RSNA News™

April 2011 Volume 21, Number 4

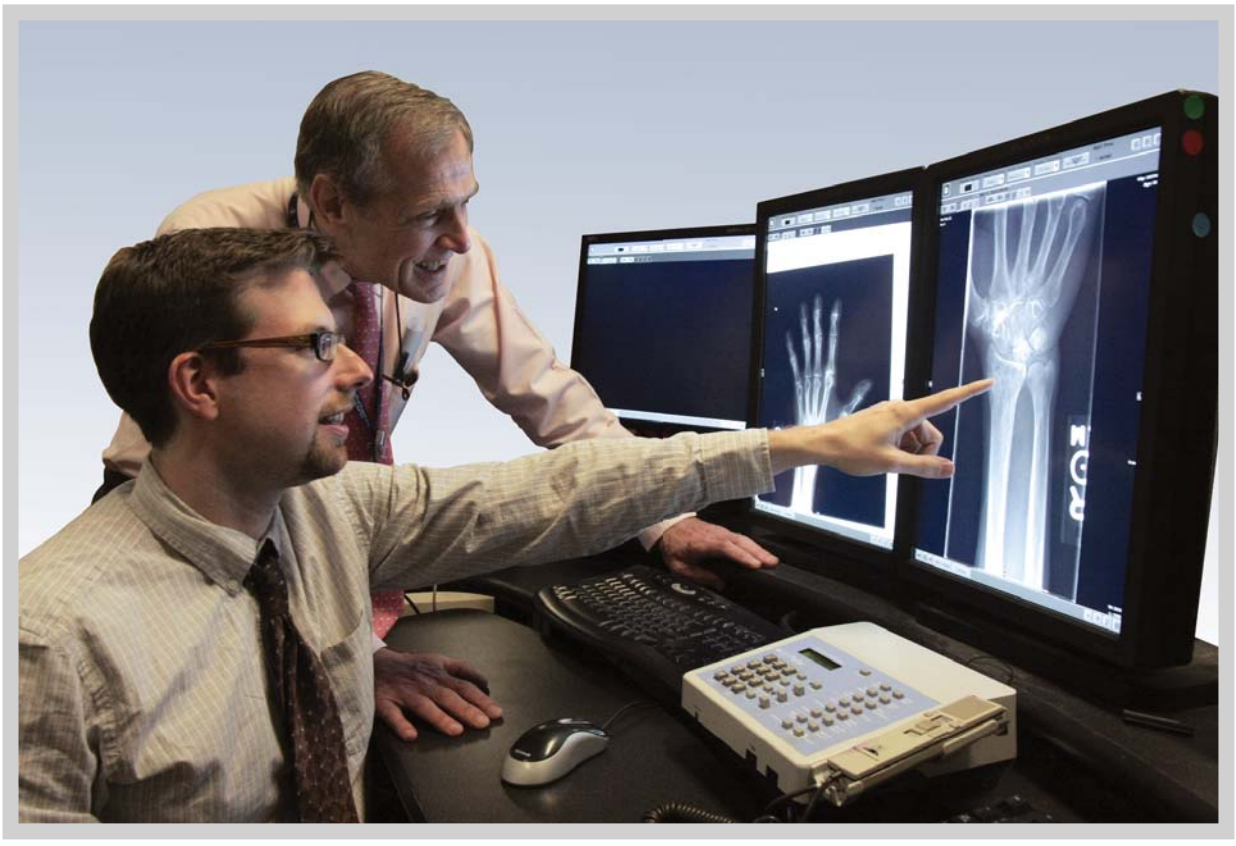


Image courtesy of Beth Israel Deaconess Medical Center

Self-selected Radiology Mentors Yield Greater Satisfaction

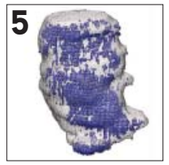
ALSO INSIDE:

Advance Registration for RSNA 2011 Begins May 4
See Page 23

APRIL 2011 • VOLUME 21, NUMBER 4

RSNA News™

For more than 20 years, *RSNA News* has provided high-quality, timely coverage of radiology research and education and critical issues facing the specialty, along with comprehensive information about RSNA programs, products and other member benefits.



facebook
twitter
Follow us for exclusive news, annual meeting offers and more!

HIMSS Unveils Web Resource on Meaningful Use

The Healthcare Information and Management Systems Society (HIMSS) has launched Meaningful Use OneSource, a repository of hundreds of documents, tools and links to other knowledge available on the Internet. Developed to prepare users for federal Meaningful Use and Certification Criteria and Standards regulations, the new website addresses:

- Meeting meaningful use and certification criteria
- Receiving Medicare and Medicaid incentive funding and avoiding penalties
- Implementing meaningful use in an organization, practically and successfully

All content contained within the Meaningful Use OneSource is vetted by content experts prior to its inclusion on the site, according to HIMSS. The site is located at *www.himss.org/ASP/topics_meaningfuluse.asp*.

IRIA Honors Hricak

2010 RSNA President Hedvig Hricak, M.D., Ph.D., Dr. h.c., received honorary membership in the Indian Radiological & Imaging Association's (IRIA) 64th National Conference held in January in New Delhi. Pictured, left to right: Rajesh Kapur, M.D., Dr. Hricak, IRIA 2010 President Kishor Taori, M.D., conference organizing chair Harsh Mahajan, M.D., and Atul Kumar Bhardwaj, M.D.

NEW MEMBER CARDS MAILED

RSNA recently issued new membership cards featuring the Society's updated logo. If you did not receive your new card, contact the RSNA Membership Department at *membership@rsna.org* or 1-877-RSNA-MEM (776-2636). Outside the U.S. or Canada, call 1-630-571-7873.

Wisconsin Establishes Youker Endowed Chair

The James E. Youker Endowed Chair in Radiology is being established at the Medical College of Wisconsin in Milwaukee to honor James E. Youker, M.D., chair of the Department of Radiology since 1968. The professorship will initially be held by Dr. Youker, with proceeds from the endowment supporting the Department of Radiology.

A nationally recognized radiologist, Dr. Youker received the Medical College of Wisconsin's Distinguished Service Award in 1989. A recipient of RSNA's Gold Medal in 2000, Dr. Youker also received gold medals from the American College of Radiology, American Roentgen Ray Society and Association of University Radiologists.

City of Hope Names Boswell Chair

William D. Boswell Jr., M.D., has been named a professor and chair of the Department of Diagnostic Radiology at City of Hope, a National Cancer Institute-designated comprehensive cancer center in Duarte, Calif.

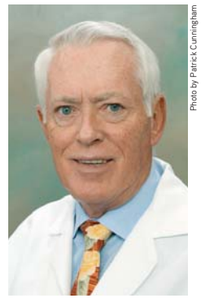


Photo by Patrick Cunningham

Dr. Boswell was previously a professor of clinical radiology and urology at the Keck School of Medicine of the University of Southern California in Los Angeles. The author of 90 peer-reviewed papers, Dr. Boswell's research focuses on urologic cancers, hematologic malignancies and the multimodality imaging of cancer patients.

ABR Elects New Trustees

The American Board of Radiology (ABR) has elected three new trustees whose four-year terms begin July 1. New trustees:

- **Vincent P. Mathews, M.D., president and chief executive officer at Northwest Radiology Network, Indianapolis, Ind.**
- **Brent J. Wagner, M.D., chief of diagnostic radiology and president of the medical staff at The Reading Hospital and Medical Center, Reading, Penn.**
- **Lynn D. Wilson, M.D., M.P.H., vice-chair and professor of therapeutic radiology and of dermatology at Yale University School of Medicine, New Haven, Conn.**

ABR trustees participate in leadership and decision making to carry out the ABR's mission and set standards for the board certification process in radiology for initial certification and maintenance of certification.

Mathews

Wilson

Wagner

JCR Seeks Volunteers for Relief Team

The Japanese College of Radiology (JCR) is developing a volunteer team to aid those suffering in the aftermath of the recent earthquake, tsunami and subsequent nuclear accident.

Along with posting information about radiation exposure, JCR is working to treat cancer patients unable to receive therapy at local hospitals and provide remote radiologic/imaging evaluations via the Internet to patients in need. JCR is seeking assistance in developing various infrastructure designs, including image servers, PACS and workstations.

The American College of Radiology is working with JCR and other international organizations to support efforts on the ground and inform the public of radiation risk and safety issues.

Those interested in volunteering can visit the JCR website at *www.jcr.or.jp/english/index_e.html* or e-mail *ky2s-mtsm@asahi-net.or.jp*.

Radiology, NCRP Offer Free Access to Radiation Emergency Advice

In response to information requests related to the radiologic aspects of the Fukushima Nuclear Reactor Accident in Japan in March, *Radiology (RSNA.org/Radiology)* has provided free access to "Medical Response to a Major Radiologic Emergency: A Primer for Medical and Public Health Practitioners," published in March 2010. In addition, the National Council on Radiation Protection & Measurements (NCRP) has made its Commentary No. 10, "Advising the Public About Radiation Emergencies," available for free download.

The NCRP document outlines the various media—broadcast, print and others—through which the public receives most of its information during a radiation emergency. The NCRP also details the information the public should have during an emergency, including radiation fundamentals and a radiation index, and how to help people best understand it.

Download the document at *www.ncrponline.org*.

Zietman is New *Red Journal* Editor

***Anthony Zietman, M.D.,** president of the American Society for Radiation Oncology (ASTRO) and a professor of radiation oncology at Massachusetts General Hospital, has been named editor of ASTRO's official journal,* International Journal of Radiation Oncology•Biology•Physics.

Photo by Adam Donohue

Dr. Zietman succeeds James Cox, M.D., who served for 15 years at the helm of the publication also known as the Red Journal. *Dr. Zietman is one of the most highly cited authors in radiation oncology and has reviewed multiple oncology journals for more than 20 years. Dr. Zietman's first issue of the* Red Journal *will be January 2012.*

Donnelly Named Chair at Nemours

A nationally recognized pediatric radiologist, Lane F. Donnelly, M.D., has been named chair of radiology for Orlando, Fla.-based Nemours pediatric health systems. Dr. Donnelly also was named chief medical officer and physician-in-chief at Nemours Children's Hospital and is serving as vice-president for the health system. As radiology chair, Dr. Donnelly oversees all pediatric radiology services across the enterprise.

A member of RSNA's Quality Improvement Committee and Public Information Advisors Network, Dr. Donnelly also served on RSNA's Scientific Program Committee from 2003 to 2009. A regular contributor to *Radiology* and *RadioGraphics*, Dr. Donnelly received an Editor's Recognition Award from *Radiology* in 2000.

Canon is UAB Radiology Chair

Cheri L. Canon, M.D., has been named chair of the University of Alabama at Birmingham (UAB) Department of Radiology. Dr. Canon, a professor of medicine, has been on faculty at UAB since 1998 and was named interim chair of radiology in 2010. She also is director of the division of diagnostic radiology, senior vice-chair for operations and interim co-medical director of the UAB Heart and Vascular Center. Dr. Canon serves on the editorial board for *Radiology*.

Mo-99 Stakeholders Meeting Updates Government Agencies

Nuclear medicine society SNM was among the participants in a March meeting designed to update the U.S. Departments of Energy, Health and Human Services and Homeland Security and other government agencies on the current Mo-99 shortage and activities under way to establish a new sources.

Produced in research reactors by irradiating targets made from highly enriched uranium (HEU), Mo-99 then serves the parent radioisotope in generators that produce the technetium-99m used in many medical procedures.

SNM supported the efforts of nuclear medicine supplier Covidien, which reported that the company is working with its French supplier to continue to overcome challenges in obtaining HEU. Covidien also reported transitioning to low-enriched uranium (LEU)—preferred by the U.S. government in light of the risk of HEU being seized by terrorists—to produce medical isotopes. Steps include converting a Mo-99 processing facility in Petten, The Netherlands, to use LEU.

Read more at *interactive.snm.org*.

International Medical Devices Group to be Reorganized Without Industry Representation

The Global Harmonization Task Force (GHTF), founded in 1992 to address the need for international cooperation in regulating medical devices, has been disbanded.

The U.S. Food and Drug Administration (FDA) and regulatory agencies of the European Union, Japan, Canada and Australia made up the GHTF, which also involved manufacturers. A successor to the group, to be formed later this year, will not include industry input, according to the FDA.

