

RSNA *News*



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Interventional Radiology Carries Occupational Risk for Cataracts

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- Salvage Radiotherapy May Help Prevent Local Recurrence of Prostate Cancer
- MR Microscopy Offers Promise for Future Patient Care
- Radiology Clerkships on the Rise
- RSNA Members Look Ahead to RSNA 2004 with a Look Back

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Distinguished Honorees and Lecturers

The RSNA Board of Directors has announced this year's list of distinguished honorees and lecturers to whom the Society will pay tribute at the 90th Scientific Assembly and Annual Meeting. They are:



GOLD MEDALISTS



Alexander Gottschalk, M.D.
East Lansing, Mich.



Seymour H. Levitt, M.D.
Minneapolis



John G. McAfee, M.D.
Chevy Chase, Md.

HONORARY MEMBERS



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George Klempfner, M.D.
Victoria, Australia



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Derbyshire, U.K.

**EUGENE P. PENDERGRASS
NEW HORIZONS LECTURE**
*Molecular Imaging:
From Nanotechnology
to Patients*



Michael E. Phelps, Ph.D.
Los Angeles

**ANNUAL ORATION IN
DIAGNOSTIC RADIOLOGY**
*The Future of Bone
Imaging in Osteoporosis*



Harry K. Genant, M.D.
San Francisco

**ANNUAL ORATION IN
RADIATION ONCOLOGY**
*Redefining Therapeutic
Targets in the Treatment
of Soft Tissue Sarcoma*



Brian O'Sullivan, M.D.
Toronto, Ontario

Detailed information about each of these honorees and presenters will be available in future editions of *RSNA News*.

Emergent Trends—Global Perspectives

The RSNA Associated Sciences Consortium is sponsoring three symposia during RSNA 2004. The theme for this year's program will be Associated Sciences: Emergent Trends—Global Perspectives.

The symposia will be held from 10:30 a.m. until 12:00 p.m. Each is approved for 1.5 CME credits.

MONDAY, NOVEMBER 29

Fusion Imaging: Changes in the Way We See Things

Presented by Michael F. Hartshorne, M.D.

TUESDAY, NOVEMBER 30

Image Guided Therapeutics

Moderated by John Kovelski, R.T.(R)(MR)

- Liver Tumor Ablation, State of the Art – presented by David S. Lu, M.D.
- Endovascular Interventions – presented by Wilfrido R. Castaneda-Zuniga, M.D.
- Intraoperative MRI: Non-Imaging Issues – presented by Stephen G. Hushek, Ph.D.

WEDNESDAY, DECEMBER 1

Strategic Considerations in Global Teleradiology

Moderated by Kathryn Canny, presentations by Patricia Kroken, William G. Bradley Jr., M.D., Ph.D., and Sanjay S. Saini, M.D., M.B.A.

The Associated Sciences program also includes a series of eight refresher courses, primarily for managers and supervisors of radiology departments and radiologists.

- Digital Imaging: Computed Radiology and Direct Radiography **NEW!**
- HIPAA: Ongoing Impacts and Re-Inventions in Radiology **NEW!**
- Will JCAHO's National Patient Safety Goals Make a Difference in the Way You Practice? **NEW!**
- Advanced Radiographic Practice
- Your Practice Potential with Midlevels
- How to Effectively Manage the Capital Asset Cycle: From Acquisition Planning to Maintenance and Replacement Strategies
- Workforce Crisis: Strategies for Management
- The Digital Department: Its Architecture and Design

The Associated Sciences Consortium consists of American Healthcare Radiology Administrators (AHRA), American Institute of Architects—Academy of Architecture for Health (AIA-AAH), American Radiological Nurses Association (ARNA), American Society of Radiologic Technologists (ASRT), Association of Educators in Radiological Sciences, Inc. (AERS), Association of Vascular and Interventional Radiographers (AVIR), Canadian Association of Medical Radiation Technologists (CAMRT), Radiology Business Management Association (RBMA), Section for Magnetic Resonance Technologists (SMRT-ISMRM), Society for Radiation Oncology Administrators (SROA) and Society of Nuclear Medicine—Technologists Section (SNM-TS).



Record Number of Abstracts

The RSNA Scientific Program Committee will meet in mid-June at RSNA Headquarters in Oak Brook, Ill., to work on the scientific session program for RSNA 2004. A record 9,300 abstracts were received for consideration for scientific and education exhibit presentation. That's about 1,600 more than those submitted for RSNA 2003.

Letters will be sent in late June to notify individuals about the status of their submitted abstracts for education exhibits. Letters will be mailed in mid-July for scientific papers and poster presentations.

