Acknowledging the Limitations—as Well as the Strengths—of Imaging Is Critical to Patient Care

When it comes to radiation therapy, medical imaging is a very powerful tool, says Lawrence B. Marks, M.D. “But sometimes we get into trouble if we trust the images too much.”

By Mike Bassett

I maging has profoundly improved radiation therapy over the years, particularly considering how 3D data from CT, MRI and PET scans has allowed radiologists to better target gross lesions and increase their understanding of how they are positioned relative to surrounding tissues, said Dr. Marks, who presented the Wednesday Annual Oration in Radiation Oncology, “Error Bars in Medical Imaging: Stealth and Treacherous.”

The value of medical images is inherently limited, and if that point is not acknowledged, it can lead to serious consequences that can undermine patient care, said Dr. Marks, the Sidney K. Simon Distinguished Professor of Oncology Research in the Department of Radiation Oncology at the University of North Carolina at Chapel Hill School of Medicine.

Cancers often extend beyond radiographically-defined lesions, presenting clinicians with targets that typically can’t be identified by imaging. “For example, with breast cancer if you excise the radiographically-identified lesion to a negative margin and do nothing else, then the local failure rate in the breast is now 40 percent, so that’s an illustration of the shortcoming of imaging,” Dr. Marks said. “And we recognize this and have a routine practice to do a lumpectomy to remove the tumor and then add radiation. But, it’s worth recognizing that there are multiple diseases—breast cancer in this example—where irradiating cancer that we can’t see improves the patient’s outcome.”

A real problem occurs, Dr. Marks said, when radiation oncologists design radiation beams and make them too tight when relying on medical imaging.

“When I was a young resident in 1986,” Dr. Marks recalled, “I remember very vividly saying to my attending, ‘I can’t see the tumor so well on this scan, the tumor moves, the patient is fidgety and is breathing.’ And the answer was always the same—‘Add margin, add margin, add margin.’”

Now, Dr. Marks said, new technologies like CT and PET allow radiologists to see a tumor better, while other technologies offer ways to monitor a patient’s breathing during treatment and enable the user to control for internal motion.

“And these things make us all very happy, and we think we are doing a better job with these advanced medical imaging technologies available to us,” he said. “But these technologies have essentially given us permission to reduce the margin.”

Understanding Non-visible Targets

There have been several reports of cancer control rates getting worse when the radiation fields are too tight, Dr. Marks said. “The images will only show the gross disease, they don’t show the microscopic extensions. So, if you make the radiation fields too tight, you increase the risk of local failure.”

Arenson is RSNA President

R enowned diagnostic radiologist Ronald L. Arenson, M.D. is RSNA president for 2015. Dr. Arenson earned his medical degree in 1970 from New York Medical College in New York. He completed his internship at Beth Israel Medical Center in New York and his diagnostic radiology residency at Massachusetts General Hospital in Boston.

Dr. Arenson began his academic career in 1976 at the University of Pennsylvania (Penn) after serving in the U.S. Navy at the National Naval Medical Center in Bethesda, Md. Dr. Arenson held many posts at Penn, including associate chairman of clinical services in radiology, director of administrative services and interim vice-provost for information systems and computing for the campus.

Dr. Arenson has authored or co-authored over 110 peer-reviewed scientific articles and is known as Obamacare, experts said. “The idea that fee-for-service is unsustainable for the long term is a commonly held belief among all policy makers regardless of their political party identity,” said Cynthia Moran, executive vice-president of the American College of Radiology (ACR) and an expert in government relations, economics and health policy.

“We don’t know quite where we are going, but we do know that Congress and policymakers—regardless of who is in the White House—are going to make it more and more uncomfortable to stay in a fee-for-service, volume-driven payment scheme,” Moran said.

Radiologists Urged to Adopt Value-Based Pay Model Regardless of Obamacare’s Future

By Paul LaTour

R egardless of ongoing controversies surrounding the Patient Protection and Affordable Care Act (ACA), the fee-for-service payment model will continue to be diminished, according to a panel of experts who convened Wednesday for an RSNA 2014 refresher course, “The Affordable Care Act: What Does It Mean for Radiologists and Radiology?”

In fact, the demise of the fee-for-service payment model may be the only thing politicians and policymakers agree about related to the ACA, also known as Obamacare, experts said. “The idea that fee-for-service is unsustainable for the long term is a commonly held belief among all policy makers regardless of their political party identity,” said Cynthia Moran, executive vice-president of the American College of Radiology (ACR) and other mobile devices. Read news on the go, access additional information and share via social media. Go online now by using your smartphone to scan the QR code or go to RSNA.org/bulletin.
Join the PowerShare Network.

Come see the future of medical imaging exchange.

Introducing “what’s next” in medical imaging: Nuance PowerShare™ Network, the industry’s largest cloud-based medical imaging network, offering secure reporting and imaging exchange and providing an open platform to empower healthcare enterprises to take the lead in driving imaging innovations to improve the quality of care.

Easily integrated into a facility’s existing EHR, VNA and PACS infrastructure, the PowerShare Network complements the value of our industry-leading radiology reporting and communication platform, PowerScribe 360®, to continuously meet the demands of healthcare.

Make your move to booth 2529-South Building to learn more.

Nuance Diagnostic Solutions
Proven for today. Power for tomorrow.
Thursday/Friday At a Glance

**THURSDAY**
12:15-1:15
Poster Discussions
12:30-2:00
Informatics Courses
1:30-2:45
Thursday Plenary Session
(Arie Crown Theater)
RSNA/AAPM Symposium
(See Page 6)
The Radiology Reading Room of the Future
Robert J. Gillies, Ph.D.
Radiomics in Oncology: Pathway to Precision Medicine
Hedvig Hricak, M.D., Ph.D.
1:30-6:00
Interventional Oncology Series: Lung and Bone
2:30-4:00
Informatics Courses
3:00-4:00
RSNA Diagnosis Live
Musculoskeletal/Pediatric/Interventional Radiology
Hot Topic Sessions
4:30-6:00
Refresher/Informatics Courses

**FRIDAY**
8:30-10:00
Refresher/Informatics Courses
8:30-12:00
Series Courses
10:30-NOON
Scientific Paper Sessions
Informatics Courses
12:30-3:00
Friday Imaging Symposium: A Guided Tour for Managing Incidental Findings: Adnexal, Thyroid, Pediatric, Adrenal and Chest

**Question of the Day**

If I have an obese patient who is 10 cm wider than my average patient, I need to double the CT scanner output to get acceptable image quality. Does this mean the obese patient is getting twice the effective dose? [Answer on page 4.]