Numbers in the News

21

Percent of U.S. hospitals that plan to replace their radiology PACS in 2011, according to a recent study by healthcare technology research and advisory firm CapSite™. The survey of more than 360 hospitals also indicated that 52 percent of radiology PACS systems in use within hospitals today are more than five years old. CapSite found a slight increase in planned radiology PACS replacements from its original study in 2009, when only 17 percent of hospitals planned to replace their PACS. Read more at *www.capsite.com.*

192

Number of RSNA Research & Education (R&E) Foundation grant applications received for the January/February deadlines. Applications are currently under review and funding decisions will be made by the R&E Foundation Board of Trustees in April. For a listing of recent donors that help make R&E Foundation grants possible, see "Research & Education Foundation Donors" on Page 15.

737

Percent increase, between 2002 and 2007, in Medicare-reimbursed PET scans performed on equipment owned or leased by non-radiologists, according to a recent study. Learn why imaging by non-radiologists continues to increase and how the radiology specialty is attempting to respond on Page 9.

575,000

Number of patients predicted to be undergoing their first course of radiation therapy in 2020, up from 470,000 in 2010. Read more about how the radiation oncology specialty is preparing for the potential workforce demand on Page 11.

CORRECTIONS

An announcement in the February 2011 issue of *RSNA News* incorrectly identified the president of Catawba Radiological Associates in Hickory, N.C. President Steven D. Harlan, M.D., was instrumental in the practice's commitment to donate $25,000 annually to the RSNA Research & Education Foundation Visionaries in Practice program through 2014.

An article in the February 2011 issue of *RSNA News* about a study presented at RSNA 2010, regarding dose reduction in pediatric cardiac CT, incorrectly identified the institution with which the study presenter is affiliated. Yulia Smal, M.Sc., is a doctoral student at the Institute of Medical Physics at the University of Erlangen in Germany.

My Turn

Well-Constructed, Well-Conducted Clinical Trials Are Essential

As healthcare resources tighten, the value of various imaging tests to patients and society is increasingly being scrutinized. Data from high quality clinical trials are the only solid foundation for arguments in favor of the benefits of radiologic imaging and intervention. Designing and implementing clinical trials, however, requires skills that are different in many ways from the laboratory methodology that radiologists may have learned in their prior education.

Clinical trials, as distinguished from observational studies, are controlled experiments where humans are the experimental animals. In the ideal laboratory setting, all variables other than the one under study are fixed, so that any change seen in the selected endpoint can be ascribed to the variable under study. However, with clinical trial subjects, patients or normal volunteers, it is impossible to control all the variables other than the one being studied. Randomization distributes the uncontrolled variables equally—at least in theory—and provides the closest approximation to laboratory conditions.

In laboratory experiments, the norm is for an experiment to be repeated by the investigator and others for verification. When a randomized human trial does show a significant difference between cohorts, repeating it to confirm the results is usually not an option because of ethical concerns, especially if the study involves cancer patients.

These are just two examples of some of the special challenges that we face when conducting clinical research. Courses such as the RSNA-supported Clinical Trials Methodology Workshop (CTMW) are essential for teaching these concepts and solutions. The CTMW, which just finished its sixth year, makes the task less daunting and provides prospective investigators with vitally needed tools.

Radiologists need to take the reins and design and run the clinical trials that will shape the future of our specialty. It is in our own best interest. The CTMW fills a critical role in educating investigators how to do the job right.

Daniel C. Sullivan, M.D., is a professor and vice-chair for research in the Department of Radiology at Duke University in Durham, N.C. Dr. Sullivan is the RSNA Science Advisor and immediate past director of the RSNA Clinical Trials Methodology Workshop, having overseen the program from its inception in 2006 through 2010.

Read "RSNA Workshop Offers Fertile Ground for Clinical Trials," on Page 13.

IN MEMORIAM:

Theodore A. Tristan, M.D.

1982 RSNA President Theodore A. Tristan, M.D., died Feb. 28, 2011. He was 86.

Dr. Tristan received his medical doctor degree from the University of Nebraska. He completed an internship and fellowship at the University of Pennsylvania (Penn), where he later became an associate professor. While at Penn, Dr. Tristan introduced cinefluoroscopy and image intensification and authored several papers on their use.

Later in his career Dr. Tristan established a private practice at the Polyclinic Medical Center in Harrisburg, Pa., and was president of the medical and dental staff, chair of the Department of Radiology and chief of the Division of Diagnostic Radiology. Dr. Tristan also served as a clinical professor of anatomy and radiology at the new Milton S. Hershey Medical School in nearby Hershey, Pa.

An advocate of expanded CME opportunities, Dr. Tristan created the RSNA Audiovisual Services Committee, a forerunner to the present-day Education Center. He received the RSNA Gold Medal in 1986.

Siegel Joins CDISC Board of Directors

Eliot Siegel, M.D., was recently named a new member of the Clinical Data Interchange Standards Consortium (CDISC) Board of Directors for a three-year term. Dr. Siegel is a professor and vice-chair of information systems for the University of Maryland School of Medicine Department of Diagnostic Radiology and chief of radiology for the VA Maryland Healthcare System in Baltimore. CDISC is a global, open, multidisciplinary, nonprofit organization that has established standards to support the acquisition, exchange, submission and archive of clinical research data and metadata. Dr. Siegel is a member of RSNA's Informatics Committee.

RSNA News

April 2011 • Volume 21, Number 4
Published monthly by the Radiological Society of North America, Inc.
820 Jorie Blvd., Oak Brook, IL 60523-2251. Printed in the USA.

Postmaster: Send address correction "changes" to: *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523-2251

Non-member subscription rate is $20 per year; $10 of active members' dues is allocated to a subscription of *RSNA News*.

LETTERS TO THE EDITOR
rsnanews@rsna.org
1-630-571-7837 FAX

SUBSCRIPTIONS
subscribe@rsna.org
1-888-600-0064
1-630-590-7770

REPRINTS AND PERMISSIONS
permissions@rsna.org
1-630-571-7829
1-630-590-7724 FAX

ADVERTISING
advertise@rsna.org
Jim Drew, Director
1-630-571-7819

RSNA MEMBERSHIP
1-877-RSNA-MEM

RECYCLED PAPER
RECYCLABLE PAPER
PRINTED WITH SOY INK

Personalized Image-guided Therapy is Next Frontier in Cancer Treatment

Along with making significant headway in the fight against cancer, image-guided drug delivery (IGDD) is expanding the concept of personalized medicine, according to an RSNA 2010 presenter and organizer of a recent National Cancer Institute (NCI) summit on the technique.

"In essence, IGDD is used to guide and validate targeted therapies in cancer," said Keyvan Farahani, Ph.D., acting chief of the Image-guided Interventions Branch of the Cancer Imaging Program, National Cancer Institute (NCI), National Institutes of Health (NIH) in Bethesda, Md. "Ultimately, this leads to the concept of personalized medicine, where an individual patient's pathology is visualized and targeted therapies are administered under image guidance. Imaging can be used to devise more effective targeted treatments based on the individual patient's disease and response profiles."

Dr. Farahani discussed the progress of IGDD in targeting tumors using a number of developing imaging technologies during his presentation at the RSNA 2010 Hot Topic session, "Image-guided Drug Delivery." Despite the many challenges to fully implementing IGDD, physiologic and quantitative imaging techniques may serve as tools in transforming those obstacles into opportunities, he said.

"The most important utility of imaging in IGDD is the ability to quantitatively assess delivery of the drug to the tumor," he explained. "While anatomical imaging may be important at the planning stage of IGDD, physiological or functional imaging methods at various resolution scales are crucial in the actual implementation. In essence, imaging can be used to quantitatively assess three equally important properties: where the drug goes—its biodistribution, what the body does to the drug—its pharmacokinetics, and what the drug does to the body—its pharmacodynamics."

"Advanced imaging methods have ushered in an era of early detection of cancers that are frequently localized to a single organ," concurred Bradford Wood, M.D., director of the NIH Center for Interventional Oncology.

When fully implemented, IGDD has the potential to become part of the "operating room of the future," morphing into devices such as a real-life tricorder similar to that used as a full-body scanner on the television show "Star Trek," Dr. Wood said.

Farahani

Wood

Biological Barriers to Drug Delivery Present Challenge

Dr. Farahani and colleagues who convened the NCI Image-guided Drug Delivery Summit in 2010 highlighted a systematic approach to fully implementing IGDD, including targeted delivery, activation and monitoring.

Although the goal is to optimize the therapeutic ratio through personalized image-guided treatments, a major challenge lies in overcoming the biological barriers to delivery of therapeutics into tumors and cells, Dr. Farahani said.

"Full implementation of IGDD requires drugs that can be imaged, localized or targeted, and activated at the tumor site and imaging techniques that provide anatomic and quantitative functional measures of the process at various spatial and temporal resolutions for active monitoring," he said.

Noninvasive imaging can reveal the location and characterize the disease early in its evolution, allowing the physician to apply drugs locally instead of throughout the body, Dr. Wood said. This may lead to more effective treatments with fewer systemic side-effects.

"Imaging might also facilitate delivery of drugs carried by nano-devices," Dr. Wood explained. "For instance, an array of particles could be injected and circulated through the bloodstream to be activated at the target by heat delivered locally using needles or focused ultrasound."

Targeted Drug Delivery is the Ultimate Goal

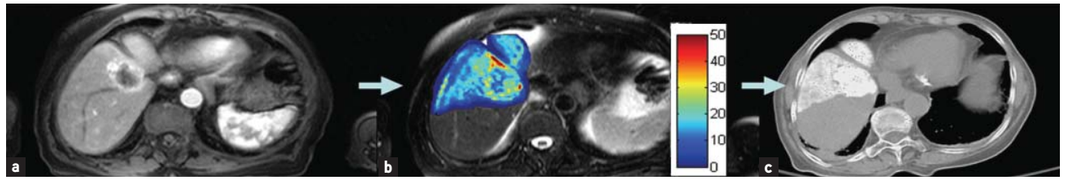
Ultimately the goal of IGDD is to maximize the delivery of therapeutics to the tumor while minimizing systemic toxicities, Dr. Farahani said. Approaches to imaging and drug delivery, he said, can be divided into these categories:

- Direct delivery via a catheter (transcatheter) under image guidance—X-ray or MR-guided transarterial chemoemolization of liver tumors via the hepatic artery, for example. (See Fig. 1)
- Systemic delivery via micro- or nanocarriers and local triggered release using exogenous mechanical energy such as MR-guided focused ultrasound to soft tissue tumors or across the blood-brain barrier. (See Fig. 2)
- Systemic targeted delivery using an array of functionalized nanoparticles that home in on molecular tumor markers, such as MR imaging-guided transferrin-targeted liposomes or theranostic agents targeted at $\alpha_v\beta_3$-integrins. (See Fig. 3)

The last approach is likely to yield the most significant developments, Dr. Farahani said.

> "The most important utility of imaging in IGDD is the ability to quantitatively assess delivery of the drug to the tumor."
>
> **Keyvan Farahani, Ph.D.**

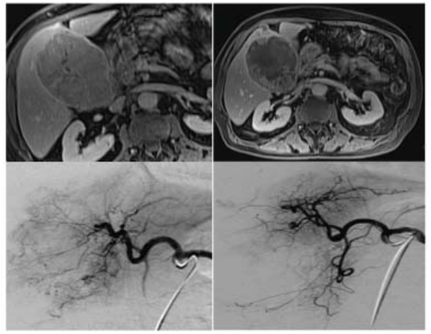
FIGURE 1A



MR imaging can predict the biodistribution of injected chemoembolic agent. *(a)* Conventional contrast enhanced T1-weighted MR imaging scan before chemoembolization shows hepatocellular carcinoma in right lobe of tumor. *(b)* Transcatheter intraarterial perfusion MR imaging shows anticipated biodistribution of chemoembolic drugs prior to injection. Colors quantify perfusion in mL/min/100 mg of tissue. *(c)* CT scan obtained after chemoembolization shows lipiodol staining within targeted segment of liver, confirming biodistribution that was predicted in *(b).*

Images courtesy of Reed Omary, M.D.

FIGURE 1B



A 68-year-old male with unresectable hepatocellular carcinoma in the right lobe treated with two cycles of drug-eluting bead-transarterial chemoembolization and sorafenib, successfully bridged to surgical resection three months after end of the second cycle. Contrast-enhanced MR imaging *(top)* and celiac arteriogram *(bottom)* at baseline *(left)* and 21 days post-treatment *(right).*

Images courtesy of Jeff Geschwind, M.D.

"Tumor-specific nanoparticles could be administered systematically but only release their therapeutic cargo once they've reached their biological targets," Dr. Farahani said. "This approach obviates the need for triggering with external sources of energy."

