RSNA News™
October-November 2015 Volume 25, Issue 10 & 11 DOUBLE ISSUE

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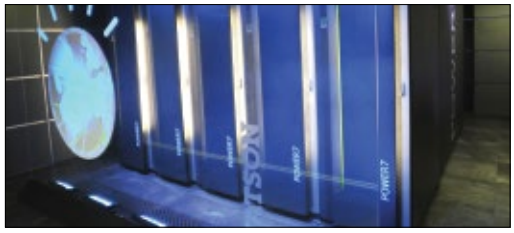
OCTOBER-NOVEMBER 2015 • VOLUME 25, NUMBER 10 & 11

RSNA News

FEATURES



UP FRONT

RADIOLOGY'S FUTURE

NEWS YOU CAN USE

RSNA 2015 PREVIEW

RSNA MISSION

The RSNA promotes excellence in patient care and healthcare delivery through education, research and technologic innovation.

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

Austin Radiological Association Funds RSNA R&E Research Grant

The Austin Radiological Association (ARA) has committed $600,000 to fund the Austin Radiological Association Research Resident Grant through RSNA's Research & Education (R&E) Foundation, becoming the first private practice group to fund a named grant award.

At a time when research funding is critical, the Austin Radiological Association Research Resident Grant will allow investigators to bring new techniques and modalities to light, ultimately improving patient care. ARA's commitment is part of the Foundation's Inspire-Innovate-Invest: The Campaign for Funding Radiology's Future®.


Karnaze

"Research dollars have become progressively scarcer at the same time that other economic pressures on academic radiology programs have become more intense," said Gregory C. Karnaze, M.D., ARA President. "We believe that there should be a cooperative and supportive relationship between academic and private practice radiology. Funding this grant is one way for ARA to give back to our profession and at the same time help to secure its future."

With 19 outpatient imaging centers and 20 hospital locations, ARA is one of the largest providers of subspecialty imaging in central Texas. For over 60 years, ARA has been committed to investing in the latest technology to provide the highest quality of care to referring physicians and patients.

"Austin Radiological Association recognizes that the future of radiology depends on the continued commitment and remarkable generosity of the entire radiology community," said Burton P. Drayer, M.D., chairman, R&E Foundation Board of Trustees.

Launched in 2014, the goal of the Inspire-Innovate-Invest Campaign is to raise $17.5 million to fund grants in radiologic research and education, bridging gaps in funding for promising investigators and educators. For more information, go to *RSNA.org/Campaign*.

SNMMI Names Officers, Award Winners


Jadvar

Hossein Jadvar, M.D., Ph.D., M.P.H., M.B.A., tenured associate professor of radiology and biomedical engineering at the University of Southern California, was elected as the 2015-16 president of the Society of Nuclear Medicine and Molecular Imaging (SNMMI) at the organization's recent annual meeting in Baltimore, Maryland.

Other SNMMI officers elected for 2015-16 are **Sally W. Schwarz, M.S., R.Ph., B.C.N.P.**, president-elect, and **Bennett S. Greenspan, M.D., M.S.**, vice president-elect.


Townsend


Phelps

Michael E. Phelps, Ph.D., the Norton Simon Professor and Chair of the University of California, Los Angeles, Department of Molecular & Medical Pharmacology, was named recipient of the Georg Charles de Hevesy Nuclear Pioneer Award for his contributions to nuclear medicine.

David W. Townsend, Ph.D., professor in the Department of Diagnostic Imaging at the National University Hospital of Singapore and director of the A*STAR-NUS Clinical Imaging Research Centre in Singapore, received the prestigious Paul C. Aebersold Award recognizing outstanding achievement in basic science applied to nuclear medicine.

Numbers in the News

700

The approximate number of exhibitors from all over the globe featured at the RSNA 2015 Technical Exhibition—the world's largest exhibition of radiology-related projects. Read more in the McCormick Place section of the RSNA 2015 Meeting Preview on Page 44.

30

The number of people in recent *Radiology* research demonstrating that patients often do not receive information on radiation used in some exams, and as a result, may have a poor understanding of its risk and benefits. Read a full report on Page 11.

48

The number of in-person self-asessment module (SAM) courses that will be offered at RSNA 2015. Read about more of the educational offerings at this year's annual meeting on Page 36.

150

Approximate number of news media members who typically attend the RSNA Annual Meeting to capture breaking news coming out of the field of radiology. Read more about RSNA press conferences on Page 47.

NEURORADIOLOGY RESEARCH AWARD ESTABLISHED

Funded with a donation from Kuo York Chynn, M.D., the RSNA Board of Directors has established the Kuo York Chynn Neuroradiology Research Award—an annual award for the top neuroradiology research paper presented at the RSNA annual meeting.

A longtime RSNA member, Dr. Chynn is an internationally known neuroradiology expert who has authored more than 30 papers and two textbooks and holds one patent for his invention, the Painless Chynn Myelography Needle.

As someone who arrived in the U.S. with only $60 and rose to become an international expert in his field, Dr. Chynn hopes the research award will pave the way for other researchers traveling that same path. "I was able to persevere and work hard," Dr. Chynn said. "I would like to give back to the field of radiology, specifically my subspecialty of neuroradiology."

Born in Shanghai, Dr. Chynn graduated from National Tung-Chi University Medical School in Shanghai in 1949. He pursued his post-graduate training in the U.S., completing his radiology residency at St. Louis University Hospital in 1954.

After two years in private practice, Dr. Chynn accepted a position as an assistant professor at the New York Hospital-Cornell Medical Center. Because neuroradiology was in its infancy in the 1950s, the National Institutes of Health (NIH) established a grant to train neuroradiologists in advanced medical centers abroad. In 1959, Dr. Chynn accepted a one-year NIH grant to study in London and Stockholm.

After returning from Europe, Dr. Chynn established neuroradiology departments at both Cornell and St. Luke's Hospital Center, affiliated with Columbia Presbyterian Hospital, serving as division head for both hospitals. He retired in 1994 as Emeritus Professor.


Chynn

In the 1970s, Dr. Chynn's myelography needle invention was the focus of research presented at the RSNA Annual Meeting, and in 1973, his research, "Painless Myelography. Introduction of a New Aspiration Cannula and Review of 541 Consecutive Studies," was published in *Radiology*.

Dr. Chynn chose to establish the grant through RSNA because of the Society's dedication to research and funding the future of radiology. The first award of $3,000 will be presented at RSNA 2016.

2016 R&E Grant Application Process Opens This Month

Individuals interested in obtaining RSNA Research & Education (R&E) Foundation grants for 2016 can begin submitting their applications in October. For more information, go to *RSNA.org/Foundation* or contact Scott A. Walter, M.S., Assistant Director, Grant Administration, at 1-630-571-7816 or *swalter@rsna.org*.

EDUCATION GRANTS

Deadline—Jan. 11

- Education Scholar Grant
- RSNA/AUR/APDR/SCARD Radiology Education Research Development Grant

RESEARCH GRANTS

Deadline—Jan. 15

- Research Scholar Grant
- Research Seed Grant
- Research Resident/Fellow Grant

RESEARCH MEDICAL STUDENT GRANT

Deadline—Feb. 1

Learn about the 2015 R&E Foundation grant recipients and their projects starting on Page 13.

Fourth Annual International Day of Radiology (IDoR) Focuses on Pediatrics

On Nov. 8, 2015, join 128 medical societies from 68 countries in celebrating the advances that radiologic innovations have brought to patients worldwide.

This year, the International Day of Radiology (IDoR) focuses on pediatric radiology, highlighting the important role that radiology plays in the detection, diagnosis and management of a wide variety of diseases affecting children, and the special treatment younger patients need.

IDoR is sponsored by RSNA, the European Society of Radiology (ESR) and the American College of Radiology (ACR), with a dedicated website (*IDoR2015.com*) and social media activities. The sponsoring societies are joined by the Society for Pediatric Radiology (SPR), World Federation of Pediatric Imaging (WFPI), European Society of Pediatric Radiology (ESPR) and the Image Gently® Campaign in recognizing the valuable contributions radiology has made to pediatric care.

Visit *RSNA.org/IDoR* for promotional materials you can customize for your practice or organization.

HOST SOCIETIES SOUGHT FOR INTERNATIONAL VISITING PROFESSOR PROGRAM

National radiology societies located in developing countries—or primarily serving those countries—are invited to apply to host an RSNA International Visiting Professor (IVP) team. The host society will be responsible for organizing visits to local hospitals that have active radiology training programs with the need and potential for educational enrichment from a visiting professor team. If applicable, the team will also lecture at the host's national radiology meeting.

Host societies are expected to provide hotel accommodations and meals for the IVP team for the duration of their visit and communicate program, schedule and hospitality arrangements to the team members and RSNA staff. The deadline to apply for the 2017 IVP program is Dec. 31, 2015. Find more information and download the applications at *RSNA.org/IVP*.

***RadioGraphics* Editor Jeffrey S. Klein, M.D., (far *right*), engaged with radiology colleagues during his 2013 trip to Argentina with the IVP program.**

IN MEMORIAM

Jeremy J. Kaye, M.D.

Kaye

Jeremy J. Kaye, M.D., a respected radiology mentor, professor and musculoskeletal radiologist, died July 4 at Vanderbilt University Medical Center (VUMC). He was 75.

Dr. Kaye, professor emeritus of radiology and radiological sciences at VUMC, led the department to become one of the university's largest departments, with 110 faculty—33 basic science faculty and 77 clinical faculty.

During his 43-year career, Dr. Kaye authored or co-authored six textbooks, contributed nearly 30 book chapters, authored or co-authored more than 70 scientific papers, conducted almost 60 instructional courses and participated in more than 110 invited lectures. He was the visiting professor at more than 65 medical centers and served as an examiner for the American Board of Radiology for 32 years, receiving Distinguished Service Awards from that organization in both 2000 and 2010.

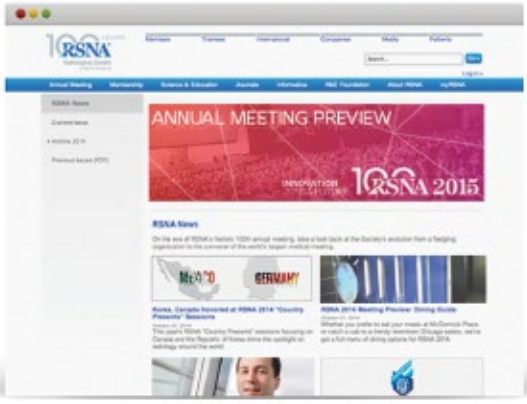
Dr. Kaye served as a member of the RSNA-ACR Public Information Website (*RadiologyInfo.org*) Committee, an associate editor for *Radiology* and a manuscript reviewer for *Radiology* and *RadioGraphics*.

Also during his career, Dr. Kaye was president and served on the Board of Trustees and held numerous committee appointments for the International Skeletal Society. In 2010, he was awarded the society's Founders Medal, its highest honor.

A graduate of the University of Notre Dame, Dr. Kaye received his medical degree from Cornell University Medical College, New York. Following an internship in medicine at Bellevue Hospital, he trained in diagnostic radiology at the New York Hospital–Cornell Medical Center. After completing his residency, he served in the U.S. Army, rising to the rank of major. In 1971, he returned to Cornell and the Hospital for Special Surgery as an assistant professor of radiology, a position he held until he went to Vanderbilt in 1976.

THIS MONTH IN THE *RSNA NEWS* ONLINE VERSION

Get more of this month's news online at *RSNA.org/News*. Enjoy interactive features including video, audio, slide presentations and more. Go online to leave us a comment and easily share stories via social media as well.



As part of RSNA's celebration of 100 years at the forefront of radiology, readers are invited to explore RSNA's Centenial website (*RSNA.org/Centennial*) featuring an interactive timeline and the RSNA Image Contest.

RSNA NEWS
October-November 2015 • Volume 25, Numbers 10 & 11

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.

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LOOK AHEAD

Informatics: The Future is Almost Here

BY ADAM E. FLANDERS, M.D.

"The future has already arrived. It's just not widely distributed yet."— William Gibson

Our radiology forebears could hardly have predicted the innovations that have taken place in medical imaging over the past 100 years. It is even more difficult to conceive that there are more remarkable things awaiting radiology's future—but there are. As the emphasis in healthcare changes from episodes of care to increased value, radiology is at a transition point. RSNA's Radiology Cares® and the American College of Radiology's (ACR) Imaging 3.0™ campaigns illustrate ways in which radiologists can augment their value proposition in the new healthcare model.

In medical science today, explosive growth is occurring in biomedical informatics, precision medicine, artificial intelligence and deep learning. Many creative concepts are being developed, tested and validated around the world, and imaging informatics is at the core of many of them.

While electronic medical record (EMR) utilization has grown exponentially over the past decade, sharing of clinical data beyond the boundaries of an institution or health system has generally been limited. Meaningful Use legislation has fostered the adoption of certified electronic health records (EHRs) in hospitals, health systems and private provider offices and encouraged the development of health information exchanges (HIEs) with certified EMRs that have data sharing capabilities. Technologies and standards already exist that are poised to make that happen. For instance, the Integrating the Healthcare Enterprise (IHE®) cross-enterprise, document-sharing (XDS) profile facilitates the registration, distribution and access to patient EHRs across institutions. Another related profile, XDS.b-I, specifies the vendor-neutral exchange of medical images between facilities without a common medical record identifier.

Launched in 2009 as a pilot project, RSNA Image Share is a network created to enable radiologists to share medical images with patients using personal health record (PHR) accounts without the use of media (e.g., CDs/DVDs). Another RSNA Initiative—RadLex®—provides a standardized lexicon of radiology terms that is automatically recognized and retrieved by EHRs. The RSNA RadLex® Playbook provides a standard set of names for radiologic procedures so that exams performed at one institution can be easily mapped to another facility.

These are the pre-cursors of an "all image-aware" PACS workstation, one which not only queries the local repository for relevant imaging and reports, but all the relevant information wherever it resides—regionally or even nationally. Conceivably in the next few years, radiologists will be freed from having to track down prior examinations from anywhere—the PACS system will do it automatically.

Meeting the Challenge of Big Data

The exponential growth and storage of structured and unstructured data, as well as means to store, analyze and consume large volumes of data to solve problems is loosely referred to as "Big Data." Big Data is not inclusive to medicine—it is a by-product of nearly every facet of society that uses paperless transaction models. In general, we know how to warehouse gigabits of structured and unstructured information, but we are still

Continued on Next Page

Flanders

ADAM E. FLANDERS, M.D., is a professor of radiology and rehabilitation medicine and director of informatics at Thomas Jefferson University Hospital in Philadelphia. A nationally renowned informatics expert, Dr. Flanders is chair of RSNA's Radiology Informatics Committee.

"Now, and in the future, those who can harness the tsunami of data and unearth the information contained within it are the ones who will provide the greatest value and highest quality of care to patients."

ADAM E. FLANDERS, M.D.

Continued From Previous Page

figuring out how to repurpose existing data or combine datasets to create new knowledge.

In bioinformatics there has been an exponential growth of population health, genomics, molecular and proteomic datasets. The challenge is to find new ways to harness all of this information beyond daily transactional processes. Radiology experienced its Big Data challenge when the utilization of cross-sectional imaging began to soar; both in terms of the number of exams per patient and the number of images per exam. We met the challenge by developing and embracing PACS and a new method for visually analyzing large imaging datasets—volumetric interpretation. We have led the field by developing innovative ways to archive, index and efficiently deliver and interpret large datasets.

The future is already available to some degree in our reading rooms. Thin-client workstations and visualization modules that are bolted onto our PACS workstations provide semi-automated analysis of physiologic characteristics like perfusion, diffusion, volumetric stenosis and 3D modeling. Being freed from expensive, specialized workstations allows for rapid development of new ideas and processes.

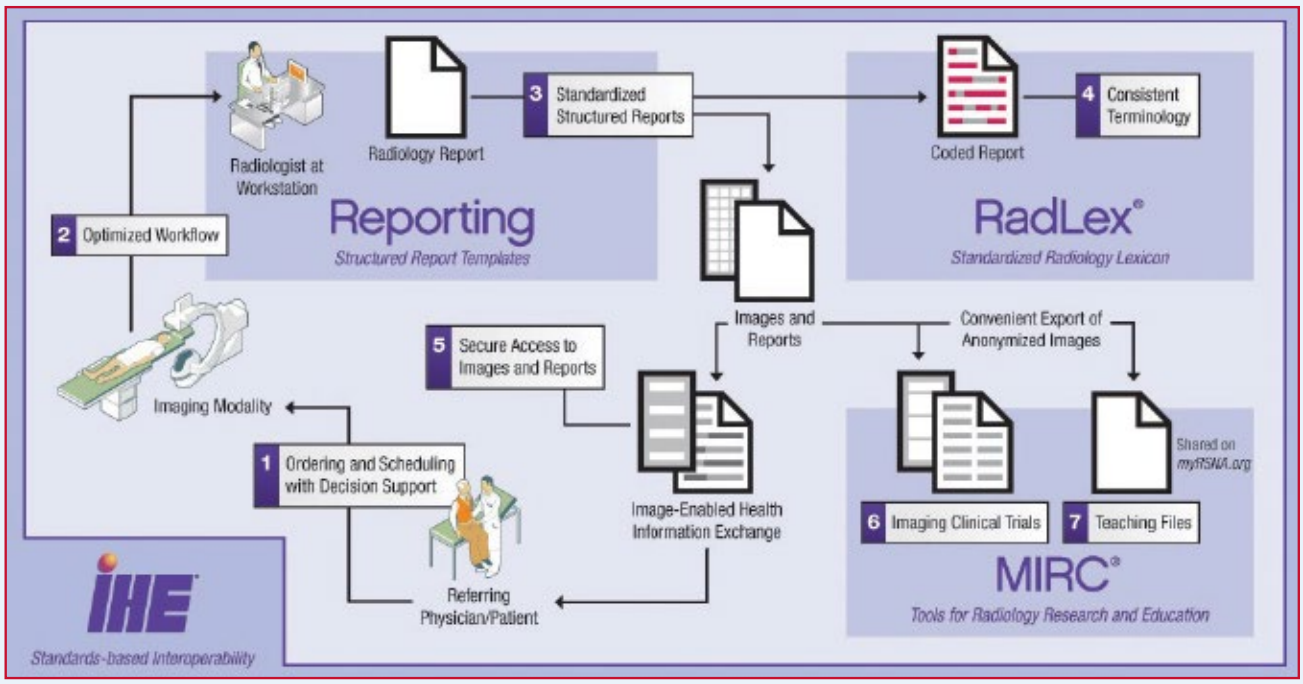
Machine-learning or deep-learning algorithms will help create higher-level abstractions or extractions from complex datasets and identify key interrelationships and patterns. Google, for instance, harnesses its vast collective computing power to drive its facial-recognition software, and more recently has been experimenting with algorithms that can create a prose description of an image that it has never actually "seen." This is made possible by assembling "knowledge" warehoused during the processing of millions of images and captions.

Machine-learning algorithms have already been applied to large genomic cancer repositories, such as The Cancer Genome Atlas (TCGA), that allow users to search for relationships between imaging features and the genetic features of specific types of cancer.

One can imagine that similar machine-learning algorithms will be used in the not too distant future to pre-analyze entire imaging datasets and "reason" the probability of a specific diagnosis based upon the collective "wisdom" of thousands or millions of prior proven cases. If there is value in using machine learning to analyze one type of data (e.g., imaging) is it possible to replicate the way that humans amalgamate data from multiple sources to arrive at a conclusion? Can the process of combining demographic, genomic, clinical problem lists, and medications improve our capacity to establish an initial diagnosis or perhaps recognize subtle changes in existing disease?

Radiology: At the Nexus of the Diagnostic Process

One of the most well-known efforts involving medical cognition and decision making is occurring through the IBM™ Watson project. Watson—a supercomputer that combines artificial intelligence and sophisticated analytical software for optimal performance in answering questions—is able to consume large volumes of structured and unstructured medical data derived from physician notes and documentation, laboratory and imaging reports, and combine it with the collective evidence in the medical literature to provide informed decisions for individual patients.



Long at the forefront of informatics, RSNA has developed a library of resources designed to keep you on the cutting edge of technology while achieving Meaningful Use goals for your practice. *Above:* a flowchart shows how these RSNA tools can integrate into your daily workflow.

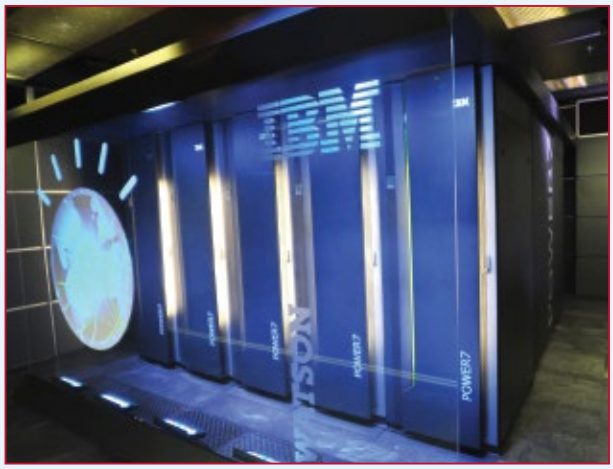


Image courtesy of IBM

Computer-assisted reporting systems will continue to progress in helping to manage workflow and communication (*left*). Down the line, dictation that is relevant to common incidental findings could automatically insert the appropriate recommendations for follow-up imaging, and even queue up an order for the subsequent study within the patient's electronic medical record at the time the dictation is completed. *Right:* Radiology stands to benefit enormously from Watson, the IBM supercomputer with the potential to create a renaissance in the application of "artificial intelligence," in medical data mining, data analysis and decision support.

Medical imaging sits at the nexus of the diagnostic process. It is theoretically possible to interconnect the image interpretation process at a single PACS workstation to a vast collection of pre-modeled data to provide highly specific and accurate diagnoses, as well as best practices for treatment and response. Imagine identifying a new lung nodule in a patient and matching that with thousands (or even millions) of patients with similar demographics, race, geographic location, lifestyle, smoking and toxic exposure history, and even genetic background. Rather than providing a Fleischner-based recommendation for follow-up in your report, you might be able to provide an exact probability that the nodule is malignant, whether follow-up imaging is even necessary, and what treatment is best suited for the patient.

To aid in managing workflow and communication, computer-assisted reporting systems are being developed that understand whether an examination has just been completed and under what protocol, in order to extract the top priority clinical indications from the EMR. This in turn can trigger loading of the appropriate template from the report library into the dictation system.

Using natural language processing and a controlled terminology system such as RSNA's RadLex, the reporting system would listen for specific conceptual clues that would trigger other events to happen while you dictate.

For instance, the description of an acute stroke on an emergency room (ER) brain CT scan might automatically trigger insertion of a macro that lets you easily record an ASPECTS score, or identification of a liver lesion might automatically insert a LI-RADS template into a body CT report. Mention a positive critical finding (e.g., cerebral hemorrhage, pneumothorax) and a provider message could be automatically queued up to the ordering provider. Dictation that is relevant to common incidental findings (e.g., thyroid or pulmonary nodules) could automatically insert the appropriate recommendations for follow-up imaging and even queue up an order for the subsequent study within the EMR for the patient at the time the dictation is completed.

WEB EXTRAS

For information about RSNA's informatics initiatives, go to *RSNA.org/Informatics*.

An on-demand system like this could keep track of the type of work you do based upon modalities, indications and diagnoses, and periodically make CME recommendations targeted specifically toward your interests, strengths and weaknesses, and deliver the content by periodic email.

Harnessing the Tsunami of Data

Many imaging informatics components and technologies that will become commonplace in the future are already here in some form. Modern medical specialties, especially radiology, recognize that data is king. Now, and in the future, those who can harness the tsunami of data and unearth the information contained within it are the ones who will provide the greatest value and highest quality of care to patients. Radiologists have a unique opportunity to be at the vanguard of this transformation in healthcare. ☐

Informatics at RSNA 2015

RSNA® 2015

IHE Clinical Solutions for Interoperability - Imaging and Beyond: IHE and HIE—Does the Order Matter?

David S. Mendelson, M.D., moderates and serves as a presenter for the Monday session explaining the role of Integration in the Healthcare Enterprise (IHE) and IHE profiles and the importance of interoperability in healthcare.

The RSNA Image Share Network How it Operates and How to Put it Into Your Office

Dr. Mendelson moderates this Tuesday session outlining the goals of the RSNA Image Share project and the steps necessary to implement the network locally. Add these and other RSNA 2015 courses to your agenda at *Meeting.RSNA.org*.

Informatics Demos at RSNA 2015

Visit the Informatics area in the Learning Center to take guided demonstrations of IHE, MIRC, RadLex and Reporting booths.

RSNA Grant Helps Shape Researcher's Views on Healthcare

BY MIKE BASSETT

When Daniel J. Durand, M.D., was awarded an RSNA Research Fellow Grant in 2011, the ensuing project not only led to the publication of numerous peer-reviewed papers, presentations and abstracts, but also helped steer his career on a much different path.