Clinical Trial Begins Using Screening Breast Ultrasound

The American College of Radiology Imaging Network (ACRIN) has launched its trial on Screening Breast Ultrasound for High-Risk Women. The study will assess the value of integrated whole-breast screening ultrasound combined with mammography, compared to mammography alone, in the detection of breast cancer in high-risk women.

The trial is funded by the National Cancer Institute and the Avon Foundation. It will include about 2,800 women at 22 institutions.

More information, including an article by principal investigator Wendie Berg, M.D., Ph.D., is available at www.acrin.org.

ARRT Seeks Input on Draft of R.A. Role Delineation

The American Registry of Radiologic Technologists (ARRT) is accepting public comments until June 15, 2004, on the draft of a role delineation document for radiologist assistants (R.A.s). As conceptualized, the R.A. will perform—under a radiologist's supervision—patient assessment, patient management and selected clinical imaging procedures.

The final document will serve as the basis for ARRT's R.A. certification program.

To view and/or comment on the document, go to www.rrt.org, and click on Radiologist Assistant in the left-hand navigation bar.



Lentle to Receive CAR Gold Medal

RSNA President **Brian C. Lentle, M.D.**, will receive the gold medal of the Canadian Association of Radiologists (CAR) during the International Congress of Radiology meeting this month in Montreal, Quebec. The CAR gold medal is awarded to an individual for distinguished and extraordinary service.

Dr. Lentle is a professor emeritus

and former head of the Department of Radiology at the University of British Columbia. He recently retired as chairman of the Department of Radiology at Vancouver General Hospital and is currently a consultant radiologist responsible for densitometry service at the Women's and Children's Health Centre of British Columbia.



Brian C. Lentle, M.D.
2004 RSNA President

Campbell Named Good Samaritan

Pennsylvania Hospital has presented its Good Samaritan Award to RSNA past-president **Robert E. Campbell, M.D.** The award is given annually to an individual who has "provided exemplary volunteer leadership and support with a spirit of generosity and caring for Pennsylvania Hospital."

Dr. Campbell served for 35 years at Pennsylvania Hospital, retiring in 1997 as chairman of the Department of Radiology. He continues to volunteer and support the hospital today.

Dr. Campbell is currently a



Robert E. Campbell, M.D.
University of Pennsylvania
School of Medicine

clinical professor of radiology at the University of Pennsylvania School of Medicine and contributing editor for *RSNA News*.

Guglielmi Named Deputy Editor of Italian Medical Journal

2003 RSNA Editorial Fellow **Giuseppe Guglielmi, M.D.**, is the new deputy editor of *La Radiologica Medica*, published by the Italian Society of Medical Radiology.

"I strongly believe that I was named to this position because of my activities as a reviewer for some journals, as well as the crucial experience I gained as an RSNA editorial fellow," says Dr. Guglielmi.



Giuseppe Guglielmi, M.D.

New Name, New CEO

General Electric Company has completed its acquisition of Amersham plc.

GE Medical Systems will now be known as GE Healthcare. **Sir William Castell**, former chief executive of Amersham plc, was named president and chief executive officer of GE Healthcare. The combined business is expected to generate

\$16 billion in revenues in 2005, according to the company.

Joseph Hogan, senior vice-president of GE, will continue to lead GE's \$11 billion medical imaging, services and IT businesses—now named GE Healthcare Technologies.



RSNA News

Send your submissions for *People in the News* to rsnanews@rsna.org, (630) 571-7837 fax, or *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523. Please include your full name and telephone number. You may also include a non-returnable color photo, 3x5 or larger, or electronic photo in high-resolution (300 dpi or higher) TIFF or JPEG format (not embedded in a document). *RSNA News* maintains the right to accept information for print based on membership status, newsworthiness and available print space.

2004 AUR/APDR Awards

Steven E. Seltzer, M.D., from Boston is the recipient of the 2004 gold medal from the Association of University Radiologists (AUR). Dr. Seltzer received the award in April during the AUR annual meeting in San Francisco.

At the same meeting, the Association of Program Directors in Radiology (APDR) presented two achievement awards. The recipients are:

- **Jannette Collins, M.D., M.Ed.** – Madison, Wisc.
- **Robert A. Novelline, M.D.** – Boston



Steven E. Seltzer, M.D.



Jannette Collins, M.D., M.Ed.



Robert A. Novelline, M.D.

NCI Fills Three Top Positions

The National Cancer Institute (NCI) has two new deputy directors and a new director of the Division of Cancer Treatment and Diagnosis (DCTD).

Karen H. Antman, M.D., a former director of the Columbia University Comprehensive Cancer Center and chief of the University's Division of Medical Oncology, is the new deputy director for Translational and Clinical Science.

Mark S. Clanton, M.D., M.P.H., a former president-elect of the American Cancer Society and former medical officer of Blue Cross Blue Shield of Texas, is the new deputy director for Cancer Care Delivery Systems.