**Radiation Safety**

Visit us at
Booth: 6113 / Hall B North Building / drsys.com

Build patient and referring physician loyalty
Deliver reports, lay letters and messages to patients online
Collect patient pre-registration data through the web
Deliver reports directly to referring physician EMRs

**DR Systems**
New Interventional Platform Reduces Radiation Exposure for Patients and Clinicians

A new imaging platform allows for significant X-ray radiation dose reduction without compromising image quality in patients undergoing intra-arterial therapy (IAT) for liver cancer, according to research presented Wednesday.

By Richard S. Durgan

I

n hepatic IAT, treatment is delivered under fluoroscopic guidance directly to liver tumors through the blood vessels that feed them. Local delivery of chemotherapeutic drugs allows for increased drug dose while achieving reduced side effects compared to intravenous, systemic delivery; however, the IAT procedure exposes both patients and interventional radiology staff to ionizing radiation. Increased use of hepatic IAT during the last decade has raised concerns over radiation exposure, especially given the fact that patients undergo repeat treatments.

Ruediger E. Schernthaner, M.D., from the Johns Hopkins Hospital in Baltimore, and colleagues investigated a new C-arm imaging platform that offers optimized parameters for IAT-associated image acquisitions like fluoroscopy, digital subtraction angiography (DSA) and cone beam computed tomography (CBCT).

The researchers tested the platform—the AlluraClarity from Philips Healthcare of Best, The Netherlands—on 52 patients and compared radiation exposure and image quality with results from 26 other patients who had undergone similar procedures on an older system. Radiation exposure, including air kerma (AK), the radiation exposure in free air before reaching the body, and dose area product (DAP), the absorbed radiation dose multiplied by the area irradiated, was recorded throughout the procedure.

The new system resulted in an exposure reduction in total AK and DAP of 58 percent and 60 percent, respectively, compared to the old platform. DAP for fluoroscopy, DSA and CBCT decreased by up to 66 percent, 79 percent and 14 percent, respectively. During the procedures, no relevant problems due to image quality were reported. Likewise, the blinded evaluation of image quality revealed no differences between the new and the old imaging platforms. Both patient cohorts showed no difference with regard to body mass index or fluoroscopy time.

“The main finding is that the radiation exposure for patients undergoing IAT can be significantly lowered, which is especially important for patients undergoing several procedures,” said Dr. Schernthaner. “In contrast to diagnostic imaging, the decreased radiation exposure not only affects the patient, but also the staff who are in the room performing the procedure because their lifetime cumulative dose can be lowered.”

Applications Possible in Gynecologic, Pediatric Imaging

Dr. Schernthaner predicted that the new platform would have applications beyond IAT of the liver. “We are currently investigating the potential of this new platform for women with uterine fibroids treated with uterine artery embolization,” he said. “Some of these women are at a childbearing age, where radiation exposure is of even greater concern. And the most important patient population with regard to radiation exposure are pediatric patients, who are the most sensitive group to radiation exposure, especially when considering the cumulative lifetime risks associated with X-ray exposure. This new platform is an essential step to minimizing this risk.”

3-T MRI is Imaging Standard for Detecting Cerebellar Hemorrhages in Preterm Infants

3-T MR imaging detects a high prevalence of cerebellar hemorrhages (CbH) in preterm infants—a finding that could carry long-range implications regarding cognitive and motor function, according to research presented Wednesday at RSNA.

By Paul LaTour

In addition, a standardized scoring system can be applied to assist in grading of overall brain injury and prediction of neurodevelopmental outcomes, said Mai-Lan Ho, M.D., clinical instructor/chief fellow in neuroradiology and soon-to-be assistant professor of pediatric neuroradiology at the University of California, San Francisco. “It’s very exciting because 25 years ago, people thought that the cerebellum only modulated motor coordination and balance,” said Dr. Ho, who was also the 2012 RSNA William W. Olmsted Editorial Fellow, recipient of a 2012 Roentgen Resident/Fellow Research Award from the RSNA Research & Education Foundation, and recipient of the 2012 Bracco Diagnostics/RSNA Research Resident Grant.

“Several papers report cognitive and psychiatric deficits in patients with congenital or acquired cerebellar lesions,” Dr. Ho said. “That’s important for our studies because cerebellar injury in preterm infants may help explain their long-term cognitive impairment.”

Detection of CbH in preterm infants has steadily increased with the introduction of new imaging modalities, said the study’s senior author, A. James Barkovich, M.D., professor in residence and chief of pediatric neuroradiology at the University of California, San Francisco. CbH was thought to occur in about 10 percent of preterm infants when 1.5-T MRI was used; however, the proportion jumped to more than 20 percent when 3-T MRI was used, and surpassed 30 percent with the use of susceptibility-weighted imaging at 3T.

The study is ongoing, but in their most recent analysis, the researchers identified 22 of 59 (37 percent) infants with CbH, a proportion approaching the reported prevalence of cognitive impairment in the preterm birth population.

“When you start getting into 35 or 40 percent [with CBH], and you realize 50 percent [of preterm infants] have developmental problems, this is a significant finding,” said Dr. Barkovich, the 2012 RSNA Outstanding Researcher. “Maybe this is why we haven’t been able to get the neurodevelopmental levels up to normal in 90 or 95 percent like we have with motor function.”

Based on Fisher’s exact test, the researchers’ cohort showed that CBH is statistically associated with intraventricular hemorrhage (IVH), but not with white matter injury (WMI) or ventriculomegaly (VM). Furthermore, they found that at 1 year of age, CBH is associated with cognitive and motor subscors on the Bayley-III Scales of Infant and Toddler Development.

“A big question has been, ‘Can we use imaging to evaluate preterm risk factors associated with neurodevelopmental outcomes?’” Dr. Ho said. “If so, could we identify these patients early and institute earlier preventive or therapeutic measures? It’s an exciting concept.”

The high volume of admissions to the neonatal intensive care unit (NICU) at UCSF makes it one of the few centers worldwide able to investigate CBH in great detail. The group is among the first to focus on cerebellar in addition to cerebral injury.

“The human cerebellum represents 10 percent of intracranial volume, but contains 80 percent of total neurons in the brain,” Dr. Ho said.

“Fascinatingly, the ratio of neurons between the cerebellum and cerebrum has been relatively preserved throughout evolution, which really does make a case for the cerebellum being a higher order executive center,” she added.

3-T MRI is Imaging Standard for Detecting Cerebellar Hemorrhages in Preterm Infants

By Paul LaTour

In addition, a standardized scoring system can be applied to assist in grading of overall brain injury and prediction of neurodevelopmental outcomes, said Mai-Lan Ho, M.D., clinical instructor/chief fellow in neuroradiology and soon-to-be assistant professor of pediatric neuroradiology at the University of California, San Francisco. “It’s very exciting because 25 years ago, people thought that the cerebellum only modulated motor coordination and balance,” said Dr. Ho, who was also the 2012 RSNA William W. Olmsted Editorial Fellow, recipient of a 2012 Roentgen Resident/Fellow Research Award from the RSNA Research & Education Foundation, and recipient of the 2012 Bracco Diagnostics/RSNA Research Resident Grant.