Durand

Long driven by a desire to impact radiology care delivery, Dr. Durand launched his RSNA research project on emerging diagnostic modalities poised to change the face of healthcare. Much to his surprise, the project—started while Dr. Durand was a resident at The Johns Hopkins University School of Medicine in Baltimore—helped crystallize his views on healthcare delivery and led to his current position as the director of accountable care at Johns Hopkins.

"During the RSNA fellowship, I was studying a technique to make healthcare more effective for a subset of patients," Dr. Durand said. "But there were many hurdles—delays, regulations and personnel turnover, among other challenges—that I encountered in my research effort and later in the clinic, that I realized there were many ways to make healthcare more effective."

Roadblock Leads to More Research

Specifically, Dr. Durand's RSNA research project focused on molecular imaging and its role in musculoskeletal radiology. "Of particular interest to me was the use of a new type of radiolabel—C-11 choline—that might replace the need for biopsies in some patients," Dr. Durand said.

But he hit a roadblock when unexpected renovations to the radiopharmaceutical lab at Johns Hopkins meant that the C-11 choline radiolabel wouldn't be available for most of his fellowship. Switching gears, Dr. Durand turned to different strategies to improve the imaging assessment of soft tissue masses.

In 2012, Dr. Durand and colleagues co-authored an *Academic Radiology* research article that examined the characteristic imaging features of soft tissue infections. The paper included a discussion on how soft tissue infections can mimic soft tissue masses—which could help radiologists diagnose what could likely be an infection and avoid unnecessary biopsies.

In other research published in *Skeletal Radiology* in 2013, Dr. Durand and colleagues described how apparent diffusion co-efficient (ADC) maps are effective in distinguishing between cystic and solid soft tissue masses. ADC maps are a more cost-effective and less invasive method of assessing cystic and solid lesions because intravenous MRI contrast agents are not required.

In another project, Dr. Durand formed a team of co-investigators from oncology, infectious diseases, and nuclear medicine to design and execute a study that used FDG-PET imaging along with serum biomarkers to more accurately distinguish between HIV-associated lymphoma and generalized reactive lymphadenopathy in HIV patients. The research was published in 2014 in *The European Journal of Nuclear Medicine and Molecular Imaging*.

"In one way or another, the RSNA funding provided by this grant has led to the publication of 22 peer-reviewed papers, presentations and scientific abstracts," Dr. Durand said. "And the number continues to grow—I am still mining data and completing projects that began during that exciting year."

Research Reshapes View on Healthcare

By seeing the research process first hand, Dr. Durand came across a number of areas where healthcare—including radiology—is ripe for improvement.

For instance, Dr. Durand spent time during his fellowship reading MRI lumbar spine scans. Many of these had been referred within six weeks of the onset of lower back pain and did not have any "red flag" signs or symptoms, meaning that they were not in accordance with most recommendations for lower back imaging, including the American College of Radiology Appropriateness Criteria®.

These examples helped Dr. Durand realize the huge opportunity that exists for radiologists to expand their role in healthcare.

"We need to get out there and engage with referring physicians and take our place in the healthcare system where radiologists are the key to avoiding unnecessry imaging and biopsies," he said.

> *"In one way or another, the RSNA funding provided by this grant led to the publication of 22 peer-reviewed papers, presentations and scientific abstracts."*
>
> DANIEL J. DURAND, M.D.

INNOVATE

GRANTS IN ACTION

NAME:
Daniel J. Durand, M.D.

GRANT RECEIVED:
RSNA Research Fellow Grant (2011-2012)

STUDY:
"Molecular Imaging of Choline Metabolism in Musculoskeletal Soft Tissue Masses by C-11 Choline PET/CT and MR Spectroscopy."

CAREER IMPACT:
"This entire opportunity gave me an invaluable perspective on the complexity and pace of academic research and its role in healthcare delivery," Dr. Durand said. "My RSNA Research Fellowship was a critical time in my professional development during which I laid the groundwork for my current work in imaging stewardship."

CLINICAL IMPLICATION:
"My research into the molecular imaging characteristics of musculoskeletal soft tissue masses has resulted in numerous publications," Dr. Durand said. "Additional research into the quality, safety and cost-effectiveness of advanced imaging modalities pursued during my fellowship helped me develop a skillset that has served me well in my role as an advocate of valued-based imaging and imaging stewardship."

"In short, we need to be stewards of imaging technology, ensuring that we create the most value possible on behalf of patients and society."

The RSNA grant helped to re-shape Dr. Durand's views on healthcare delivery, quality, safety and cost-effectiveness—issues he is intimately involved with in his current position as director of accountable care.

"Dan is interested in all aspects of medicine," said John Carrino, M.D., vice-chairman of the Radiology and Imaging Department at the Hospital for Special Surgery in New York and one of Dr. Durand's scientific advisors. "He is a thought leader and understands radiology at all levels, from research and clinical work, to teaching and administration."

"The RSNA research project gave me a nuanced perspective that informs and grounds my present day 'big picture' views on healthcare," Dr. Durand said.

MIKE BASSETT is a writer based in Holliston, Mass., specializing in health and medicine.

A full list of 2015 RSNA Research & Education (R&E) Foundation grant recipients and 2015 Roentgen Resident/Fellow Research Award recipients starts on Page 13.

R&E Foundation Offers Virtual Auction at RSNA 2015

In celebration of the Inspire-Innovate-Invest Campaign, the Research & Education (R&E) Foundation will host a Virtual Auction offering a chance to bid on both unique experience packages and specialty items with proceeds benefiting the Foundation.

Experiences up for auction include:

- **Ireland Excursion** features a six-night getaway to Dublin, Ennis and Killarney. The package includes one night in a historic castle, a rental car, Guinness Storehouse VIP tickets, airfare for two and more.
- **Fighter Pilot Adventure** puts you in the cockpit as an air combat U.S. fighter pilot for a day. The package includes a three-night hotel stay and airfare for two.
- **Best of Chicago experience** package offers tickets to the Broadway in Chicago show of your choice, dinner, hotel and airfare for two.

Online bidding will open at 10 a.m. on Monday, Nov. 23, and close at 12:30 p.m. Friday, Dec. 4. Whether you attend RSNA 2015, participate in the Virtual Meeting, are at the office or in your home, you can join this fun-filled competition while supporting your specialty. Check your favorite items often to ensure your bid is still in the lead or stop by the R&E Booth throughout the annual meeting to follow the auction progress.

For more information visit *RSNA.org/Foundation-Virtual-Auction*.

Germany, Mexico Honored at RSNA 2015 "Country Presents" Sessions

BY MARY HENDERSON

As RSNA convenes its 101st annual meeting in an era of increasing globalization, the Society is pleased to highlight two countries as part of the international "Country Presents" series. Both sessions will also be featured in the Virtual Meeting live and on-demand.

Virtual Röntgen Birthplace Highlights "Germany Presents"

Taking a big-picture look at the specialty, Germany Presents will showcase both the historical roots of radiology and the future applications of medical imaging. Presented by the German Radiological Society (DRG), the session will include a virtual visit to Wilhelm Röntgen's childhood home and a series of scientific presentations on population-based whole-body MRI studies.

The German physicist and Nobel Prize winner who discovered the X-ray in 1895 was born in 1845 in the town of Lennep in western Germany. In 2011, DRG purchased his childhood home and is conducting a fundraising campaign to restore and renovate the 250-year old timber-framed structure. RSNA is a partner on the DRG renovation project.

"We will begin our program by showing a short film on Röntgen's birthplace," said DRG President Norbert Hosten, M.D., chairman of the Department of Radiology at the University of Greifswald, Germany.

Once renovation is complete, the three-story building will house a public exhibit commemorating the life and work of Röntgen—including historical documents and the scientist's personal belongings—as well as a library, conference and meeting spaces, and a guest apartment for visiting scholars.


Hosten

The scientific portion of Germany Presents will shift from the past to the future, spotlighting the use of imaging and "Big Data" to benefit generations to come. The panel of German researchers will discuss their involvement in epidemiological, or cohort, studies of normal populations that combine imaging with other clinical tests to investigate the causes of disease.

"Our program will help radiologists learn about cohort studies and why they should participate," Dr. Hosten said.

The speakers are involved in one of two studies:

- Study of Health in Pomerania (SHIP), in which 3,000 residents of Pomerania are undergoing whole-body MRI annually, in addition to clinical examinations, blood work and genetic testing.
- German National Cohort, in which 30,000 healthy people from the German population are undergoing annual whole-body MRI.

"In terms of the SHIP study and the German National Cohort, the idea is that if a participant was to develop a tumor in 10 years, we could go back to the images and look for early signs of that tumor," Dr. Hosten said. "Big data approaches have to be introduced into our analysis."

For more information on Germany Presents, go to *RSNA.org/Germany-Presents*. □

GERMANY PRESENTS—"POPULATION-BASED IMAGING: HOW BROADER RESEARCH EFFORTS CAN EFFECT EVERYDAY CARE AND PREVENTION"

Monday, Nov. 30, 10:30 a.m. to 12 p.m.

- **Opening Remarks:** "Röntgen: An X-ray Journey," RSNA President Ronald L. Arenson, M.D., and DRG President Norbert Hosten, M.D.
- "Why Population-Imaging may Help in Advancing Radiology: The German National Cohort," Fabian Bamberg, M.D., M.P.H.
- "What Is Normal? Reference Values Derived from Population-Imaging and Their Role in Clinical Practice," Katrin Hegenscheid, M.D.
- "No Need to Look for Incidental Findings? Role in Clinical and Research Settings," Sabine Weckbach, M.D.
- "Biomarkers of Cardiac Function in Population-Based Studies," Marc Dewey, M.D.
- **Discussion and Closing Remarks:** Gabriele Krombach, M.D., and James P. Borgstede, M.D., RSNA Board Liaison for International Affairs

"Mexico Presents" Focuses on Educational Challenges

Bisteni-Bustani

Ramirez-Arias

The continuing need for radiology education—and for radiologists—in this densely populated country will be the focus of the Mexico Presents session.

"For a country of 100 million inhabitants, there are no more than 6,000 radiologists," said Jorge Bisteni-Bustani, M.D., executive director of the Mexican Society of Radiology and Imaging (SMRI) and executive director of the Mexican Federation of Radiology and Imaging (FMRI). "More radiologists are needed, and to train those physicians we need more academic radiologists."

SMRI is one of 32 local radiology societies in Mexico, each of which belongs to the FMRI. SMRI will provide a panel of speakers for the session.

Along with providing an overview of the country and its health system, the speakers will address the challenges faced by Mexico's 52 university-based radiology programs.

According to presenter Jose L. Ramirez-Arias, M.D., medical director and chairman of radiology at Hospitals Angeles Pedregal, Mexico and most Latin American countries invest a small percentage of their gross national products in healthcare, creating a weak medical infrastructure. Well-equipped hospitals and radiology departments with postgraduate radiology programs are typically located in large cities, while half of the country's population lives in small cities and rural areas.

Panelists will also discuss how the country's radiology organizations—including FMRI—as well as individual societies and the radiology board and college are all working together toward standardization.

"For many years, we have had the support of international radiology organizations, especially RSNA," Dr. Bisteni-Bustani said. "We will recognize their support and describe the progress we've made with their help."

Based in Mexico City, SMRI is dedicated to professional education and educating the public about medical imaging. According to Dr. Bisteni-Bustani, approximately half of the society's 800 members attend RSNA's annual meeting for networking and to learn about quality improvements that can be implemented in Mexico.

For more information on Mexico Presents, go to *RSNA.org/Mexico-Presents.* □

MARY HENDERSON is a writer based in Bloomington, Ind., specializing in health and medicine.

MEXICO PRESENTS—"THE CHALLENGES OF RADIOLOGY EDUCATION IN MEXICO AND SOME PROPOSALS FOR MEXICO AND LATIN AMERICAN COUNTRIES"

Tuesday, Dec. 1, 10:30 a.m. to 12 p.m.

- **Opening Remarks:**
  RSNA President Ronald L. Arenson, M.D.
- **Mexico Presents Speakers:**
  Jose Rene Manuel Anguiano-Martinez, M.D.
  Armando Lopez Sr., M.D.
  Guillermo Elizondo-Riojas, M.D., Ph.D.
  Luis Felipe Alva Lopez, M.D.
  Jose L. Ramirez-Arias Sr., M.D., Ph.D.
- **Closing Remarks:**
  James P. Borgstede, M.D., RSNA Board Liaison for International Affairs

Navigating RSNA 2015

First-time RSNA attendees from Germany and Mexico can learn how to make the most of their time in Chicago at Navigating RSNA 2015 sessions. Get tips from veteran attendees about the *RSNA Meeting Program*, networking opportunities and exploring the city. Discussions will be held at the Germany Presents Booth (Hall A; Booth 4758I) on Sunday, November 29 in German at 1 p.m., and at the Mexico Presents Booth (Hall A; Booth 1020), on Sunday, Nov. 29 in Spanish at 2 p.m. RSVP for the discussions at *RSNA.org/navigating-rsna*.

Cancer Patients Want More Information About Medical Imaging Risk

BY RICHARD S. DARGAN

While acknowledging the importance of imaging tests in their treatment, cancer patients want more information about the risks and benefits associated with radiation in the exams they undergo, according to recent *Radiology* research.

Thornton

Hay

The results also point to the need for a tiered approach to patient-centered communication, allowing patients to pick and choose the resources best suited for them, according to researchers.

Despite the widespread prevalence of imaging, research has shown that patients often do not receive information on radiation used in some exams and, as a result, may have poor understanding of its risks and benefits, said lead author Raymond H. Thornton, M.D., an interventional radiologist at Memorial Sloan Kettering Cancer Center in New York City.

"Radiation is invisible and measured in units foreign to most people," Dr. Thornton said. "The concepts are difficult; for example, one needs to understand the baseline lifetime risk of cancer in order to introduce the idea of possible incremental risk related to radiation exposure, and then to frame that incremental risk in terms that make sense to an individual patient."

Studies of patient perspectives on this topic are limited, making it difficult to develop models for shared decision making between patients and physicians, the authors say.

Dr. Thornton and his colleagues at Memorial Sloan Kettering examined more than nine hours of conversation with 30 people who had undergone medical imaging exams. The study group was divided among patients in six focus groups, including five groups of cancer patients and one group of participants in a lung cancer screening program.

Results showed that many participants were lacking in knowledge about imaging tests even though they had undergone frequent examinations. Some were unsure if radiation was used in mammography, bone scans and stress tests, and many were uncertain if MRI scans contained radiation.

> *"The variety of individual patient's desires with regard to this information was remarkable, as was the evolution of information needed as patients pass from active treatment to survivorship."*
>
> RAYMOND H. THORNTON, M.D.

Tiered Approach to Patient-Centered Communication

Participants expressed a desire for a wide range of information, including the rationale for choosing specific tests, testing intervals and testing alternatives. Nearly all the patients wanted to understand how tests like PET, CT and MRI differ and what governs selection of one over another, or why multiple tests are sometimes ordered. The desire for information was strongest among patients who had made the transition from treatment to survivorship.

"The variety of individual patient's desires with regard to this information was remarkable, as was the evolution of information needed as patients pass from active treatment to survivorship," Dr. Thornton said.

There was no consensus among participants as to how they wanted to receive information. Some subjects preferred written take-away materials or website links, while others wanted direct conversations initiated by their personal physicians or access to radiologists and medical physicists for more in-depth discussions.

The findings lend support to a tiered approach for patient-centered communication that would

provide all patients with information and offer additional resources to those seeking them.

"Because there is no 'one size fits all' approach, the best opportunity to improve patient care is to respond to the wide range of desires with an appropriately wide-ranging variety of information, then allow the patient to choose what best suits his or her needs," Dr. Thornton said.

Part of that effort would involve access to patient-friendly written materials in physician offices and radiology waiting rooms as well as easy links to basic information about radiation through the portals where patients view their imaging appointments and results.

"In fact, these multiple channels for provision of complementary information are consistent with gold standard healthcare communication strategies," said the study's senior author Jennifer Hay, Ph.D., a behavioral scientist at Memorial Sloan Kettering.

Radiologists and medical physicists could aid patient communication in a number of ways, Dr. Thornton said. For example, those with a particular interest in health communications could become consultants for patients seeking more in-depth information on imaging risks and benefits and/or assist in content development for Internet sites such as *RadiologyInfo.org* (See below) that referring physicians and radiologists can recommend to patients.

Radiologists could also promote programs to help non-radiologist physicians become comfortable discussing radiation risk with patients.

"I think the radiology community has done a good job of increasing radiologist and public awareness, especially in terms of the Image Wisely® and Image Gently® campaigns," Dr. Thornton said. "Perhaps we can follow up with a program to help referring physicians feel confident and comfortable enough to engage in basic discussions about this topic with their patients."

For example, radiologists could help develop continuing medical education (CME) programs centered around the risk-benefit issues appropriate for primary care, emergency room physicians and oncologists, and take advantage of opportunities to speak about this topic to medical students, residents and staff.

Study participants largely agreed that having information about possible future risks from radiation probably would not alter their decision to proceed with a recommended test. They expressed appreciation for the imaging tests, with many emphasizing that imaging reports were a patient's most important evidence of treatment efficacy. ☐

WEB EXTRAS

Access the *Radiology* study, "Patient Perspectives and Preferences for Communication of Medical Imaging Risks in a Cancer Care Setting," at *RSNA.org/Radiology*.

Access RSNA's wide array of patient-centered resources at *RadiologyCares.org*

RICHARD S. DARGAN is writer based in Albuquerque, N.M., specializing in healthcare issues.

Communicating With Patients Focus of RSNA 2015 Sessions

Information on patient communication is the focus of a number of RSNA 2015 sessions, including:

- "Communicating Effectively with Patients" (Sponsored by the RSNA Public Information Committee) on Monday teaches attendees how to answer patient questions about radiation dose and address concerns about risk; apply a standardized checklist to the informed consent conversation that is patient-centered, quality driven and legally sound; and effectively deliver good and bad results and disclose medical errors.
- "A New Model of Patient Care: Value Over Volume" on Monday helps attendees understand the mission and goals of RSNA's Radiology Cares®: The Art of Patient-centered Practice and the American College of Radiology's (ACR) Imaging 3.0™ campaigns and learn tactics to put the concepts of patient-centeredness and value vs. volume into practice.
- "Tweet This: How to Make Radiology More Patient Centered" (Sponsored by the RSNA Public Information Committee) on Thursday gives attendees specific examples and strategies for harnessing the power of the Internet and social media to become more patient centered.

Registration is underway at *Meeting.RSNA.org*.

***RadiologyInfo.org* is featured as an important patient communication tool in patient-centered radiology courses presented to radiologists at RSNA 2015.**

RSNA R&E Foundation Announces 2015 Grant Recipients

The RSNA Research & Education (R&E) Foundation funded 92 grants totaling $3.6 million. The Foundation's Board of Trustees thanks the Vanguard companies, individuals and private practices whose generous contributions have made the following grants possible.

RESEARCH SCHOLAR GRANT

Stephen R. Bowen, Ph.D.
University of Washington
Multimodality Quantitative Molecular Imaging for Personalized Radiation Therapy of Lung Cancer Through Differential Tumor Dose Escalation and Functional Lung Avoidance

SIEMENS

Rivka Rachel Colen, M.D.
The University of Texas M.D. Anderson Cancer Center
Radiome Sequencing of Glioblastoma: Decoding the Imaging Genomic Landscape and Heterogeneity

AGFA HealthCare

Michael David Farwell, M.D., M.A.
Hospital of the University of Pennsylvania
Development of a Reporter Gene for In Vivo PET Imaging of Chimeric Antigen Receptor (CAR) T Cells Directed at Solid Tumors

Gregory N. Gan, M.D., Ph.D.
University of New Mexico Cancer Center
Mechanism of Hedgehog Pathway-mediated Radiation-induced Tumor Repopulation

Manu Shri Goyal, M.D., M.Sc.
Washington University School of Medicine
ASNR/RSNA Research Scholar Grant
Integrating Brain Imaging and Metabolomics in Malnourished Children

Kathy Han, M.D., M.Sc.
Princess Margaret Cancer Center
University of Toronto
The Potential for Metformin to Improve Tumor Oxygenation in Locally Advanced Cervix Cancer: A Phase II Randomized Trial

Michael Iv, M.D.
Stanford University Medical Center
Using Ferumoxytol-enhanced MRI to Assess Tumor-associated Macrophages in Human Glioblastoma Multiforme

Kevin S. King, M.D.
University of Southern California
Keck School of Medicine
Association of Cerebrovascular Reactivity on BOLD fMRI with Structural Brain Insults and Cognitive Decline in a Community-based Cohort

Pejman Jabehdar Maralani, M.D., F.R.C.P.C.
Sunnybrook Research Institute
University of Toronto
Quantitative Blood Oxygenation Level Dependent (qBOLD) MRI for Assessment of Tumor Hypoxia in Glioblastoma Multiforme: Validation with Intra-operative and Histological Correlation

Daniele Marin, M.D.
Duke University Medical Center
Decreased Variability for Robust Imaging-Based Quantification of Tumor Heterogeneity

Joseph Scott McNally, M.D., Ph.D.
University of Utah
Role of the Angiotensin Pathway and Redox State in Carotid Plaque Permeability

Bayer HealthCare

Michael A. Ohliger, M.D., Ph.D.
University of California, San Francisco
Non-invasive Monitoring of Liver Inflammation and Fibrosis Using Hyperpolarized Carbon-13 MRI

Mallinckrodt Pharmaceuticals

Habib Rahbar, M.D.
University of Washington
Improving Treatment Outcomes of Ductal Carcinoma in Situ with Breast MRI

Haris Iqbal Sair, M.D.
The Johns Hopkins University
Intrinsic Language Network Assessed with Resting State Functional Magnetic Resonance Imaging: Potential Role in Presurgical Mapping

Carestream

Atul Bhanudas Shinagare, M.D.
Brigham and Women's Hospital
Harvard Medical School
Optimization of Chest CT Utilization in Patients with Advanced Ovarian Cancer

Roberta M. Strigel, M.D., M.S.
University of Wisconsin - Madison
High Spatio-temporal Resolution Breast MRI: Improving the Characterization of Breast Cancer

GE Healthcare

Janice S. Sung, M.D.
Memorial Sloan Kettering Cancer Center
Clinical Utility of Whole Breast Screening Ultrasound in Patients Undergoing Digital Breast Tomosynthesis

Leo L. Tsai, M.D., Ph.D., M.Sc.
Beth Israel Deaconess Medical Center
Regional Variations in Tumor Metabolism and Proliferation Reflecting a Non-uniform Tumor Micro-environment: In Vivo Assessment with Hyperpolarized 13C MRI

AGFA HealthCare

Sarah Beth White, M.D.
Medical College of Wisconsin
Magnetically Triggered Oxaliplatin Release for the Treatment of Colorectal Liver Metastasis

BRACCO
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Shandong Wu, Ph.D., M.Sc.
University of Pittsburgh
Breast DCE-MRI Contrast Enhancement Heterogeneity and Breast Cancer Risk

GE Healthcare


Khoury


Liu


Strigel


Zhang


Singh


Larson


Bowen


Kalra


Carberry


Ikhena

Hooman Yarmohammadi, M.D.
Memorial Sloan Kettering Cancer Center
Combined Blocking of Aerobic and Anaerobic Glycolytic Metabolism Pathways in Improving Treatment Response Following Transarterial Embolization of HepatocellularCarcinoma

Stefan L. Zimmerman, M.D.
The Johns Hopkins University School of Medicine
The Dual Energy Extracellular Volume Mapping for Optimized Detection of Focal Myocardial Fibrosis with Cardiac Computed Tomography

RESEARCH SEED GRANT

Kelly L. Cox, D.O.
Emory University
MRI Liver Surface Nodularity Score as a New Noninvasive Biomarker for Chronic Viral Hepatitis

HITACHI
Inspire the Next

Matthew Scott Davenport, M.D.
University of Michigan
A Phase IV Randomized Double-blinded Placebo-controlled Noninferiority Study of the Effect of Intravenous Low-osmolality Iodinated Contrast Material on Renal Function in Postoperative Adults with Stage IIIb or Stage IV Chronic Kidney Disease

Nasrin V. Ghesani, M.B.B.S.
Rutgers New Jersey Medical School
Novel Gallium Imaging in Hepatocellular Carcinoma

Daniel Thomas Ginat, M.D.
University of Chicago
MRI-guided Minimally Invasive Laser Ablation of Recurrent Head and Neck Squamous Cell Carcinoma with Clinicoradiological Correlation for Treatment Response

TOSHIBA
Leading Innovation

Thomas A. Hope, M.D.
University of California, San Francisco
Interim Response to Y-90 Therapy of Neuroendocrine Tumor Using DOTA-TOC PET/MRI

PHILIPS

Stephen J. Hunt, M.D., Ph.D.
University of Pennsylvania
Combining Antivascular Ultrasound and Immune Modulation for Systemic Control in Hepatocellular Carcinoma

FUJIFILM
Value from Innovation

Naveen Kalra, M.B.B.S., M.D.
Postgraduate Institute of Medical Education and Research, Chandigarh, India
Comparison of Virtual CT Enteroscopy with Small Bowel Enteroclysis in Patients with Suspected Small Bowel Tuberculosis