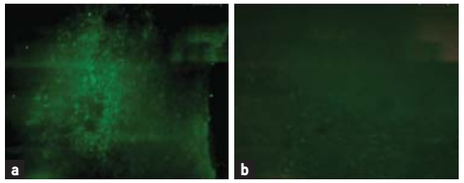
A number of pre-clinical and clinical IGDD studies have been completed to date, he said. Although nanomedicine-based studies are largely in the pre-clinical stage with several clinical trials currently under way, NCI funding opportunities are available to advance further research, Dr. Farahani said.

"NCI funding opportunities relevant to IGDD are aimed at solving challenges to fully implementing IGDD through collaboration across specialties," Dr. Farahani said. "We believe that there is tremendous potential in that research."

Similarly, the Center for Interventional Oncology offers opportunities for investigating cancer therapies that use imaging technology to diagnose and treat localized cancers in targeted and minimally or non-invasive methods, Dr. Wood said. The center, founded in 2007, is a joint effort of NIH, NCI and the National Heart, Lung and Blood Institute.

"The center will help bridge the gap between emerging technology and the everyday practice of medicine," Dr. Wood said. □

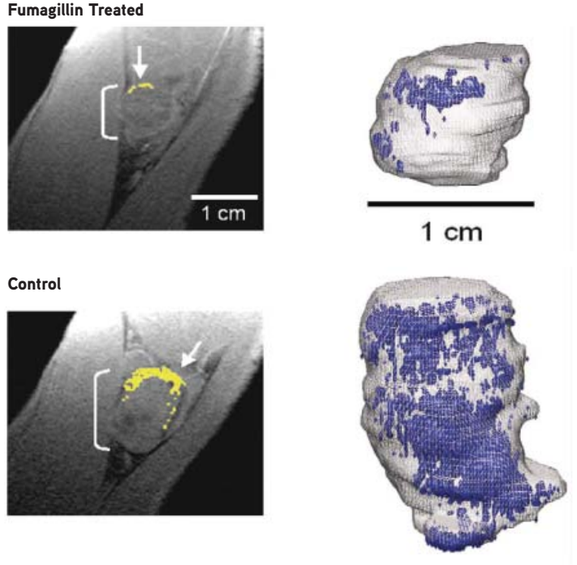
FIGURE 2



Representative histologic sections from *(a)* a mouse tumor treated with pulsed-high intensity focused ultrasound (HIFU) and *(b)* control tumor, viewed at fluorescence microscopy. Expression of green fluorescent protein (GFP) reporter gene (green) is clearly visible in the tumor that underwent pulsed-HIFU prior to intravenous injection of GFP plasmid. Pulsed-HIFU increased the GFP delivery and expression by about tenfold as compared to the control.

Images courtesy of King C. Li, M.D.

FIGURE 3



Diminished $\alpha_v\beta_3$–integrin contrast enhancement in T_1-wt GRE MR images in rabbits administered $\alpha_v\beta_3$–targeted fumagillin nanoparticles *(top)* versus those given targeted nanoparticles without drug *(bottom).* Left: Enhancing pixels, color coded in yellow *(arrows),* demonstrate sparse areas of angiogenesis in fumagillin treated animal *(top).* Right: 3D neovascular maps of example Vx-2 tumors on day 16 following treatment with *(top)* and without fumagilin *(bottom).*

Reproduced with permission: Winter PM, et al. (2008) *FASEB J* 22:2758-2767. Images courtesy of Gregory Lanza. M.D.

LEARN MORE

Get the latest on the National Cancer Institute Cancer Imaging Program at *imaging.cancer.gov.*

Self-selected Radiology Mentors Yield Greater Satisfaction

While formal mentoring programs are considerably beneficial to radiology residents overall, those allowed to self-select mentors are more likely to be satisfied with the relationship, according to research from Beth Israel Deaconess Medical Center (BIDMC) and Harvard Medical School in Boston.

Mentoring has long been considered a valuable tool in medical training, but only about half of the nation's residency programs offer formal mentoring programs, according to Phillip Boiselle, M.D., lead author of the study, "Qualitative Assessment of a Formalized Radiology Resident Mentoring Program," presented at the 2010 Association of University Radiologists (AUR) Annual Meeting. Researchers discovered that existing programs may benefit from allowing residents to self-select a mentor during training, he said.

"Mentoring residents is associated with a number of potential benefits including enhanced career development, assistance with future career decisions such as post-residency specialty training, greater job satisfaction and assistance with work-life balance," said Dr. Boiselle, a professor of radiology at Harvard Medical School and vice-chair of quality, safety & performance improvement and director of thoracic imaging at Beth Israel Deaconess Medical Center. "For residents with aspirations to enter academic radiology careers, mentoring offers the potential for enhanced participation in research and educational projects, as well as acceleration of academic career development."

Dr. Boiselle, who founded the mentoring program in the radiology department at BIDMC five years ago, used a hybrid approach that allows residents to self-select a mentor or have one assigned to them.

Although the program received positive informal feedback from residents, Dr. Boiselle and colleagues opted to formally evaluate the program to ensure its overall effectiveness. "At the same time, we could also compare the responses of residents who were self-selecting mentors versus those who were assigned mentors," he said.


Yamada


Slanetz


Boiselle

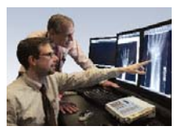
Chemistry Critical to Mentoring Success

A voluntary web-based survey was sent to 27 second-, third- and fourth-year radiology residents who had participated in the mentoring program for at least six months. Questions included year in residency, method of assignment to mentor, length of assignment with current mentor, frequency and types of communication between mentor and mentee, whether the resident considered their assigned faculty member as their primary mentor, perception of the general value of mentoring, level of satisfaction with the mentorship and residency programs and the perceived impact of mentoring.

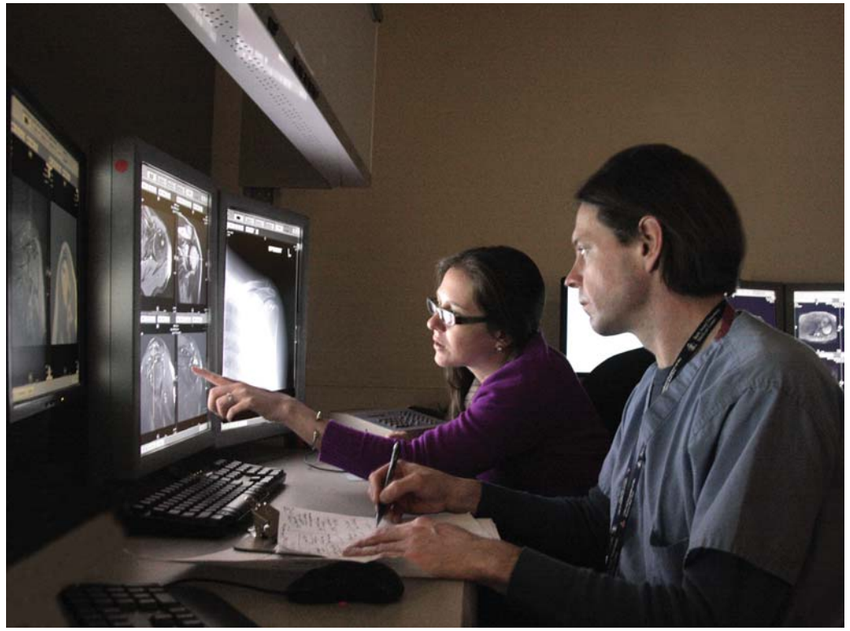
Of the 25 residents who returned the survey, 14 had self-selected mentors and 11 were assigned them. Both groups unanimously agreed that mentoring was beneficial or critical to their training. However, residents who self-selected mentors were significantly more satisfied with the program and more likely to consider the person they chose as their primary mentor as compared to those with assigned mentors.

> "In the setting of an assigned mentorship, good chemistry can develop over time, but it's more likely to occur in self-selected mentoring settings."
>
> **Phillip Boiselle, M.D.**

ON THE COVER



Radiology professor Ferris Hall, M.D., instructs former resident Aaron Hochberg, M.D., at a PACS workstation in the radiology department at Beth Israel Deaconess Medical Center.



Founded five years ago by Phillip Boiselle, M.D., the mentoring program at Beth Israel Deaconess Medical Center offers a hybrid approach that allows residents to self-select a mentor or have one assigned to them. *From left:* Staff radiologist Corrie Yablon, M.D., mentors former resident Michael Powell, M.D.
Image courtesy of Beth Israel Deaconess Medical Center

"Our findings are not surprising," Dr. Boiselle said. "The phrase 'having good chemistry' is often used to describe a good mentoring relationship. In the setting of an assigned mentorship, good chemistry can develop over time, but it's more likely to occur in self-selected mentoring settings.

"The other key ingredient for the success of a mentoring relationship depends on the frequency of interaction between mentor and resident," Dr. Boiselle added. "A combination of chemistry and frequency of interaction can explain some of the findings."

Although self-assigning a mentor proved beneficial, residents surveyed also reported positive experiences with assigned mentors—a point illustrated by the study's co-author Kei Yamada, M.D., who was assigned to Dr. Boiselle during his residency at BIDMC.

"It was nice to be assigned because it eliminated the process of trying to find someone myself, which would have been difficult because I didn't know anyone at the time," said Dr. Yamada, now an interventional radiology fellow at Stanford University. "Fortunately Dr. Boiselle and I clicked and it was a good fit."

Mentors Encourage Life-Work Balance

Career advice is not the only benefit to the mentoring process. An avid runner, Dr. Yamada was always encouraged by Dr. Boiselle to find time for exercise despite the difficulties of residency.

"Dr. Boiselle encouraged me to not only keep up with my academics, but also to stay focused on things I enjoy," said Dr. Yamada, who met with Dr. Boiselle at least once a month during the four-year residency program.

Mentors who understand the importance of balance—and stress that to residents—are especially beneficial, according to Priscilla Slanetz, M.D., M.P.H., co-director of BIDMC's residency and mentoring programs.

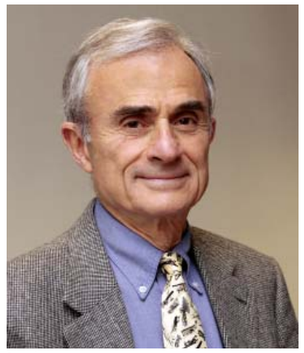
"A lot of residents today are very interested in figuring out how to balance various aspects of their lives during training," Dr. Slanetz said. "It's a generational concern and one I personally think is very reasonable. To be satisfied in your career, you need satisfaction in your personal life."

Dr. Boiselle is encouraged by the growing number of formal mentoring programs and hopes this research inspires other institutions to create their own programs. RSNA Board Liaison for Science N. Reed Dunnick, M.D., who chairs RSNA's Resident and Fellows Committee, agrees that BIDMC's mentoring program is a model for other institutions.

"I'm not at all surprised by the success they've had," said Dr. Dunnick, the Fred Jenner Hodges Professor and chair of the Department of Radiology at the University of Michigan in Ann Arbor. "I'm hoping it will encourage other departments to create similar programs." □

Self-referral Spurs Growth in Nonradiologist Imaging

When the Maryland Supreme Court upheld a state law prohibiting physicians from referring patients for MR imaging, CT and radiation therapy services to providers in their own group practice, it marked a rare victory for opponents of the practice of self-referral.


Levin


Sharpe


Nazarian

The January 2011 ruling marks a setback for the practice that is contributing to significant growth in imaging by non-radiologists, according to recent research from Thomas Jefferson University Hospital in Philadelphia. Tracking the growth in non-radiologist use of imaging equipment over five years, researchers found that Medicare PET scans performed on equipment owned or leased by non-radiologists grew by a whopping 737 percent between 2002 and 2007, said study co-author David C. Levin, M.D., professor emeritus at Jefferson Medical College and former chair of the Department of Radiology at Thomas Jefferson University Hospital.

In a study published in the January 2011 issue of the *Journal of the American College of Radiology* researchers determined that Medicare payments to non-radiologists for noninvasive medical imaging had recently surpassed those to radiologists, thanks in part to rapid growth in fee-for-service payments to nonradiologists.

The trend toward non-radiologist imaging is troubling on a number of fronts, Dr. Levin said.

"When doctors refer patients to a radiologist, they have no financial incentive, so there is relatively little inappropriate imaging," Dr. Levin said. "When physicians such as cardiologists or orthopedists have their own equipment and self-refer, they get more income. That creates a built-in conflict of interest and that is troubling."

