January. New this year, the submission deadline is 12:00 p.m. Central Time on March 31, 2011. Abstracts are required for scientific presentations, education exhibits, applied science and quality storyboards.

To submit an abstract online, go to *RSNA.org/abstracts.*

The easy-to-use online system helps the Scientific Program Committee and Education Exhibits Committee evaluate submissions more efficiently. For more information about the abstract submission process, contact the RSNA Program Services Department at 1-877-776-2227 within the U.S., or 1-630-590-7774 outside the U.S.

Other Important Dates for RSNA 2011

May 4:	Member Registration and Housing Opens at 8:30 a.m. CT
June 1:	Non-Member Registration and Housing Open at 8:30 a.m. CT
July 6:	Course Enrollment Opens at 8:30 a.m. CT
October 21:	International deadline to have full conference badge mailed
November 4:	Final advance discounted registration, housing and course enrollment deadline to have full conference badge mailed
Nov. 27 – Dec. 2:	97th Scientific Assembly & Annual Meeting

RSNA® 2011 Celebrate the Image

November 27– December 2 | McCormick Place, Chicago

For Your Benefit

Renew Your RSNA Membership Now

RSNA membership renewal by December 31 avoids interruption of your subscription to *RSNA News* and many other benefits:

- Subscription to *Radiology* and *RadioGraphics*
- Access to the myRSNA personalized Web portal
- Free tools to help with continuing medical education
- Free advance registration to the RSNA annual meeting

Renew online at *RSNA.org/renew* or by mail with the invoice sent to you early in October. For more information, please contact *membership@rsna.org* or 1-877-RSNA-MEM (1-877-776-2636) or 1-630-571-7873 outside the U.S. and Canada.

Member Question of the Month

What was the best session you attended at RSNA 2010? Why?

E-mail us your answer at *tellus@rsna.org.* Respondents featured in an upcoming issue of *RSNA News* will receive a small gift featuring the new RSNA logo.

The Value of Membership

Members Know It's Better to Belong

RSNA 2010 attendees were happy to give input when asked to name the best part of RSNA membership during this year's annual meeting. Below is a sampling of responses from RSNA 2010 attendees.

"I don't think members are taking enough advantage of all the things RSNA has to offer."

1 Liliane Gibbs, M.D., Orange, Calif.
9-year member

"It's an amazing community, and I enjoy being able to collaborate with radiologists all across the globe."

2 Naiim Ali Ba, Marlboro, N.J.,
first year member-in-training

"RSNA fosters, promotes, sponsors and encourages the intellectual advances in radiology, which leads to our ability to improve the quality of care we give our patients."

3 David Dershaw, M.D., New York,
25-year member

"RSNA's got excellent online education facilities. And this is an awesome meeting."

4 Kate Colquhoun, M.B.B.S., Hampshire, United Kingdom

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RSNA.org

Submit RSNA 2011 Abstracts Online

New Deadline: March 31, 2011

Submitting abstracts for RSNA 2011 is as easy as logging onto *RSNA.org/abstracts*.

Those planning to submit abstracts should note that this year's submission deadline has been moved to 12:00 p.m. Central Time on March 31, 2011. As always, the online system to submit abstracts for RSNA 2011 will be activated in mid-January

Abstracts are required for scientific presentations, education exhibits, applied science and quality storyboards. The easy-to-use online system helps the Scientific Program Committee and Education Exhibits Committee evaluate submissions more efficiently.

Researchers will be notified in mid June about the status of abstracts submitted for education exhibits and in mid July about those submitted for scientific papers and posters. Once you have submitted your abstract, you can also log onto *RSNA.org* to check the status of your abstract.

For more information about the abstract submission process, contact the RSNA Program Services Department at 1-877-776-2227 within the U.S. or 1-630-590-7774 outside the U.S.

RSNA® 2011
Celebrate the Image

November 27 – December 2 | McCormick Place, Chicago

Site Offers Extensive Imaging Database

Website-ing

A library of more than 52,948 approved images is among the features on MedPix®, *rad.usuhs.edu/medpix/index.html*, the free online medical image database and radiology portal provided by the Departments of Radiology and Biomedical Informatics at Uniformed Services University in Bethesda, Md.