Viviane Khoury, M.D.
University of Pennsylvania
Ultrasound-guided Dry Needling Therapy for Tendinopathic Rat Supraspinatus Tendon: Histological and Mechanical Effects

PHILIPS

Bruce E. Lehnert, M.D.
University of Washington
Automatic Image Quality Evaluation for CT Protocol Guidance

Yingbing Wang, M.D.
Massachusetts General Hospital
Multiparametric Imaging for Therapy Monitoring in Multiple Myeloma

Kristina Young, M.D., Ph.D.
Providence Portland Medical Center
Targeting Cancer Associated Fibroblasts to Enhance Radiation Efficacy

RESEARCH RESIDENT/FELLOW GRANT

Waleed Brinjikji, M.D.
Mayo Clinic
Comparison of Efficacy of Standard Neurovascular Coil to Dedicated Carotid Surface Coil in Evaluation of Vulnerable Carotid Plaque

BRACCO
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Nicholas S. Burris, M.D.
University of California, San Francisco
Combined Evaluation of Hemodynamic and Inflammatory Markers in Chronic Type B Aortic Dissection Using PET/MRI

George A. Carberry, M.D.
University of Wisconsin - Madison
Treatment Algorithms to Ensure Safe, Effective Microwave Ablation of Lung Tumors Near the Heart

Aadel Chaudhuri, M.D., Ph.D.
Stanford University
Analysis of Circulating Tumor DNA for Early Detection of Tumor Recurrence After Definitive Radiotherapy for Non-small Cell Lung Cancer

Robert Richard Flavell, M.D., Ph.D.
University of California, San Francisco
Study of Acidic Interstitial pH in Aggressive Prostate Cancer Using Novel PET and Hyperpolarized 13C Imaging Probes

Rahi Jiten Kumar, M.D.
University of California, San Francisco
In Vitro and In Vivo Differentiation and Quantification of Novel Contrast Materials at Dual-energy CT

Kathryn Lowry, M.D.
Massachusetts General Hospital
Optimizing Breast Cancer Surveillance in Women with a Personal History of Breast Cancer

PHILIPS

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Atul Mallik, M.D., Ph.D.
University of Utah
Structural and Functional Imaging Driven Biomarkers for Visual Hallucinations and Dementia with Lewy Bodies

Colin D. McKnight, M.D.
University of Michigan
Silver Anniversary Campaign Pacesetters Research Fellow Grant
MR Imaging of Oxidative Stress in Amyotrophic Lateral Sclerosis

Matthew M. Miller, M.D., Ph.D.
Beth Israel Deaconess Medical Center
Quantifying Intracellular and Extracellular pH Changes in Breast Tumors during Administration of pH Modulating Agents Using Chemical Exchange Saturation Transfer (CEST) Magnetic Resonance Imaging

Yvonne M. Mowery, M.D., Ph.D.
Duke University Medical Center
Dissecting the Impact of Tumor Mutational Load and the CTLA-4 Immune Checkpoint in Mediating Response of Primary Sarcomas to Radiation Therapy

Philmo Oh, M.D., Ph.D.
New York University School of Medicine
Enhanced Systemic Anti-tumor Immunity through Combined Radiotherapy and Modification of the Tumor Micro-environment

Anthony Joseph Paravati, M.D., M.B.A.
University of California, San Diego
Phase I Trial of Adaptive Stereotactic Body Radiotherapy (SBRT) Dose Escalation in Pancreatic Cancer

Rebecca Rakow-Penner, M.D., Ph.D.
University of California, San Diego
Improved Quantitative Diffusion Magnetic Resonance Imaging of Breast Cancer Using Restriction Spectrum Imaging

Gelareh Sadigh, M.D.
Emory University School of Medicine
Breast Cancer Screening in Patients with Newly Diagnosed Cancer: a SEER-Medicare Population Study of Utilization and Potential Appropriateness

Julie Sanders, M.D.
Northwestern University
Feinberg School of Medicine
Ralph Schlaeger Charitable Foundation Research Fellow Grant
Multiparametric MRI Combining MR Elastography and 4D Flow MRI in the Diagnosis and Staging of Portal Hypertension and Liver Fibrosis

Tyler M. Seibert, M.D., Ph.D.
University of California, San Diego
Mapping Cortical Vulnerability Associated with Brain Radiotherapy

Navneet Singh, M.D.
University of Toronto
Prospective Multicenter Imaging Clinical Trial: Quantitative Evaluation of 3D Carotid MR-depicted Intraplaque Hemorrhage and Its Relationship with Cerebral Small Vessel Disease, Stroke and Cognitive Impairment

Jessica Kelly Stewart, M.D.
Duke University Hospital
Creation of an Extraluminal Subcutaneous Arterial Bypass Graft Using Percutaneous Methods: Feasibility Study in a Porcine Model

Chad Tang, M.D., M.S.
The University of Texas
MD Anderson Cancer Center
Investigation of the Immunologic Basis of CT Imaging Features in Non-small Cell Lung Cancer

Elizabeth Tong, M.D.
University of Virginia
Design and Validate a Model that Uses Collaterals as Imaging Biomarkers to Predict Clinical Outcomes in Acute Ischemic Stroke

Joseph Connell Wildenberg, M.D., Ph.D.
Hospital of the University of Pennsylvania
Magnetic Resonance Guidance and Monitoring of Percutaneous Electrochemical Ablation Using a Novel Coaxial Probe Device

Fang Yu, M.D.
The University of Texas Health Science Center in San Antonio
RSNA Presidents Circle Research Resident Grant
Evaluation of Multiple Sclerosis with Myelin-specific MRI

RESEARCH MEDICAL STUDENT GRANT

Sunjay M. Barton, B.A.
Columbia University
College of Physicians and Surgeons
Characterizing the Effects of High Dose Radiation on the Neuroblastoma Tumor Micro-environment

Akshaar N. Brahmbhatt, B.A.
New Jersey Medical School
The Expression of IEX-1 in Peripheral Artery Disease and its Role in Protective Revascularization

Randall Brenneman, Ph.D.
University of Miami Miller School of Medicine
Radiotherapy-induced Tumor Targeting of Oligonucleotide Aptamer-conjugated Immunostimulatory Monoclonal Antibodies

Randy O. Chang, B.S.
University of California, Los Angeles
MRI Surveillance of Induced Pluripotent Stem Cells for Stroke Using Gadolinium Nanoparticles

Re-I Chin, B.A.
Saint Louis University School of Medicine
Correlation and Prognostic Significance of Pre-treatment PET and MRI Parameters on 18F-FDG-PET/MR in Cervical Cancer

Alex Chung, B.A.
Emory University School of Medicine
An Analysis of Wrong-patient Errors in Radiology and Distraction Effects of Adding Photographs to Radiographs

Daniel K. Cook, B.S.
Wake Forest School of Medicine
Associations Between Whole Brain Network Connectivity and Cognitive Function in African Americans with Type-2 Diabetes Mellitus: A Resting-state Functional MRI Graph Theoretical Analysis

John Tuje Ikhena, B.A., M.P.H.
Duke University School of Medicine
Prognostic Performance in Mild Cognitive Impairment (MCI) of Two Commercially-available Hippocampal Volumetry Tools

Eric J. Keller, B.A., B.S.
Northwestern University
Feinberg School of Medicine
Finding a Common Ethical Language for Healthcare: the Case of Symptomatic Uterine Fibroids

Allison Khoo, B.S.
The University of Texas
M.D. Anderson Cancer Center
The Biological Mechanism of Tumor Radiosensitization by Conjugated Gold Nanoparticles

Yoon-Jin Kim, B.A.
Emory University School of Medicine
Comparison of Three View 2D Digital Mammography to Digital Breast Tomosynthesis

James R. Knitter, B.S.
The University of Arizona
College of Medicine
Response Assessment of Cerebral Metastases After High-dose Stereotactic Radiation: Using Combined Diffusion and Perfusion MR Imaging

Michelle Irmgard Knopp, B.A.
The Ohio State University
RSNA Research Medical Student Grant
PET Imaging Using Low and Ultra-low Dose Techniques in Clinical Care and Research

Andrew Kuei, B.S.
University of California, Los Angeles
Inpatient Cost and Mortality Assessment of Transjugular Intrahepatic Portosystemic Shunt (TIPS) in the United States from 1998 to 2012

Canon
SEE IMPOSSIBLE

Janesh Lakhoo, B.S.
University of Illinois
College of Medicine at Chicago
Ablative Liver Partition and Portal Vein Embolization (ALP-PVE): Proof of Concept Testing in a Rabbit Model

Daniel Lam, B.A.
University of Chicago
MRI Microscopy of the Intraparotid Facial Nerve for Preoperative Planning

PHILIPS

Eli Lechtman, Ph.D., M.Sc.
University of Toronto
A Cost-effectiveness Analysis of Carotid Imaging

Lawrence Lin, B.A
Medical College of Wisconsin
Morbidity and Mortality of Inferior Vena Cava Filter Placement: Validation of Data Capture in Clinical Data Warehouse

Alexander Guan-Jey Liu, B.S.
UT Southwestern Medical Center at Dallas
Principal Component Analysis on DWI and IVIM of the Prostate

Jose Lopez, B.S.
Duke University School of Medicine
Image-rich Radiology Reports: A Value-Based Model to Improve Clinical Workflow

FUJIFILM
Value from Innovation

Milan Manchandia, B.S.
Massachusetts General Hospital
Harvard Medical School
Dynamic Perfusion and Diffusion-weighted MRI to Quantitatively Differentiate Between Treatment-related Changes and Tumor Recurrence in Patients with High-grade Gliomas

Tamari Andre Miller, B.A.
University of Chicago
Using MRI to Predict Clinical Outcomes in Patients with Locoregionally Advanced Human Papilloma Positive (HPV+) Oropharyngeal Squamous Cell Carcinoma Treated with Nab-paclitaxel

Paul Russell Roberts, B.S.
University of Mississippi Medical Center
The Bumpy Road Ahead: Predicting Risk of Development of HCC and Liver Decompensation Using Liver Surface Nodularity Scores

Vidhi Vrajesh Shah
University of Missouri - Kansas City
School of Medicine
Children's Mercy Hospital and Clinics
Visualizing the Difference Between Life and Death: A Comparison of Liver Ultrasound Findings in Children with Sinusoidal OB.S.truction Syndrome After Bone Marrow Transplantation

Andrew Valenzuela, B.S., B.A.
The University of Texas
Health Science Center at Houston
Use of Magnetic Resonance Spectroscopy in the Radiogenomic Evaluation of Childhood Neuroblastoma

EDUCATION SCHOLAR GRANT

Emmanuel J. Botzolakis, M.D., Ph.D.
Hospital of the University of Pennsylvania
Development of a Novel Radiology Teaching Interface Using Bayesian Networks: Application to Neuroradiology as Proof of Concept

Christopher E. Comstock, M.D.
Memorial Sloan Kettering Cancer Center
Interactive Screening Mammography Teaching Set: An Effective Tool to Improve Performance?

GE Healthcare

David B. Larson, M.D., M.B.A.
Stanford University
The Radiology Improvement Team Education Program

Shaunagh McDermott, F.F.R. R.C.S.I.
Massachusetts General Hospital
Online Educational Tool for Implementation and Interpretation of Low-dose CT for Lung Cancer Screening (Ed-LSC)

PHILIPS

Anders Persson, M.D., Ph.D.
Linköping University, Sweden
Derek Harwood-Nash Education Scholar Grant
RadSim: Simulation based Training Program for CT Protocol, Iterative Reconstruction and Dual Energy Applications

Bhavya Rehani, M.D.
University of California, San Francisco
Developing Web-based Virtual Classroom Teaching RISE (Radiology International Student Virtual Education) Platform: A Pilot International Outreach Educational Program

GE Healthcare

Lonie R. Salkowski, M.D.
University of Wisconsin - Madison
School of Medicine and Public Heath
Investigation of a Radiology-Based Three-dimensional Simulation to Explore Attributes of Novice and Expert Learners in their Process of Correlating and Sense-making of Medical Images with the Human Body

Jie Zhang, Ph.D.
University of Kentucky
Curriculum Development for Hands-on Physics Education of Residents in Diagnostic Radiology

RSNA/AUR/APDR/SCARD RADIOLOGY EDUCATION RESEARCH DEVELOPMENT GRANT

Justin Cramer, M.D.
University of Utah
3D Modeling and Printing of Spine Interventions: New Educational Tools for Teaching Complex Anatomy

Osamu Kaneko, M.D., Michael Muelly, M.D., and Jason Oppenheimer, M.D.
Stanford University Hospital and Clinics
Imaging Top 10: An Engaging and Interactive Radiology Simulation App for the Medical Student

Melissa McCutcheon Picard, M.D. and Jeanne G. Hill, M.D.
Medical University of South Carolina
Long-term Evaluation of a Comprehensive Curriculum Involving Didactic and Simulation based Methods of Teaching Residents the Identification and Management of Adverse Contrast Reactions

RSNA R&E Foundation Announces Recipients of the 2015 Roentgen Resident/Fellow Research Award

The RSNA Research & Education (R&E) Foundation presented the 2015 Roentgen Resident/Fellow Research Award to 189 residents and fellows throughout North America. This prestigious and competitive award recognizes trainees who have made significant contributions to their departments' research efforts as evidenced by

- Presentations of scientific papers at regional or national meetings
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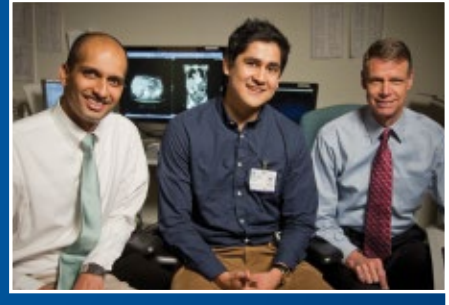

2015 FUJIFILM Medical Systems/RSNA Research Medical Student Grant recipient Jose Lopez, B.S. (center), with scientific advisors Rendon C. Nelson, M.D., (right) and Bhavik N. Patel, M.D., M.B.A., will investigate the role of an image-rich radiology report (IRRR) in the current busy clinical environment by determining the unmet needs, interest and preferences of both the referring physicians who will use the reports and the radiologist who will create them. Ultimately, analysis of experimental data will be used to implement an optimal health information technology (HIT) solution that adds value to imaging by reducing perceived incongruence between text reports and images and by improving operational efficiencies.

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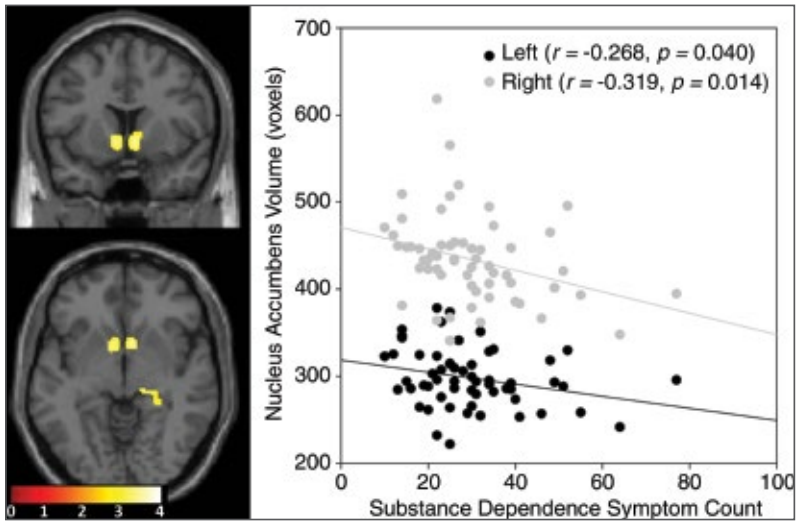
Radiology in Public Focus

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

Substance Abuse Reduces Brain Volume in Women but Not Men

Vast changes in gray matter volume (GMV) were observed in women with stimulant dependence after prolonged abstinence, but were not observed in men. Sexual dimorphism in drug-related neuroanatomic changes and brain-behavior relationships may be mechanisms underlying the difference in clinical profiles of addiction between women and men.

Michael F. Regner, M.D., of the University of Colorado School of Medicine, and colleagues studied 127 age- and sex-matched participants (68 control subjects [28 women, 40 men] and 59 patients with stimulant dependence [28 women, 31 men]) who underwent T1-weighted spoiled gradient-echo inversion recovery MRI of the brain at 3T. Images were segmented by using voxel-based morphometric software. After adjustment for age, education and head size, the effects of group according to sex on GMV and main effects were analyzed throughout the whole brain by using an analysis of covariance family-wise cluster corrected for multiple comparisons, with a threshold *P* value of less than .05. Dependence symptom count and behavioral measurements were correlated with GMV in the whole brain and in five a priori regions of interest.



T1-weighted MR imaging brain map (*left*) including coronal (*top*) and axial (*bottom*) section images shows significantly negative correlations at whole-brain level between stimulant dependence symptom count and GMV in the bilateral nucleus accumbens in a patient with stimulant dependence. Scatterplot (*right*) shows negative correlation between substance dependence symptom count and total volume of nucleus accumbens defined according to ROI.

They found the effects of group according to sex on GMV were significant in numerous regions (P <.001). Compared with female control subjects, women with stimulant dependence had significantly lower GMV in widespread brain regions (P <.001). There were no significant differences in GMV between male control subjects and men with stimulant dependence (*P* = .625).

"These differences between the sexes could reflect a greater neuroanatomic endophenotype in women that predisposes them to stimulant dependence or a vulnerability to morphologic changes that result from stimulant dependence," the authors write. "Decreased GMV in women with stimulant dependence compared with female control subjects was most striking in the limbic regions, particularly the insula, further suggesting a functional role of these structures in mediating the clinical phenotype."

Specific Cardiovascular Risk Factors May Predict Alzheimer's Disease

Smaller volumes in specific brain regions considered to be early markers of dementia risk were associated with specific cardiovascular disease risk factors and cognitive deficits in a predominantly midlife multiethnic population-based sample, new research shows. Additionally, the risk factors most associated with these brain volumes differed in participants younger and older than 50 years, as did the association between brain volume and Montreal Cognitive Assessment (MoCA) score.

Rajiv N. Srinivasa, M.D., of the University of Texas Southwestern Medical Center, and colleagues studied 1,629 participants (700 men and 929 women; mean age, 50.0 years ± 10.2 [standard deviation]) drawn from the population-based Dallas Heart Study who underwent laboratory and clinical analysis in an initial baseline visit and approximately seven years later underwent brain MRI with automated volumetry and cognitive assessment with MoCA. Regression analysis showed associations between risk factors and segmental volumes, and associations between these volumes with cognitive performance in participants younger and older than 50 years.

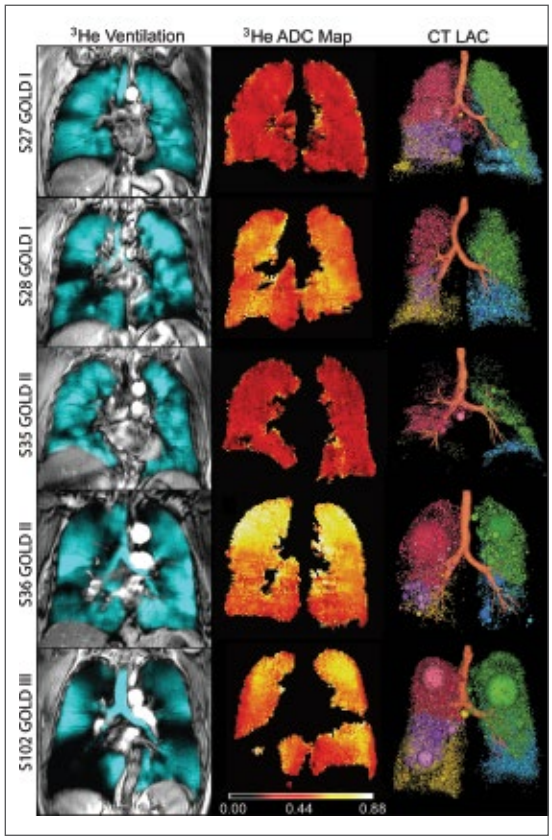
They found lower hippocampal volume was associated with previous alcohol consumption (standardized estimate, -0.04; *P* = .039) and smoking (standardized estimate, -0.04; *P* =.048). Several risk factors correlated with lower total brain, posterior cingulate, and precuneus volumes. Higher total (standardized estimate, 0.06; *P* = .050), high-density lipoprotein (standardized estimate, 0.07; *P* = .003), and low-density lipoprotein (standardized estimate, 0.04; *P* = .037) cholesterol levels were associated with larger posterior cingulate volume, and higher triglyceride levels (standardized estimate, 0.06; *P* = .004) were associated with larger precuneus volume. Total MoCA score was associated with posterior cingulate volume (standardized estimate, 0.13; *P* = .001) in younger individuals and with hippocampal (standardized estimate, 0.06; *P* <.05) and precuneus (standardized estimate, 0.08; *P* <.023) volumes in older adults.

"Our findings reveal that lower total brain, hippocampal, precuneus, and posterior cingulate volumes are associated with cardiovascular risk factors and with impaired cognitive performance before the onset of clinical dementia," the authors write.

Imaging Could Improve Treatment of People with COPD

In patients with mild-to-moderate chronic obstructive pulmonary disease (COPD) with modestly abnormal forced expiratory volume in 1 second (FEV_1) measurements, MRI measurements of emphysema played a dominant role in the expression of exercise limitation, while both CT and MR imaging measurements of emphysema explained COPD symptoms.

Miranda Kirby, Ph.D., of James Hogg Research Centre at the University of British Columbia, and colleagues performed conventional CT and inhaled noble gas MRI on 116 people with COPD, including 80 with milder disease. The patients also underwent lung capacity testing, filled out a quality of life questionnaire and took a six-minute walk test for the six-minute walk distance (6MWD) to measure their exercise tolerance over a short period of time.



Images in representative patients with mild-to-moderate or severe chronic obstructive pulmonary disease (COPD). *Left-to-right:* hyperpolarized 3He MR imaging ventilation images, 3He MR imaging ADC maps, and CT images showing low-attenuating clusters (LAC) for subject 27 (S27), a 74-year-old man (FEV1 = 86% predicted value, 6MWD = 486 m, SGRQ symptom subscore = 6, VDP = 6%, ADC = 0.37 cm2/sec, Pi10 = 4.1 mm, RA950 = 6%); subject 28 (S28), a 73-year-old man (FEV1 = 85% predicted value, 6MWD = 360 m, SGRQ symptom subscore = 43, VDP = 9%, ADC = 0.45 cm2/sec , Pi10 = 4.1 mm, RA950 = 4%); subject 35 (S35), a 76-year-old man (FEV1 = 77% predicted value, 6MWD = 357 m, SGRQ symptom subscore = 37, VDP = 7%, ADC = 0.30 cm2/sec, Pi10 = 4.4 mm, RA950 = 2%); subject 36 (S36), a 77-year-old woman (FEV1 = 77% predicted value, 6MWD = 240 m, SGRQ symptom subscore = 69, VDP = 13%, ADC = 0.56 cm2/sec, Pi10 = 4.2 mm, RA950 = 13%); and subject 102 (S102), a 74-year-old man (FEV1 = 34% predicted value, 6MWD = 282 m, SGRQ symptom subscore = 55, VDP = 34%, ADC = 0.50 cm2/sec, Pi10 = 4.2 mm, RA950 = 18%).
(Radiology 2015;277:3:InPress)

Multivariate modeling for the 6MWD in 80 patients with Global Initiative for Chronic Obstructive Lung Disease (GOLD) grade U–II COPD showed that apparent diffusion coefficient (ADC) ($\beta = 0.34$, $P = .04$), diffusing capacity of the lung for carbon monoxide ($\beta = 0.60$, $P = .0008$), and residual volume/total lung capacity ($\beta = 20.26$, $P = .02$) were significant variables, while FEV_1 and airway disease measurements were not. In 36 patients with GOLD grade III or IV disease, FEV_1 ($\beta = 0.48$, $P = .01$) was the only significant contributor in a multivariate model for 6MWD.

"Direct and sensitive measurements of airway disease and emphysema may help identify and phenotype disease in patients with COPD with early or mild disease that cannot be characterized otherwise and may contribute to the understanding of the sources or triggers for clinically important outcomes, including exercise capacity and COPD symptoms," the authors write.

OCTOBER AND NOVEMBER PUBLIC INFORMATION ACTIVITIES FOCUS ON BREAST AND LUNG CANCER AWARENESS

In recognition of National Breast Cancer Awareness Month in October and National Lung Cancer Awareness Month in November, RSNA is distributing public service announcements (PSAs) that focus on the importance of screening and the symptoms, risk factors and possible treatment options related to these cancers.

In addition, the RSNA "60-Second Checkup" audio program focusing on breast cancer and lung cancer will be distributed to nearly 100 radio stations across the country.

New on RadiologyInfo.org

Visit *RadiologyInfo.org*, the public information website produced by the RSNA and ACR, to view the new "Your Radiologist Explains" videos on Body MRI and CT Colonography.