"If one benefits from a study being performed, then one might be tempted to order more studies," concurred co-author Richard E. Sharpe Jr., M.D., M.B.A., chief radiology resident at Thomas Jefferson University Hospital. "That's the moral hazard in supplier-induced demand. Self-referral also ultimately increases healthcare costs."

"Radiologists are well compensated, so we're not arguing about the money," echoed Dr. Levin. "This is about saving costs for the healthcare system."

Lawmakers Yet to Close Stark Loophole

Ironically, the increase in non-radiologist imaging is rooted in a law originally intended to prohibit self-referral: the Stark law, which barred self-referrals for clinical laboratory, imaging and other health services under Medicare if the referring doctor had a financial interest in the facility. The law had one glaring loophole: an exception allowing physicians to refer tests to themselves or another physician in the same group practice if the equipment is located in their own office.

Since the Stark law took effect in 1992, manufacturers began aggressively marketing high-tech imaging equipment to nonradiologists. Additional revenue streams from imaging proved attractive to physicians facing stagnating salaries and declining reimbursements.

"The underlying message we send to physicians is, the more exams you do, the more you get paid," said Alwyn Cassil, director of public affairs for the Center for Studying Health System Change (HSC), an independent, nonpartisan health policy foundation based in Washington, D.C.

In a recent physician survey, Cassil and HSC colleagues discovered that 22.7 percent of physicians in community-based, physician-owned practices reported their practice owned or leased equipment for X-rays and 17.4 percent possessed equipment for advanced imaging. The survey included information from more than 4,700 physicians and yielded a 62 percent response rate. Since the analysis examined the extent of physician practice ownership or leasing of medical equipment, the sample was limited to 2,750 physicians practicing in community-based, physician-owned practices who represent 58 percent of all physicians surveyed.

Despite potential drawbacks to excessive imaging—radiation dose remains a headline in mainstream media—and opposition from organized radiology, lawmakers have so far been reluctant to close the loophole in the Stark law. Non-radiologist physician groups have lobbied against any changes and radiologists say a provision added to the 2009 federal Patient Protection & Affordable Care Act, requiring self-referring physicians to disclose financial interest to patients and inform them of nearby imaging facilities, isn't likely to have an impact.

"That provision is toothless," Dr. Levin said. "Ninety-nine out of 100 patients will trust their doctor and get the exams done in the same office."

Nonradiologists Drive Musculoskeletal Ultrasound Growth

One of the biggest growth areas is musculoskeletal ultrasound, promoted as a convenient, inexpensive alternative to MR imaging. In a study presented at RSNA 2010, Thomas Jefferson University researchers analyzed U.S. Centers for Medicare and Medicaid Services data between 2000 and 2008 and found that non-radiologists accounted for 71 percent of the increase in musculoskeletal ultrasound growth. The study showed that 213,425 musculoskeletal ultrasound studies were primarily reimbursed by Medicare in 2008, up from 56,254 exams in 2000. Of the 157,171 increase in exams over that time period, 111,268 were conducted by nonradiologists, researchers found.

"One of the most shocking findings was that podiatrists performed 66,585 studies in 2008, after performing almost 3,920 in 2000," said Dr. Sharpe, a study author. "In 2008 podiatrists performed three times more exams than other specialties and any other nonradiologist provider type and approached the number of examined performed by radiologists."

It appears unlikely that payers will wait for new legislation before pushing back against imaging overutilization. In September 2009, Blue Cross Blue Shield issued a new policy in four states deeming all musculoskeletal ultrasound studies "experimental," citing the potential for lack of training and oversight amid the proliferation of diagnostic units. Although the decision was reversed five months later, it is a clear sign of things to come, Dr. Levin said.

"Payers can set policy versus setting laws," he said. "In Philadelphia, Blue Cross will not pay for high-end imaging in an office unless it's a full-service modality provider. As a result, no cardiology practices in Philadelphia have a CT machine."

Accreditation, Malpractice Reform Can Reduce Overutilization

Radiologists are recommending a number of changes, including more vigorous accreditation programs, said Levon Nazarian, M.D., a professor of radiology and vice-chair of education at Thomas Jefferson University Hospital. Dr. Nazarian helped develop a new program at the American Institute of Ultrasound in Medicine that allows nonradiology practices to earn accreditation in musculoskeletal ultrasound.

"We have to have accreditation programs," Dr. Nazarian said. "Otherwise, how are payers going to know who to pay and who not to pay? I am a board-certified radiologist who works in an accredited ultrasound center, yet I use the same CPT code as a non-radiologist who may not have had proper training."

Malpractice reform is also central to any effort to reduce unnecessary imaging, Dr. Sharpe said. A recent study conducted at the Children's Hospital of Philadelphia found that approximately one-fifth of CTs, MR imaging and other tests ordered by orthopedists are based on the fear of a lawsuit rather than a clinical indication. In the study presented at the American Academy of Orthopedic Surgeons conference in February 2011, 72 surgeons prospectively tracked what imaging studies they ordered—and why—for 2,068 patient exams.

"Malpractice fears, either real or perceived, create strong incentive to order extra scans," Dr. Sharpe said. "I've heard many doctors say that they will never get faulted for ordering a study, but could get faulted for not ordering one. This helps them justify ordering more studies."

Other possible changes include moving from fee-for-service payments to value-based alternatives.

"The big question is, what incentives can we provide to physicians for not imaging?" Cassil said. "We pay doctors to scan, scope and cut, but we don't pay them terribly well to talk with patients." □

LEARN MORE

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

> "When physicians such as cardiologists or orthopedists have their own equipment and self-refer, they get more income. That creates a built-in conflict of interest and that is troubling."
>
> **David C. Levin, M.D.**

Demand Outpaces Radiation Oncologist Supply

The demand for radiation therapy will increase 10 times faster than the supply of radiation oncologists in the next decade, potentially creating a shortage that could profoundly impact patient care, according to new research.

Published in the December 10, 2010, issue of the *Journal of Clinical Oncology,* the study projects that the number of patients undergoing radiation therapy during their first treatment course will increase from 470,000 to 575,000 per year. Meanwhile, taking into consideration new trainees and projected retiring radiation oncologists, the number of full-time equivalent radiation oncologists will increase from 3,943 to 4,022 per year.

"We project that between 2010 and 2020, demand for radiation therapy will increase by 22 percent, or 10 times faster than the supply of radiation oncologists," said lead researcher Benjamin D. Smith, M.D., an assistant professor of radiation oncology at The University of Texas MD Anderson Cancer Center in Houston. "By contrast, based on current trainee levels, we project only a two percent increase in the number of full-time practicing radiation oncologists."

In terms of patient impact, researchers found that older people and minorities are most likely to be impacted. "As demand for radiation therapy grows, radiation oncologists will have to work to seek greater efficiencies in their practices to accommodate growth in demand," Dr. Smith said. "If growth in demand cannot be accommodated, wait times for radiation therapy may increase and quality of care could suffer."

Researchers predicted demand for radiation therapy between 2010 and 2020 by multiplying current radiation utilization rates—as calculated with surveillance, epidemiology and end-results data—by population projections from the U.S. Census Bureau. They projected the supply of radiation oncologists with data from the American Board of Radiology, including current radiation oncologists and active residents, and accounting for variation in full-time equivalent status and expected survival of radiation oncologists by age and sex.

ASTRO Studies Future Demand

It is currently unclear whether there is excess capacity that can absorb some of the increase in the need for radiation therapy, said Bruce G. Haffty, M.D., a professor and chair in the Department of Radiation Oncology at the University of Medicine and Dentistry of New Jersey's Robert Wood Johnson Medical School and New Jersey Medical School and a member of the *RSNA News* Editorial Board.

The American Society for Radiation Oncology (ASTRO) Board of Directors has approved a workforce study to investigate that capacity as well as the future demand for radiation oncologists, Dr. Haffty said.

Smith

Haffty

Fortunately, calculating the number practitioners in radiation oncology may be easier than in other subspecialties, Dr. Haffy added. "The vast majority of radiation oncologists are board certified, so we have a good handle on the actual numbers of practitioners out there. Secondly, almost everyone who performs radiation treatment is in fact, a radiation oncologist."

ASTRO's study group is also examining other critical members of the workforce—physicists, dosimetrists, therapists and nurses—in terms of how they can help absorb the increasing workload, Dr. Haffty said.

Teamwork, Hypofractionation May Increase Patient Volume

Study authors outlined strategies to help mitigate the impact of the projected shortage including using team-care models, shortening the length of radiation treatments and gradually increasing the number of residents accepted into training programs.

> "We project that between 2010 and 2020, demand for radiation therapy will increase by 22 percent, or 10 times faster than the supply of radiation oncologists."
>
> **Benjamin D. Smith, M.D.**

The team-care model—incorporating physician assistants or advanced-practice registered nurses to assist with the care of patients receiving radiation therapy—has proven efficient and effective at MD Anderson, Dr. Smith said. "The team really works well to optimize patient throughput, performing tasks such as the initial patient assessment that allow physicians time to focus on simulation and treatment planning," Dr. Smith said.

It's not clear whether the team model allows radiation oncologists to increase patient volume or simply perform more productively with their existing patient population, Dr. Haffty said. "That's another thing the ASTRO survey will accomplish—give us a better handle on whether these models improve our capacity," he added.

There has also been a trend toward decreasing the length of radiation treatment, Dr. Haffty continued.

"We've seen a lot of research on hypofractionated therapies—fewer treatments at a higher dose—and how effective they are compared with standard therapy. That will affect how much they are utilized over the next 10 years," Dr. Haffty said. "Again, it's unclear whether these abbreviated radiation courses will actually increase the volume of patients we are able to see, but it might affect the numbers over time."

Gradual Increase Recommended for Residency Programs

A gradual increase in the number of trainees admitted to programs would help to increase the number of radiation oncologists available to treat patients over the next 10 years, according to Dr. Smith and colleagues.

While it's fairly certain that demand for radiation therapy is increasing faster than the supply of radiation oncologists, Dr. Haffty cautions against flooding radiation oncology residency programs without further investigation of the issue.

"Before we jump ahead and say we need to increase the number of trainees, we need more information about whether there are other ways of increasing capacity—and there may currently be a little excess capacity," Dr. Haffty said. "As we study this over the next few years, we will get a better handle on whether we need to speed it up or continue with existing gradual increases—about 20 percent in the last five years."

Another factor: Increasing numbers of trainees entering radiation oncology would also impact the numbers of instructors needed and the suitable number of patients within a training program, Dr. Haffty added.

Physician resources are not the only consideration, Dr. Smith said.

"Growing capacity also involves a very large capital investment—for example, purchasing a linear accelerator and creating a vault that is sufficiently shielded to house it," Dr. Smith said. "It's much harder for a radiation oncology program to grow than, say, a medical oncology program, which may just need a few more infusion chairs and support staff. With centers in more densely populated areas, like ours in Houston, there may not be as much space in which to grow."

Between 2010 and 2020, demand for radiation therapy is projected to increase by 22 percent—10 times faster than the supply of radiation oncologists. Using team-care models, shortening the length of radiation treatments and gradually increasing the number of residents accepted into training programs could help mitigate the projected shortage.

Shortage Could Impact Older, Minority Patients

The shortage could profoundly affect patient care, researchers found. Study data suggests groups most likely to feel the impact are those 65 years and older who could see the need for radiation therapy increase 38 percent, and minorities who could see demand increase 45 percent. The rapidly aging U.S. population stands to compound the dilemma, Dr. Smith said.

"The fraction of our patients who are over 65 will increase substantially in the next 10 to 20 years," Dr. Smith said. "From a radiation oncologist's perspective, we may approach treating a frail, 82-year-old person with cancer very differently that we would, say, a robust 50-year-old person with the same cancer. Radiation oncologists need to research and think about how to address the needs of our older patients over the next few decades." □

LEARN MORE

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

BOOST RETURNS TO RSNA 2011

Returning to RSNA 2011, Bolstering Oncoradiologic and Oncoradiotherapeutic Skills for Tomorrow (BOOST) will cover five topics: Head & Neck (ENT skull base tumors), Prostate, GI (Pancreas), Lymphoma and Central Nervous System (Intracranial skull base tumors). Advanced registration for RSNA 2011 begins May 4 for RSNA and AAPM members. See page 23 for more information.

RSNA Workshop Offers Fertile Ground for Clinical Trials

As a starting junior faculty member, James R. Fink, M.D., wanted to pursue studies in advanced MR imaging in neuro-oncology but lacked the training in evidence-based and hypothesis-driven research needed to move his career forward.