“Several papers report cognitive and psychiatric deficits in patients with congenital or acquired cerebellar lesions,” Dr. Ho said. “That’s important for our studies because cerebellar injury in preterm infants may help explain their long-term cognitive impairment.”

Detection of CbH in preterm infants has steadily increased with the introduction of new imaging modalities, said the study’s senior author, A. James Barkovich, M.D., professor in residence and chief of pediatric neuroradiology at the University of California, San Francisco. CbH was thought to occur in about 10 percent of preterm infants when 1.5-T MRI was used; however, the proportion jumped to more than 20 percent when 3-T MRI was used, and surpassed 30 percent with the use of susceptibility-weighted imaging at 3T.

The study is ongoing, but in their most recent analysis, the researchers identified 22 of 59 (37 percent) infants with CBH, a proportion approaching the reported prevalence of cognitive impairment in the preterm birth population.

“When you start getting into 35 or 40 percent [with CBH], and you realize 50 percent [of preterm infants] have developmental problems, this is a significant finding,” said Dr. Barkovich, the 2012 RSNA Outstanding Researcher. “Maybe this is why we haven’t been able to get the neurodevelopmental levels up to normal in 90 or 95 percent like we have with motor function.”

Based on Fisher’s exact test, the researchers’ cohort showed that CBH is statistically associated with intraventricular hemorrhage (IVH), but not with white matter injury (WMI) or ventriculomegaly (VM). Furthermore, they found that at 1 year of age, CBH is associated with cognitive and motor subscors on the Bayley-III Scales of Infant and Toddler Development.

“A big question has been, ‘Can we use imaging to evaluate preterm risk factors associated with neurodevelopmental outcomes?’” Dr. Ho said. “If so, could we identify these patients early and institute earlier preventive or therapeutic measures? It’s an exciting concept.”

The high volume of admissions to the neonatal intensive care unit (NICU) at UCSF makes it one of the few centers worldwide able to investigate CBH in great detail. The group is among the first to focus on cerebellar in addition to cerebral injury.

“The human cerebellum represents 10 percent of intracranial volume, but contains 80 percent of total neurons in the brain,” Dr. Ho said.

“Fascinatingly, the ratio of neurons between the cerebellum and cerebrum has been relatively preserved throughout evolution, which really does make a case for the cerebellum being a higher order executive center,” she added.
DISCOVER SOLUTIONS
Inspired by your patients.

ECHELON OVAL
THE WIDEST WIDE BORE
ECHELON OVAL features the revolutionary 74cm oval bore design — the widest available 1.5T MR system. Greater positioning freedom increases patient comfort while decreasing claustrophobia, improving workflow, and delivering high quality imaging.

SCENARIO
LOWER DOSE WITH CONFIDENCE
The Scenaria scalable CT platform provides superior value with patient-friendly imaging by combining the newest lower-dose* features with rapid workflow and the benefits of a standard lateral shift table for easier positioning and lower dose.

ARIETTA 70
HIGH PERFORMANCE ULTRASOUND
The advanced architecture of the ARIETTA 70 incorporates all of the proven technologies cardiologists have come to expect with premium performance created by the commitment to produce the highest quality “sound”.

ENTERPRISE INFORMATION SHARING
HITACHI CLINICAL REPOSITORY (VNA)
The sharing of data across the healthcare enterprise regardless of application, location, or vendor — standardizing medical imaging viewing, and enhancing medical collaboration and clinical decisions by delivering clinical data where and when it’s needed.

HEAD SOUTH, GRAB A SMOOTHIE AND VISIT
HITACHI HEALTHCARE
South Hall | Exhibit 4766

FOLLOW US ON LINKEDIN, TWITTER AND INSTAGRAM
@Hitachi_Health

*In clinical use, dose saving features may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practices employed. Consultation with a radiologist and physicist are recommended to determine the appropriate dose needed to obtain diagnostic image quality for a particular clinical task.
Today’s AAPM Symposium to Explore Radiomics

This year’s symposium presented in conjunction with the American Association of Physicists in Medicine (AAPM) will describe the motivation underlying medical imaging analyses of tumor heterogeneity and response to therapy, and the role of medical imaging omics in oncology as a biomarker and the potential benefits leading to improved outcomes. Presenters Robert J. Gillies, Ph.D., and Hedvig Hricak, M.D., Ph.D., Dr. h.c., will also address the benefits and challenges of advanced and high-throughput imaging analyses from large databases at multiple centers.

Dr. Gillies is chair of the Department of Cancer Imaging and Metabolism, director of the Center of Excellence in Cancer Imaging and Technology, vice-chair for research in the Department of Radiology and scientific director of the Small Animal Imaging Lab (SAIL) at Icahn School of Medicine at Mount Sinai. He is a member of the National Institutes of Health (NIH)-funded study on the use of MR imaging and CT for gynecological cancer. Dr. Hricak is chair of the Department of Radiology at Memorial Sloan-Kettering Cancer Center, a professor of radiology at Cornell University Medical College and an attending radiologist at Memorial Hospital, all in New York. She serves on the United States National Cancer Institute (NCI) Cancer Imaging and Metabolism (CIM) panel. Dr. Hricak is the Icahn School of Medicine’s Jacksonian Professor of Oncologic Imaging and serves as Director of the United States National Cancer Institute’s (NCI) Cancer Imaging and Metabolism (CIM) panel.

The Experts Ask: Is DTI for Mild Traumatic Brain Injury Ready for Prime Time?

Head injury, particularly mild traumatic brain injury (TBI), has always been a challenge to accurately assess with conventional neuroimaging. The use of diffusion MRI, or diffusion tensor imaging (DTI), has become a promising technique for diagnosing and treating traumatic brain injury.

By Mike Bassett

The technique has also been a source of controversy—both in the clinic and in the courtroom, according to presenters of a Wednesday Controversy Session, “DTI in Head Injury: Crossing Borders, Clinical Implications and Legal Ramifications.” Pratik Mukherjee, M.D., Ph.D., a professor of radiology and bioengineering at the University of California, San Francisco, and Michael Lipton, M.D., Ph.D., associate director of the Gruss Magnetic Resonance Research Center at the Albert Einstein College of Medicine and medical director of MRI at Montefiore Medical Center in New York City, who addressed the question, “Is DTI ready for prime time?”

Not yet, according to Dr. Mukherjee. He said that one point of controversy surrounding the use of DTI centers on the question, “Is this really helpful on an individual patient basis as far as being able to diagnose a mild TBI concussion and say something useful about how a patient will progress afterwards?”