RadiologyInfo.org
For patients

Media Coverage of RSNA

In August, 584 RSNA-related news stories were tracked in the media. These stories reached an estimated 644 million people.

Coverage included *Yahoo! News*, *U.S. News & World Report*, *Bloomberg News*, *Chicago Tribune*, *Reuters*, *MSN.com*, *Business Wire*, *Boston.com*, *The Daily Telegraph*, *San Francisco Chronicle*, *The International Business Times*, *Houston Chronicle*, *CNBC.com*, *Imaging Economics*, *Medical Imaging*, *Diagnostic Imaging* and *Health Imaging & IT*.

Journal Highlights

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

Magnetic Resonance Imaging after Knee Cartilage Repair Surgery

The combination of MR imaging-based morphological and compositional imaging plays an integral role in the assessment of cartilage repair tissue and its integration to native tissues following cartilage repair surgery.

In a State-of-the-Art article in the October issue of *Radiology* (*RSNA.org/Radiology*), Ali Guermazi, M.D., Ph.D., of the Department of Radiology at Boston Medical Center, and colleagues urge radiologists to be familiar with the various cartilage repair techniques and MRI evaluation methods to provide helpful and comprehensive evaluation of surgical outcomes to their referring colleagues.

Other essentials from the article include:

- MRI assessment of cartilage repair requires a combination of cartilage-sensitive sequences such as fat-suppressed 3D gradient echo, and fluid-sensitive sequences such as fat-suppressed proton-density weighted, T2-weighted or intermediate-weighted fast spin echo techniques.
- MRI Observation of Cartilage Repair Tissue is a reproducible semi-quantitative scoring system for assessing morphologic cartilage repair that has been widely used as an outcome measure for longitudinal clinical trials.
- Compositional MRI provides the opportunity to measure the biochemical and microstructural time-dependent processes of maturation occurring within the repair tissue.

"Surgery to repair cartilage defects, including marrow stimulation, osteochondral grafting and autologous chondrocyte implantation, has been shown to improve functional outcomes," the authors write. "The primary goal of these techniques is to improve symptoms, with the hope of preventing osteoarthritis.

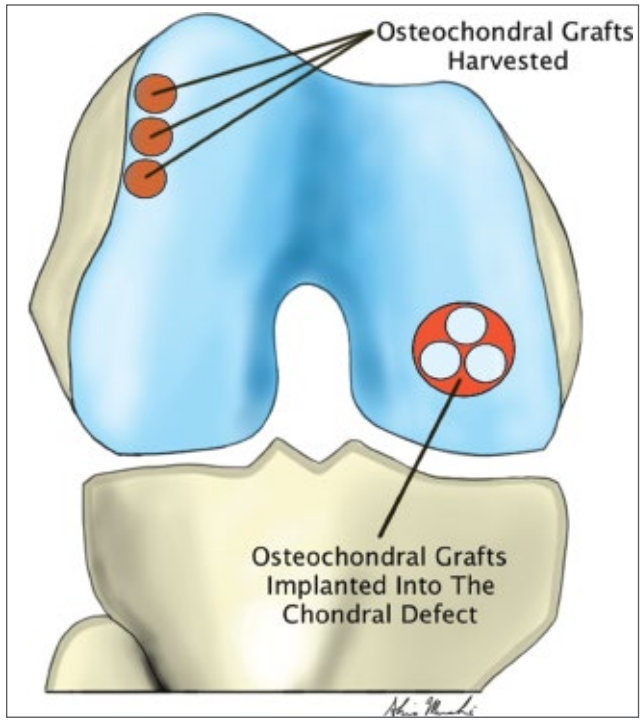
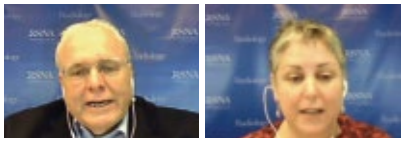


Diagram shows osteochondral autograft transfer. Damaged cartilage is débrided to stable margins. Donor osteochondral cylinders are harvested from lower weight-bearing joint regions (e.g., margins of trochlea or near the intercondylar notch). Osteochondral grafts are implanted into matching cylindrical recipient sites created at cartilage defect. (*Radiology* 2015;277:1:23-43)

This article meets the criteria for *AMA PRA Category 1 Credit™*. SA-CME is available online only.



Radiology EXTRA PODCASTS

Listen to *Radiology* Editor Herbert Y. Kressel, M.D., deputy editors and authors discuss the following articles in the August issue of *Radiology* at *RSNA.org/Radiology-Podcasts*.

- "Are Qualitative Assessments of Background Parenchymal Enhancement, Amount of Fibroglandular Tissue on MR Images, and Mammographic Density Associated with Breast Cancer Risk?" Brian N. Dontchos, M.D., and colleagues.
- "Predictors of Recurrent Stroke in Patients with Ischemic Stroke: Comparison Study between Transesophageal Echocardiography and Cardiac CT," Kyeho Lee, M.D., and colleagues.

A joint podcast focuses on two articles on CT and iterative reconstruction:

- "Observer Performance in the Detection and Classification of Malignant Hepatic Nodules and Masses with CT Image-Space Denoising and Iterative Reconstruction," Joel G. Fletcher, M.D., and colleagues.
- "Degradation of CT Low-Contrast Spatial Resolution Due to the Use of Iterative Reconstruction and Reduced Dose Levels," Cynthia H. McCollough, Ph.D., and colleagues.

Key Concepts of Patient Safety in Radiology

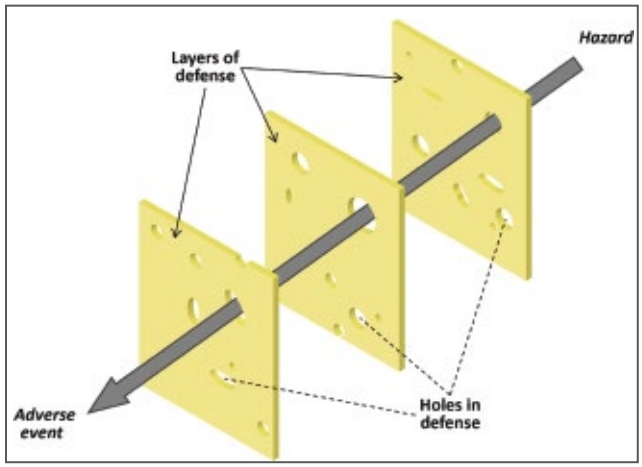
Modern approaches to patient safety have shifted from a focus on eliminating human error to developing robust systems and processes that create safe outcomes despite the inherently dangerous environment in which healthcare providers treat patients.

In an article in the October Special Issue of *RadioGraphics* (*RSNA.org/RadioGraphics*), David B. Larson, M.D., M.B.A., from the Department of Radiology at Stanford University School of Medicine, and colleagues introduce several fundamental principles of patient safety, especially as they relate to radiology.

Error has been recognized as a frequent occurrence in diagnostic radiology for many decades. However, errors of perception at image interpretation are only one aspect of error in radiology, which can occur at essentially any step in the imaging process.

Safety is produced when organizations establish standards for what is expected and implement systems to (a) recognize potential errors early by detecting deviations from standards, (b) quickly and effectively solve specific problems as they arise before they cause harm, and (c) quickly learn from problems and change the organization accordingly so that problems do not recur.

"As radiology continues to increase in complexity and operate in an increasingly complex healthcare environment, maintaining and improving levels of safety will depend on developing systems and a culture that can intelligently integrate individuals with technology and processes to create a safer patient care environment," the authors write.



The Swiss cheese model of safety. Each Swiss cheese slice represents successive layers of defenses, barriers and safeguards. However, each layer is imperfect and contains multiple holes. Some of these holes represent active failures and others represent latent conditions. Most hazards are stopped by one of the defenses. When an error passes through all layers (gray arrow), it results in an adverse event. (Adapted and reprinted, with permission, from Reason J. The human contribution. Farnham, Surrey, England: Ashgate, 2008). (*RadioGraphics 2015;35;InPress*)

This article meets the criteria for *AMA PRA Category 1 Credit™*. SA-CME is available online only.

"Golden Oldies" Spotlighted in October *Radiology* Issue

As part of the RSNA Centennial Celebration, each month *Radiology* is featuring 15 "Golden Oldies" articles based on their significance to the advancement in the field of radiology. The special supplement in the October issue spotlights vascular and interventional radiology, including:

- "Erosion of the Ribs Due to Stenosis of the Isthmus (Coarctation) of the Aorta"; 1929
- "Clinical Application of Selective Celiac and Superior Mesenteric Arteriography"; 1965
- "Small Hepatocellular Carcinoma: Treatment with Radio-Frequency Ablation Versus Ethanol Injection"; 1999

Radiology GOLDEN OLDIES

The online-only articles will be available to RSNA members and *Radiology* subscribers. For more information, and to view a video of *Radiology* Editor Herbert Y. Kressel, M.D., and Senior Deputy Editor Deborah Levine, M.D., discussing the series, go to *RSNA.org/Golden-Oldies*.

Online RSNA Journal Articles Now Feature Related Articles

All *Radiology* and *RadioGraphics* articles accessed online are now accompanied by a list of related articles, to assist in research and deeper exploration of a topic.

Access *Radiology* and *RadioGraphics* at *RSNA.org/Journals*.

Download the RSNA Journal Apps

Radiology and *RadioGraphics* mobile apps are available in the App Store for the iPhone® and iPad® and in Google Play for Android® devices. The apps are free to download. Learn about features and functionalities here: *RSNA.org/Journals*.

Radiology *RadioGraphics*

Education and Funding Opportunities

Writing a Competitive Grant Proposal

February 5-6, 2016
RSNA Headquarters
Oak Brook, IL

Registration is open for the Writing a Competitive Grant Proposal workshop, designed for researchers in radiology, radiation oncology, nuclear medicine and related sciences who are interested in actively pursuing federal funding.

Guided by a faculty of leading researchers with extensive experience in all aspects of grant applications and funding, the program will focus on developing specific aims to be included in a grant application. Participants will be provided tools for getting started in the grant writing process and developing realistic expectations. Faculty includes Udo Hoffmann, M.D., M.P.H., of Massachusetts General Hospital in Boston; Ruth Carlos, M.D., of the University of Michigan Health System in Ann Arbor; Martin Pomper, M.D., Ph.D., of Johns Hopkins School of Medicine in Baltimore; and David Shuster, M.D., of Emory University in Atlanta.

The course fee is $225. Register online at *RSNA.org/CGP*. Contact Rachel Nelson at 630-368-3742 or *rnelson@rsna.org* for additional information.

For Your Calendar

OCTOBER 16–19, 2015
Journées Françaises de Radiologie
Paris
Visit the RSNA Booth
• *www.jfr.radiologie.fr*

OCTOBER 18–21, 2015
American Society for Radiation Oncology (ASTRO),
San Antonio
Visit the RSNA Booth
• *www.astro.org*

NOV. 29 - DEC 4
101st RSNA Annual Meeting and Scientific Assembly
McCormick Place, Chicago
• *RSNA.org/Register*

FIND MORE EVENTS AT *RSNA.org/Calendar.aspx*.

Value of Membership

RSNA Members Attend the World's Premier Medical Meeting Free

Beginning Nov. 29, more than 50,000 radiology professionals, exhibitors and guests will gather at McCormick Place in Chicago for RSNA 2015—and as a benefit of membership, RSNA members attend for free.

Registered attendees will have access to nearly 2,000 education exhibits and 2,500 scientific presentations and more than 400 educational courses. In addition, the Technical Exhibits hall features nearly 700 exhibitors displaying the newest technology. Members also receive discounted registration for the Virtual Meeting.

At RSNA 2015 you'll discover that innovation is the key to radiology's future as you:

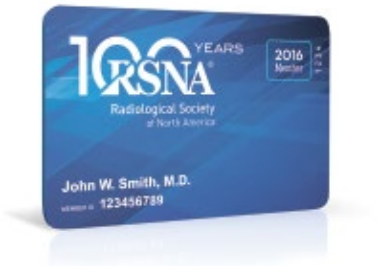
- Learn about the latest science and education from global leaders and earn CME.
- Witness the latest innovations in medical imaging and discover products from industry leaders.
- Collaborate with innovators, educators, leaders and colleagues.

RSNA is celebrating the 100th anniversary of its 1915 founding. Begin the celebration before RSNA 2015 by visiting *RSNA.org/Centennial*, where you can predict the milestones of the next century and share your own stories. At the meeting, visit the Centennial Showcase to discover the innovations that will shape the next 100 years of radiology.

2016 RSNA Membership Renewal Underway

RSNA membership renewal for 2016 is underway. Renew online at *RSNA.org/Renew* or by mail with the invoice sent in early October.

As you renew membership for 2016, you may opt for automatic membership renewal. Check the box on the payment page and fill in credit card information when renewing online, or check the "Automatic Renewal" box when completing credit card information on the print membership invoice.

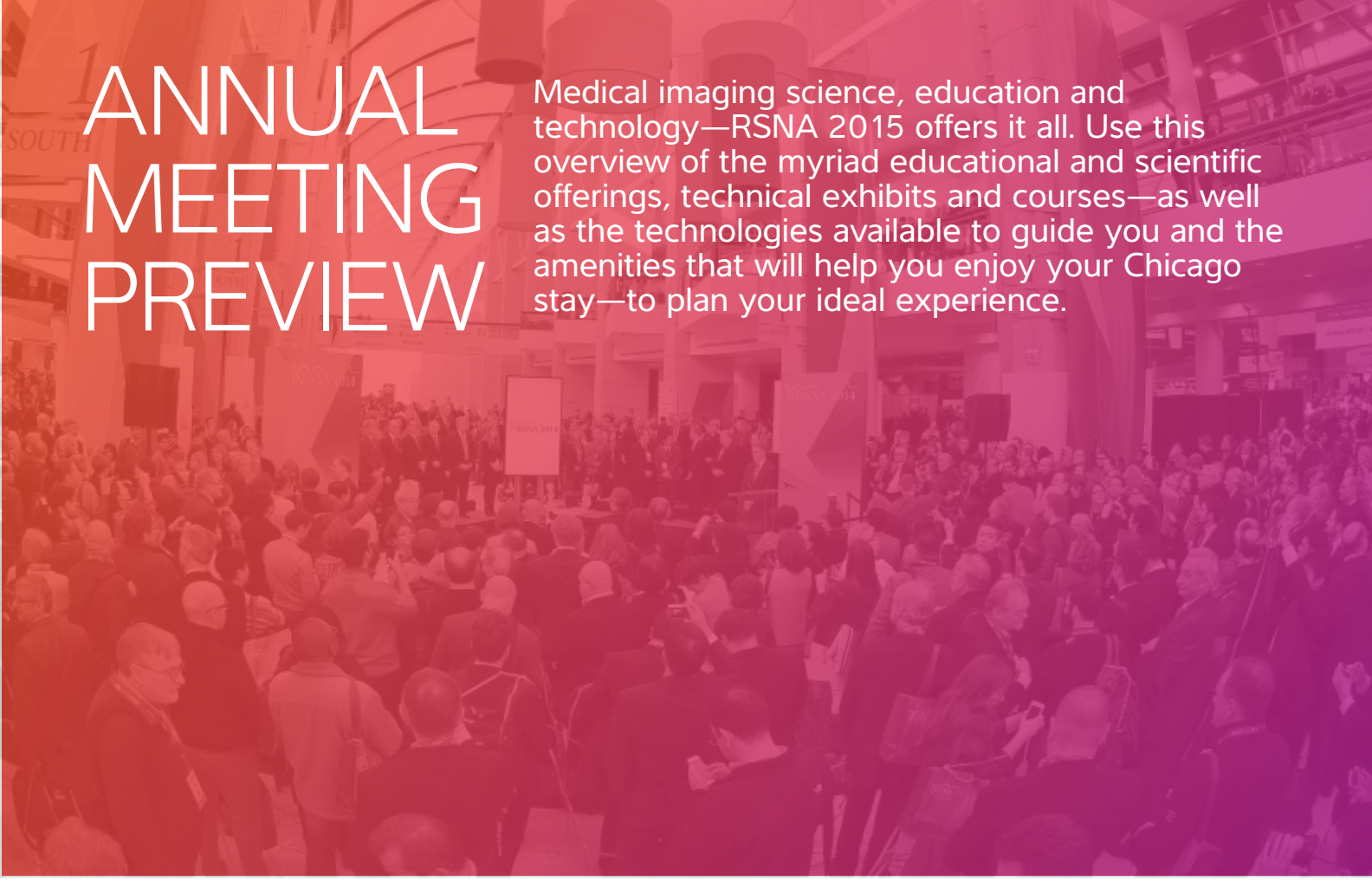


On or about October 1 of each year, RSNA will charge the designated credit card for annual membership dues based on the level of membership at the time of renewal, journal format choice, and specified donation amounts.

Also, current RSNA members who have retired from the practice of medicine or other active involvement (practice less than 20 hours per week) in radiology or related fields and have been a member in good standing for at least 10 years may make written requests to transfer their memberships to retired status. Go to *RSNA.org/Membership* to complete the online form or contact staff at *membership@rsna.org* with questions.

ANNUAL MEETING PREVIEW

Medical imaging science, education and technology—RSNA 2015 offers it all. Use this overview of the myriad educational and scientific offerings, technical exhibits and courses—as well as the technologies available to guide you and the amenities that will help you enjoy your Chicago stay—to plan your ideal experience.



LEARNING OPPORTUNITIES

From lectures and special sessions focused on the specialty's hottest topics to the presentations of cutting-edge research and the latest in radiology informatics, learning opportunities in every subspecialty abound at RSNA 2015. With full participation in the meeting, each physician can earn up to 93.75 *AMA PRA Category 1 Credits™*.

RSNA SCIENCE, EDUCATION SESSIONS SET THE STANDARD FOR EXCELLENCE

BY PAUL LaTOUR


JACOBSON


BHALLA


FRUSH

Change is a constant in today's rapidly evolving world of healthcare, particularly in radiology. But when it comes to the RSNA Annual Meeting, attendees can rely on one constant—the science sessions and educational courses continue to set the bar for quality in radiology.

"The RSNA 2015 scientific program offers a diverse selection of innovative and cutting-edge research from around the world," said Jon A. Jacobson, M.D., chair of the RSNA Scientific Program Committee. "Several exciting topics include MRI (PET, diffusion-weighted imaging), CT (low dose and dual energy), 3D printing, and cancer screening, staging and intervention. The quality of this year's abstracts is exceptional, representing submissions from the national and international scientific community."

"As it has every year, the quality of submissions has continued to increase in 2015," said Sanjeev Bhalla, M.D., chair of the RSNA Education Exhibits Committee.

Along with standard refresher courses that are often organ-, disorder- or modality-oriented, RSNA 2015 educational courses are increasingly related to quantitative imaging, safety and quality, radiation and imaging genomics, emerging technologies, personalized approaches and 3D printing, according to

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Donald P. Frush, M.D., chair of the RSNA Refresher Course Committee.

The Friday Imaging Symposium: Neuroimaging Emergencies, will explore the role of imaging in central nervous system infections, acute stroke, intracranial hemorrhage and spine emergencies, while Controversy Sessions throughout the week will spotlight current debates in concussion, lung cancer screening, stroke evaluation, spine intervention, interventional radiology/diagnostic radiology program implementation, appendicitis evaluation, MR prostate evaluation and the use of enteral and gadolinium contrast media.

Dr. Frush credits the success of the educational courses to the efforts made by track chairs, RSNA staff and session moderators. "These individuals recognize the value to the audience of the educational courses and reflect this in their willingness to share their discoveries, experiences and perspectives," he said.

BREAST IMAGING

Hot topics include new methods to incorporate quantitative measures of breast parenchymal patterns to drive precision screening and the emergence of short or abbreviated MRI protocols for supplemental screening of women with dense breasts and/or intermediate risk, according to Scientific Program Breast Subcommittee chair Emily F. Conant, M.D.

"Also of great interest will be the maturing data on screening with tomosynthesis over multiple, consecutive years, as well as the data on incorporating tomosynthesis in diagnostic breast imaging," Dr. Conant added.

"This year's education exhibits include radiologic-pathologic correlations of various benign and malignant diseases, as well as case-based and pictorial reviews," said Susan J. Ackerman, M.D., Education Exhibits Breast Subcommittee chair. "Hot topics include updates in tomosynthesis and MRI, contrast-enhanced ultrasound and multimodality imaging of breast cancer after neoadjuvant chemotherapy."

CARDIAC RADIOLOGY

Cardiac sessions will feature refinements in cardiac MRI sequences with special attention to 4D flow cardiac MRI, which will be the focus of a Hot Topic session, according to Robert M. Steiner, M.D., chair of the Scientific Program Cardiac Subcommittee. Cardiac Series: Imaging of Coronary Artery Disease, will also be offered at RSNA 2015.

Transcatheter aortic valve implantation and PET/MR are the subjects of numerous sessions this year, Dr. Steiner said, while advances in iterative reconstruction techniques is also a trending topic.

Cardiac education exhibits represent a cross-section of cardiac imaging including new technology for MRI and CT and also focus on artifacts and imaging optimization, according to Shawn D. Teague, M.D., the Education Exhibits Cardiac Subcommittee chair.

"Everyone should be able to find a topic of interest no matter what their practice level—from trainee to general radiologist to academic expert," Dr. Teague said.

CHEST RADIOLOGY

The recent increase in chest abstract submissions concerning lung cancer screening and dual-energy CT resulted in the creation of new sections dedicated to those topics at RSNA 2015.

"This trend continues with these two topics leading the number of submissions along with related topics of nodule evaluation and thoracic malignancy imaging," said Reginald F. Munden, M.D., D.M.D., the Scientific Program Chest Subcommittee chair. "Interest in interstitial lung disease, interventional imaging and vascular imaging also remained steady."

This year has also seen an increase in abstracts regarding the science and integration of biomarkers with thoracic imaging in thoracic diseases, he added.

Lung cancer screening is a frequent topic of education exhibits this year, said Eric T. Goodman, M.D., the Education Exhibits Chest Subcommittee chair.

"Specifically, there are exhibits reviewing lung and management of non-solid nodules," Dr. Goodman said. "There are also exhibits reviewing common and uncommon lung and mediastinal tumors and infections."

EMERGENCY RADIOLOGY

"As in previous years, the majority of emergency radiology (ER) scientific program content involves CT, with a continued emphasis on protocol optimization methods emphasizing high image quality at low radiation dose," said Aaron D. Sodickson, M.D., Ph.D., chair of the Scientific Program Emergency Radiology Subcommittee. "There has been a further increase in submissions on novel dual-energy CT applications and on abdominal MRI applications in the ER."

Dr. Sodickson is seeing the beginning of a new trend exploring the use of ultra-low-dose CT as a dose-neutral replacement for conventional X-ray exams. He also said the subcommittee organized three series courses based on popular scientific topics from RSNA 2014. The course topics will be: 1) optimize your imaging, 2) current imaging of the acute abdomen and 3) contemporary topics in imaging of trauma.

GASTROINTESTINAL RADIOLOGY

Iterative reconstruction, low kV, dual-energy CT diffusion-weighted imaging-MR imaging, and 3D MRI sequences remain popular topics, according to Dushyant V. Sahani, M.D., chair of the Scientific Program Gastrointestinal Subcommittee. Other trending subjects include diffuse liver disease, inflammatory bowel disease, oncology and image-guided therapies, he said.

"There is a trend toward advancing image quality and extracting more information from the images," Dr. Sahani added. "Moreover, efforts are also being made to simplify the use of images to generate quantifiable information."

Other hot topics include faster and high-resolution MRI sequences for high quality breath-hold imaging, image guidance for treatment delivery and response, lower dose CT with high-image quality resulting from innovative new CT technology, and increasing the value of imaging from diagnosis to risk stratification.

Kevin J. Chang, M.D., chair of the Education Exhibits Gastrointestinal Subcommittee, said high-interest submissions include liver imaging reporting and data system (LI-RADS) classification, ultrasound and MR elastography, and the rise of molecular targeted therapies and genomics in gastrointestinal malignancies.

Topics of continued interest include gadoxetate contrast, MR enterography, dual-energy CT, and CT colonography, Dr. Chang said. "A few exciting abstracts also address up-and-coming topics such as PET/MR and textural analysis," he added.

GENITOURINARY RADIOLOGY/URORADIOLOGY

There is a continued increase in the number of abstracts focusing on prostate cancer staging and intervention, as well as advanced functional imaging of other genitourinary cancers, said Zhen J. Wang, M.D., chair of the Scientific Program Genitourinary Subcommittee.

Dr. Wang also said some "must-see" topics include MRI/ultrasound fusion prostate biopsies, new ablation techniques for localized prostate cancers, dual-energy CT characterization of genitourinary malignancies, and quantitative MR imaging for predicting and assessing treatment response of genitourinary malignancies.

Abstracts focusing on neoplasm prostate led the way among education exhibit abstracts, said Sheila Sheth, M.D., chair of the Education Exhibits Uroradiology Subcommittee, who added that international submissions were strong.