"In neuro-oncology, many advanced imaging techniques have been developed but have not yet been rigorously studied in terms of multi-center prospective technology assessment and outcomes effectiveness," said Dr. Fink, an assistant professor of radiology at the University of Washington (UW) in Seattle. "I had a sense this was the direction I wanted to take, but I didn't know how to go about creating my own prospective study."

Fink

Macura

Although she chose a different area of research—MR imaging in prostate cancer—Katarzyna J. Macura, M.D., Ph.D., faced similar roadblocks in developing the protocol needed to rigorously evaluate imaging modalities.

"Clinical trial design principles were not covered at the time of my training," said Dr. Macura, an associate professor of radiology and urology at Johns Hopkins University in Baltimore, who earned both her degrees at Medical University of Lodz, Poland.

Drs. Macura and Fink were not alone. In fact, the growing number of potential clinical investigators armed with good ideas, but lacking the time or training to get them off the ground, inspired the program that has launched numerous radiology research careers since its 2006 inception: RSNA's Clinical Trials Methodology Workshop.

The program offers clinical investigators a weeklong opportunity for one-on-one mentoring and instruction in clinical research design, regulatory issues, biostatistics, ethics and other topics, as well as specific guidance in crafting protocols for imaging clinical trials.

After submitting abstracts of their proposed clinical research, Drs. Macura and Fink were accepted into the 2007 workshop and eventually went on to secure funding to conduct their research projects in a clinical setting.

Concentrated Mentoring Key to Protocols

The workshop's format is what makes it so succesful, participants said. Starting with 25-30 students and faculty, the workshop is divided into three sections: a didactic program, an experiential protocol development group and student protocol writing and breakout sessions. Information is presented via lectures, small group discussions and one-on-one mentoring.

The concentrated mentoring and feedback from top research methodologists is critical to developing complete protocols, participants said. "The one-on-one interaction provided instruction very specific to the project, which was immediately applicable and helped strengthen our proposals," said Dr. Macura, whose study focused on the assessment of diagnostic accuracy of MR spectroscopy, diffusion-weighted imaging and dynamic contrast enhanced MR imaging in prostate cancer patients undergoing prostatectomy.

For his proposal targeting surgical biopsy and maximizing surgical resection of human malignant gliomas using advanced MR imaging methods, Dr. Fink found the expert instruction critical in discerning necessary aspects of protocol writing.

> "At the end of the course, proposals are well on their way—even including consent forms—toward submission to the Institutional Review Board and funding agencies."
>
> **Katarzyna J. Macura, M.D., Ph.D.**

Since its 2006 inception, dozens of clinical investigators have launched their careers at RSNA's Clinical Trials Methodology Workshop, an intensive weeklong session offering one-on-one mentoring, rigorous instruction and student protocol writing. *Above:* 2007 participants gather outside the workshop locale in Scottsdale, Ariz.; *(right)* information is presented via lectures, small group discussions and one-on-one mentoring—a format key to the program's success.

Using RSNA's Clinical Trial Methodology Workshop protocol template, similar to the one used by the American College of Radiology Imaging Network (ACRIN) format, mentors advised Dr. Fink on all aspects of crafting a prospective study protocol including participant selection and eligibility criteria, study procedures, statistical considerations and ethical considerations such as obtaining informed consent.

"Now that I've worked on ACRIN brain tumor imaging studies as a local site principal investigator, I understand the need for that format," Dr. Fink said. "The RSNA workshop offered good early exposure for me in terms of prospective study design and research clinical methodology."

Throughout the week, students identify project milestones: final concept sheets, draft protocols, draft informed consent, post-test and completed protocols due, with faculty reviewing progress and offering input. The workshop culminates in hypothesis-driven projects with implementable clinical research protocols.

"At the end of the course, proposals are well on their way—even including consent forms—toward submission to the Institutional Review Board and funding agencies," Dr. Macura said.

Such results are often the outcome of the labor-intensive sessions, said Daniel C. Sullivan, M.D., who co-founded the program with Constantine A. Gatsonis, Ph.D., of Brown University.

"The Clinical Trials Methodology Workshop is more demanding than many other courses in terms of work product required during the week-long workshop, but attendees consistently rate it as one of the best courses they've taken," said Dr. Sullivan, program co-director with Dr. Gatsonis until 2010. The program is now directed by Barry Siegel, M.D., and Nancy Obuchowski, Ph.D.

Workshop Leads to Grant Funding

Immediately after the workshop, Dr. Fink enrolled in RSNA's Advanced Course in Grant Writing, which further paved the path to funding. In 2010, he secured a pilot grant from the Nancy & Buster Alvord Brain Tumor Center Research Grant at UW to fund his RSNA Clinical Trials Methodology Workshop project.

Dr. Macura's RSNA-developed project helped secure funding through the Johns Hopkins University in Vivo Cellular and Molecular Imaging Center, which led to subsequent clinical implementation and creation of a prostate imaging service at Johns Hopkins. "We have also incorporated the scanning protocol into a routine clinical care at our institution," Dr. Macura added.

Ultimately, the workshop gave Dr. Fink a firm foundation for the path he plans to stay on for the remainder of his career.

"I find neuro-oncology a fertile area for research and I would like to continue in that direction and obtain more funding grants," Dr. Fink said. "A key element to securing future research funding is obtaining quality preliminary data and that comes from conducting pilot studies like the one that originated in the RSNA program. The experience was invaluable." □

APPLY FOR RSNA'S 2012 CLINICAL TRIALS METHODOLOGY WORKSHOP

For information on applying for RSNA's seventh Clinical Trials Methodology Workshop, see Education & Funding Opportunities on Page 22.

LEARN MORE

Clinical Trials Focus of My Turn

Read the My Turn column, "Well-Constructed, Well-Conducted Clinical Trials A Must," by RSNA Science Advisor Daniel C. Sullivan, M.D., on Page 4. Dr. Sullivan is a professor and vice-chair for research in the Department of Radiology at Duke University in Durham, N.C., and immediate past director of the RSNA Clinical Trials Methodology Workshop, having overseen the program from its inception in 2006 through 2010.

RESEARCH & EDUCATION FOUNDATION DONORS

The R&E Foundation thanks the following donors for gifts made January 21 – February 10, 2011.

Visionaries in Practice Program

A giving program for private practices and academic departments

BRONZE LEVEL ($10,000)

Foundation Radiology Group, *Pittsburgh*

Visionary Donor Program

Individuals recognized for cumulative lifetime donations

BRONZE VISIONARY ($5,000)

Gerald E. Dalrymple, M.D.

Individual Donors

Donors who give $1,500 or more per year qualify for the RSNA Presidents Circle. Their names are shown in bold face.

$2,500 – $5,000

Mary & Allen F. Turcke, M.D.

$1,500 – $2,499

Nick & Jean Bryan
Stamatia V. Destounis, M.D. & Manuel Matos, M.D.
David C. Levin, M.D.

$1,000

Hitachi Medical Systems

$250 or less

Darshan J. Acharya, M.D.
Amjad Ali, M.D.
Melquiades Alvarez, M.D.
Branch T. Archer III, M.D.
Rajkumari B. Balchandani, M.D.
Stephen A. Barrand, M.D.
Robert B. Benazzi, M.D.
Juan De Dios Berna Mestre, M.D.
Renu Berry, M.D.
Kalpana & Shailesh M. Bhatt, M.D.
Martin Bledsoe, M.S.
Andrew S. Blum, M.D.
Lynn S. Broderick, M.D.
Stephen D. Brown, M.D.
Sarah & Alan D. Brydie, M.B.Ch.B.
David S. Buck, M.D.
John A. Cassese, M.D.
Cynthia L. Christoph, M.D.
Crandon F. Clark Jr., M.D.
Michelle & Blaze W. Cook, M.D.
Grace Keating Crotty & James M. Crotty, M.D.
Gerald E. Dalrymple, M.D.
Brenda S. Foreman & Anthony J. De Raimo, M.D.
James M. Debnam, M.D.
Belinda & Shane T. DeSimone, M.D.
Drew H. Deutsch, M.D.
Angela M. Fried, M.D. & C. Stephen Djedjos, M.D.
Carol A. Dolinskas, M.D.
Gregory J. Dubel, M.D.
Erik A. Elam, M.D.
Anne F. Fitzpatrick, M.D.
Stephanie Flicker, M.D.
Anna S. Franklin, M.D.
Kelly M. Freed, M.D. & Brian Freed
Jean M. Malecki & James T. Friedland, M.D.
Connie J. Gapinski, M.D., Ph.D.
Martin Garcia, M.D.
Brigid M. Gerety, M.D.
Susan L. Goldfine, M.D.
Andrew Greenshields, M.D.
Francis G. Greiner, M.D.
Lincoln Gundersen, M.D.
Dale W. Gunn, M.D.
Akash C. Joshi, M.D. & Arti Gupta, M.D.
Ester P. Van der Wal, M.D. & Djavid Hadian, M.D.
Elizabeth L. Hadley, M.D.
Jacquelyn & Roger K. Harned, M.D.
David L. Harr, M.D.
Vaios Hatzoglou, M.D.
Jose D. Herrera, M.D.
Shoko & Katsuhide Ito, M.D.
Christine Quinn, M.D. & Paul C. Janicki, M.D.
Christian H. Julien, M.D.
Yazan K. Kaakaji, M.D.
Russell Karp, M.D.
Georg A. Katz, M.D.
Lori & Shannon L. Kauffman, M.D.
Delia M. Keating, M.D.
Melanie & Mark W. Keenan, M.D.
Erik J. Kilgore, M.D.
Cassandra & Gerald M. Klein, M.D.
Mark E. Klein, M.D.
Dawna J. Kramer, M.D. & Monte Kramer
George S. Krol, M.D.
Karah M. Lanier, M.D.
Eun Jung Lee, M.D.
Won Jae Lee, M.D.
Christopher K. Lin, M.D.
Alan F. Lobo, M.D.
Jonathan T. Marshall, D.O.
Anthony F. Massi, M.D.
Mary Ann & Thomas F. McKay, M.D.
In honor of Jack L. Paradise, M.D.
John M. Milbourn, M.D.
Rudolph H. Miller III, M.D.
Laszlo Miskolczi, M.D.
G. Tom Morea, M.D.
Jonathan S. Movson, M.B.Ch.B.
Alexandra L. Muschenheim, M.D.
Nobuo Nakagawa, M.D.
Craig A.W. Nasralla, M.D.
Wafa M. & Richard W. Naufal, M.D.
Anna & Diego B. Nunez Jr., M.D., M.P.H.
Bernardo M. Olhagaray-Rivera, M.D.
Christine E. & John O. Olsen, M.D.
Fukiat Ongseng, M.D.
Eric K. Outwater, M.D.
Michelle & Richard R. Ozmun Jr., M.D.
Mahender Pampati, M.D.
Ralph C. Panek, M.D.
Pamela J. Koch, M.D. & Raymond Peart
Joseph R. Polino Jr., M.D.
Brent C. Price, M.D.
Donald S. Prior, M.D.
Betty & Lee R. Radford, M.D.
Joshua B. Rafoth, M.D.
Janak K. Raval, M.D.
Lidia I. Reyes, M.D.
Margaret & Bradford J. Richmond, M.D.
Judith J. & Joseph G. Rusnak, M.D.
Laura Gregg & Paul J. Schmidt, M.D.
Richard M. Seger, M.D.
Sadashiv S. Shenoy, M.D.
Catherine F. & Michael J. Shortsleeve, M.D.
David J. Stephenson, M.D.
In memory of Henry P. Pendergrass, M.D.
Kimmie Ng & Henry Su, M.D., Ph.D.
Nasiru M. Tahir, M.B.B.S.
Thomas N. Thompson, M.D.
Gregorio M. Tolentino, M.D.
Helmut G. Unger, M.D.
Mitzi Wagner & Jose Valderrabano, M.D.
Sony Chong & Kao-Lun Wang, M.D.
Danielle L. Wellman, M.D.
Donna M. & Warren M. Wilkins, M.D.
Heidi Wilson, M.B.A. & George Wilson
Charlene & Gregory W. Wolfe, M.D.
Michael J. Workman, M.D.
Shigeyuki Yoshida, M.D.
Carter S. Young, D.O.
Syed Furqan H. Zaidi, M.D.
Jesus Zamora, M.D.
Hope & Jack A. Ziffer, M.D., Ph.D.