Content on MedPix is organized by disease location (organ system), pathology category and patient profiles and by image classification and caption. The fully Web-enabled cross-platform database integrates images and textual information and primarily targets physicians and nurses, allied health professionals, medical students, graduate nursing students and other post-graduate trainees.

COMING IN JANUARY

Released in early November, researchers continue to analyze the impact of the National Lung Screening Trial (NLST) results showing 20 percent fewer lung cancer deaths among those screened with low-dose spiral CT versus with chest X-rays. Next month, *RSNA News* will report on the trial that was also the subject of an RSNA 2010 special interest session.

20 Retrospective

Celebrating 20 Years of *RSNA News*

Headlines

Remembering radiologic topics that made the news. This month's feature: some of the **most accessed stories** from *RSNA News* online.

JUNE 2006:
Uterine Fibroid Findings Support Radiology-Based Treatments

OCTOBER 2005:
Radiologist Shortage Over? Survey Says Yes

DECEMBER 2009:
iPhone Application Tracks Radiation Exposure, Risk

SEPTEMBER 2006:
Virtual Autopsy Offers Noninvasive Postmortem Exam

SEPTEMBER 2009:
Radiologists Must Take Care of Their Vision, Study Shows

JULY 2006:
First Filmless Reading Room Gets Makeover

DECEMBER 2005:
Patient Size a Weighty Problem for Radiologists

OCTOBER 2010:
Spike in MR Imaging Accidents Underscores Need for Regulation