HEALTH SERVICES POLICY AND RESEARCH/POLICY AND PRACTICE

"Topics this year are predominantly in the areas of education, medical practice management and quality," said Paul Cronin, M.D., M.S., chair of the Scientific Program Health Services Policy and Research Subcommittee.

"Education is again a popular topic with sessions discussing new teaching methods such as simulation, which is a hot topic. This year sessions not only discuss simulation at an individual level but also include the new topic of simulation at a team level."

Dr. Cronin added: "Another hot topic this year is quality. The emphasis on quality and medical practice management probably reflects the changing landscape of healthcare implementation and radiology practice as we transition from a quantity-based system to a quality-based system."

Collaborative approaches/teamwork is a recurrent theme, as are socioeconomic disparities and radiology and healthcare issues in developing nations, he added. "I am delighted that this section continues to have a high number of international submissions reflecting the global reach of the RSNA and its annual meeting," Dr. Cronin said.

The education exhibit section encompasses topics such as healthcare economics, quality improvement, practice management and education. In terms of quality improvement, featured exhibits will highlight important workflow areas such as CT protocol optimization and potential pitfalls during management of contrast reactions. Several exhibits also emphasize different aspects of patient safety and MR safety.

"An exciting array of exhibits enhance and broaden the vistas of education including using American Board of Radiology curricula to design teaching modules for residents, perfecting mentoring relationships, and modules on standardized tumor assessment," said Rachna Madan, M.D., Education Exhibits Policy and Practice Subcommittee chair. "Meanwhile, as far as accountable care organizations are concerned, the conversation and controversies continue."

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RADIOLOGY INFORMATICS

Rasu Shrestha, M.D., M.B.A., chair of the Scientific Program Radiology Informatics Subcommittee, said informatics sessions will cover hot topics including image processing and analysis for quantitative imaging, and compression- and computer-aided diagnosis (CAD), education and research, results and reporting, and 3D printing.

"We have some superb papers in 3D printing and this should be buzzworthy at the RSNA Annual Meeting this year," Dr. Shrestha said. "Attendees should be on the lookout for highly insightful and thought-provoking sessions in up-and-coming areas such as genomics and deep machine learning."

3D printing and image processing are the most popular topics for informatics education exhibits, with 3D printing featured as the Hot Topic session, said John Eng, M.D., chair of the Education Exhibits Radiology Informatics Subcommittee.

"3D printing received the highest ratings from the Informatics Subcommittee relative to the other informatics topic categories," Dr. Eng said.

MOLECULAR IMAGING

"Again in 2015, we received a number of highly innovative abstracts," said Alexander Drzezga, M.D., the Scientific Program Molecular Imaging Subcommittee chair.

Dr. Drzezga said that several areas stood out, including oncology, where the new individualized treatment options are accompanied by molecular imaging methods offering the potential to select patients suitable for specific therapies and monitor disease progression. For gynecological cancers, novel approaches including multi-tracer and multi-modal PET/MR concepts will be featured in sessions.

"In neuroscience, the recent advent of tracers for imaging neurodegenerative disorders is now followed by a strong interest in new tools for imaging brain tumors and traumatic brain injury," Dr. Drzezga said. "Finally, new approaches for imaging inflammation and infection will be demonstrated and the value of advanced MRI methods such as hyperpolarized and high-tesla MRI will be further evaluated."

MULTISYSTEM/SPECIAL INTEREST

This year features a significant increase in multisystem/special interest education exhibits highlighting new technology and techniques in imaging and advances in informatics, according to David M. Paushter, M.D., chair of the Education Exhibits Multisystem/Special Interest Subcommittee.

"There were exciting submissions in the area of 3D printing, describing the process and current applications," Dr. Paushter said.

A growing number of exhibits focus on newer methods of diagnosis, staging, treatment and tumor monitoring in oncology, including the increasing role of tumor markers in monitoring therapy response, evolving criteria for staging of neoplasms, imaging of cancer immunotherapies, review of oncogenesis, tumors and the field of imaging genomics.

In addition, technology has shifted toward new applications for imaging techniques such as diffusion imaging including restriction spectrum imaging in MR, third-generation dual-energy CT, and contrast-enhanced ultrasound. State-of-the-art, practical guidance on practice parameters include advanced maximum intensity projection reconstructions in CT and MR, iodinated contrast administration techniques, protocols for whole body MRI, reduced kV CT imaging and occupational health for diagnostic radiologists.

Novel electronic methods of education allowing simplified access to learning incorporating newer educational techniques are also a highlight this year, Dr. Paushter said.

MUSCULOSKELETAL RADIOLOGY

"The quality of musculoskeletal submissions was off the charts, and the program reflects that," said Christine B. Chung, M.D., the Scientific Program Musculoskeletal Radiology Subcommittee chair.

Several sessions will include keynote introductory lectures by established academic educators offering expertise in topics to provide attendees with the background necessary to better appreciate scientific presentations on topics including bone tumor, cartilage, nerve evaluation, hand and wrist, spine and imaging around metal.

Dr. Chung added that hot topic sessions will highlight cutting-edge translational imaging, including musculoskeletal quantitative MR biomarkers and applications of dual-energy CT.

Topics for education exhibits include various diagnostic modalities with a predominance of MR imaging and ultrasound.

This year's trend is toward introducing new MRI sequences and fine-tuning the conventional ones to evaluate various musculoskeletal disease entities with emphasis on oncologic imaging as well as imaging around joint arthroplasties, said Kambiz Motamedi, M.D., chair of the Education Exhibits Musculoskeletal Radiology Subcommittee. "Overall, attendees should expect to see high-quality images that are mostly of superb resolution and stunning clarity."

NEURORADIOLOGY

Of this year's many high-quality education exhibits, a number emphasize new techniques—4D parathyroid CT, arterial spin labeling and perfusion imaging—said Valerie L. Jewells, D.O., chair of the Education Exhibits Neuroradiology Subcommittee.

NUCLEAR MEDICINE

"Hybrid PET/MRI for oncologic imaging continues to be an active area of investigation with an entire scientific session dedicated to this topic," said

Jonathan E. McConathy, M.D., Ph.D., chair of the Scientific Program Nuclear Medicine Subcommittee.

The continued growth of the availability of molecular imaging agents and radionuclide therapies for prostate cancer will be the subject of a hot topic session featuring international experts, Dr. McConathy added.

In education, a major trend is an increasing number of PET/MRI exhibits as well as exhibits about new tracers such as 68Ga-DOTA and prostate-specific membrane antigen, said Rathan M. Subramaniam, M.D., Ph.D., chair of the Education Exhibits Nuclear Medicine Subcommittee.

"This reflects the installment of PET/MRI scanners for clinical purposes at centers around the world," Dr. Subramaniam said. "We will also have exhibits integrating functional and structural imaging in their topic. I expect this trend will continue in the future."

OBSTETRICS/GYNECOLOGY

"There is a continued trend of exhibits addressing the use/role of MRI in the female pelvis for both neoplastic and non-neoplastic purposes," said Courtney A. Woodfield, M.D., chair of the Education Exhibits Obstetrics/Gynecology Subcommittee. "Some of the exhibits include more advanced MRI techniques, in particular diffusion-weighted imaging, dynamic contrast enhancement, and in a few instances, spectroscopy."

Other popular topics include placental and post-partum complications as well as imaging infertility, Dr. Woodfield added.

PEDIATRIC RADIOLOGY

New to this year's pediatric content is a series course designed to optimize acquisition and increase efficiency in pediatric imaging, according to Rajesh Krishnamurthy, M.D., the Scientific Program Pediatric Radiology Subcommittee chair.

He added there will also be mixed science and education content on white matter connectivity and interventional radiology.

Topics for education exhibits include cutting-edge applications in cardiac imaging and neuroradiology, as well as tutorials in basic concepts, according to Kate A. Feinstein, M.D., chair of the Education Exhibits Pediatric Radiology Subcommittee.

"I was very happy to see that the accepted abstracts represent many countries," Dr. Feinstein said. "There is something for everyone."

PHYSICS

Physics experienced a large increase in submissions regarding CT and radiation dose in CT, which is reflected in this year's lineup of sessions, according to Chris C. Shaw, Ph.D., chair of the Scientific Program Physics Subcommittee.

"The pattern seems to reflect more interest in practical implementation or applications of imaging techniques for clinical use rather than more fundamental technical development," Dr. Shaw said.

Image-guided radiation therapy is the subject of a hot topic session, reflecting the increased use of imaging for monitoring or planning radiation treatment, Dr. Shaw said.

Two topics—CT and ultrasound—bucked recent trends for physics education exhibits submissions.

"There seemed to be more CT submissions this year compared to last year, which is interesting given the recent trend of more MRI and molecular imaging submissions," said Elizabeth A. Krupinski, Ph.D., chair of the Education Exhibits Physics Subcommittee. "Ultrasound submissions also seemed to be on the rise compared to last year, perhaps reflecting the overall interest in dose reduction and alternatives to imaging using radiation."

Last year an Imaging Science category was created in the physics section to capture more image quality and psychophysics submissions, which increased substantially this year, Dr. Krupinski added.

RADIATION ONCOLOGY AND RADIOBIOLOGY

Breast and gastrointestinal cancers, particularly treatment planning, were among the most compelling topics for this section, according to Nina A. Mayr, M.D., Scientific Program Radiation Oncology and Radiobiology Subcommittee chair.

Other important issues include applications of functional imaging and radiation therapy, while stereotactic radiation is the subject of a Hot Topic Session, Dr. Mayr said.

VASCULAR/INTERVENTIONAL RADIOLOGY

"This is a strong year for interventional oncology topics," said Charles T. Burke, M.D., chair of the Scientific Program Vascular and Interventional Subcommittee. "There continues to be a lot of interest in exploring novel ways to target and treat a variety of cancers and assessing treatment response."

Of the abstracts that caught his attention as particularly interesting, Dr. Burke pointed to research investigating arterial embolization as a replacement for bariatric surgery in patients with morbid obesity. "This concept is not new," he said. "However, this abstract is the first human study that I am aware of that supports the hypothesis that left gastric artery embolization can be used as a weight loss treatment strategy."

PAUL LaTOUR is an *RSNA News* staff writer.

PLENARY LECTURES

RSNA 2015 will feature plenary session lectures on a spectrum of healthcare topics.

SPECIAL LECTURE

SUNDAY, NOV. 29—8:30 A.M.; ARIE CROWN THEATER

RADIOLOGY, MEDICINE, AND HEALTHCARE: WILL INACTION OR INNOVATION DETERMINE OUR FUTURE?

In this Special Lecture, **Darrell G. Kirch, M.D.**, the President and Chief Executive Officer of the Association of American Medical Colleges (AAMC), will highlight the political and economic realities facing U.S. healthcare, including the shift from fee-for-service toward population-based payments in healthcare financing, reductions in clinical revenue, stagnant research funding and a demand for new approaches in medical education.

KIRCH

Dr. Kirch's talk will spotlight the critical success factors for healthcare leaders in this transformative period. Clinical care in the 21st century requires new leaders who will foster a culture that is collaborative, team-based, service-based, mutually accountable and patient-centered. Tomorrow's physicians will need to adapt to—and even create—disruptive innovations in operating models, clinical care, education and technology.

As AAMC president, Dr. Kirch speaks and publishes widely on the need for transformation in the nation's healthcare system and about how academic medicine can lead that change across medical education, medical research and patient care. His career spans all aspects of academic medicine and includes leadership positions at two medical schools and academic health systems, as well as at the National Institutes of Health.

Before becoming AAMC president in 2006, Dr. Kirch was selected as chair-elect of the association, and co-chaired the AAMC Liaison Committee on Medical Education, the accreditation body for medical schools. He also has served as chair of the AAMC Council of Deans Administrative Board and chair of the American Medical Association Section on Medical Schools.

His present post followed six years as senior vice-president for health affairs, dean of the college of medicine and CEO of the Milton S. Hershey Medical Center at Pennsylvania State University. Before joining Penn State, Dr. Kirch held a number of leadership positions at the Medical College of Georgia from 1994 to 2000, including serving as dean of the medical school, senior vice-president for clinical activities, and dean of the school of graduate studies.

NEW HORIZONS LECTURE

MONDAY, NOV. 30—1:30 P.M.; ARIE CROWN THEATER

REDEFINING INNOVATION

For the last 100 years, innovation has been synonymous with technological advancements. In healthcare, innovation was realized with the first X-ray machine, first multi-slice CT scanner and first silent MRI. However, it's no longer enough to develop advanced medical technologies with a high IQ—it's what we do with those images, how we share, how we diagnose and how we drive better outcomes—that really matters.

IMMELT

It is becoming increasingly important for our industry to think about our investments and offerings in new ways, moving away from creating technology just for the sake of technology, according to **Jeffrey R. Immelt**, Chairman and Chief Executive Officer (CEO) of General Electric (GE). We need to concentrate our efforts to deliver the type of innovation

that will truly improve the health of millions of people around the world.

As the world becomes more interconnected and our healthcare needs and capabilities evolve, the definition of innovation is expanding. Innovation must deliver more than a new device; it must deliver real outcomes for our patients. In a time where high-tech is in high demand, it will be seemingly simple ideas such as a low-cost infant warmer that will become the true innovations of our time, Immelt says.

Immelt held several global leadership positions since joining GE in 1982, including roles in plastics, appliances and healthcare businesses. Immelt became a GE officer in 1989 and joined the GE Capital Board in 1997. He has served as GE's Chairman and CEO since 2001.

Immelt has been named one of the World's Best CEOs three times by *Barron's*. Since Immelt began serving as CEO, GE has been named "America's Most Admired Company" in a poll conducted by *Fortune* magazine and one of the World's Most Respected Companies in polls by *Barron's* and the *Financial Times*.

In other roles, Immelt served as chair of President Obama's Council on Jobs and Competitiveness and as a member of the American Academy of Arts & Sciences.

ANNUAL ORATION IN DIAGNOSTIC RADIOLOGY

TUESDAY, DEC. 1—1:30 P.M.; ARIE CROWN THEATER

TRENDS AND DEVELOPMENTS SHAPING THE FUTURE OF RADIOLOGY


THRALL

Three categories of innovation will shape the future of radiology: imaging technologies, infrastructure and information/communications systems, and the application of the imaging correlates of precision medicine, according to **James H. Thrall, M.D.**

On the horizon, X-ray based imaging will reduce radiation exposure to the point that dose will no longer be a topic of concern or controversy, and phase contrast imaging with X-rays—which has the potential to reduce radiation doses by 10-to-100-fold or more—is likely to be the next entirely new imaging method in clinical practice. Data will drive development of better appropriateness criteria, which will be immediately available to ordering providers and their patients, Dr. Thrall says. And radiology will play a critical role in precision medicine by establishing links between patient genotype and imaging phenotypes for surveillance of disease manifestation, assessment of disease extent and discovery of genetic polymorphisms.

But the future holds challenges for the specialty as well. New developments will lead to vastly increased complexity in radiology practice with associated increased educational requirements, especially in parametric imaging. And radiology will face an unremitting competition for "ownership" of imaging methods between specialties in clinical practice and in research, Dr. Thrall says.

Dr. Thrall is Chairman Emeritus of the Department of Radiology at Massachusetts General Hospital, Boston. Dr. Thrall served as Chairman of the Department of Radiology at Massachusetts General Hospital from 1988 until 2013 while holding the Juan M. Taveras Professorship of Radiology at Harvard Medical School.

ANNUAL ORATION IN RADIATION ONCOLOGY

WEDNESDAY, DEC. 2—1:30 P.M.; ARIE CROWN THEATER

NRG ONCOLOGY AND THE NATIONAL CANCER INSTITUTE'S NATIONAL CLINICAL TRIALS NETWORK: A CASE STUDY FOR INNOVATION IN MULTI-DISCIPLINARY CANCER RESEARCH

In 2014, after several years of extensive consultation and coordination with many stakeholders, the National Cancer Institute (NCI) transformed its longstanding cooperative group program into the new National Clinical Trials Network (NCTN).


CURRAN

NCTN then created five new groups including NRG Oncology, a non-profit research organization formed to conduct oncologic clinical research and to broadly disseminate study results for informing clinical decision making and healthcare policy, according to **Walter J. Curran Jr., M.D.**, Chairman of NRG Oncology.

NRG Oncology brings together the National Surgical Adjuvant Breast and Bowel Project, the Radiation Therapy Oncology Group and the Gynecologic Oncology Group—each recognized internationally as a research leader. The organization focuses its clinical and translational research efforts on patients afflicted with malignant brain tumors, head and neck cancers, lung cancers, breast cancers, gastrointestinal cancers, genitourinary cancers and gynecologic cancers, Dr. Curran says. He will discuss the means by which NRG Oncology develops and executes practice-defining research for these patients on a global basis.

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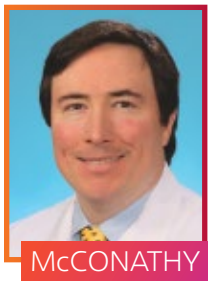
Dr. Curran is the executive director of Winship Cancer Institute of Emory University, Atlanta, and the Georgia Research Alliance Scholar and Chair in Cancer Research. Dr. Curran also serves as the Lawrence W. David Professor and Chairman of the Department of Radiation Oncology at Emory School of Medicine. He served as chairman and principal investigator of the Radiation Therapy Oncology Group, an NCI-funded cooperative group.

RSNA/AAPM SYMPOSIUM

THURSDAY, DEC. 3—1:30 P.M.; ROOM E540A

PET/MR IMAGING: TRANSLATION TO PRACTICE

In this symposium presented in conjunction with the American Association of Physicists in Medicine (AAPM), **Jonathan E. McConathy, M.D., Ph.D.**, and **Bruce R. Rosen, M.D., Ph.D.**, will describe the motivations underlying dual-modality PET/MRI systems and the role of PET/MRI in clinical practice and research studies. The lecturers will also address the challenges and potential solutions of advanced PET/MR imaging.



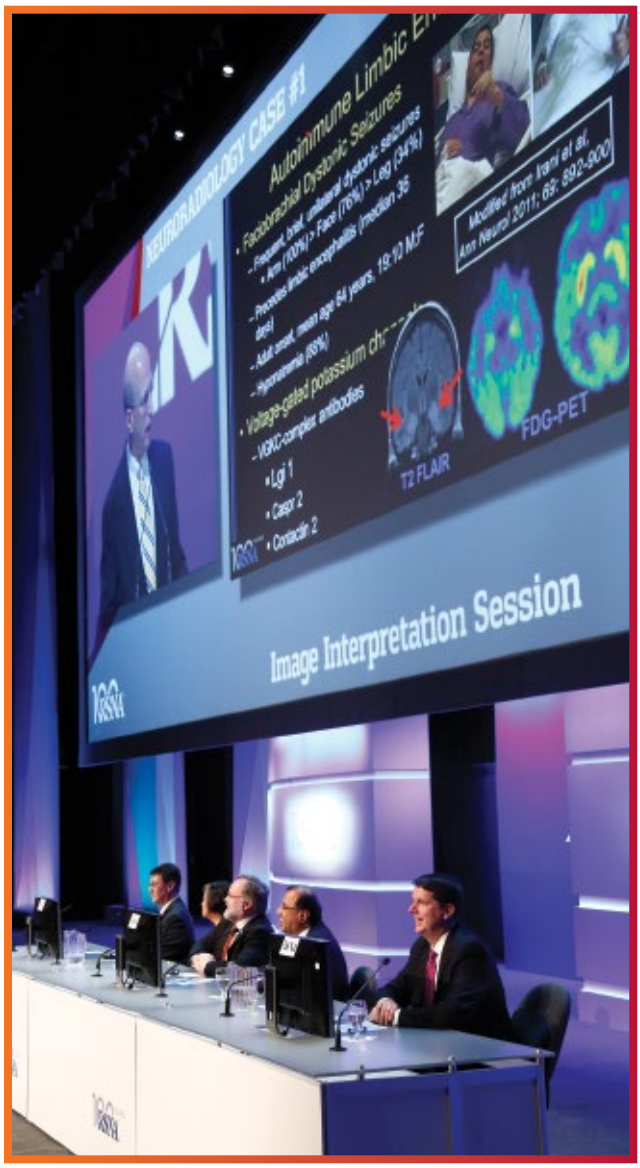
McCONATHY

ROSEN

Dr. McConathy's presentation, "PET/MR Imaging in Practice: A Clinical Perspective," will provide an update and overview of current and potential future uses of clinical PET/MRI with a focus on oncology. Dr. Rosen's presentation, "PET/MR Imaging in Practice: A Research Perspective," will discuss the revolutionary role of PET/MRI in yielding new insights that expand the type of physiological information that can be gained from in-vivo imaging.

Dr. McConathy is an assistant professor of radiology at the Mallinckrodt Institute of Radiology in St. Louis. His research focuses on the development and translational application of PET tracers for oncology and neuroscience through multi-modality imaging with PET/CT and PET/MRI. For over a decade, Dr. McConathy has been involved in the development and evaluation of radiolabeled amino acids for tumor imaging. A 2008 recipient of the RSNA Roentgen Resident/Fellow Research Award, Dr. McConathy serves on the RSNA Education Exhibits Awards Committee and as a chair of the RSNA Scientific Program Committee's Nuclear Medicine Subcommittee.

Dr. Rosen is a professor of radiology at Harvard Medical School, the Laurence Lamson Robbins Professor of



Radiology at Harvard Medical School and a professor of health sciences and technology at the Harvard Medical School-Massachusetts Institute of Technology (MIT). He serves as director of the Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital (MGH), MIT and the Harvard Medical School.

Over the past 30 years, Dr. Rosen's research has focused on the development and application of physiological and functional nuclear MR techniques. He leads several large interdisciplinary and inter-institutional research and training programsfocusing on the development of novel biomedical imaging technologies and their application to diverse programs of basic and clinical research. Dr. Rosen was named the 2011 RSNA Outstanding Researcher.

SATURDAY COURSES

AAPM/RSNA PHYSICS TUTORIAL FOR RESIDENTS: US

NOON – 2 P.M.

The Physics Tutorial for Residents provides an overview of MRI/ultrasound technology and a primer on artifacts of ultrasound.

AAPM/RSNA TUTORIAL ON EQUIPMENT SELECTION: MRI

2:15 – 4:15 P.M.

The session provides an overview of MRI technology including equipment selection.

NIH GRANTSMANSHIP WORKSHOP

1 – 5 P.M.

Attendees will come away with a greater understanding of the NIH grants process for preparing a research or training grant application, learning the elements of a competitive grant application and gaining insight into new features of the NIH review process. Divided into two sessions, the workshop also illustrates the review process in action through a mock study section.

NIH SBIR/STTR PROGRAMS TO SUPPORT INNOVATIVE COMMERCIAL PRODUCT DEVELOPMENT BY SMALL BUSINESSES AND ACADEMIC PARTNERS

1 – 5 P.M.

Attendees will gain understanding of the NIH Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and the resources available to translate technology into the clinic.

DIAGNÓSTICO PRECOZ POR IMAGEN EN LA POBLACIÓN/ POPULATION-BASED PREVENTIVE IMAGING

1 – 5 P.M.

Presented in Spanish by the Interamerican College of Radiology (CIR) with simultaneous English translation, the session reviews state-of-the-art of population-based preventive imaging and covers preventive imaging approaches in all major organ systems and key pathologies ranging from dementia, cardiovascular disease, colon, liver, lung and breast cancer.

SPECIAL COURSES

Discover radiology-related topics that are late-breaking (Hot Topics), are particularly controversial (Controversies), or are programs the RSNA Board deems of particular importance (Special Interest). High levels of audience interest and opinion are expected. Sessions are offered Monday–Thursday; see the RSNA Meeting Program for titles.

SPECIAL INTEREST SESSIONS

- A New Model of Patient Care: Value over Volume
- Comparative Effectiveness Research: Payment and Policy Impact
- Entrepreneurship in Radiology: From Napkin to IPO
- Radiology and Pathology Diagnostics: Examples in Practice
- Radiology and Radiation Oncology: A Partnership Made in Heaven

The sessions will be held Monday from 4:30 to 6 p.m.

RSNA DIAGNOSIS LIVE™

These exciting expert-moderated sessions feature a series of interactive case studies to challenge radiologists' diagnostic skills. Submit and discuss your responses with your colleagues in a fast-paced game format.

Monday's sessions begin at 7:15 a.m. with "Bo You Don't Know Didley—Test Your Diagnostic Skills at the Crack of Dawn," and at 4:30 p.m. with a session on chest and abdomen; Tuesday begins at 7:15 a.m. with "Tic Tac D'Oh—Test Your Diagnostic Skills at the Crack of Dawn"; Wednesday's session at 4:30 p.m. will focus on neuroradiology and musculoskeletal cases; and Thursday features a 3 p.m. session, "Peds, IR, Potpourri."

ESTATE PLANNING FOCUS OF MONDAY SESSION

Understanding the fundamentals of estate planning, planning for retirement, and strategies for leveraging taxable gifts are among the topics to be covered at the session, "Planning for a Better Tomorrow."