Your Donations in Action

With an RSNA R&E Foundation grant, **Roger Lin, M.D., Ph.D.,** is working to develop and test a device that could treat catheter infections with fiber optically delivered ultraviolet light.

Journal Highlights

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

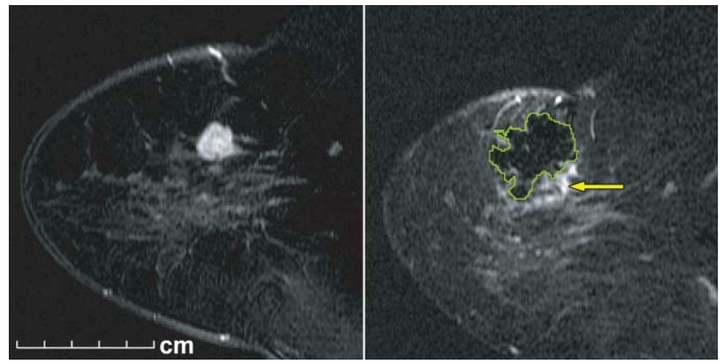
Focused Ultrasound Surgery in Oncology: Overview and Principles

Focused ultrasound surgery (FUS)—a noninvasive, image-guided therapy and alternative to surgical interventions—presents an opportunity to revolutionize cancer therapy and change drug delivery of therapeutic agents in new focally targeted ways.

In a State of the Art article in the April issue of *Radiology (RSNA.org/Radiology),* Clare M.C. Tempany, M.D., of the Department of Radiology at Brigham and Women's Hospital and Harvard Medical School, in Boston, and colleagues review the principles, technical devices and clinical cancer applications of image-guided FUS. The authors provide:

- A comparison of guidance modalities including ultrasonography and MR imaging
- Accounts of worldwide clinical FUS experiences in breast, liver, prostate, bone, uterine and brain tumors

"A completely noninvasive, image-guided and controlled new therapy delivery system like FUS can revolutionize the various fields of surgery, radiation oncology and other medical fields," Dr. Tempany and colleagues conclude. "This technology may be expensive, but the high cost is counterbalanced by reduced complication rates and hospitalization costs and, even more important, better outcomes. FUS may provide even more astonishing discoveries in the future."



Contrast-enhanced T1-weighted images (subtraction image) of a localized breast cancer mass *(left)* before and *(right)* after MR-guided focused ultrasound surgery. The size of the region of nonperfusion *(green outline)* is larger than the original mass and includes a surgical margin. An adjacent area of contrast enhancement *(arrow)* may be difficult to distinguish from residual tumor, and thus would require further treatment before ending the procedure.
(*Radiology* 2011;259;1:39–56) ©RSNA, 2011. All rights reserved. Printed with permission.

Fallopian Tube Disease in the Nonpregnant Patient

Pathologic conditions affecting the fallopian tube range from the very common pelvic inflammatory disease to the much rarer, but nevertheless important to diagnose, isolated tubal torsion. In addition, current evidence suggests that the prevalence of primary fallopian tube carcinoma (PFTC) is underestimated and that there is a relationship between PFTC and breast cancer. Familiarity with fallopian tube disease and the imaging appearances of both the normal and abnormal fallopian tube is crucial for optimal diagnosis and management in emergent and ambulatory settings.

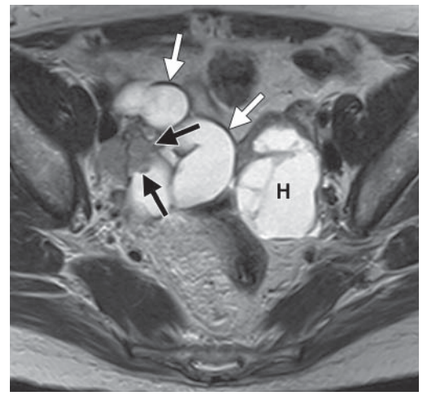
In an article in the March-April issue of *RadioGraphics (RSNA.org/RadioGraphics),* Maryam Rezvani, M.D., and Akram M. Shaaban, M.D., of the Department of Radiology at the University of Utah in Salt Lake City, describe normal fallopian tube anatomy and discuss various fallopian tube diseases, including the differentiation of benign from malignant disease.

Specifically the authors address:

- Pelvic inflammatory disease
- Atypical infections including tubal tuberculosis and tubal actinomycosis
- Fallopian tube torsion
- Tubal endometriosis
- Fallopian tube tumors including PFTC

"Whether common or rare, abnormalities of the fallopian tube should be considered in the differential diagnosis for pelvic disease in the nonpregnant patient," the authors conclude.

This article meets the criteria for 1.0 *AMA PRA Category 1 Credit™*. CME is available in print and online.



Primary fallopian tube carcinoma in a 52-year-old woman who presented with vaginal discharge. Axial T2-weighted MR image shows a right-sided hydrosalpinx *(white arrows)* with an intermediate-signal-intensity soft-tissue nodule *(black arrows).* A left-sided hemorrhagic cyst *(H)* is also noted. Axial contrast-enhanced fat-saturated MR image shows the right-sided hydrosalpinx *(white arrows)* and enhancement of the mural nodule *(black arrow).* The left-sided hemorrhagic cyst *(H)* is hyperintense and contains a fluid level *(arrowhead).*
(*RadioGraphics* 2011;30;527–548) ©RSNA, 2011. All rights reserved. Printed with permission.

Radiology in Public Focus

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

Editorials: TSA Screening

Are X-Ray Backscatter Scanners Safe for Airport Passenger Screening? For Most Individuals, Probably Yes, but a Billion Scans per Year Raises Long-Term Public Health Concerns

The Transportation Security Administration's (TSA) use of backscatter X-rays that expose those screened to very low levels of ionizing radiation is the subject of two Controversy articles addressing the potential long-term public health threats, if any, backscatter X-ray systems may pose.

Although individual cancer risks associated with radiation exposure from backscatter scans are very small, long-term consequences of an extremely large number of people being exposed to a potential extremely small radiation-induced cancer risk should be of concern, according to David J. Brenner, Ph.D., D.Sc., of the Center for Radiological Research, Columbia University Medical Center in New York.

David A. Schauer, Sc.D., C.H.P., of the National Council on Radiation Protection and Measurements, contends that the summation of trivial average risks over large populations or time periods into a single value produces a distorted image of risk that is out of perspective with risks accepted every day, both voluntarily and involuntarily.

Brenner

Schauer

Along with the backscatter scan, the TSA uses another type of scanner that employs millimeter wave technology, which exposes the individual to no ionizing radiation.

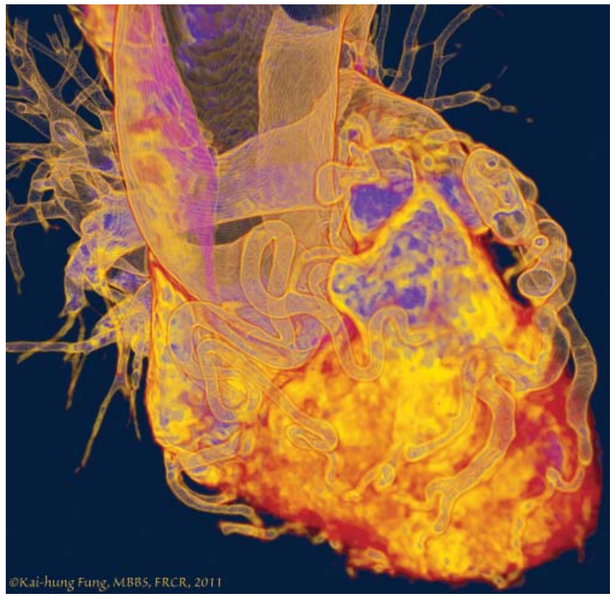
Drs. Brenner and Schauer agree that the scanners using millimeter wave technology should be considered as a first option, since they are similar in cost and functionality to the backscatter scans, without the radiation. However, they also say that the average traveler should not be overly concerned about being screened with the backscatter scanners and should be provided information on the technology.

Does Security Screening with Backscatter X-Rays Do More Good than Harm ?

"... millimeter-wave scanning is a feasible and practical whole-body scanning technology that does not involve ionizing radiation and for which there is currently essentially no mechanistic or experimental evidence of biologic risks," Dr. Brenner concluded.

"Information, in lay language, about the security screening process, its benefits, and its potential risks should be provided to individuals prior to scanning," Dr. Schauer concluded.

Journal Highlights



Journal's Interactive Features Supplement CT Artwork

The CT artwork of Kai-hung Fung, M.B.B.S., takes an upbeat twist with interactive features in two online issues of *RadioGraphics (RSNA.org/radiographics)*. To access the features, select the Interactive Annotated Version and click on the thumbnail. His Portal, featured in the January-February issue, allows you to flip the page to view annotations that identify the hidden anatomic structures. In the March-April issue, Dr. Fung's *Heart of the Matter (at right)* appears on the journal cover. Choose the Interactive Annotated Version and test yourself on cardiac anatomy. An article on Dr. Fung's work was also featured in the November 2010 issue of *RSNA News (rsnanews.RSNA.org)*.

Studies: Breast Imaging

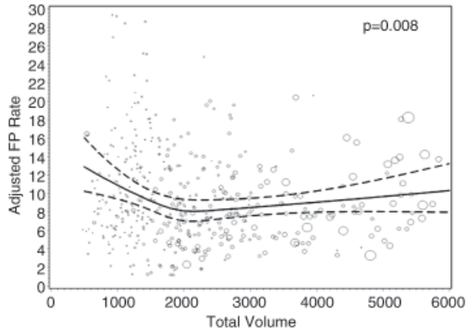
Influence of Annual Interpretive Volume on Screening Mammography Performance in the United States

Increasing minimum interpretive volume requirements on screening mammography for U.S. radiologists while adding a minimal requirement for diagnostic interpretation could reduce the number of false-positive workups without hindering cancer detection.

Diana S.M. Buist, Ph.D., M.P.H., of the Group Health Research Institute, Group Health Cooperative in Seattle, and colleagues collected annual interpretive volume measures (total, screening, diagnostic, and screening focus [ratio of screening to diagnostic mammograms]) for 120 radiologists in the Breast Cancer Surveillance Consortium who interpreted 783,965 screening mammograms from 2002 to 2006.

Radiologists with higher annual volumes had clinically and statistically significantly lower false-positive rates with similar sensitivities as their colleagues with lower annual volumes, researchers discovered.

"These results provide detailed associations between mammography volumes and performance for policymakers to consider along with workforce, practice organization and access issues and radiologist experience when reevaluating requirements," the authors concluded.



Graph shows adjusted false-positive rates according to interpretive volume, in terms of total volume. False-positive rates were adjusted for age and time since last mammogram. Lines = regression spline fit to adjusted rates; dashed lines = 95 percent CIs; and C = adjusted false-positive rate, with size proportional to the number of screening mammograms used to measure performance. Smoothing splines had three knots placed at the 33rd, 50th, and 67th percentiles of the volume distribution; estimations were limited to total volume of 6,000 or fewer mammograms. Estimated mean adjusted performance is presented graphically, along with pointwise 95 percent CIs, with the curves being interpreted directly as the mean adjusted performance as a function of the volume measure. *P* value for the estimated curves corresponds to omnibus tests of whether there is any association between mean adjusted performance and volume.

Screening Breast MR Imaging: Comparison of Interpretation of Baseline and Annual Follow-up Studies

Baseline screening breast MR imaging studies have a higher rate of follow-up or biopsy recommendation than do studies with prior MR images available for comparison, researchers have discovered.

In a retrospective study, Gil Abramovici, M.D., and Martha B. Mainiero, M.D., of the Warren Alpert Medical School of Brown University, Rhode Island Hospital in Providence, analyzed data from 650 consecutive women's breast MR imaging examinations between September 2007 and December 2008. All examinations were performed using the same protocol and images were interpreted by the same radiologists.

Like mammography, breast MR imaging has a risk of false-positive results, but the risk decreases following the initial round of screening, according to the authors.

"This information may provide some high-risk patients reassurance when they consider whether to undergo screening breast MR imaging," the authors concluded. "This information can be used by high-risk patients and their physicians when they are considering whether to undergo breast MR imaging as an adjunct to annual screening mammography."

Screening Breast MR Imaging in Women with a History of Chest Irradiation

MR imaging is a useful adjunct modality to screen high-risk women with a history of chest radiation, resulting in a 4.4 percent (95 percent confidence interval: 1.2 percent, 10.9 percent) incremental cancer detection rate.