“Admittedly, it has not been validated yet in multi-center trials that are designed to measure its specificity, sensitivity and utility of predicting outcomes in patient—all of the things you would want in a scientific test,” Dr. Mukherjee said.

What was called DTI almost 20 years ago is much different than DTI now, said Michael Lipton, M.D., Ph.D., and bioengineering at New York University. “It is far superior in terms of specificity, sensitivity and utility of predicting outcomes in patients—all of the things you would want in a scientific test,” Dr. Mukherjee said.

DTI requires radiologists to deal with things like data consistency, analysis and even interpretation at a quantitative level, which is very different from the way most radiologists are trained.

Michael Lipton, M.D., Ph.D.

Dr. Lipton turned the question around and asked, “Are radiologists ready for DTI?”

For one thing, he pointed out, DTI requires radiologists to “deal with things like data quality, data consistency, analysis and even interpretation at a quantitative level, which is very different from the way most radiologists are trained.”

Dr. Lipton also discussed DTI being held to an uncommonly high standard and is based on opinion and hearsay. He asked, “No, it means that the evidence doesn’t exist and is based on opinion and experience.”

“The bottom line is that there is quite a lot of evidence supporting the use of DTI and validating abnormalities in the brain,” Dr. Lipton continued. As for the use of DTI in the courtroom, Dr. Mukherjee said that one of the problems facing DTI is that it has been “tainted” by it’s use in the courtroom.

Dr. Lipton agreed that imaging continues to be used improperly in the courtroom. “I think that DTI and quantitative imaging and quantitative diagnostics in general—because there are other things outside of imaging that have a similar challenge—is an approach that really raises the stakes because it is revealing an injury that we know is there, but we haven’t had a way to really put a finger on it.”

Drayer is R&E Foundation Chair

2011 RSNA President Burton P. Drayer, M.D., is the new chair of the RSNA Research & Education (R&E) Foundation Board of Trustees.

Dr. Drayer is CEO of the Mount Sinai Doctors Faculty Practice and Dean for Clinical Affairs, The Icahn School of Medicine at Mount Sinai. Dr. Drayer also serves as the President for Hospital and Clinical Affairs, The Icahn School of Medicine, and as Executive Vice President for Risk, The Mount Sinai Medical Center.

Dr. Drayer formerly served as President, The Mount Sinai Hospital and Executive Vice President for Hospital and Clinical Affairs, The Mount Sinai Medical Center.

An RSNA member since 1980, Dr. Drayer served as first vice-president in 2003 and as RSNA president in 2011. His RSNA involvement includes chair of the Public Information Committee, the Public Information Advisors Network and the R&E Foundation’s Public Relations Committee. Dr. Drayer was elected to the RSNA Board of Directors in December 2003, was Liaison for the Annual Meeting and Technology until 2008, and served as President-Elect of the Board in 2010.

Dr. Drayer is a longtime R&E Foundation Presidents Circle donor. He has served on the R&E Foundation Board of Trustees since 2009 and served as the R&E Treasurer and Finance Committee Chair from 2012 to 2013. Brian S. Kusy, M.D., and Carolyn C. Meltzer, M.D., were appointed as new R&E Foundation trustees, and trustee Michael N. Brant-Zawadski, M.D., was reappointed. The new secretaries of the R&E Foundation Board of Trustees is Richard D. White, M.D. Gregory C. Karnaue, M.D., was reappointed treasurer.

Learn more about the Foundation, including “Innovate-Innovate-Invest: The Campaign for Funding Radiology’s Future,” at RSNA.org/Foundation.
A REVOLUTIONARY COMBINATION OF TOUCH AND SOUND

Introducing Touch Ultrasound

From a world leader in imaging comes a revolution in ultrasound: The CARESTREAM Touch Ultrasound System. With a configurable All-Touch control panel like nothing the industry has ever seen, Touch Ultrasound offers a new level of intuitive operation, innovative productivity tools and a powerful processor that provides both efficiency and advanced image quality.

The combination of touch and sound has arrived.
Propel patient-centered care.
Transform the business of radiology.

Bayer can help with advanced solutions for integrated dose management, quality management, workflow efficiency and diagnostic support.

#SHIFTFORWARD with Bayer at RSNA
South Hall, Booth 4119
Radiologists Must Play Central Role in Point-of-Care Ultrasound Training

The rise of point-of-care ultrasound has many in the radiology community concerned about lost business and shortfalls in patient care. But point-of-care should not be viewed as a threat and may even present opportunities for radiologists to become more relevant in the ultrasound sphere, according to two leading authorities who presented at a Controversy Session Wednesday.

By Richard S. Dargan

I n only a few decades, ultrasound has evolved from refrigerator-sized machines on carts to relatively inexpensive devices that fit in the palm of the hand. These developments, along with concerns over radiation exposure, have launched a boom in ultrasound and put the modality on the radar of institutions ranging from the small to the large.

"The primary concern is the effect this can have on our business and ultrasound could be a good thing," she said. "There are real, evidence-based data showing that in the right hands with the right training, it's a very powerful tool for patient care.

The prospect of radiology losing business to point-of-care ultrasound is also likely overblown, according to Dr. Coley. Point-of-care applications are for different issues, he said, such as resuscitations and other procedures where time is of the essence. "Ultrasound is one of the few areas in imaging where not everyone is trying to divide up the same pie," he said. "Ultrasound volumes are not dropping in the radiology department because point-of-care applications have made the pie bigger.

Still, concerns persist over non-radiologist physicians doing ultrasound without adequate education, training, and experience. Even the so-called "yes or no" questions answered in a focused ultrasound exam carry with them the possibility of false-negatives, Dr. Coley noted. "It's not an easily answerable problem other than making sure the people at the point of care are well trained and educated," he said.

Training Must Begin Early

That education and training should begin in the first year of medical school, said session co-presenter David Bahner, M.D., director of ultrasound at the Ohio State University Department of Emergency Medicine in Columbus. "Ultrasound in medical education is growing," he said. "It exists, including a lack of space, equipment and financial support, but they can be overcome.

Dr. Bahner expressed frustration with the slow pace of change, noting that almost a third of U.S. medical schools are lagging behind in bringing ultrasound training into the curriculum. He attributed the slow adaption to a problem common in medicine, what he described as a "cacophony of voices."

There is real, evidence-based data showing that ultrasound is a very powerful tool for patient care.

Brain D. Coley, M.D.

We’re all speaking with different voices when we need to speak with one, and that’s why a lot of healthcare is broken," he said. As an example, Dr. Bahner noted that representatives of the Accreditation Council for Continuing Medical Education (ACCME) visit medical schools, but don’t check for ultrasound programs or cite institutions lacking in such programs.