Alicia K. Waltenberger, Esq., Director, Wealth Planning Strategies, TIAA-CREF Financial Services, will discuss retirement needs analysis, Roth conversions, estate planning basics, leveraging taxable gifts, non-tax-related planning and charitable planning. A question/answer period will follow the session scheduled for Monday from 3 to 5:30 p.m.

"COUNTRY PRESENTS" SESSIONS SPOTLIGHT GERMANY, MEXICO

RSNA has partnered with the German Radiological Society (DRG), and the Mexican Federation of Radiology and Imaging (FMRI) and Mexican Society of Radiology and Imaging (SMRI) to bring the best research and education from Germany and Mexico to share with RSNA attendees. RSNA President Ronald L. Arenson, M.D., will provide opening remarks at both sessions. Read a feature story on the RSNA 2015 "Presents" sessions on Pages 9-10.

For more information on Germany Presents, visit *RSNA.org/Germany-Presents*. For more information on Mexico Presents, visit *RSNA.org/Mexico-Presents*.

EDUCATIONAL COURSES

RSNA 2015 offers more than 400 educational courses covering traditional and cutting-edge topics. Courses range from 90 minutes to time blocks from several hours to several days, to allow intensive study of various topics.

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QUALITY IMPROVEMENT SYMPOSIUM

Among the multisession courses at RSNA 2015 is the 2015 Quality Improvement Symposium focusing on designing and running a successful practice quality improvement (PQI) project. Attendees will have a chance to earn up to two Quality Essentials Certificates (QEC) designed to recognize those who demonstrate a threshold level of knowledge in four quality improvement domains.

Courses are "Designing and Running a Successful PQI Project," on Tuesday, from 10:30 a.m. to noon, and "Common Mistakes in PQI Projects: Failure is an Option," on Tuesday, from 1:30 to 3 p.m.

A Quality Essentials Certificate is awarded to participants who earn 80 percent or higher on the related SAM test. To be eligible to receive an Advanced Level Quality Certificate, candidates must attain a Quality Essential Certificate in each of these categories: Quality Improvement in Your Practice, Staff and Patient Safety, Customer Satisfaction and Radiologist Performance Improvement, and have exhibited a Quality Storyboard poster at an RSNA Annual Meeting. For more information, visit *RSNA.org/Quality*.

LEARNING CENTER

The Learning Center, located in Lakeside Center, Hall D, Level 3, is home to education exhibits, Quality Story Boards and scientific poster presentations, grouped according to subspecialty. Many authors will give lunchtime presentations of their work. Go to *Meeting.RSNA.org* for days and times. Digital scientific posters and education exhibits are available to meeting attendees via the Virtual Meeting 24 hours a day throughout the meeting week.

QUANTITATIVE IMAGING

Located in the Learning Center, the Quantitative Imaging Reading Room is an educational showcase highlighting products and applications that integrate quantitative analysis and structured reporting into the image interpretation and reporting process. At the Quantitative Imaging Biomarkers Alliance (QIBA) kiosk, see the latest efforts of the RSNA-directed group that aims to improve the value and practicality of quantitative imaging biomarkers by reducing variability across devices, patients and time.

NUCLEAR MEDICINE/ MOLECULAR IMAGING CAMPUS

The Nuclear Medicine/Molecular Imaging campus features many components—including educational and series courses, scientific presentations, and education exhibits—to facilitate focused study during the week. The campus is located in S503AB, S504CD and S505AB.

RESIDENTS AND FELLOWS

RSNA RESIDENT AND FELLOW SYMPOSIUM—RESIDENTS/ FELLOWS PROGRAMMING

This year, the RSNA Resident and Fellow Symposium has been restructured to separate the day-long session into two sections with a break in between.

- Career 101: "Essentials for Every New Attending Radiologist: 8 Reasons to be Optimistic About the Future of Radiology," will be presented by Jonathan W. Berlin, M.D., M.B.A.; "Medical Malpractice: Common Pitfalls New Attending Radiologists Should Avoid," will be presented by Leonard Berlin, M.D., J.D., on Tuesday from 10:30 a.m. to noon.
- Career 102: "Essentials for Residency and Job Success: How to Convert an Interview Into a Job Offer," will be presented by Fred T. Lee Jr., M.D.; "Six Must-Know Strategies for Success Every Radiology Trainee Should Master," will be presented by Richard E. Sharpe Jr., M.D., M.B.A.; "Candid, Frank and Personal Job Advice From Recent Grads," is a 30-minute question and answer session with Nancy Benedetti, M.D., Candice Bookwalter, M.D., Ph.D., and two other recent graduates, Tuesday from 1:30 to 3 p.m.

RESIDENTS LOUNGE

RSNA members-in-training and nonmember residents are offered a place to relax and network while enjoying complimentary refreshments. The lounge is open Sunday – Thursday, 8 a.m.–6 p.m.

RESIDENTS RECEPTION

Offered in conjunction with the American College of Radiology, the reception gives residents a chance to eat, mix and mingle with their peers and network with longtime RSNA members and leaders in radiology. The reception will be held Monday, from 4 to 5 p.m., in the Hyatt Regency McCormick Place.

INFORMATICS

IHE/RSNA IMAGE SHARING DEMONSTRATION

The Integrating the Healthcare Enterprise (IHE®) Image Sharing Demonstration in Booth 1345 in South Building, Hall A, showcases state-of-the art methods being deployed today to make medical images and related data available securely and conveniently. Demonstrations, taking place regularly during exhibit hours, will feature systems developed for the RSNA Image Share network, vendors and research organizations.

The educational course, "The RSNA Image Share Network—How It Operates and How to Put It into Your Office," will detail the goals and technical architecture of the RSNA Image Share project. The session is scheduled for Tuesday from 8:30 to 10 a.m.

INFORMATICS COURSES

More than 30 educational courses, many of them hands-on, will be offered on informatics topics including advanced imaging tools, data collection, monitoring radiation exposure, computer-aided diagnosis and 3D printing. Courses are also available on RSNA Informatics projects such as Clinical Trial Processing software, MIRC® Teaching File software, RadLex® and Reporting.

INFORMATICS AREA—LEARNING CENTER

Visit the Informatics area in the Learning Center to take guided demonstrations of IHE, MIRC, RadLex and Reporting booths. For more information, go to *RSNA.org/Informatics*.

RSNA EDUCATION

ACADEMY OF RADIOLOGY LEADERSHIP AND MANAGEMENT

More than 20 courses at RSNA 2015 count toward the Certificate of Achievement offered by the Academy of Radiology Leadership and Management (ARLM).

Medical imaging professionals can earn a Certificate of Achievement from ARLM by participating in 50 hours of education—including at least 30 hours in person—across a spectrum of domains including financial skills, human resources, professionalism, legal/contracting and academic mission.

Learn more about ARLM-eligible courses by picking up an ARLM subspecialty brochure at McCormick Place and looking for the ARLM in the *RSNA Program in Brief*. RSNA Store staff can answer questions regarding ARLM achievements or courses.

EARN SAM, CME CREDITS

Forty-eight in-person self-assessment module (SAM) courses will be offered at RSNA 2015, allowing participants to obtain both continuing medical education (CME) and SAM credit for each course attended. With the help of SAM faculty, this year's courses have been designed to cover a wide range of subspecialties.

RSNA offers SAMs that meet the American Board of Radiology's (ABR) criteria for a self-assessment activity in the ABR Maintenance of Certification (MOC) process. Participants can earn 1.50 SAM credit for each SAM course in addition to 1.50 *AMA PRA Category 1 Credit™*.

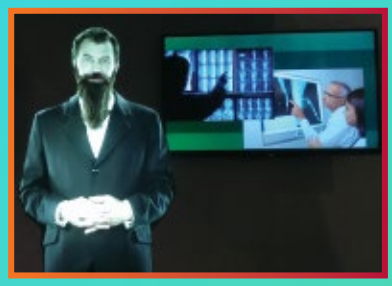
The RSNA Annual Meeting in-person SAMs is an Accredited Self Assessment Program (SAP – Section 3) as defined by the MOC of the Royal College of Physicians and Surgeons of Canada (RCPSC), and has been approved by the Canadian Association of Radiologists (CAR) for a maximum of 1.50 credit hours.

Six weeks after SAM participation at the RSNA Annual Meeting, attendees will receive an email instructing them how to retrieve test remediation, additional references and their earned SAM certificate. Attendees receive anonymous peer data comparison, including submitted answers and the peer performance for each question answered. References are also provided for each SAM question to encourage and facilitate further independent study.

To participate in a SAM course, please check in with RSNA staff outside of the room.

THE CELEBRATION OF A NEW CENTURY

CENTENNIAL SHOWCASE



As RSNA celebrates 100 years at the forefront of radiology, the Centennial Showcase in the Lakeside Building, Hall D displays the advancements that will shape the next century of medical imaging. Step into the future of radiology through exhibits featuring innovations such as 3D printing, virtual holography, personalized medicine and more. Some Centennial Showcase favorites introduced at RSNA 2014—the Society's 100th annual meeting—will return as well, including the virtual Wilhelm Roentgen.

Sponsored by McKesson

RSNA STORE FEATURES EDUCATIONAL COURSES AVAILABLE FOR PURCHASE ON USB

Visit the RSNA Store in the Lakeside Center for a demonstration of the educational courses on USB. With more than 60 individual educational courses and multiple topical collections available for purchase on USB, the RSNA Store has a wealth of learning opportunities spanning all subspecialty areas.

Each USB is compatible on both Mac and Windows operating systems, and no Internet connection is required. Each USB includes up to 3GB of additional storage for personal use.

RSNA staff will also be available to give demonstrations of the integrated features on each educational course, including the built-in transcript feature, automatic bookmarking, and included CME test. Individual courses cost $55 for members and $80 for nonmembers.

Education course collections on USB are reduced 25 percent from individual USB pricing. Collections offer two or three educational courses packaged on one convenient device.

If you are not attending the annual meeting you can still purchase the USBs by visiting *RSNA.org/Library*. Contact the Education Center at *ed-ctr@RSNA.org* for more information on all of our education offerings.

RSNA 2015 HONOREES

RSNA will pay tribute to a number of distinguished physicians during the 101st Scientific Assembly and Annual Meeting. All presentations will take place in the Arie Crown Theater.

HONORARY MEMBERS PRESENTED MONDAY, NOV. 30 • 1:30 P.M.

Honorary Membership in RSNA is presented for significant achievement in the field of radiology. At RSNA 2015, Honorary Membership will be given to ***Lorenzo Bonomo, M.D.****, of Rome,* ***Chamaree Chuapetcharasopon, M.D.****, of Bangkok, and* ***Jung-Gi Im, M.D., Ph.D.****, of Seoul, Korea.*

LORENZO BONOMO, M.D., has been a respected educator and leader among international radiologists during his decorated career in chest imaging.

Dr. Bonomo's scientific research fields include imaging of pulmonary circulation, lung cancer staging, and non-invasive cardiovascular imaging. His research is reflected in more than 350 scientific publications, which include four books and numerous book chapters.


BONOMO

Currently a professor of radiology and chairman of the Department of Radiological Sciences at the Catholic University of Rome, Gemelli Hospital, Dr. Bonomo is also director of the university's training program in radiology.

Dr. Bonomo earned his medical degree at the Catholic University in Rome in 1970. After completing his residency training program in Rome he moved to Chieti University, Italy, where he spent more than 25 years and helped establish the radiology department. After starting as associate professor and interim chairman in the Department of Radiology, he became a full professor and department chairman from 1990 until taking his posts at Catholic University and Gemelli Hospital in 2003.

From 1998 to 2003, Dr. Bonomo served as the founder and director of a government breast screening program in Italy's Abruzzo region. From 1996 to 2003, he served as director of the Medical Programme of the University of Chieti.

Dr. Bonomo has served as president of radiology organizations including the Italian Society of Thoracic Radiology from 1992 to 1996; the European Society of Thoracic Imaging (ESTI) from 1999 to 2000; and the First World Congress of Thoracic Imaging and Diagnosis in Chest Disease in 2005. He served as president of the Italian Radiological Society from 2002 to 2004, also serving during that time as a member of the Education Committee of the European Association of Radiology (EAR). He held the post of EAR treasurer from 2004 to 2006 before the organization became a part of the newly founded European Society of Radiology (ESR), where he is now the immediate past-president.

Dr. Bonomo oversaw the organization of the ESR's annual meeting, the European Congress of Radiology (ECR), as the ECR 2012 Congress President.

Dr. Bonomo received honorary membership from ESTI as well as from the Argentinean, French, German, Greek, Italian, Romanian, Serbian and Spanish radiological societies. He received a gold medal from the European Society of Emergency Radiology in 2013.

A pioneer and leader in international radiology, in 2001 **CHAMAREE CHUAPETCHARASOPON, M.D.**, successfully implemented the first totally digital radiology department in her native Thailand at Bumrungrad International Hospital, a 500-bed private hospital which is still the leading center in the region.


CHUAPETCHARASOPON

Currently a radiologist at Bumrungrad, Dr. Chuapetcharasopon received her medical degree with high honors from Ramathibodi Hospital, faculty of medicine, Mahidol University, in Bangkok, Thailand, in 1979. After six years in community hospitals far from Bangkok, she decided to return to the city to complete her residency training in general radiology at the same institute where her father, Professor Thavi Boonchoti, also a radiologist, served as dean of the medical school at that time. Dr. Chuapetcharasopon completed fellowships in vascular and interventional radiology and body imaging at MD Anderson Cancer Center, Houston, in 1990.

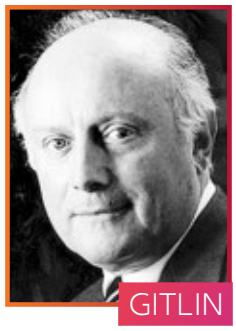
She became interested in digital imaging after taking courses at RSNA annual meetings, which she first began attending in 1988. After 10 years as an interventionist in medical school and private practice, Bumrungrad International Hospital recruited her to be the chief of the Department of Radiology.

RSNA 2015 DEDICATIONS

Joseph N. Gitlin, D.P.H.—The Special Lecture is being dedicated to Dr. Gitlin, a visionary informatics pioneer.

Ferenc A. Jolesz, M.D.—The New Horizons Lecture is being dedicated to Dr. Jolesz, a leader in MRI and image-guided therapy research.

Byron Gilliam Brogdon, M.D.—The Annual Oration in Diagnostic Radiology is being dedicated to Dr. Brogdon, a pioneer in forensic radiology.


GITLIN


JOLESZ


BROGDON

In 2002, Dr. Chuapetcharasopon joined Bumrungrad International's Administrative Team as the associate medical director, rising to the position of medical director. She has held her current position as a radiologist at Bumrungrad since 2012.

Ten years ago, she was elected to the executive committee of the Royal College of Radiologists of Thailand (RCRT) and continues to serve on that committee. She is the current president of the Radiological Society of Thailand.

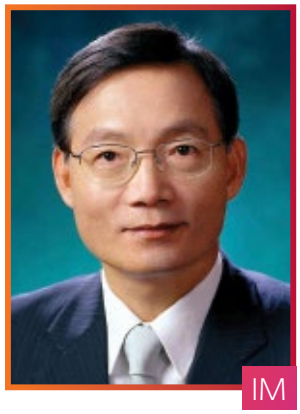
Also recognized for her medical informatics knowledge, Dr. Chuapetcharasopon has given numerous lectures domestically and internationally. She is currently a member of the Thai Medical Informatics Association Executive Committee and has volunteered for 20 years with the Thai Medical Women's Association.

After learning about the RSNA International Visiting Professor (IVP) Program in 2003, Dr. Chuapetcharasopon applied for the program on behalf of RCRT. In 2005, she hosted an IVP team whose members spent two weeks visiting teaching institutes and lecturing at the RCRT annual meeting. She was appointed to RSNA's Committee on International Radiology Education in December 2013.

An internationally renowned expert and lecturer in thoracic radiology, **JUNG-GI IM, M.D., PH.D.**, has made a significant impact on the direction of radiology research in his native South Korea and beyond.

Dr. Im is a professor of medicine at the Department of Radiology, College of Medicine, Seoul National University, where he served as executive vice-president from 2011 until 2014. He is also a consultant physician in radiology at Sheikh Khalifa Specialty Hospital in the United Arab Emirates.

Born in Korea, Dr. Im received his medical degree in 1975 and doctorate in medicine in 1983 at Seoul National University, where he served as dean of medicine from 2008 to 2011. Dr. Im completed his research fellowship in the Department of Radiology at the University of California, San Francisco, in 1987.


IM

Dr. Im has served as principal investigator on numerous research projects focusing on imaging of pulmonary infections, lung cancer, diffuse interstitial lung disease, mediastinal and chest wall disease, and other issues. He has been an invited lecturer in nearly a dozen countries on three continents.

Dr. Im has served as president of the Korean Association of Medical Colleges from 2008 to 2012, and president of the Korean Council for Medical Education from 2010 to 2012. Dr. Im served as director of the Board of Directors for the National Research Foundation of Korea from 2012 to 2015, and as director for the Board of Directors for the National Cancer Center from 2009 to 2015.

Dr. Im has received multiple awards for Scientific Exhibition from the Korean Radiological Society Annual Convention, including gold awards in 1983, 1991 and 1997, and a silver award in 1992. In 2001, he was named Alumni of the Year by the Department of Radiology, Seoul National University College of Medicine Alumni.

The founding editor of the Korean *Journal of Radiology*, Dr. Im has also been an associate editor of the *Journal of Thoracic Imaging* since 1997, and serves as a manuscript reviewer for *Radiology* and *RadioGraphics*. From 2008 to 2011, he served as president of the Korean Association of Medical Journal Editors.

Dr. Im has more than 200 published articles and has been the editor of two books on chest radiology. He also holds two patents in Korea.

He has participated in the RSNA Annual Meeting as a session moderator and received multiple RSNA Certificates of Merit for Scientific Exhibition awards.

GOLD MEDALISTS PRESENTED TUESDAY, DEC. 1 • 1:30 P.M.

RSNA will award three individuals its Gold Medal—RSNA's highest honor—at the 101st Scientific Assembly and Annual Meeting. They are ***Hedvig Hricak, M.D., Ph.D., Dr. hc.****, of New York,* ***Robert A. Novelline, M.D.****, of Boston, and* ***Steven E. Seltzer, M.D.****, Brookline, Mass.*

HEDVIG HRICAK, M.D., PH.D., DR. HC.

Hedvig Hricak, M.D., Ph.D., Dr. hc, is internationally renowned for her extensive research and clinical expertise in genitourinary and gynecologic oncologic imaging. Her pioneering work in MRI and MR spectroscopic imaging of prostate cancer and MRI and CT of gynecological cancers helped lay the groundwork for genitourinary and gynecologic oncologic imaging as we know them today. Dr. Hricak was the President of RSNA in 2010.

HRICAK

Dr. Hricak, a native of Zagreb, Croatia, earned a medical degree from the University of Zagreb, in 1970. She came to the U.S. two years later, completing her radiology residency at St. Joseph Mercy Hospital in Pontiac, Mich., in 1977, followed by a fellowship at Henry Ford Hospital in Detroit, where she served as a senior staff member.

She served from 1982 to 1999 as professor of radiology, radiation oncology and gynecology and, eventually, as head of abdominal imaging in the Department of Radiology at the University of California, San Francisco. In 1999, she assumed her current position as Chair of the Department of Radiology, Carroll and Milton Petrie Chair, Memorial Sloan-Kettering Cancer Center, New York.

She also holds a senior position within the Molecular Pharmacology and Chemistry Program at the Sloan-Kettering Institute and is a professor at the Gerstner Sloan Kettering Graduate School of Biomedical Sciences, as well a professor of radiology at the Weill Medical College of Cornell University.

Dr. Hricak received her Ph.D. (Dr. Med Sc) from the Karolinska Institute in Stockholm, Sweden, in 1992, and in 2005 became the first woman to receive an honorary doctorate in medicine (Dr. hc) from the Ludwig Maximilian University of Munich in its 500-year history.

A major proponent of personalized medicine, Dr. Hricak opened RSNA 2010 with her address, "Oncologic Imaging: A Guiding Hand of Personalized Cancer Care," and moderated a lively Q&A session with former President Bill Clinton.

Dr. Hricak was appointed to the RSNA Board of Directors in 2002 as liaison for publications and communications. Prior to her Board appointment, Dr. Hricak served as chair of RSNA's Public Information Advisory Board and as a member of other RSNA Public Information Committees. As Chair of the RSNA Board of Directors, Dr. Hricak was a driving force behind major rebranding efforts and advocated for international outreach.

Her extensive publishing history includes authoring more than 450 research articles, reviews and editorial articles. She is an associate editor and editorial board member of numerous premier medical journals, serving as an associate editor of *Radiology* from 1985 to 1993 and a consultant to the editor of *Radiology* from 1993 to 1997.

Dr. Hricak is a member of the National Academy of Medicine (formerly the Institute of Medicine) and has served on the Scientific Advisory Board of the National Cancer Institute and the Advisory Council of the National Institute of Biomedical Imaging and Bioengineering. She has long worked to promote international collaboration, particularly with respect to education and research.

Honors include the Marie Sklodowska-Curie Award from the American Association for Women Radiologists, the Beclere Medal of the International Society of Radiology, the Katarina Zrinska Croatian Presidential Award and gold medals of the International Society for Magnetic Resonance in Medicine, the Association of University Radiologists, the Asian Oceanian Society of Radiology and the European Society of Radiology.

Dr. Hricak is a member of the Russian Academy of Science and the Croatian Academy of Sciences and Arts, and is an honorary member or fellow of 15 national radiological societies from around the globe.

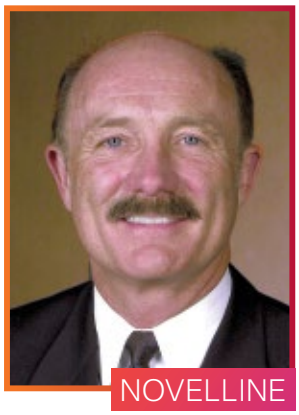
ROBERT A. NOVELLINE, M.D.

One of the most highly respected educators in radiology today, Robert A. Novelline, M.D., has become virtually synonymous with the words "emergency radiology."

Along with establishing one of the nation's first emergency radiology residency/fellowship programs in the early 1980s, Dr. Novelline, a professor of radiology at Massachusetts General Hospital (MGH) and Harvard Medical School, Boston, has trained hundreds of students and junior staff members and is a founding member of the American Society of Emergency Radiology (ASER).

Born in Boston, Dr. Novelline received his medical degree from Boston

University School of Medicine and completed his radiology residency and fellowships in both vascular/interventional radiology and radiology education at MGH. Much of Dr. Novelline's early research and many of his publications dealt with therapeutic intravascular infusion therapy, therapeutic embolization and angioplasty.


NOVELLINE

Dr. Novelline's dedication to radiology education began early in his career. He served as director of both the Harvard Medical School Core Clerkship and the Advanced Radiology Clerkship at MGH between 1975 and 2012, when he developed medical student curricula adopted by many medical schools, trained hundreds of residents, fellows and junior staff, and served as a mentor to countless students.

In 1977, Dr. Novelline was named assistant professor of radiology at MGH and Harvard Medical School, moving up the ranks to his current position as professor in 1996. Along the way, Dr. Novelline began building a reputation for his innovative teaching methods and captivating lecturing style.

In 1982, he was appointed director of the newly formed Division of Emergency Radiology at MGH—a position he held until 2012. Dr. Novelline shaped the course of emergency radiology on a number of fronts. He installed one of the first CT scanners in an emergency imaging division and pioneered research on CT diagnosis of trauma and acute non-traumatic emergencies.

Among the founding members of ASER in 1987, Dr. Novelline led the effort to revise, expand and disseminate the National Curriculum in Emergency Radiology, a major focus of ASER. In 1998, he founded the Alliance for Medical Student Educators in Radiology (AMSER) the only national organization for academic radiologists with a particular interest in medical student education. Dr. Novelline has served the Association of University Radiologists (AUR) in many capacities, including as president in 2012.

Dr. Novelline served initially as co-author and later as author of the landmark 1988 book, "Squire's Fundamentals of Radiology," used by medical schools throughout the U.S. and abroad. Another textbook co-authored in 1993 by Dr. Novelline, "Radiology of Emergency Medicine," still serves as the definitive reference textbook on emergency radiology.

He has published over 150 original reports or reviews and has served on the editorial boards of journals including *Radiology*, *Emergency Radiology* and *Investigative Radiology*.

Dr. Novelline has lectured nationally and internationally and has held more than 50 visiting professorships around the world.

Among his extensive RSNA service, Dr. Novelline served as the first RSNA co-chair of the RSNA-ACR Public Information Website Committee, and oversaw the successful launch of *RadiologyInfo.org*, the first-of-its kind patient information portal. Dr. Novelline also served on the RSNA Refresher Course Committee from 1997 to 2006, serving as chairman from 2003 to 2006, and as director of the Emergency Radiology Track from 1997 to 2002. He has also served on the RSNA Public Information Advisors Network since 2005. In 2007, Dr. Novelline was named the RSNA Outstanding Educator.