In a retrospective review of the database at Memorial Sloan-Kettering Cancer Center in New York, Janice S. Sung, M.D., and colleagues identified 247 breast MR imaging examinations performed between January 1999 and December 2008 in 91 women with a history of chest irradiation. Authors reviewed findings and recommendations for each breast MR study and on the most recent mammogram. They examined the number of cancers diagnosed, their method of detection and tumor characteristics.

Results support existing recommendations for annual screening MR imaging as an adjunct to annual mammography in women with a history of chest irradiation, researchers found.

"However, MR imaging should be used in addition to and not in place of mammography in this population, as the sensitivity for detecting breast cancers by using a combination of MR imaging and mammography was higher than that for either modality alone," the authors concluded.

Radiology in Public Focus

Media Coverage of RSNA

In February 2011, media outlets carried 1,973 RSNA-related news stories. These stories reached an estimated 1.5 billion people.

February print and broadcast coverage included *Daily Telegraph, Health Magazine,* KABC-TV (Los Angeles), WBBM-TV (Chicago), *Pittsburgh Post-Gazette, Newsday, Houston Chronicle, San Jose Mercury News, The Edmonton Journal, The Vancouver Sun* and *Grand Rapids Press.*

Online coverage included Yahoo! News, *CNN.com, NYTimes.com, Time.com, USA Today* – Online Edition, *MSN.com, MSNBC.com,* FOX News Online, *LATimes.com, CNBC.com,* AOL Health, Yahoo! Finance, *San Francisco Examiner* Online, *Businessweek.com, UPI.com, Reuters.com,* Science Daily and WebMD.

Interventional Radiology the Focus of April Outreach Activities

In April, RSNA distributed the "60-Second Checkup" audio program to nearly 100 radio stations across the U.S. The segments focused on the use of minimally invasive interventional radiology procedures such as uterine fibroid embolization.

***RadiologyInfo.org* Launches Twitter Page**

RadiologyInfo.org now offers another way to receive updates about new content, news and other updates to the site. Follow *RadiologyInfo.org* at *Twitter.com/RadiologyInfo_*.

Other Radiology Headlines

ECR Showcases Cutting Edge, Urges Multidisciplinary Approaches

Read more from the European Congress of Radiology (ECR), held in March in Vienna, at *www.myesr.org.*

Radiology Report Should be "Epiphany"

With proper structure, content and functionality, a radiology report is ideally an "epiphany" for the clinician, said ECR lecturer Leo P. Lawler, M.D.

"It should be something you pick up and get an immediate intuitive grasp of what the person is trying to say," said Dr. Lawler, of Mater Misericordiae University Hospital in Dublin, Ireland. "If a clinician doesn't read a very well-constructed report, the radiologist has failed in some way."

Dr. Lawler emphasized that reports should make sense as they are transferred within and among institutions and also accurately reflect the capabilities of the technology being used—for example, reports from tests yielding anatomical and functional data should report all those data.

An inadequate report, Dr. Lawler concluded, "tends to distance itself from a clinical issue and … fails to report prompt the appropriate action in a timely fashion," he said. "The literature unfortunately is replete with medico-legal cases where this is the angle they get the radiologist on."

Source: *ECR Today,* March 6, 2011

MR Preferred for Pelvic Floor Imaging

MR imaging offers advantages—lack of ionizing radiation chief among them—that increasingly make it the new choice for pelvic floor imaging.

Researchers at London University College Hospital comparing the clinical utility of MR and the longtime standard fluoroscopy found that a variety of clinicians, including urogynecologists and gastroenterologists, clearly preferred the results yielded by MR.

In addition to eliminating radiation exposure—critical in a patient cohort of mainly young women—choosing MR also yields the multiplanar capability, high soft tissue contrast and adequate temporal resolution preferred by clinicians, said Francesca Maccioni, M.D., of the University La Sapienza in Rome.

MR will be more tolerated by patients—who often dislike the positioning required by MR, as well as the rectal contrast—with increasing use of dedicated open magnets that allow the examination to be performed in the seated position, Dr. Maccioni added.

Source: *ECR Today,* March 4, 2011

Overdiagnosis a Possibility in Older Population

Geriatric patients, commonly presenting with co-existing diseases and various physical and cognitive problems, require special consideration in distinguishing the healthy from those in need of treatment.

"The question is how to be aware of the potential and limits of diagnostic imaging and its applications in geriatric patients," said Giuseppe Guglielmi, M.D., of Foggia, Italy, who addressed an ECR session on March 6.

Co-presenter Anne Cotten, Ph.D., of Lille, France, urged radiologists to become aware of misleading radiological presentations typically occurring in the geriatric population, such as unrecognized fractures, missed infection or malignant conditions and myeloma revealed by osteoporotic vertebral collapses.

Noting that most complications of cardiovascular disease occur in subjects 65 years or older, presenters pointed to imaging methods such as ultrasound, PET/CT and high-resolution black-blood MR imaging that can successfully assess the composition and morphology of atherosclerotic plaques.

Source: ECR press release

For Your Benefit

CME Credit Quickly Adding up for Point of Care Users

RSNA members are giving high marks to the myRSNA® tool that allows them to earn CME at the point of care (PoC). Accessible through myRSNA, PoC learning is entirely self-directed and driven by the needs of the individual physician—a feature users say is invaluable.

"I was attracted to RSNA's point of care learning because it allows you to do an on-the-spot literature search and get CME credit—a value-added feature of RSNA membership without extra cost," said Stuart A. Royal, M.S., M.D. "How great is that?"

The Value of Membership

To ensure physicians can properly claim *AMA PRA Category 1 Credit™*, PoC learning conforms to American Medical Association guidelines. The structure tracks the original clinical questions, relevant sources identified from among those consulted and the application of the findings to practice.

myRSNA's search tool "pre-filters" results by listing evidence-based, peer-reviewed literature. "Having easy access to a literature search with the extra incentive of CME has been a win-win for me," Dr. Royal said.

The feature offers a step-by-step form to ensure credit can be claimed, enabling the user to instantly print a CME certificate and file the credit in the RSNA CME Credit Repository for access at any time.

Credits are adding up quickly for Dr. Royal, who was instructed on PoC at RSNA 2010 by "a wonderful computer pro who gave me an in-service set-up." In the first two-and-a-half months of 2011, he earned 3.5 *AMA PRA Category 1 Credits* through PoC.

The relatively new myRSNA feature is quickly becoming part of Dr. Royal's regular routine.

"I use this tool every day," Dr. Royal said.

To get started, go to myRSNA and scroll to the mySearch tab.

Stuart A. Royal, M.S., M.D., is radiologist-in-chief and the Harry M. Burns Endowed Chair of Pediatric Radiology at Children's Hospital, Birmingham, Ala.

What's the most valuable part of your RSNA membership? Tell us about it at *tellus@rsna.org.*

Residents & Fellows Corner

Diagnostic Radiology Core Examination Study Guide Available from ABR

The American Board of Radiology has posted on its website the Diagnostic Radiology Core Examination Study Guide, a resource featuring individual study guides for:

- Breast imaging
- Cardiac imaging
- Gastrointestinal imaging
- Interventional radiology
- Musculoskeletal imaging
- Neuroradiology
- Nuclear radiology
- Pediatric radiology
- Physics
- Reproductive/endocrine imaging
- Safety
- Thoracic imaging
- Ultrasound
- Urinary imaging
- Vascular imaging

The individual study guides also help prepare exam takers in relevant applications of CT, MR and radiography/fluoroscopy. Access the guide at *www.theabr.org.*

ANNUAL MEETING PROGRAM CONTENT TO TARGET RESIDENTS AND FELLOWS

New for RSNA 2011 will be a program of content especially for residents and fellows. More information about the new program will be reported in upcoming issues of *RSNA News.*

RSNA® 2011 Celebrate the Image

November 27– December 2 | McCormick Place, Chicago

For Your Benefit

Access RSNA Education Product Catalog Online

The RSNA Education Center's 2010-2011 product catalog is accessible online. The catalog includes complete descriptions of refresher courses recorded from previous RSNA meetings available on CD-ROM.

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.

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.

Cases of the Day Now Online

One of the most popular programs at RSNA annual meetings, Cases of the Day from RSNA 2010 are available online—an option that offers a unique set of benefits for participants.

In the Cases of the Day area at the annual meeting, image-based case scenarios in 14 different radiology subspecialties are presented to participants who submit their diagnoses for cases for five consecutive days and check for the correct answer the following morning.

In the online format, participants who view the RSNA 2010 cases and submit diagnoses can immediately see the correct answer and view the discussion for each case.

Free to members, Cases of the Day are now available at *RSNA.org/Education/index.*

Making MIRC Work

IHE® Profile links Fujifilm PACS to MIRC for Easy Teaching Files


Kohli

Marc Kohli, M.D., and his colleagues in the Department of Radiology at Indiana University Purdue University Indianapolis (IUPUI), knew that making teaching files with RSNA's Medical Imaging Resource Center (MIRC) was simple—now it's even easier, thanks to a new development from their PACS vendor.

"We learned of the Teaching File and Clinical Trial Export (TCE) functionality provided by our vendor," Dr. Kohli said, referring to FUJIFILM Medical Systems U.S.A. (Fujifilm), the first vendor to support the TCE profile designed by the Integrating the Healthcare Enterprise (IHE®) project. What this means, essentially, is that images can be sent from the PACS to MIRC with a simple mouse click.

Contrast this with alternative methods of exporting images from a PACS—copy and paste or screen capture. "Being able to complete a teaching file document at the point of care from the PACS workstation eliminates steps and streamlines workflow," Dr. Kohli said. "I'm also excited that with the next generation of MIRC, radiology departments will have access to powerful anonymization tools to cut even more steps from the process."

Copying and pasting become even more tedious when dealing with an entire study, versus individual key images, Dr. Kohli added. "There really isn't an easy way to create good teaching files with full image sets without either a lot of custom programming or TCE."

Dr. Kohli also appreciates that MIRC works well with external software. "And MIRC is an application that has an open standard format, allowing developers from around the world to create software that works with MIRC documents," he added. "There's even a developer who created an iPhone/iPad application. That wouldn't have been possible with a proprietary format.

"One thing that has limited my creation of teaching files is that I don't want to get stuck with a bunch of information in files that become obsolete when the developer writing the software abandons the project," Dr. Kohli added. "Because MIRC uses open standards, and because it's backed by the RSNA, I know that I'll be able to access my files now and in the future."

Technology Forum

The "one mouse click" data transfers that are so vital to the TCE–MIRC exchange are made possible by DICOM transfer technology inherent in the Fujifilm PACS. Fujifilm has historically provided features and functionality that support teaching and now, working with IUPUI and RSNA, the company is able to further demonstrate the benefits of its advanced software integrations that enable radiologists to derive greater efficiency and enhanced capabilities from the PACS for educational purposes, a company spokesman said.

"When we talk to radiologists about product enhancements, the request we always hear is 'quick and efficient,'" said Jim Morgan, Fujifilm's Vice-President of Medical Informatics. "All of our Synapse products are designed to satisfy this request while also delivering high quality imaging results. The TCE/MIRC integration is fundamental to advancing radiological education and Fujifilm is proud to be able to support RSNA and IUPUI with this important endeavor."

Education and Funding Opportunities

CORE Workshop Focuses on Research

October 28–29, 2011
Oak Brook, Ill
Registration Deadline
September 23

Formerly the Revitalizing the Radiology Research Enterprise (RRRE) program, the newly named Creating and Optimizing the Research Enterprise (CORE) workshop will be held Friday and Saturday, Oct. 28 and 29 in Oak Brook, Ill. The workshop will focus on strategies for developing and expanding research programs in radiology, radiation oncology and nuclear medicine departments. The CORE program features a combination of presentations, case studies and group discussions.

RSNA Clinical Trials Methodology Workshop

January 14 –20, 2012
Scottsdale/Phoenix, Ariz.
Application Deadline
June 6

Read more about RSNA Clinical Trial Methodology Workshop on Pages 4 & 13.

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

Applicants will undergo a competitive selection process for course entrance. Once admitted, trainees will participate in advance preparation, didactic sessions, one-on-one mentoring, small group discussions, self-study and individual protocol development. Familiarity with basic concepts and techniques of statistics and study design is required of all applicants.

RSNA/AUR/ARRS Introduction to Academic Radiology Program

Application Deadline
July 15

Sponsored by RSNA, the American Roentgen Ray Society (ARRS) and Association of University Radiologists (AUR), the Introduction to Academic Radiology program:

- Exposes second-year radiology residents (PGY3) to academic radiology
- Demonstrates the importance of research in diagnostic radiology
- Illustrates the excitement of research careers
- Introduces residents to successful clinical radiology researchers.