With medical education struggling to catch up to the boom in ultrasound, it’s more essential than ever that radiologists drive the discussion and ensure quality care, Dr. Coley said. "There has been a contentious history, but there also are many areas of collaboration," he said. "For instance, the medical executive committee often will go to the radiologist and ask what the requirements should be for non-radiologists to use ultrasound. And if you volunteer to help, 99 times out of 100 you will be welcomed with open arms and you can direct the course for a particular institution."

"Radiologists are finally coming around and saying, ‘we have to be involved,’" Dr. Coley said. "It’s not the same field it was 30 years ago and that’s OK.”

Opinions on the issue seemed split during the question-and-answer session following the presentation. One radiologist in attendance wondered about the strength of the data supporting point-of-care ultrasound’s value. “If you doubt that the data is robust and really solid, then you haven’t really looked at it,” Dr. Coley said.

Entering Misleading Information to “Get Scans Faster” Put Patients at Risk

Research conducted in Ireland indicated that up to 45 percent of electronic radiology requests contained incorrect or misleading information about patients’ biochemical or hematological status.

By Evonne Acevedo Johnson

T he high level of erroneous clinical and laboratory information is concerning," said RSNA 2014 presenter Maria Twomey, M.B.Ch.B., a fellow of the Royal College of Surgeons in Ireland. "The primary concern is the effect this can have on how the radiologist protocols, prioritizes the study and reports the study.

Dr. Twomey said she and her team saw some examples of radiology reports and, ideally, the electronic laboratory information system linked directly to patients’ laboratory reports and, ideally, the electronic patient chart. "The software exists and is in use, but it is not available in our many and other institutions," Dr. Twomey said. "But-gatey constraints are prevalent throughout radiology; however, these findings would support capital input into this software."

Accurate clinical information is essential for radiologists to make informed judgments on patient exposure to radiation, Dr. Twomey emphasized. "Hopefully a software system connected to the lab results would make our colleagues think twice when they make that request," she said. "Solutions based on data are the most effective. Don’t do a D-dimer if you’re going to ignore the results.

By Evonne Acevedo Johnson

The high level of erroneous clinical and laboratory information is concerning.

Maria Twomey, M.B.Ch.B.

Of the 250 requests included in the study, the researchers found that up to 45 percent contained erroneous information about creatinine, hemoglobin, white cell count and C-reactive protein levels. Fifteen percent of requests for CT pulmonary angiography, for example, reported an abnormal D-dimer result when the actual reported result was normal. Twenty-five percent had reported hypoxia when the lab-reported blood oxygen level was normal. Elevated C-reactive protein and/or white blood cell count was reported in 70 percent of acute abdominopelvic CT requests, but 20 percent of the formal results in that subgroup were normal.

"Significantly higher incidences of erroneous parameters were supplied by medical physician referrals than by surgeons," Dr. Twomey said.

Study Request Errors Can Lead to Misinterpretation of Results

Errors in an imaging request can result in selecting an inappropriate imaging procedure, Dr. Twomey said. "It may lead to the incorrect modality or study protocol being performed or inappropriate radiation dose. It could cause a delay in other patients being scanned and may lead to misinterpretation of radiological findings."

"Ideally, all biochemical and hematological results would be checked with the laboratory system," she said. Acknowledging that this could be laborious, Dr. Twomey’s team instead recommends the implementation of an electronic ordering system linked directly to patients’ laboratory reports and, ideally, the electronic patient chart. "The software exists and is in use, but it is not available in our many and other institutions," Dr. Twomey said. "But-gatey constraints are prevalent throughout radiology; however, these findings would support capital input into this software."

Accurate clinical information is essential for radiologists to make informed judgments on patient exposure to radiation, Dr. Twomey emphasized. "Hopefully a software system connected to the lab results would make our colleagues think twice when they make that request," she said. "Solutions based on data are the most effective. Don’t do a D-dimer if you’re going to ignore the results."
Complexity of Breast Density Notification Laws at Center of Debate

Radiology cannot support federal legislation to notify women who have dense breasts unless the law takes the entire complex cancer-risk picture into account, said American College of Radiology (ACR) Breast Commission Chair Barbara Monsees, M.D., in a well-attended Wednesday morning Controversy Session—Breast Density Notification Legislation: Pros and Cons.

By Elizabeth Gardner

Dr. Monsees' remarks were addressed to Nancy Capello, M.D., during the Q&A portion of the lively session. Dr. Capello's activism began the movement toward density notification legislation after her advanced cancer was missed on a mammogram in 2004 because of dense breast tissue that she didn’t realize she had. Dr. Capello is the founder of the education and advocacy organization Are You Dense?

During the session, Dr. Capello challenged the ACR's neutral stance on the legislation, pointing out that the American Cancer Society and other organizations support notification.

While 19 states now have breast density notification laws, most do not require insurance coverage for additional imaging. Lack of mandated coverage creates a burden on radiology practices, either to risk not getting paid for additional screenings, or to ask their patients to pay cash. Dr. Capello’s home state of Connecticut, where she lobbied for the first notification law (passed in 2009), does require insurance coverage for ultrasound examinations to supplement mammograms for women with dense breasts.

“We will help you with reimbursement, but you need to come on board to help us show [legislators] a common goal,” Dr. Capello said.

Although ACR supports including information about breast density in the mammography report sent to physicians, the organization is cautious about supporting mandatory notification to patients. “While the ACR is not opposed to including parenchymal breast information in the lay summary, we urge strong consideration of the benefits, possible harms and unintended consequences of doing so,” the ACR position statement on breast density states.

Breast Density Notification Issue “Complex”

Women with dense breasts face not only an increased risk of breast cancer, but an even more increased risk that the cancer will go undetected by standard mammography. Because there’s no way for a woman to tell that she has dense breasts without professional evaluation, breast cancer activists like Dr. Capello have crusaded—often successfully—for breast density notification laws at the state level, and are now pushing for federal legislation. Dr. Monsees reviewed current state legislation, statistics available regarding the relative cancer risks associated with different breast densities, the rationale for notification laws and studies of the laws’ impact on the detection of additional cancers.

Presenter Stephen Feig, M.D., professor of clinical radiology at the University of California at Irvine, said the issues surrounding notification are complex. While half of women have dense breasts, only 10 percent have the extremely dense breasts that are associated with significantly increased cancer risk compared with the 10 percent of women with the less dense breasts. Everyone else’s risk falls somewhere in the middle. Moreover, breast density can change over time, and two radiologists may disagree on whether a given patient has dense breasts. All those factors might lead to situations where a woman is told by one provider that she has dense breasts, and by another that she doesn’t. The same provider might even change his or her opinion from one year to the next, without any underlying change in the patient’s breast tissue.