Other accolades include the 2012 AMSER Excellence in Education Award and the 2013 Sustained Excellence in Teaching Award from Harvard Medical School, the ASER gold medal in 2000 and the AUR gold medal in 2015.

STEVEN E. SELTZER, M.D.

A renowned clinician and researcher, Steven E. Seltzer, M.D., has forged a legacy as a passionate educator committed to teaching and mentoring radiology students and junior faculty to fill the leadership roles so critical to the specialty's future.

Born in Philadephia, Dr. Seltzer received his baccalaureate and medical degrees from the University of Pennsylvania and completed his radiology residency at the Peter Bent Brigham Hospital in 1980. He joined the Brigham and Women's Hospital/ Harvard Medical School staff directly afterward, and remained on staff for his entire career. Since 1997, Dr. Seltzer has held his current position as Chairman of the Department of Radiology at Brigham and Women's Hospital and the Philip H. Cook Professor of Radiology at Harvard Medical School.


SELTZER

From 1984 to 1997, Dr. Seltzer served as co-director of abdominal imaging and director of CT at Brigham and Women's Hospital, a role that allowed him to educate, mentor and facilitate the development of dozens of residents and fellows—many of whom who went on to long-term careers as academic radiologists or funded researchers.

As department chair, Dr. Seltzer is committed to developing new knowledge, new technologies and new approaches to patient care. Overseeing faculty development, Dr. Seltzer has steered junior staff members into career development programs such as the Association of University Radiologists (AUR)

GE Radiology Research Academic Fellowship Award, which fosters original clinical and health services research. Under Dr. Seltzer's direction, the Brigham and Women's Department of Radiology has been fertile ground for the development of numerous chairs of academic radiology departments.

Also as department chair, Dr. Seltzer worked with founding director Ramin Khorasani, M.D., M.P.H., to establish the Center for Evidence-Based Imaging at Brigham and Women's Hospital in 2002.

Dr. Seltzer, who served on the RSNA Health Policy and Practice Committee from 2000 to 2002, is active in numerous radiology organizations and served as president of the AUR, the Academy of Radiology Research (ARR) and the Society of Chairs of Academic Radiology Departments. Dr. Seltzer was elected to fellowship in the American College of Radiology in 1997. He was awarded the AUR gold medal in 2004.

Dr. Seltzer currently serves as chair of the Coalition for Imaging and Bioengineering Research created by the ARR. The goal of the coalition is to bring together representatives of academic radiology departments, industry and patient advocacy groups to champion the causes of increasing resources and opportunities for imaging research and promoting the translation of that research to increase human health.

His other honors include the 1981 Teacher of the Year Award from the Brigham and Women's Hospital Department of Radiology and numerous Editor's Recognition Awards from *Radiology*.

Dr. Seltzer has published over 130 peer-reviewed research manuscripts in journals including *Radiology, Academic Radiology* and the *American Journal of Roentgenology*.

OUTSTANDING RESEARCHER AND EDUCATOR

PRESENTED SUNDAY, NOV. 29 • 8:30 A.M.

RSNA will honor two individuals at RSNA 2015 for their contributions to research and education. ***G. Scott Gazelle, M.D., M.P.H., Ph.D.****, Boston, is Outstanding Researcher and* ***Kay H. Vydareny, M.D.****, Atlanta, is Outstanding Educator.*

OUTSTANDING RESEARCHER

G. Scott Gazelle, M.D., M.P.H., Ph.D.*, earned his reputation as one of radiology's most important—and prolific—researchers for his pioneering work in radiofrequency ablation, laying the foundation for techniques used today and helping to establish the field of interventional oncology.*

Currently a professor of radiology at Harvard Medical School and professor in the Department of Health Policy and Management at the Harvard School of Public Health, Dr. Gazelle is also renowned for his work in technology assessment.

Dr. Gazelle's research career ascended quickly after he earned his medical degree from Case Western Reserve University School of Medicine in 1985. Initially trained in abdominal and interventional radiology, his early research was related to bleeding complications of percutaneous biopsy procedures. However, soon after becoming associate director for the Massachusetts General Hospital (MGH) Center for Imaging and Pharmaceutical Research in 1993, he began focusing on developing contrast agents for CT and ultrasound as well as techniques for radiofrequency tumor ablation.

A team led by Dr. Gazelle at MGH was instrumental in developing radiofrequency ablation and establishing it as a viable therapeutic option for patients with primary and secondary liver tumors. Their work was pivotal in putting interventional oncology on the map.

GAZELLE

In 1995, Dr. Gazelle earned a master's degree in public health at Harvard School of Public Health, during which he established a research program that developed into the MGH Institute for Technology Assessment. He earned a doctorate degree in health policy from Harvard University in 1999.

Equally dedicated to training the next generation of researchers, Dr. Gazelle has formally supervised more than 60 fellows and junior faculty members and established and directs the Dana-Farber/Harvard Cancer Center Program in Cancer Outcomes Research Training.

Dr. Gazelle has published three textbooks and more than 200 peer-reviewed original research papers. He has received 38 grants from institutions including the National Institutes of Health and the American Cancer Society.

He has served as president of the Association of University Radiologists, the Radiology Research Alliance and the New England Roentgen Ray Society.

He has served as Chair of the RSNA Research Development Committee and as a member of the RSNA Research & Education (R&E) Foundation Board of Trustees. Dr. Gazelle also helped to establish and served as director of RSNA's Clinical Trials Methodology Workshop, the Advanced Course in Grant Writing program and the Creating and Optimizing the Research Enterprise (CORE) program.

A full biography of Dr. Gazelle will appear in the November 2015 issue of *Radiology*.

OUTSTANDING EDUCATOR

Throughout her career, ***Kay H. Vydareny, M.D.,*** *has been recognized for her devotion to advancing medical education and mentoring medical students and radiology residents. Her considerable efforts over the years have touched the lives of residents and program directors around the country.*

A native of Chicago, Dr. Vydareny received her undergraduate degree from Smith College in Massachusetts and her medical degree from the University of Michigan. Following an internship at Blodgett Memorial Medical Center in Grand Rapids, Michigan, she completed her residency in diagnostic radiology at Grand Rapids Area Medical Education Consortium, which serves as the Michigan State University (MSU) College of Human Medicine's Grand Rapids campus.

From 1980 to 1984 she was an instructor and then assistant professor at MSU, also serving as associate program director for the radiology residency program from 1982 to 1984. She then became an assistant professor in the Department of Radiology at the University of Michigan where she remained until 1991 before moving to Emory University in Atlanta. At Emory, she rose from associate to full professor in diagnostic radiology, serving in that position from 2000 to 2010. She also served as associate director of Emory's radiology residency program from 1994 to 2000, and director of Medical Student Education from 2000 to 2005. Dr. Vydareny retired in 2010 and now serves as professor emeritus in Emory's Department of Radiology.

As a thoracic radiologist, Dr. Vydareny's interests lie in the clinical and radiologic evaluation of cardiothoracic disease. She served as Emory's principal investigator for the National Lung Screening Trial from 2002 to 2011.

Dr. Vydareny's many prestigious awards include gold medals from the American Roentgen Ray Society (ARRS) in 2002, the American College of Radiology (ACR) in 2005 and the Association of University Radiologists (AUR) in 2006. Earlier this year she was selected as co-recipient of the 2015 Achievement Award by the Association of Program Directors in Radiology, which has also awarded her honorary membership.


VYDARENY

Other awards include the Outstanding Teacher Award in radiology from Emory medical students in 2003 and 2004. In 2000, the American Association for Women Radiologists (AAWR) honored her with the Marie Sklodowska-Curie Award for her outstanding contribution to the advancement of women in radiology/radiation oncology. In 2013, Dr. Vydareny received the Women First Award from Emory School of Medicine.

Dr. Vydareny has served as president for numerous radiology organizations including AAWR, AUR, ARRS and ACR.

As a manuscript reviewer for *Radiology*, she was honored with the Editor's Recognition Award in 1986, 1988 and 1989.

Her RSNA involvement includes serving as a current member of the Public Information Advisors Network (PIAN) and the Centennial Planning Committee. Dr. Vydareny was a member and chair of the general radiology Scientific Program Subcommittee for the RSNA annual meeting and also served as moderator for the popular Image Interpretation Session held at the 1987 RSNA annual meeting.

A full biography of Dr. Vydareny will appear in the November-December 2015 issue of *RadioGraphics*.

ALEXANDER R. MARGULIS AWARD FOR SCIENTIFIC EXCELLENCE

This annual award recognizing the best original scientific article published in *Radiology* is named for Alexander R. Margulis, M.D., a distinguished investigator and inspiring visionary in the science of radiology. The name of the honoree will be revealed at the beginning of the Monday Plenary Session. After the award is presented, reprints of the honored article will be available for free at the Journals, News & *RadiologyInfo.org* booth in RSNA Services.

2015 HONORED EDUCATOR AWARD

RSNA congratulates the 2015 Honored Educator award recipients for their dedication to furthering educational scholarship in the field of radiology. Award recipients will be recognized at the RSNA 2015 Annual Meeting. Established in 2011, the RSNA Honored Educator Award recognizes RSNA members who have produced an array of RSNA educational resources in the past calendar year. This annual award is given to individuals invested in furthering the profession of radiology by delivering high-quality educational content in their field of study. In order to be eligible for the award, RSNA members may participate in a number of qualifying educational activities, including

- Serving as faculty at one or more of RSNA's educational meetings
- Authoring an education exhibit, Quality Storyboard and/or Cases of the Day track for the RSNA Annual Meeting
- Authoring educational articles in *Radiology* and *RadioGraphics*
- Donating an educational course and writing CME questions for online learning
- Authoring an online professionalism vignette

Eligible candidates must also participate in at least two educational categories to be considered for the award and may not earn credit for more than two activities in any given category. Based on the number of qualifying activities completed, the most eligible RSNA members are presented with the Honored Educator award in recognition of their contributions. This year's recipients are:

Dushyant V. Sahani, M.D.
Douglas S. Katz, M.D.
Udo Hoffmann, M.D.
Santiago E. Rossi, M.D.
Christine O. Menias, M.D.
Alberto I. Carbo, M.D.
Brett W. Carter, M.D.
Catherine S. Giess, M.D.
Jeremy J. Erasmus, M.D.
Sughra Raza, M.D.
Stuart E. Mirvis, M.D.
Eren D. Yeh, M.D.
Gerald F. Abbott, M.D.
Ihab R. Kamel, M.D., Ph.D.
Mariam Moshiri, M.D.
Akifumi Fujita, M.D.
Akram M. Shaaban, M.B.B.Ch.
Daniella F. Pinho, M.D.
Puneet Bhargava, M.D.
Heoung-Keun Kang, M.D.
Michael W. Vannier, M.D.
Michael L. Richardson, M.D.
Ruth C. Carlos, M.D., M.S.
Jorge A. Soto, M.D.
Patrick J. Peller, M.D.
Robyn L. Birdwell, M.D.
Mylene T. Truong, M.D.
Edith M. Marom, M.D.
Sudhakar N. Pipavath, M.D.
Ioannis Vlahos, M.R.C.P., F.R.C.R.
Jonathon A. Leipsic, M.D.
Meghan G. Lubner, M.D.
Geoffrey B. Johnson, M.D., Ph.D.
John A. Carrino, M.D., M.P.H.
Mark D. Murphey, M.D.
Vahid Yaghmai, M.D.
Osamu Sakai, M.D., Ph.D.
Alexander A. Bankier, M.D., Ph.D.
Eric M. Rohren, M.D., Ph.D.
Amy K. Hara, M.D.
Stefan L. Zimmerman, M.D.
Santiago Martinez-Jimenez, M.D.
Maryam Rezvani, M.D.
Farhood Saremi, M.D.

TRAINEE RESEARCH PRIZE

RSNA awards the Trainee Research Prize to honor an outstanding scientific presentation in each subspecialty presented by a resident/physics trainee, fellow or medical student. One trainee research prize in breast imaging is endowed by Tapan K. Chaudhuri, M.D.

A list of Trainee Research Prize recipients can be viewed in the Lakeside Center Ballroom.

MOLECULAR IMAGING TRAVEL AWARD

The Travel Awards for Young Investigators in Molecular Imaging support candidates invited to present high-quality science. To be eligible, abstract presenters or poster exhibitors must be pre-doctoral students or have been awarded their doctoral degrees no more than seven years prior to submission. A list of recipients of the Molecular Imaging Travel Awards can be viewed in the Nuclear Medicine/Molecular Imaging Campus.

GERMANY PRESENTS AND MEXICO PRESENTS

In recognition of the contributions from Germany and Mexico for the "Germany Presents" and "Mexico Presents" sessions, select proffered abstract presenters receive an award from RSNA. See a list of the presenters at the Germany Presents booth (South Building, Hall A: 4758I) and Mexico Presents booth (South Building, Hall A: 1020).

McCORMICK PLACE AND CHICAGO

Getting around the RSNA annual meeting and McCormick Place is easy thanks to helpful digital and printed resources. Diverse technical exhibits and a broad spectrum of RSNA services and dining and entertainment options help you get the most out of your trip to the Windy City.

TECHNOLOGY

Take advantage of digital resources to learn more about specific sessions, get general information, and find your way around RSNA 2015 and McCormick Place.

MEETING CENTRAL

Optimized for tablets and mobile devices, the Meeting Central site at *Meeting.RSNA.org* is an essential resource for navigating RSNA 2015. Explore a host of valuable information, including:

- ***RSNA Meeting Program***
  Browse the listings of educational courses, scientific presentations and more. Search for courses, sessions and events by keyword, title or name of presenter, using helpful filters by day, session type and subspecialty.
- **Technical exhibitors list**
  Learn about the companies unveiling the latest equipment and technology.
- **Virtual Meeting program**
  Browse virtual sessions available live or on-demand either onsite or virtually from anywhere across the globe.
- **My Agenda**
  Build your calendar and stay organized with a handy schedule personalized to your needs—perfect for planning ahead—and access the Credit Eval Center (see below).

Credit Eval

Click My Agenda to access Credit Eval to evaluate RSNA 2015 courses and claim credits online via your own laptop or mobile device, or at any Internet Kiosk in McCormick Place. You can begin your evaluations as early as 10 minutes after courses start, claim your credits onsite, and walk away with printed certificates.

For RSNA members, credits are automatically added to the RSNA CME Repository. Assistance is available at the Mobile Connect booth in RSNA Services.

MEETING APP

Download the RSNA 2015 app for iPhone, iPad and Android smartphones and access the *Meeting Program* even when you're offline. The app also offers maps for navigating McCormick Place, online help during the annual meeting, a QR code scanner for interactive exhibits, an agenda planner and exhibitor list access, and a notification center with important meeting alerts. Available via the App Store and Google Play. The RSNA 2015 app is sponsored by Siemens.

JOIN SOCIAL MEDIA AT RSNA 2015

Join the RSNA 2015 conversation on social media. Use hashtag #RSNA15 and follow RSNA on Facebook and Twitter to see the latest updates, connect with your colleagues and share your favorite meeting moments.

Facebook.com/RSNAfans

@RSNA

MOBILE CONNECT BOOTH —RSNA SERVICES

Tech experts will be on hand to help attendees get familiar with their mobile device functions and introduce them to RSNA apps, the *Meeting Program*, and Credit Eval. Stop by anytime during RSNA Services hours for help from RSNA experts.

INTERNET KIOSKS

Computers will be available at Internet Kiosks throughout McCormick Place for use in accessing Meeting Central and Credit Eval.

WIFI

Wireless connectivity is available throughout McCormick Place. Note: These wireless networks are not secure and should not be used for sending sensitive information.

CHARGING STATIONS

Charge your laptop, cellular phone or other device at one of the Charging Stations located throughout McCormick Place.

TECHNICAL EXHIBITS

Technical Exhibits at RSNA 2015 will feature nearly 700 exhibitors in two halls: Hall A in the South Building and Hall B in the North Building.

FEATURED IN THE TECHNICAL EXHIBITS

"Germany Presents" and "Mexico Presents"

These RSNA-sponsored booths will highlight Germany's and Mexico's contributions to radiology.

Country Pavilions

Exhibitors from Canada, China, France, Japan and Korea will showcase their products and services in their country booths.

Publishers Row

Browse educational titles in all areas of medical imaging in the South Building, Hall A.

Vendor Workshops

Get hands-on tutorials of vendor software systems.

Associated Sciences

Organizations for allied professionals are located together in the South Building, Hall A.

RSNA TECHNICAL EXHIBITS MAPS/APP Detailed maps of exhibit halls are available at *Meeting.RSNA.org*. The RSNA 2015 meeting app is available for download to help you plan your visit to the RSNA Technical Exhibits.

REGISTRATION & HOUSING

FINAL DISCOUNTED ADVANCE REGISTRATION

Register by Nov. 6 to receive the discounted registration fee and have full conference materials mailed to you in advance. International visitors must register by Oct. 16 to receive these materials in advance. Registrations received after Nov. 6 will reflect a $150 increase over advance registration rates and conference materials will need to be obtained at the McCormick Place Convention Center. No hotel reservations will be accepted after Nov. 6.

RESERVE YOUR ROOM NOW

RSNA has contracted low rates at over 80 hotels in the heart of Chicago. Hotel rooms are only available to registered individuals. Reserve your room before housing closes on Nov. 6.

RSNA 2015 REGISTRATION

ONLINE *(fastest way)*
Go to *RSNA.org/Register*

TELEPHONE *(Mon.-Fri. 8 a.m. – 5 p.m. CT)*
1-800-650-7018 • 1-847-996-5862

REGISTRATION FEES

By Nov. 6	After Nov. 6	
$0	$150	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
200	350	Non-Member Resident/Trainee
200	350	Radiology Support Personnel
900	1050	Non-Member Radiologist, Physicist or Physician
900	1050	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel
325	325	One-day registration to view only the Technical Exhibits

VIRTUAL MEETING REGISTRATION FEES

$ 0	Retired RSNA Member
$ 25	RSNA Medical Student Member and RSNA Member-in-Training
$100	RSNA/AAPM Member
$ 300	Non-Member

ONSITE REGISTRATION

Those who register after the badge mailing deadlines (Oct. 16 international, Nov. 6 domestic) and/or who do not receive their badges in advance should proceed to Professional Registration, Badge Pick-up, located in the Lakeside Center, Level 3, Hall D. Those who do not register in advance and wish to obtain a badge should go to Professional Registration, New Registration line located in the Lakeside Center, Level 3, Hall D. RSNA encourages attendees to do this on Saturday, Nov. 28, to avoid long lines later in the week.

HOURS OF OPERATION

Saturday, November 28
11:30 a.m. – 5:30 p.m.
Sunday, November 29 – Thursday, December 3
7:30 a.m. – 5 p.m.
Friday, December 4
7:30 a.m. – 12 p.m.

Bistro RSNA

Enjoy a great lunch without leaving the exhibit halls.

Technical Exhibits Guide

Available at McCormick Place, the *Technical Exhibits Guide* includes floor plans, exhibitor list, food service and other exhibit floor activities. The guide is distributed in bins adjacent to the *Daily Bulletin* and at exhibit hall entrances.

Technical Exhibits Hours

Hall A (South Building) and Hall B (North Building)

Sunday–Wednesday
10 a.m. – 5 p.m.

Thursday
10 a.m. – 2 p.m.

RSNA SERVICES

RSNA staff will demonstrate resources, provide information and answer questions about RSNA's full array of products and services. Anchored by the RSNA Plaza, RSNA Services on Level 3 of the Lakeside Center offers:

RSNA Global Connection

Unique networking opportunities to connect radiology professionals from around the world.

Career Connect

The place to go if you're looking for a job or advertising to fill one.

Journals, News & *RadiologyInfo.org*

Check out RSNA's print, online and mobile publications and the RSNA-American College of Radiology public information website.

Membership

Get answers about membership, journal subscriptions, dues payments and making the most of your benefits.

Radiology Cares®: The Art of Patient-centered Practice
RSNA's campaign to encourage and facilitate radiologists' meaningful engagement in the patient experience.

RSNA Store
Education products including refresher course USBs and *RadioGraphics* special issues. Explore RSNA mobile CME products and find RSNA-branded merchandise and apparel, with special items this year to mark the RSNA Centennial.

Research & Education (R&E) Foundation
Learn more about R&E activities, including current grant and award recipients as well as individual, private practice and corporate donors. Stop by to bid on the Virtual Auction.

The R&E Donor Lounge
Offers computers, a coat room and comfortable furniture for relaxation and refreshments for those who have received a donor ribbon as well as those who have contributed at least $300 onsite.

Professional Portrait Studio
Have a professional headshot taken for free to use for CVs, passports and social media profiles.

Virtual Meeting
Learn more about and register for the Virtual Meeting.

HELP CENTER
Look for the ⓘ icon throughout McCormick Place to find help. Visit one of the RSNA Help Centers located in the Grand Concourse, Level 3, or the Lakeside Center Ballroom, Level 3, where RSNA staff can assist with general information or any of the following:

- Badge replacement/correction
- Chicago tourism information
- Hotel information
- Interpretation services
- Lanyard pickup

Also in the Grand Concourse, visit the **RSNA Concierge Services Desk,** where staff will assist with the following services:

- RSNA Tours & Events
- Chicago restaurant reservations
- Bistro RSNA Tickets
- Ribbon pick-up

ONLINE HELP CENTER
Whether you're wondering where to pick up your badge, how to make travel arrangements, how to access the *RSNA 2015 Meeting Program* or what the weather is like in Chicago, RSNA's Online Help Center has all your answers to RSNA 2015-related questions. Go to *RSNA.org/Register.*

RIBBON PICK UP
This year, RSNA will award 11,397 special recognition ribbons recognizing long-term members. Those who did not receive ribbons in advance of the meeting can pick them up in the Grand Concourse, Level 3, at the Ribbon Desk.

EXCLUSIVE AIR DISCOUNTS
United
United offers discounts from 2 percent to 10 percent off applicable fares. Discounts apply on United Airlines and flights operated by United or other airlines branded United Express. International discounts are allowed on flights operated and or marketed on the following carriers provided such flights are booked by a travel agency or United Reservations.

- Flights via the Atlantic: Air Canada, Austrian Airlines, Tyrolean Airways, Brussels Airlines, Lufthansa Airlines, Swiss International Airlines.
- Flights via the Pacific: United codeshare flights operated by All Nippon Airways.

Applicable terms and restrictions apply. Book online at *United.com* and enter offer code ZTFH673353 or call United at 1-800-426-1122 and provide the offer code. A service fee applies for phone reservations.

Delta Air Lines
Delta offers special discounts off most fares. Applicable restrictions may apply. Discounts applicable to U.S./Canada originating passengers. Book online at *Delta.com* and enter Meeting Event Code NMLB4 or call Delta at 1-800-328-1111 and provide the event code. A service fee applies for phone reservations.

For more information, visit *RSNA.org/Register*, e-mail *reginfo@rsna.org* or call 1-630-571-7862 or Toll Free U.S. & Canada 1-800-381-6660 x7862.

MEETING MATERIALS AND PUBLICATIONS

Name Badge


Your meeting badge serves as a virtual business card and is encoded with the name, institution, title, address, email address, phone/fax numbers and demographic information you supplied during registration. You can scan it to leave information with exhibitors.

Your meeting badge is also encoded with radio frequency identification (RFID). Technology is deployed throughout the Technical Exhibits to help monitor traffic patterns and enhance customer service. Your institution, title, city, state, country and subspecialty are captured when you enter an area with RIFD technology in use. To opt out of RFID, please visit a Help Center.

RSNA *Program in Brief*, Official Meeting Bag, Lanyard and Pocket Guide


The printed *RSNA 2015 Program in Brief*, official meeting bag, lanyard and Pocket Guide are available at the self-serve distribution areas

located in the Lakeside Center, Level 3, Hall D or in the Grand Concourse, Level 3.

In addition to the printed *RSNA 2015 Program in Brief*, RSNA offers an online program at *Meeting.RSNA.org* with a user-friendly search engine to find presentations and build your agenda. Available onsite, the RSNA 2015 Pocket Guide is an important, easy-to-use reference guide to items such as course and event information, floors plans at McCormick Place, transportation and dining.

Daily Bulletin

The official newspaper of the RSNA annual meeting, the *Daily Bulletin* features overnight news from the meeting and can be found in bins throughout McCormick Place. Each day's issue will also be available on the RSNA 2015 Mobile App and online at *RSNA.org/Bulletin*.

The *Daily Bulletin* also includes a Technical Exhibits Focus section Sunday–Wednesday featuring new radiologic technology and services demonstrated by technical exhibitors at the meeting.

You can also receive updates on social media by following #RSNA15 on Facebook (*facebook.com/RSNAfans*) or Twitter (*@RSNA*).

Press Conferences

While the *Daily Bulletin* is your direct source for RSNA 2015 news, approximately 150 members of the news media typically attend the annual meeting, to capture the breaking news coming out of the event. Print, broadcast and online media throughout the world carried more than 21,000 stories about RSNA 2014.

TRANSPORTATION

RSNA offers complimentary shuttle bus service to and from official hotels and McCormick Place. Check signage in the hotel lobby and at McCormick Place Convention Center for exact pick-up and drop-off locations.