Successful applicants will be assigned to either a seminar held during RSNA 2011 or the ARRS annual meeting in 2012.

NOTE
More information and an application/nomination form for these programs is available at *RSNA.org/Research/educational_courses.cfm*. Questions can be directed to Fiona Miller at 1-630-590-7741 or *fmiller@rsna.org*.

Medical Meetings

April – June 2011

APRIL 28–MAY 1
Canadian Association of Radiologists (CAR), 74th Annual Scientific Meeting, Hyatt Regency Hotel, Montréal • *www.car.ca*

APRIL 29–30
RSNA, ASTRO, Cancer Imaging and Radiation Therapy Symposium: A Multidisciplinary Approach, Atlanta Marriott Marquis • *www.cancerimagingandrtsymposium.org*

MAY 7-10
International Diagnostic Course Davos Excellence in Teaching (IKDK), intensive course in brain, head and neck, and spine imaging, Hong Kong Convention & Exhibition Center, Hong Kong • *www.idkd.org*

MAY 17–20
27th Iranian Congress of Radiology (ICR), Olympic Hotel, Tehran • *www.icr2011.ir*

MAY 21–24
European Society of Gastrointestinal and Abdominal Radiology (ESGAR) 2011 annual meeting, Venice Convention Center, Italy • *www.esgar.org*

MAY 24–26
The Russian National Congress of Radiologists, Radiology 2011, Crocus Expo International Exhibition Centre, Moscow • *www.radiology-congress.ru*

JUNE 2–5
Society for Informatics in Medicine (SIIM), Annual Meeting, Gaylord National Resort and Convention Center, Washington, D.C. • *www.siim2011.org*

JUNE 4–8
SNM Annual Meeting, San Antonio Convention Center, Texas • *www.snm.org*

JUNE 6–8
U.K. Radiological Congress (UKRC), Manchester Central Convention Centre, England • *www.ukrc.org.uk*

JUNE 9–12
World Congress on Interventional Oncology (WCIO), Sheraton New York Hotel & Towers • *www.wcio2011.com*

Annual Meeting Watch

News about RSNA 2011

Advance Registration and Housing Opens May 4

RSNA 2011 advance registration and housing opens May 4 for RSNA and AAPM members. General registration and housing opens June 1. Advance Registration and Housing information is available at *RSNA2011.RSNA.org*.

RSNA® 2011 Celebrate the Image

November 27– December 2 | McCormick Place, Chicago

International Visitors

If you must apply for a temporary non-immigrant visa to attend RSNA, you are advised to apply as soon as travel to the United States is decided and no later than three to four months in advance of the travel date. RSNA offers an official letter of invitation for RSNA 2011 attendees.

Come to Chicago, See Memphis

Eye on Chicago

Opening at Chicago's Cadillac Palace Theater just in time for RSNA 2011 is *"Memphis,"* a Broadway musical bursting forth from the city's underground dance clubs of 1950s. The tale of fame and forbidden love was inspired by actual events—a white radio DJ who wants to change the world and a black club singer who is ready for her big break. Their incredible journey to the ends of the airwaves promises laughter, soaring emotion and roof-raising rock 'n' roll.

Winner of four 2010 Tony® Awards including Best Musical, *"Memphis"* features a Tony-winning original score with music by Bon Jovi founding member David Bryan. Directing is Tony nominee Christopher Ashley *("Xanadu")* and choreography is by Sergio Trujillo *("Jersey Boys")*.

"Memphis" runs Nov. 22–Dec. 4 at the Cadillac Palace Theater, 151 W. Randolph St. in Chicago. For more information, go to *memphisthemusical.com*.

RSNA 2011 Registration

How to Register

There are four ways to register for RSNA 2011:

Fastest way to register!

1 INTERNET
Go to *RSNA.org/register*

2 FAX (24 hours)
1-800-521-6017
1-847-996-5401

3 TELEPHONE
(Mon.-Fri. 8:00 a.m. – 5:00 p.m. ct)
1-800-650-7018
1-847-996-5876

4 MAIL
Experient/RSNA 2011
568 Atrium Drive
Vernon Hills, IL 60061 USA

Registration Fees

BY NOV. 4	AFTER NOV. 4	
$ 0	$100	RSNA/AAPM Member
0	0	RSNA/AAPM Member Presenter
0	0	RSNA Member-in-Training, RSNA Student Member and Non-Member Student
0	0	Non-Member Presenter
165	265	Non-Member Resident/Trainee
165	265	Radiology Support Personnel
750	850	Non-Member Radiologist, Physicist or Physician
750	850	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel
300	300	One-day registration to view only the Technical Exhibits

Important Dates

May 4	RSNA/AAPM member registration and housing open
June 1	General registration and housing open
July 6	Course enrollment opens
October 21	International deadline to have full-conference materials mailed in advance
November 4	Final discounted advance registration, housing and course enrollment deadline to have full-conference materials mailed in advance
Nov. 27 – Dec. 2	RSNA 97th Scientific Assembly & Annual Meeting

For more information about registering for RSNA 2011, visit *RSNA2011.RSNA.org*, e-mail *reginfo@rsna.org* or call 1-800-381-6660 x7862.

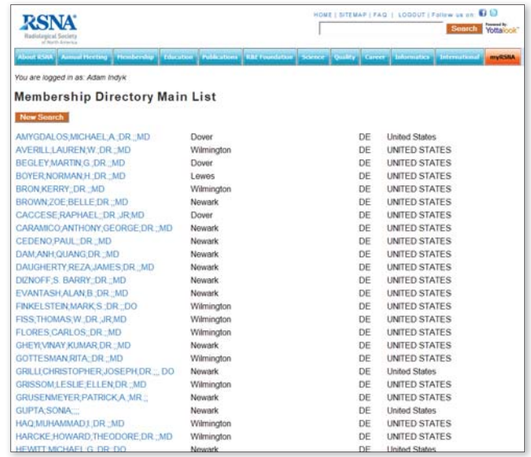
RSNA.org

Search RSNA's Membership Directory

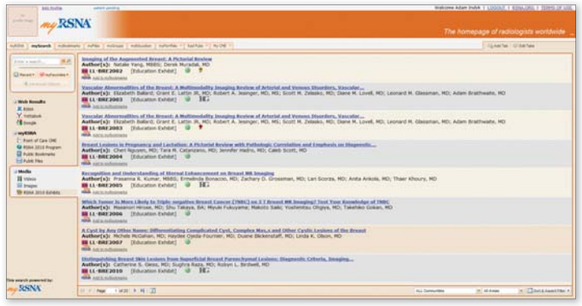
Connecting with other RSNA members is as easy as logging onto *RSNA.org* and using the password-protected directory.

Either go to the membership tab across the top of *RSNA.org* and scroll to Membership Directory or go to *RSNA.org/directory*. Log on using your member number and password (your member number can be found on your membership card or on a subscription address label).

Search for RSNA members by name, city, state and country. Entering a member's last name will create a list of members with the same name. After finding the desired member, click his or her name to access contact information. The number of years of active membership is also displayed on the top, right-hand side of the page.



myRSNA® Web Tip

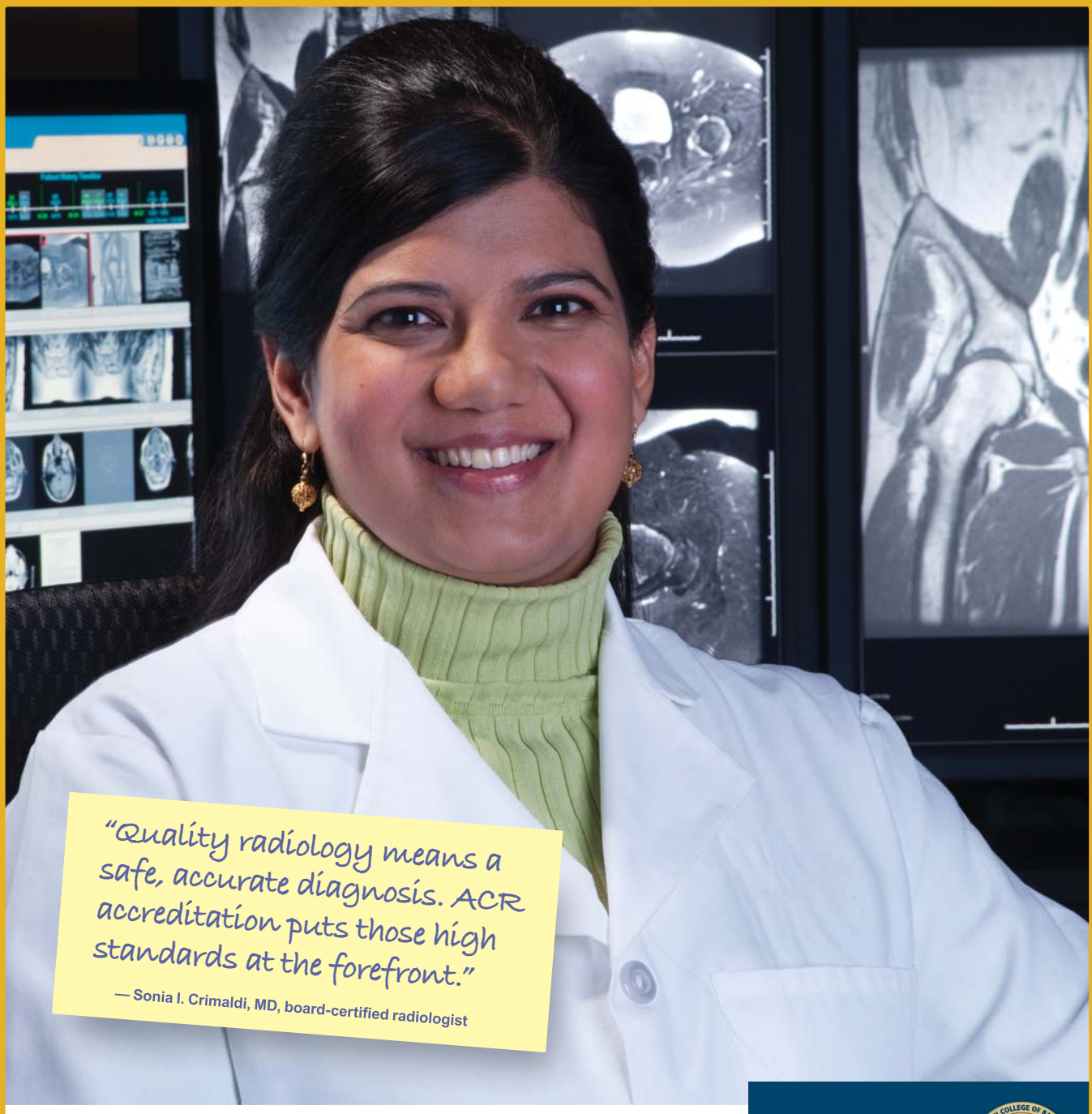


Access RSNA 2010 Content Online

Tap into RSNA 2010 education offerings by visiting myRSNA® and clicking on the mySearch tab along the top. Under Media on the left-hand side of the page, click on RSNA 2010 Exhibits to access select electronic exhibits from the annual meeting. The content can also be accessed through RSNA's annual meeting page at *RSNA2011.RSNA.org* and connecting to myRSNA.

COMING NEXT MONTH

Researchers wondering what it takes to get published in *Radiology* should check out next month's *RSNA News* featuring an article outlining the process for getting accepted by RSNA's prestigious, peer-reviewed science journal. *Radiology* Editor Herbert Y. Kressel, M.D., discusses guidelines for selecting research from the more than 2,000 manuscripts he receives each year.



Don't delay … apply for accreditation today. The CMS accreditation deadline is fast approaching. Don't put your Medicare reimbursements at risk by waiting too long to get started. It could take months to prepare your images for submission.

Apply for ACR accreditation ***now*** to ensure your practice will meet the CMS deadline. We make the application process easy and cost effective. To apply, visit **acr.org** or call 1·800·770·0145.

ACR®
American College of Radiology
Quality is Our Image

acr.org | 1·800·770·0145 |

The ACR advantage

- Unmatched imaging review by radiologists
- Peer-reviewed, educationally focused
- Designed by radiologists and medical physicists
- Guided by expert technologists
- Multi-site, multi-modality pricing

Choose the Gold Standard. Choose ACR.

7759 4.11