Ultrasound is frequently recommended as a follow-up exam for women with dense breasts, but Dr. Monsees said ultrasound exams have a significant rate of false positive results, leading to possible unnecessary biopsies. Both Drs. Monsees and Feig presented data suggesting that follow-up breast MRI is more consistently effective at detecting disease in dense breast tissue.

Radiologists Urged to Adopt Value-Based Pay Model Regardless of Obamacare’s Future

CONTINUED FROM PAGE 1A

Moran noted that attempts at a full repeal of ACA by Republicans would fail due to the veto power of President Obama, despite the party’s upcoming majority in the House of Representatives and Senate in the 114th Congress. Certain areas are ripe for repeal, however, especially those in which there is some support from Demo- crats such as the elimination of the Inde- pendent Payment Advisory Board (IPAB), which decides how Medicare can save money without affecting coverage or quality.

“If you lost that ability to interact with Congress on health-policy decisions, I think that would be a travesty that would very much disenfranchise the American College of Radiology, its members, and radiologists in general,” Moran said.

Empowering Radiologists with Data is Goal

Discussions involving the shift to value-based payment models aren’t going to happen in the future—they are happening now, emphasized Zequeili Silva, III, M.D., vice-chair of the ACR Commis- sion on Economics and an advisor to the Relative-Value Scale Update Committee (RUC), which has worked to quantitatively define value with some critical claims-based data measure.

“The challenge to get that data into the hands of radiologists has never been greater, and it’s something the college (ACR) takes very seriously,” Dr. Silva said, adding physicians want to adapt the new payment model without financially crip- pling their practices. “It puts physicians from a physician-payment perspective into an awkward middle ground,” he said.

The ACR has presented radiologists and all physicians with a new landscape in which to provide their services, which was going to happen with or without the ACA, said Thomas Greeson, a healthcare regulatory lawyer and former general counsel for ACR. That landscape includes programs such as the Medicare Shared Savings Pro- gram (MSSP), the Hospital Quality Efficiency Program (HQP) and the Physician Quality Reporting System (PQRS).

Radiologists must do everything they can to build their relationship with hospi- tals to demonstrate their value, Greeson said. “You want them to be your ally when they are working on those payment negoti- ations,” said Greeson, a partner with Reed Smith, LLP in Falls Church, Va.

The power of innovation has transformed our healthcare industry from the days of George Ludwig—a pioneer noted for developing the first application of ultrasound to the human body for medical purposes—to the unique ultrasound technology of the Konica Minolta SONIMAGE HS1. It gives you the imaging performance of a high end ultrasound system in a hand carry design.

The innovation continues at RSNA with the introduction of more Primary Imaging Solutions. AeroDR XE... the simple, reliable, robust wireless DR for the most extreme environments. ImagePilot Aero... the all-in-one digital radiography solution. Informity... the fastest, most complete automated cloud backup and recovery solution for ImagePilot.

Focused on innovative imaging solutions for over 75 years, Konica Minolta is committed to meeting customers’ changing needs while outperforming expectations.

The Right Solutions at the Right Time!

For an in-depth look at the latest innovations from Konica Minolta, visit us at RSNA 2014 — Hall A, Booth 1918.

Schedule a demo now by going to: www.konicaminolta.com/medicalusa/RSNA

KONICA MINOLTA
Giving Shape to Ideas

Phone: 1 (800) 934-1034  •  Konica Minolta Medical Imaging  •  www.konicaminolta.com/medicalusa
Mahoney is Board Liaison for Publications and Communications

Mary C. Mahoney, M.D., an accomplished breast imager and advocate of patient-centered radiology, is Board Liaison for Publications and Communications. Dr. Mahoney is a professor of radiology, vice-chair of research and the Eugene L. & Sue R. Saenger Chair of Radiological Sciences at the University of Cincinnati Medical Center, as well as director of Breast Imaging at Barrett Cancer Center in Cincinnati.

Dr. Mahoney served as interim liaison from April through December 2014, replacing William T. Thorwarth Jr., M.D., after he became executive director of the American College of Radiology.

A long-time member of RSNA, Dr. Mahoney was chair of the Public Information Committee from 2010 to 2012 and has served on numerous committees, including the Research & Education Foundation Public Relations Committee.

Dr. Mahoney received her bachelor’s degree from Brown University in 1979 and her M.D. from the University of Cincinnati College of Medicine in 1983. She began her residency training in diagnostic radiology at Montefiore Hospital in New York, and went on to complete her residency at the University of Cincinnati Medical Center, becoming chief resident of the Department of Radiology in 1987.

“I am honored and delighted to serve on the RSNA Board,” Dr. Mahoney said. “I look forward to continuing to support the Society’s premier journals and public information programs that provide so much value to physicians and patients, and to which so many talented RSNA volunteers contribute. I am excited to witness the continued momentum in RSNA programs that help patients understand the vital role of radiologists in their healthcare.”

Ehman Named Board Chairman

Richard L. Ehman, M.D., is chairman of the RSNA Board of Directors for 2015. Dr. Ehman is a professor of radiology at the Mayo Clinic in Rochester, Minnesota, and served on its Board of Governors from 2006 to 2014 when he was elected as an emeritus member of the board.

As chairman, Dr. Ehman brings expertise in practice, education, research and leadership to support RSNA's mission of promoting excellence in patient care through innovation in radiology.

"The RSNA has shown a deep commitment to advancing the science and technology of medical imaging through the extensive scientific programming at its annual meeting and through the phenomenally successful grant programs of the Research and Education Foundation," Dr. Ehman said. "As chair, I will work with the Board to build on RSNA’s legacy of fostering research to help shape the future of medical imaging."

Dr. Ehman has been an active member of many medical societies and is past-president of several organizations, including the International Society for Magnetic Resonance in Medicine, the Academy of Radiology Research, and the Society for Body Computed Tomography and Magnetic Resonance in 2013-14.

As an RSNA member, Dr. Ehman has served on the Refresher Course Committee, Scientific Program Committee, Radiology Editorial Board, Research Development Committee, Grant Program Committee and the Research and Education Foundation Board of Trustees. In 2010, he was elected to the RSNA Board of Directors and in 2011 became the liaison for science.

Arenson is RSNA President

CONTINUED FROM PAGE 1A


Dr. Arenson’s research achievements include developing a catheter that can be steered in a magnetic field, allowing interventional radiologists to reach further into smaller blood vessels. Dr. Arenson and fellow researchers filed a patent on the invention in 2001. The patent was recently nominated for a national fair on technology, and Dr. Arenson is now working with faculty on the next-stage prototype.

A member of RSNA since 1974, Dr. Arenson has served on numerous committees, including the Publications Council, Education Council, Public Information Advisors Network, Research Development Committee and the Radiology Informatics Committee (formerly Electronic Communications Committee), of which he served as chairman from 1999 to 2005. In 2007, he was elected to the RSNA Board of Directors and has served as the Board Liaison for Information Technology and Annual Meeting. He served as Board Chairman from 2012 to 2013, and President-Elect from 2013 to 2014.