EXPERIENCE RSNA 2015 FROM ANYWHERE VIA THE VIRTUAL MEETING

The RSNA Virtual Meeting offers access to 66 courses live or on-demand, Cases of the Day, and digital Education Exhibits and Scientific Posters from anywhere in the world.

Participants in live-streamed courses can earn CME credits. A printable PDF of the entire virtual program with easy-to-view listings of all courses is available at *Meeting.RSNA.org*.

The fee is $100 for RSNA members, $300 for non-members, and $25 for RSNA members-in-training and RSNA medical student members. Retired members are free.

For more information or to register for the Virtual Meeting, go to *Meeting.RSNA.org*.

Ride the Metra Electric Train for free using the Metra ticket included in your registration envelope. Trains run from downtown Chicago stations to the McCormick Place Convention Center Station in just seven minutes. Stations are located within walking distance to many hotels. The ticket must be shown to the conductor when requested.

The new Cermak-McCormick Place Green Line Station is located at Cermak Road and Indiana Avenue. The green line CTA "L" train one-way fee to ride to the downtown Loop is $2.25.

For more information go to *Meeting.RSNA.org* and click Transportation.

SERVICES FOR INTERNATIONAL ATTENDEES

- Certificate of Attendance—Use the computers in the Internet Kiosks to print a personalized certificate of attendance.
- Interpretation Services—International attendees will be assisted at the Help Centers and at Professional Registration with their conference questions in Chinese, Dutch, French, German, Italian, Japanese and Spanish.
- Travel Services—ESA Voyages and ACE Marketing, Inc., (China) are the official international travel providers for RSNA 2015. ESA Voyages will be available at the Help Centers, located in the Grand Concourse, Level 3, and the Lakeside Center Ballroom, Level 3, to assist with questions.

TOURS AND EVENTS

RSNA offers you exciting ways to experience Chicago during your stay for RSNA 2015. Six days of action-packed tours are offered through the RSNA Tours & Events brochure at *RSNA.org/register.*

5k Fun Run

Tuesday, Dec. 1, 6:30 a.m.
Arvey Field, South Grant Park, Chicago

This 5k event along Chicago's beautiful Lake Michigan shore helps fuel critical research to keep radiology at the forefront of healthcare. During online registration or onsite at the Fun Run desk at McCormick Place (Grand Concourse, Level 2.5), sign up as a runner or walker. Those pre-registered should visit the Fun Run desk between Sunday and Monday, 7:30 a.m. and 5:30 p.m., to pick up their bib number and T-shirt.

The signup donation of $40 will benefit the RSNA Research & Education (R&E) Foundation, and is fully tax-deductible. Participants will also receive a commemorative T-shirt.

2015 DINING GUIDE

BY MARY ANN McCLAIN

Whether you are craving an avant-garde dining experience or cheap eats, Chicago's diverse cuisine brings a melting pot of flavors to area menus. Along with perusing the Dining Guide for options, attendees can visit the Restaurant Reservations Desk in the Grand Concourse for restaurant recommendations, reservations and concierge services.

BISTRO RSNA

The Best Place to Eat, Meet and Network

Bistro RSNA is a convenient option for onsite gourmet meals at McCormick Place. Serving Sunday through Thursday, 11 a.m. – 2:30 p.m., this all-inclusive buffet includes tax, beverages and dessert, as well as express entry and a reserved seat. Save by purchasing your Bistro RSNA meal tickets online before November 25 for $22/ticket. Tickets purchased onsite are $24. For daily menu options and to purchase tickets in advance, visit *BistroRSNA.com/attendee.php.*

Wide Range of Dining Options Featured at McCormick Place

From energizing coffee to sandwiches and warm meals, you will find a variety of food options available throughout McCormick Place including 23rd Street Café, Connie's Pizza, Jamba Juice, Starbucks, Lakeside Café, Luzita's Taqueria, Midwest Grilled Cheese Bar, Manny's, McDonald's Express, and much more.

CHICAGO OFFERS WORLD-CLASS DINING OPTIONS

Chicago has more restaurants than you have taste buds—so pinpoint your cravings and have an epicurean adventure! Choose Chicago—the city's official tourist destination resource—offers a wide range of restaurants, including some of the listings below. Go to *www.ChooseChicago.com*

AFRICAN

DEMERA ETHIOPIAN
4801 N. Broadway St.
1-773-334-8787
Traditional Ethiopian cuisine and coffee, vegan friendly and with a good balance of spicy and mild; gluten-free options available. $$

NANDO'S PERI-PERI
953 W. Randolph St.;
1-312-488-3062
South African chicken chain brings casual dining with a Mozambican/Portuguese theme along with a few very addictive sauces. $

AMERICAN

THE 3RD COAST CAFÉ AND WINE BAR
1260 N. Dearborn Pkwy.
1-312-649-0730
This gem has an extensive menu with breakfast served all day; located in a historic building with a gallery setting showcasing work from area artists. $$

720 SOUTH BAR & GRILL
720 S. Michigan Ave.
1-312-922-4400
Classic American grill featuring a seasonally inspired menu, signature comfort foods, locally crafted beers, cocktails and an extensive selection of wines by the glass. $$

ARIA
200 N. Columbus Dr.
1-888-495-1829
1-312-565-8000
Mahogany walls frame an elegant interior where regional American cuisine is prepared with a contemporary twist; also serves sushi. $$$

BLACKBIRD RESTAURANT
619 W. Randolph St.
1-312-715-0708
Trendsetting cuisine and décor, high energy and precise service offering a modern approach to fine dining – considered one of the most iconic restaurants in Chicago. $$$$

THE BOARDING HOUSE
720 N. Wells St.
1-312-280-0720
A multi-level restaurant featuring 450+ wines and a Mediterranean-inspired cuisine; includes vegetarian options and chefs can custom create dishes to fit most dietary restrictions. $$

BULL & BEAR
431 N. Wells St.
1-312-527-5973
A multi-media sports bar serving hearty American fare in a casual setting.
$$ 10RSNA

EPIC
112 W. Hubbard St.
1-312-222-494
A multi-level space serving modern American cuisine influenced by international flavors and known for its hamburgers and chops; includes an extensive wine menu. $$$$

PRICING KEY: $ Inexpensive, $$ Moderate, $$$ Expensive, $$$$ Very Expensive

RESERVE YOUR TABLE

Visit the Restaurant Reservations Desk on Level 3 of the Grand Concourse in McCormick Place to make reservations. Restaurants with the 10RSNA logo are RSNA's Bistro partners.

FORMENTO'S
925 W. Randolph St.;
1-312-690-7295
Classic Italian is served alongside new Italian-American favorites in an atmosphere steeped in the sentiment of gathering for Sunday supper. $$

GIRL & THE GOAT
809 W. Randolph St.
1-312-492-6262
Flavorful, global-influenced menu served family style, with a focus on smaller international producers; rotating craft beer list from area breweries and fun cocktails. $$

GRACE
652 W. Randolph St.
1-312-234-9494
From its understated luxury to the two menu options serving 8 - 12-courses, there is a parade of flavor fit to satisfy even the most discerning palates. $$$$

HARD ROCK CAFÉ
63 W. Ontario St.
1-312-943-2252
Great music, fun times combined with made-from-scratch favorites. $$ 10RSNA

HOMESTEAD ON THE ROOF
1924 W. Chicago Ave
– Roots Pizza Entrance
1-773-332-2354
Farm-to-table restaurant featuring surprisingly elegant cuisine matched by a light-filled interior, with live birch walls, glass terrariums, vintage sconces and two hanging vertical gardens. $$

HOWELLS & HOOD
435 N. Michigan Ave.
1-312-262-5310
This stunning multi-level restaurant in the Tribune Tower features a menu offering brilliant twists on American classics and abundant drink selections. $$$

HUB 51 & SUB 51
51 W. Hubbard St.
1-312-828-00
Great American cuisine with Californian influences; varied menu includes salad, sushi, tacos and burgers. Below the restaurant, Sub 51 is an exclusive nightclub on weekends.

$$ 10RSNA

LOCKWOOD RESTAURANT & BAR
17 E. Monroe St.
1-312-917-3404
Seaonally-influenced modern American cuisine located in the Palmer House.
$$$ 10RSNA

THE PUBLICAN
837 W. Fulton Market;
1-312-733-9555
A laid-back beer hall with an eclectic menu centering on oysters and pork – inspired by simple farmhouse fare. $

RIVER ROAST
315 N. LaSalle St.
1-312-822-0100
American tavern fare with the emphasis on roasted meats, fish and veggies, with excellent drink menus, and dramatic city and river views – try the Cubano sandwich. $$$

ROCKIT BAR & GRILL
22 W. Hubbard St.
1-312-645-6000
Upscale bar and grill with home-style menu and an upstairs lounge. $$ 10RSNA

SIXTEEN
401 N. Wabash Ave.
1-312-588-8030
Serves exceptional Modern American cuisine in a fine dining environment matched only by the exceptional city views. Located inside the Trump Hotel. $$$$

THE SIGNATURE ROOM AT THE 95TH
875 N. Michigan Ave.
1-312-787-9596
Contemporary American cuisine served in a sophisticated setting with spectacular views from atop the John Hancock Center. $$$$ 10RSNA

SOUTH BRANCH: DOWNTOWN CHICAGO RESTAURANT
100 S. Wacker Dr.
1-312-546-6177
Located right on the river and offering everything from its Bang Bang Shrimp appetizer to short ribs and a chef's catch of the week. $$

SWEETWATER TAVERN & GRILLE
225 N. Michigan Ave.
1-312-698-7111
A modern American food menu complemented by a great craft beer list, seasonal cocktails, and a vibrant atmosphere with great Chicago River views.

$$$$ 10RSNA

TABLE, DONKEY & STICK
2728 W. Armitage Ave.
1-773-486-8525
Traditional fare in a rustic setting with a unique selection of beer, wine and spirits honoring the eating and drinking traditions of the Alps. $$

TORTOISE CLUB
350 N. State St.
1-312-755-1700
Charming, clubhouse-inspired restaurant serving Modern-American cuisine, gracious service, signature cocktails and live jazz. $$

ASIAN FUSION

ARA-ON
160 W. Adams St.
1-312-781-7200
Modern art juxtaposed with tables crafted from 300-year-old trees is the setting for this contemporary Asian restaurant serving sushi and modern cuisine. $$

EMBEYA
564 W. Randolph St.
1-312-612-5640
Refined Asian cuisine using bold flavors against an elegant yet comfortable backdrop to provide a unique dining experience. $$$

ROY'S CHICAGO
720 N. State St.
1-312-787-7599
Hawaiian fusion cuisine combining French and Asian techniques, created in the exhibition kitchen in full view of the bar and dining room. $$$$

UNION SUSHI AND BARBEQUE BAR
230 W. Erie St.
1-312-662-4888
A colorful and welcoming spot to enjoy Japanese-influenced cuisine plus sushi and Robata grilled dishes. $$ 10RSNA

BBQ

CHICAGO Q
1160 N. Dearborn St.
1-312-642-1160
Savannah-style setting imbued with Southern charm and comfort serving Southern barbeque seasoned with exceptional house-made rubs. $$

COUNTY BBQ
1352 W. Taylor St.
1-312-929-2528
A rough-hewn barbeque joint in appearance offering house-smoked meats and updated classic sides along with a selection of Midwestern whiskies and craft beers. $$

BUB CITY
435 N. Clark Ave.
1-312-610-4200
Authentic BBQ and hamburgers with a wide selection of whiskey, served in a relaxed setting highlighted by live country music. $$

BRAZILIAN

FOGO DE CHÃO
661 N. LaSalle St.
1-312-932-9330
Authentic Brazilian steakhouse with fire-roasted meats, gourmet salad bar, traditional side dishes, pão de queijo and delectable desserts; wines and Brazilian cocktails. $$$$

CAJUN

BUDDY GUY'S LEGENDS
700 S. Wabash Ave.
1-312-427-1190
Cajun fare served in a blues club atmosphere – laid back and casual, with live entertainment. $$

HEAVEN ON SEVEN
111 N. Wabash
1-312-263-6443
Spicy Cajun and Creole dishes recreating the heart and soul of the Louisiana bayou; try the gumbo. $$

CHINESE

HOUSE OF FORTUNE
2407 S. Wentworth Ave.
1-312-225-0880
Located in historic Chinatown, a Chicago icon serving Cantonese and Mandarin cuisines. $

MINGHIN CUISINE
2168 S. Archer Ave.
1-312-808-1999
Specializes in authentic Cantonese-style cooking and Hong Kong-style dim sum. $$

CONTINENTAL

BOHEMIAN HOUSE
11 W. Illinois St.
1-312-955-0439
Captures the lighthearted and carefree essence of Bohemian culture in a venue with exposed brick, eclectic décor, and with inspired fare with Czech, Austrian and German influences. $$

CUBAN

HABANA LIBRE
1440 W. Chicago Ave.
1-312-243-3303
Colorful neighborhood BYOB serving traditional Cuban fares, including sandwiches, croquettes, and vegetarian appetizers. $

ECLECTIC

KAIER TIGER
1415 W. Randolph St.
1-312-243-3100
A casual spot to grab a beer and a bite, with hearty menu options, including the "bacon bomb." $

MOTO
945 W. Fulton Ave.
1-312-491-0058
An outside the box approach to food that challenges culinary conventions by taking diners on a post-modern, interactive and fantastical gastronomical ride. $$$$

FRENCH

BISTRO VOLTAIRE
226 W. Chicago Ave.
1-312-265-0911
Charming Parisian bistro with framed portraits of French writers and philosophers and serving classic fare with bold and inspiring flavor. $$$$

BISTRONOMIC
840 N. Wabash Ave.
1-312-944-8400
A modern-day take on traditional French favorites served in an inviting neighborhood bistro, with an impressive array of artisanal cheeses and charcuterie. $$

PARIS CLUB BISTRO AND BAR
59 W. Hubbard St.
1-312-595-0800
Warm, intimate setting reminiscent of 1920s Paris with a menu celebrating classic French cuisine and an extensive cocktail selection offering timeless apéritifs and digestifs. $$

GASTROTAVERN/PUB

CH DISTILLERY & COCKTAIL BAR
564 W. Randolph St.
1-312-707-8780
Celebrating the science of making spirits, handcrafted juices and syrups for use in cocktails served with playful, yet authentic Eastern European-inspired fare and bar snacks. $$$

FARMHOUSE CHICAGO
228 W. Chicago Ave.
1-312-280-4960
A Midwestern craft tavern embracing a "farm-to-tavern" philosophy with made from scratch food, 30+ Midwestern beers and two local wines on tap. $$

PUBLIC HOUSE
400 N. State St.
1-312-265-1240
A beer-lover's paradise serving American and smokehouse favorites in a relaxed, unassuming atmosphere.
$$

GERMAN

BERGHOFF RESTAURANT
17 W. Adams St.
1-312-427-3170
A Chicago classic, serving German-American style cuisine and culture with traditional dishes, seasonal variety, and with vegetarian and gluten-free options. $$

GREEK

ATHENA
212 S. Halsted St.
1-312-655-0000
Delicious Greek cuisine housed in a classic old-world setting reminiscent of Athens. $$

THE PARTHENON
314 S. Halsted St.
1-312-726-2407
Traditional Greek fare and setting with a friendly atmosphere where shouts of "Opa!" are common. $$$

INDIAN

GAYLORD INDIA RESTAURANT
100 E. Walton St.
1-312-664-1700
Experience the ancient traditions and authentic flavors of India, fused exotically with a unique ethnic edge in a casually sophisticated ambiance. $$$

THE INDIAN GARDEN RESTAURANT
247 E. Ontario St., Ste. 2
1-312-280-4910
An excellent exploration of Indian cuisine, steeped in the aromas of cumin, curry, cinnamon and sizzling onions; vegetarian options available. $

INTERNATIONAL FUSION

VERMILION
10 W. Hubbard St.
1-312-527-4060
A contemporary global melding of Latin and Indian fare with innovative steaks, seafood and tapas served in a sleek and sensual setting. $$$$

IRISH

FADÓ IRISH PUB
100 W. Grand Ave.
1-312-836-0066
Modern Irish and American pub fare made from scratch with an extensive drinks list in an authentic pub setting that was designed in Ireland. $

ITALIAN

312 CHICAGO
136 N. LaSalle St.
1-312-696-2420
Italian-American cuisine with an ambiance that recalls the intimate dining clubs of 1930s Chicago; Aperitivi Hour features classic Italian cocktails paired with assorted small plates. $$$

FILINI BAR AND RESTAURANT
221 N. Columbus Dr.
1-312-477-0234
Southern Italian food with a modern twist, with a focus on fresh seafood and promising a memorable "with family" experience. $$

LABRIOLA RISTORANTE & CAFÉ
535 N. Michigan Ave.
1-312-955-3100
Modern Italian cuisine, complete with handmade pastas, Neapolitan pizzas, seafood, prime steaks and rotating seasonal lasagnas, plus a quick serve casual café and bakery. $$

MACELLO RISTORANTE
1235 W. Lake St.
1-312-850-9870
Pizza and oh-so-comforting Italian cuisine from the Puglia region in an urban venue with exposed brick and warm woods. $$ 10 RSNA

NELLCÔTE
833 W. Randolph St.
1-312-432-0500
High-energy elegance with European-inspired, rustic small plates where the emphasis is on seasonal Midwestern ingredients, prepared cooked or raw. $$$

NICO OSTERIA
1015 N. Rush St.
1-312-994-7100
Creative and approachable Italian-inspired seafood served with house-made pastas, and with a bar serving smaller producers and older vintages. $$

PELAGO RISTORANTE
201 E. Delaware Pl.
1-312-280-0700
A sophisticated take on Italian cuisine with a creatively simple menu in an equally sophisticated setting; allergy- and gluten-free requests are honored. $$$

PHIL STEFANI'S 437 RUSH
437 N. Rush St.
1-312-222-0101
A contemporary Italian steakhouse serving mouth-watering steak and seafood dishes, risottos and pastas. $$$

SIENA TAVERN
51 W. Kinzie St.
1-312-595-1322
Old-world Florence cuisine with a modern flare (American, pizza, sandwiches, seafood) served against a backdrop that is dark and sensuous.
$$$ 10 RSNA

PROSECCO
710 N. Wells St.
1-312-951-9500
Contemporary comfort foods from 20 regions in Italy – from house-made pastas to nightly beef, fish and game menu additions – the variety is endless! $$

TESORI TRATTORIA & BAR
65 E. Adams St.
1-312-786-9911
Italian-inspired restaurant featuring pastas and artesian pizzas using only fresh, high-quality ingredients – located in Symphony Center. $$$

JAPANESE/SUSHI

SLURPING TURTLE
116 W. Hubbard St.
1-312-464-0466
Industrial décor belying the traditional Japanese comfort foods served; menu includes items from the bincho grill, cold and hot tapas, noodles and sashimi and maki rolls; plus sake, wine and more. $

LATIN

CARNIVALE
702 W. Fulton Market
1-312-850-5005
An explosion of taste, color and sound serving heartier fish and meat creations from Brazil, Colombia, Cuba and Puerto Rico. $$$

NATIONAL 27
325 W. Huron St.
1-312-664-2727
Melds the explosive flavors and rich tastes of 27 Central and South American nations – one spot, lots of flavor and with salsa lessons on Wednesdays. $$

MEDITERRANEAN

AVEC
615 W. Randolph St.
1-312-377-2002
Midwestern take on Mediterranean classics in a minimalist setting with communal seating and a focus on wine. $$

CITY WINERY
1200 W. Randolph St.
1-312-733-9463
Former warehouse now haven for true oenophiles and with a culinary arts focus on Italian, French, Spanish and Middle Eastern cultures. $$$

MEXICAN

FRONTERA GRILL AND TOPOLOBAMPO
445 N. Clark St.
1-312-661-1434
Regional Mexican dishes made with quality ingredients – try the smoky guacamole with its crispy bacon, toasted chilies and smoked tomato. Sharing the front entrance is sister restaurant, Topolobampo, offering a more upscale experience. $$/$$$

MEXIQUE
1529 W. Chicago Ave.
1-312-850-0288
Modern cuisine infusing French techniques to traditional favorites to create a revolution of Mexican gastronomy. $$

RUSSIAN

RUSSIAN TEA TIME
77 E. Adams St.
1-312-360-0000
Classic restaurant and tea house serving rich, aromatic Russian teas, Ukrainian-style borscht, sweets, vegetarian options, vodka flights and more – for a little bit of the old country. $

SEAFOOD

CAPE COD ROOM
140 E. Walton Pl.
1-312-932-4625
Old-world charm embracing the flavorful mix of classic and contemporary cuisine inside the Drake Hotel, and where the carved initials of both Marilyn Monroe and Joe DiMaggio can still be seen. $$$

CHICAGO OYSTER HOUSE
1933 S. Indiana Ave.
1-312-225-8833
Chefs specialize in preparing cuisine from the world's depths – particularly those served raw or extremely fresh – oysters, sushi and lobster. $$$$

DEVON
39 E. Chicago Ave.
1-312-440-8660
Offers a sophisticated dining experience with fresh seafood and grilled steaks at a moderate price. $$

HUGO'S FROG BAR
1024 N. Rush St.
1-312-640-0999
Fresh seafood daily, prime steaks and a variety of other frog and fowl options highlight the menu in a setting with live jazz and blues piano nightly. $$$

LUKE'S LOBSTER
134 N. LaSalle St.
1-312-982-2977
Serving Maine-style seafood at a moderate price – new to Chicago yet with a long history on the East Coast. $

SOUTHERN

TABLE FIFTY-TWO
52 W. Elm St.
1-312-573-4000
Dine in either high-ceiling elegance upstairs or in cozy, gathered-around-the-hearth comfort downstairs, the Southern hospitality is matched only by the variety of Southern favorites on the menu. $$$

SPANISH/TAPAS

CAFÉ BA-BA-REEBA!
2024 N. Halsted St.
1-773-935-5000
A festive hotspot with rhythmic music; specializes in paella, sangria and crowd-pleasing tapas. $

SALERO
621 W. Randolph St.
1-312-466-1000
Seasonal Basque-inspired bite-sized dishes prepared using authentic yet modern Spanish traditions – it's Spain, only without the tapas. $$

STEAK

111 FORKS STEAKHOUSE
180 N. Field Blvd.
1-312-938-4303
Modern steakhouse with sizzling style, serving thick signature cuts of prime beef and ocean-fresh seafood.
$$$

BENNY'S CHOP HOUSE
444 N. Wabash Ave.
1-312-626-2444
Features prime beef, fresh seafood, and seasonal side dishes served "Benny's Way" – ensuring only the finest steak experience, with a rich décor and live jazz, Wednesday through Sunday evenings. $$$

CHICAGO CHOP HOUSE
60 W. Ontario St.
1-312-787-7100
Restored, century-old Victorian brownstone with over 1,400 photos of historic Chicago displayed, this Windy City classic is known for its tender Mishima cuts and an international wine list. $$$$

DEL FRISCO'S DOUBLE EAGLE STEAKHOUSE
58 E. Oak St.
1-312-888-2499
Flawless cuisine that is bold and delicious – prime steak, fresh seafood, house-made side dishes and decadent desserts served in a dramatic multi-level setting. $$$$

GENE & GEORGETTI
500 N. Franklin St.
1-312-527-3718
Ranked as the city's first Italian steakhouse, this restaurant serves the time-honored tradition of ungarnished steaks and mouth-watering sides. $$$

ROSEBUD PRIME
1 S. Dearborn St.
1-312-384-1900
Distinctive menu options, including an 18-ounce bone-in filet with wild mushrooms, a variety of seafood specialties, rich desserts and robust wines in an elegant yet approachable setting. $$$$

THAI

MA & I
1234 S. Michigan Ave.
1-312-663-1234
The rich ethnic flavors of Thai food served in a relaxed setting for the health-conscious diner. $$

VEGETARIAN/VEGAN

CHICAGO DINER
3411 N. Halsted St.
1-773-935-6696
Vegan and vegetarian cuisine using soy and wheat proteins served in a classic diner setting with enough variety on its menu to satisfy even non-vegetarians. Vegan milkshake, anyone? $$

DESSERT BAR

AMORINO
838 N. State St.
1-312-266-7466
Introducing the magic world of artisanal Italian gelatos, sold worldwide, along with other treats, hot drinks and gourmet products. $$

GHIRARDELLI ICE CREAM & CHOCOLATE SHOP
830 N. Michigan Ave.
1-312-923-0168
Decadent chocolate and hot fudge sundaes using freshly made hot fudge, fountain treats and chocolates – yum! $

GODDESS AND THE BAKER
33 S. Wabash Ave.
1-312-877-5176
Experience seasonal flavors with a global spin – from breakfast to salads to made-to-order sandwiches and with desserts served all day long. $

TEUSCHER CHICAGO
900 N. Michigan Ave., Level 5
1-888-387-2437
Specializes in Swiss chocolates, from truffles and pralines to crunchy nuts and caramels – there is also some Italian Gianduja; purchase to go or stop for coffee in the café. $$

MARY ANN McCLAIN is an RSNA Public Information & Communications manager.

2015

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