JULY 2009:
Malpractice Fears in Mammography Overestimated

MAY 2006:
Imaging Reimbursement Cuts May Harm Rural Practices, Patients

OCTOBER 2006:
In-Demand Radiologists Enticed with Incentives

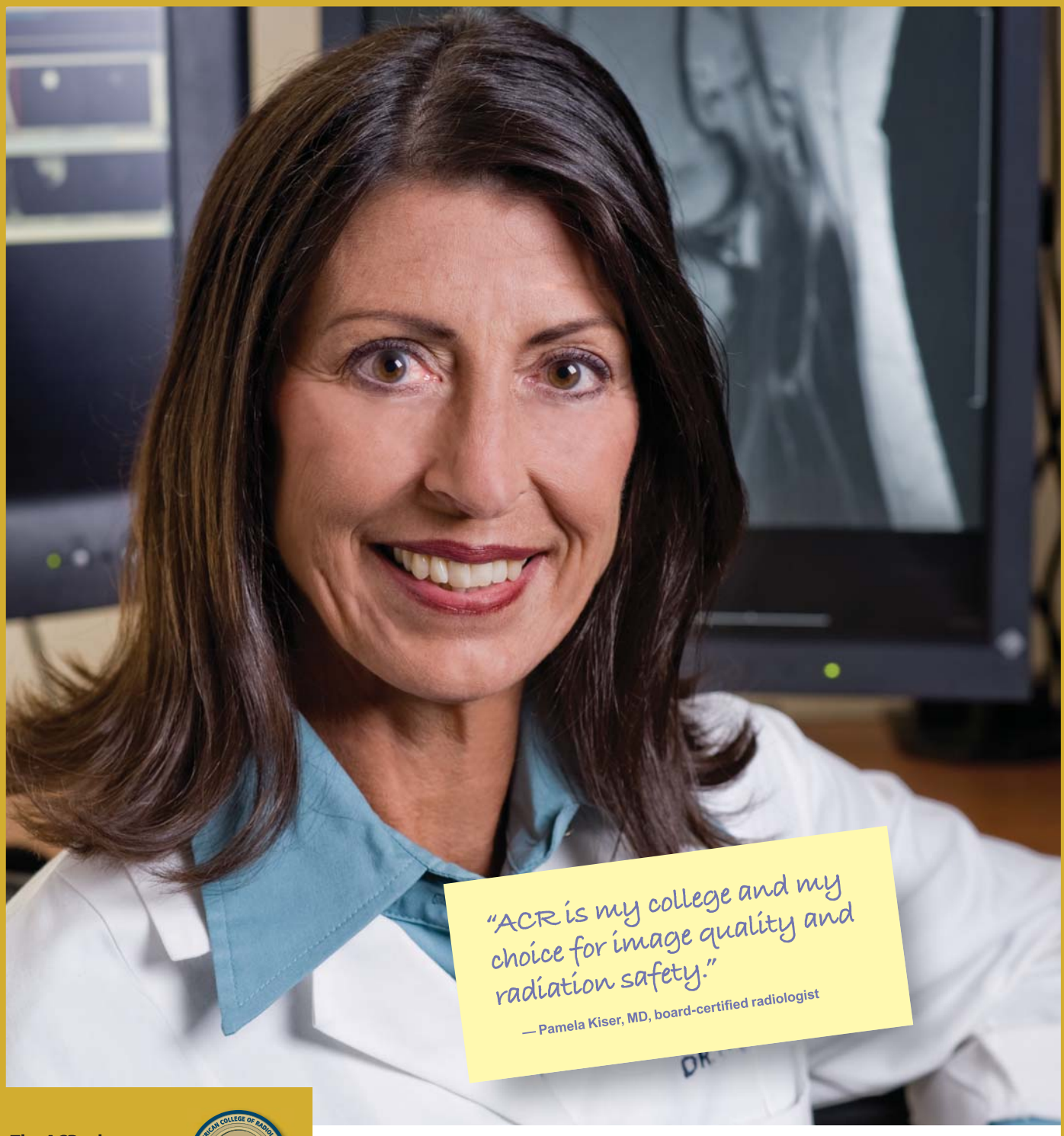
Crossword Answer

Here are the answers to our sixth and final 20th anniversary crossword, from our November 2010 issue.

B	U	L	L	E	T	I	N	■	O	K	■	W	E	B
A	■	E	■	D	■	S	■	L	■	E	■	O	■	I
R	A	D	I	O	L	O	G	Y	I	N	F	O	■	O
I	■	■	S	■	■	T	R	O	T	T	E	D	■	M
U	L	T	R	A	S	O	U	N	D	■	■	S	P	A
M	■	I	■	N	■	P	B	S	■	■	S	T	A	R
■	P	E	L	O	S	I	■	■	U	P	T	O	■	K
S	I	R	■	D	I	C	O	M	■	R	■	C	H	E
T	X	■	S	E	T	■	R	■	W	O	R	K	E	R
A	I	R	■	■	■	■	C	O	I	F	■	■	A	■
R	E	A	D	I	N	G	S	■	G	E	N	T	L	Y
D	■	D	■	R	■	U	■	V	■	S	■	R	■	■
U	P	L	O	A	D	S	■	W	E	S	T	E	R	N
S	■	E	■	N	■	T	O	■	T	O	O	K	■	A
T	E	X	■	■	S	Y	N	C	H	R	O	■	M	N

CORRECTION: The answer to the **September 2010 *RSNA News* crossword puzzle** did not appear as promised in the October 2010 issue.

M	C	C	O	R	M	I	C	K	■	B	A	U	M	■
O	■	H	■	A	■	V	■	R	■	I	R	■	V	P
O	P	A	C	I	T	Y	■	E	Y	L	E	R	■	A
N	■	D	■	N	■	■	P	S	■	L	■	A	L	L
■	■	S	A	M	■	D	O	S	E	S	■	D	I	M
F	T	■	K	A	Y	■	L	E	U	■	V	I	B	E
M	■	P	A	N	■	D	O	L	L	Y	■	O	R	R
R	O	I	■	■	P	R	■	■	E	■	■	G	A	■
I	N	C	■	L	A	U	T	E	R	B	U	R	■	■
■	■	K	■	■	D	M	V	■	■	A	■	A	■	W
P	H	E	L	P	S	■	S	■	■	H	I	P	A	A
L	■	R	■	I	■	T	■	T	■	■	O	H	■	L
U	N	■	■	L	■	R	E	H	N	Q	U	I	S	T
T	O	■	F	A	C	E	■	E	■	■	■	C	■	O
O	T	T	■	F	O	X	■	Y	E	L	T	S	I	N



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