As president, I hope to continue to advance value-based practice and patient-centered care initiatives and encourage the development and use of informatics tools to improve the care we provide to our patients.

Ronald L. Arenson, M.D.
fMRI Demonstrates How HIV Patients’ Brains Compensate for Neurocognitive Damage

Radiologists are using functional MR imaging (fMRI) to define—and possibly predict—patterns of cognitive impairment caused by HIV infection.

By Evonne Acredo Johnson

A preliminary study finds evidence that functional MR imaging can be used as a non-invasive biomarker to determine cognitive impairment in HIV patients, said presenter Nina Ventura, M.D., of the Instituto Estadual do Cerebro Paulo Lemire in Rio de Janeiro, Brazil.

HIV directly invades the brain, causing glial and neuronal dysfunction. Dr. Ventura’s team evaluated 19 patients with HIV and 17 sero-negative controls matched by sex, gender and education. Of the HIV-positive patients, nine had no evidence of neurocognitive disorder and 10 demonstrated asymptomatic or mild neurocognitive disorder. Patients were evaluated by neuropsychologists on the same day as MRI imaging for differences in executive functions, memory, attention, speed of information, motor skills and verbal language.

The researchers then used resting-state fMRI to evaluate average connectivity, local clustering, within-module connectivity and between-module connectivity of the left and right posterior cingulate gyrus (PCC) and the left and right medial prefrontal cortex (mPFC).

Patients who demonstrated asymptomatic or mild neurocognitive disorder, Dr. Ventura said, showed a significantly increased PCC efficiency when compared to controls, whereas the patients with no evidence of neurocognitive disorder showed a pattern more similar to controls. “These findings had an opposite correlation to cognitive performance,” she said.

After the audit, the residents met to figure out why their performance was so poor. “They didn’t have enough time during the busy ultrasound rotation, and they weren’t aware of the guidelines,” said Daichi Hayashi, M.B.B.S., Ph.D., a resident in diagnostic radiology at Bridgeport Hospital, during a presentation of a Quality Storyboard on Wednesday.

Because much of the required information is already in the hospital’s EHR system, the research team used the vendor’s “smartphrase” tool to create a pre-procedure form—a “proforma”—that appears in the residents’ “favorites” list when they log into the EHR. The proforma automatically pulls all relevant available data from the patient’s record and uses it to populate the procedure form according to the ACR/SIR specifications. Some data, such as documentation of consent, must still be added manually, but the data entry burden is substantially reduced.

After refining the form several times and putting it into the daily workflow so that residents could get used to using it, researchers tried it out with three residents, whom they presented with more than 30 hypothetical cases. Each resident did the documentation twice: once by searching the EHR manually for the relevant data and once using the pre-populated form. The two efforts were separated by several weeks so that memorization wasn’t a factor.

Using the pre-populated form reduced the median documentation time per case from seven or eight minutes to two or three, and increased guideline adherence to 100 percent.

“Epic has been time consuming for physicians due to the extensive need for documentation, but this type of tool might streamline workflow, leaving more time for bedside patient care,” Dr. Hayashi said.

The burden still falls on the resident to confirm the accuracy of the information from the EHR, such as the medication list, which Dr. Hayashi said he verifies with the nurses who have most recently taken care of the patient.

As to whether the pre-populated forms increase patient safety, Dr. Hayashi said the sample is too small to draw any conclusions. However, he credits the pre-populated forms for preventing him from starting one procedure where there was no signed consent on file—a piece of information that he says he might have been overlooked in the old form.

Tool That Pulls Patient Information from EHR Streamlines Workflow

By Elizabeth Gardner

A s a rule, many clinicians don’t enjoy entering data into an electronic health record (EHR) system, but once the information is in there, it should make life easier in other ways. A research project at Bridgeport Hospital, Connecticut, tested this principle on pre-procedure documentation practices, and found that residents saved time and produced more accurate documentation when they used forms that had been populated with relevant information from the patient’s EHR.

First, the study audited pre-procedure documentation for 29 ultrasound-guided procedures. The information was collected by residents using a standard form. A majority—eight percent of the forms adhered to American College of Radiology (ACR)/Society of Interventional Radiology (SIR) guidelines, which include the plan for each procedure to be performed, the indication for the procedure and a brief history, findings of targeted physical examination, lab results and other findings, risk stratification and documentation of informed consent.

The researchers then used resting-state fMRI to evaluate performance, particularly in the domain of attention and working memory. Dr. Ventura explained, “This suggests that increased PCC efficiency is beneficial in those patients, functioning as a compensation method. When the increased efficiency is no longer sufficient to compensate the brain damage, patients evolve with cognitive deficit.”

Patients with no evidence of neurocognitive disorder, meanwhile, demonstrated a pathological rather than beneficial response—increased PCC local efficiency but decreased cognitive performance.

When brain damage reaches an unknown threshold, hyperconnectivity is no longer sufficient to preserve functioning, “and only at this moment would we observe disconnection,” Dr. Ventura continued. “This is why the findings are so interesting. We could use fMRI to predict which patients are already using hyperconnectivity to compensate for future irreversible damage.”

Neural systems hold “small worlds” of radiologic data, said Dr. Ventura, “with high clustering and short paths that afford specialized processing of information locally while simultaneously permitting large-scale information transfer throughout the network.”

“I believe our findings are innovative in the HIV field and corroborate previous studies in other fields, like schizophrenia and traumatic brain injury,” said Dr. Ventura, a member of RSNA’s Resident and Fellow Committee. “There is a relatively new idea that brain damage could lead first to hyperconnectivity, especially in hub nodes, in order to preserve functioning.”

Wednesday’s Press Conferences

Watch for stories in the national media generated by RSNA press conferences:

Interventional Radiology Procedure Preserves Uterus in Patients with Placenta Accreta

Placement of balloons in the internal iliac arteries prior to a Caesarean section after placenta accreta protects against hemorrhagic shock and other and baby. A multidisciplinary team plans both an elective Caesarean section and prophylactic balloon placement under fluoroscopic guidance. Following delivery the balloons are inflated to slow blood flow to the uterus, allowing the obstetrician time to gain control of the hemorrhage. Over a 44-month period, the hospital treated 21 patients who underwent balloon placement immediately followed by C-section. Balloons were inflated in 13 of the 21 deliveries. The interventional procedure was a technical success in 100 percent of the cases, with no maternal or fetal complications resulting from the procedure.

Common Knee Surgery May Lead to Arthritis and Carilage Loss

Evidence is emerging that suggests meniscal surgery may be detrimental to the knee joint. Researchers studied data from patients in the Osteoarthritis Initiative, including MR imaging (MRI) exams of 355 knees that developed osteoarthritis during a five-year period and a control group. Of all knees, 31 underwent meniscus surgery during the year prior to the arthritis diagnosis and 280 had signs of meniscal damage on MRI but did not have surgery. All 31 of the knees that underwent surgery developed osteoarthritis, compared with 59 percent of the knees with meniscal damage that didn’t have surgery. Nearly 81 percent of knees with surgery showed cartilage loss, compared with 40 percent of knees with meniscal damage and no surgery.

Many Chest X-rays in Children Are Unnecessary

Researchers reviewed data from 719 pediatric chest X-ray exams ordered between 2008 and 2014 in impatient, outpatient and emergency room settings. Patients undergoing the exams ranged in age from newborn to 17 years old. Of the 719 exams, 377 were ordered for chest pain, 98 indicated syncope or presyncope, 21 indicated spells, 37 indicated postural orthostatic hypotension (POTS), 185 indicated dizziness, and one exam indicated cyclical vomiting. Eighty-two of the 719 exams were excluded due to other known heart disease and other causes. Researchers found that in approximately 85 percent of the remaining 637 patients, the exam did not alter clinical treatment.

They Sipped, They Savored

RSNA thanks the thousands of meeting attendees who came to raise a glass to toast RSNA’s 100th anniversary at the Sip & Savor Social. In addition to enjoying cocktails and food from 18 popular Chicago restaurants, some Centennial celebrants also cut a rug with live music from the Matt Stedman Band.
International Young Academics Learn Vital Skills Through RSNA IRIYA Program

By Felicia Dechter

Preparing manuscripts, teaching, writing and publishing a scientific article, and submitting a grant application are just a few of the many skills participants from around the globe routinely learn in RSNA’s Introduction to Research for International Young Academics (IRIYA) program.

This year, some of the young academics who attended a special four-day seminar at RSNA 2014 offered their impressions of the IRIYA program that teaches those vital skills and encourages young radiologists from countries outside of the U.S. to pursue careers in academic radiology.

“This is a really good, highly-organized program,” said Chong Hyun Suh, M.D., a fourth-year resident at Asan Medical Center in Seoul, South Korea. “It’s a good opportunity to learn basic research. I learned a lot from not only the speakers but also the other participants.

“IRIYA provides a good stimulus to young researchers,” Dr. Suh continued. “I would highly recommend it to our colleagues in Korea. “

Eligible candidates are residents and fellows currently in radiology training programs, or radiologists not more than two years out of training, who are beginning or considering an academic career. Candidates are nominated by their department chair or training director, who then nominate one candidate per year. The RSNA Committee on Radiology Education recommends 15 international young academics for consideration by the RSNA Board of Directors each year.

Successful candidates are provided with complimentary registration, shared hotel accommodation for the duration of the program, and a stipend to help defray travel expenses.

Amy Sevao, M.D., Mickael Ohana, M.D., Chong Hyun Suh, M.D.

IRIYA, which began in 2000, serves for some as a touchstone for the specialty.

Amy Sevao, M.D., a radiology trainee at Auckland City Hospital in Auckland, New Zealand, said the country is fairly isolated and that IRIYA is “very good, very useful,” to get a feeling for “what’s happening” in radiology.

Dr. Sevao, who plans to be an academic radiologist focusing on translational research, says she is the only person in Australasia (Australia and New Zealand) who is earning a Ph.D. in medical imaging.

“This program is really great,” Dr. Sevao said. “I’m going to start using what I was taught yesterday straight away.”

The program is “excellent,” said Mickaël Ohana, M.D., a radiologist at the Nouvel Hospital Civil in Strasbourg University Hospital, France, who plans to enter hospital-based practice, clinical and academic research and teaching. “The speakers are really excellent and it helps to plan for the future,” Dr. Ohana said.

In addition, participants said they were offered some pearls of wisdom that will take them a long way.

“We were taught it’s better to choose this profession for joy, and that was really insightful,” said Dr. Ohana, adding, “I’d like to thank RSNA for the opportunity.”

Acknowledging the Limitations—as Well as the Strengths—of Imaging is Critical to Patient Care

by the images, he is also likely to have to direct a therapeutic dose at a non-visible target.

“I also treat areas that I know from experience, and where I know from anatomy, tumors like to spread,” he said. “Surgeons and radiation oncologists designing radiation fields need to understand where cancers like to spread because that influences what we should operate on and where we should aim our radiation beam.

Dr. Marks also pointed out that physiological states will also affect images and their usefulness in radiation planning. For example, it may be necessary to have a patient hold his or her breath in order to maximize image quality, yet it’s unlikely that radiation therapy will be delivered under those conditions.

So the “treacherous” part of the title of his oration, Dr. Marks said, comes into play when clinicians fail to acknowledge these limitations in medical images.

Dr. Marks also addressed the issue of communication. “The radiologist’s job is not just to read the images but to communicate the findings—and communication is one of the major sources of errors in medicine and we radiologists need to do a better job of communicating.”

Improving communication could involve something as simple as enhancing report comprehension by paying more attention to things like fonts, color, punctuation, and the formatting of reports. For example, Dr. Marks pointed out that researchers—particularly those in the advertising industry—have studied the impact of font type on reading comprehension and found that anything other than black type on white print degrades comprehension. The same is true, he said, of type that is completely capitalized. “Yet, radiology reports often end up in capital letters,” he said. “That degrades comprehension of the report.”

And it’s increasingly important for radiologists to communicate with patients as well as fellow physicians. “Patients are going to be reading radiology reports,” he said. “And we are going to have to do everything we can to make sure those reports are legible, digestible, and understandable to most people.”

Visit ACR booth #3123
South Building | Hall A
McCormick Place, Chicago
Nov. 30 – Dec. 4, 2014

ACR at RSNA 2014
Leading Radiology Into the Future

Visit the booth to find out what’s new from ACR
♦ Lung Cancer Screening Center — earn the designation
♦ Image Wisely® — Fluoroscopy

Three ways to win a $1,000 gift card
1. Renew your ACR membership
2. Register for ACR 2015 (members)
3. Join and Save — register for ACR 2015 and join ACR for free!
EXPERIENCE
A New Healthcare Solution

Visit us at Booth
#7360 North building
For more information, visit www.samsung.com/rsna2014

* This product is pending 510(k) Clearance.
“The American College of Radiology has been proud to select EIZO, an innovative leader in medical displays, for our Education Center. Over the last 6 years, EIZO displays have allowed us to reliably educate doctors with their high quality imaging products to ensure their success when working in modalities like mammography and computed tomography.”

— Vinay Sandhir, Senior Facility Director, ACR Learning Center

Come see us at Hall A, Booth 2929