James H. Doroshow, M.D., former chairman of the Department of Medical Oncology and Therapeutics Research and associate director for clinical research at the City of Hope in Los Angeles, will head DCTD as well as lead the NCI Clinical Trials Working Group.

LETTER TO THE EDITOR

DEAR EDITOR,

As the song goes, "Everything old is new again." About 40 years ago I was on the faculty of the University of Kentucky where the then-chairman, Dr. Harold Rosenbaum, organized a program called the "Advanced Radiologic Technology" (ART) program. We recruited some very bright students who had been chief technologists before they came to us and trained them to do GIs and to partially interpret films. "Partially interpret" means that their task was to separate the normal films from the abnormal so that the workload of the radiologist could be reduced and his or her attention focused on the abnormal cases.

I had the privilege of working with two of these ARTs in an HMO in New

Haven, Conn., where I was a radiologist for several years. They functioned extremely well.

At that time organized radiology appeared to be threatened by the idea that someone without an M.D. degree could do work previously reserved for radiologists, but I believed then as I believe now that those who are now to be called radiologist assistants (R.A.s) can contribute a lot to radiology and to our patients.

JOHN HOWIESON, M.D.

FORMER CHAIRMAN OF RADIOLOGY
OREGON HEALTH AND SCIENCES
UNIVERSITY



Interventional Radiology Carries Occupational Risk for Cataracts

Interventional radiologists are at high risk for radiation-induced eye injury and should consider eye protection to avoid posterior subcapsular (PSC) cataract formation, according to research released at the Society of Interventional Radiology (SIR) annual meeting in March.

"We were surprised by these findings," says Ziv J. Haskal, M.D., a professor of radiology and surgery at Columbia University College of Physicians and Surgeons and director of vascular and interventional radiology at the Columbia campus of New York Presbyterian Hospital.

The researchers found that the frequency and severity of PSC cataracts increased with age and years in practice.

Dr. Haskal is urging interventional radiologists to more seriously consider wearing high-quality radiation eye protection. He also warns them against being too cavalier about radiation risk because of the long latency between initial exposure and findings. "I've seen evidence of PSC damage in practicing interventional radiologists in their early 30s," he says.

"There are alternatives to protective lead glasses that will block radiation and reduce the dose to the eye," says Dr.

Haskal. "The glasses will not make it zero, but it will substantially reduce the dose to the eye. Advances in the technology with procedural modifications to minimize exposure time are also reasonable approaches."

The investigators screened 59 practicing interventional radiologists during a medical conference in New York City



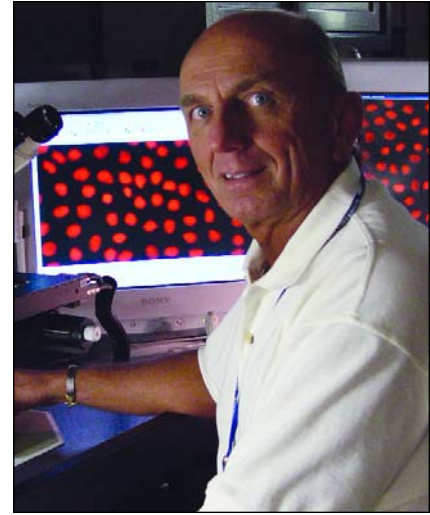
Ziv J. Haskal, M.D.
Columbia University College of Physicians and Surgeons

in November 2003 to evaluate PSC cataract formation caused by ionizing radiation. The physicians were between the ages of 29 and 62. They were questioned as to years in active practice, work circumstances and potential cataractogenic confounders. A special imaging system, the Nidek EAS1000

Scheimpflug and retroillumination camera, was used to document the subject's eyes and cataract status.

The researchers found that nearly half of the interventional radiologists screened

had signs of radiation-related lens changes. PSC cataracts were found in five (8 percent) of the 59 radiologists screened, and an additional 22 subjects (37 percent) showed small paracentral dot-like opacities in the PSC region of the lens, which is consistent with early signs of radiation damage. One interventional radiologist had undergone



Basil V. Worgul, Ph.D.
Columbia University College of Physicians and Surgeons

cataract surgery in one eye before being screened in the study.

Reducing the Radiation Dose

"This study combined with other research shows that people are developing cataracts at much lower radiation doses than permissible limits allow," says Basil V. Worgul, Ph.D., a professor of radiation biology in ophthalmology and radiology at Columbia University College of Physicians and Surgeons in New York City. Some of that other research includes workers who cleaned up after the Chernobyl nuclear power plant disaster in 1986.

"Currently, radiologists are told they have no risk of cataracts if they stay under 2,000 milligray," says Dr. Worgul. "That reasoning, upon which such a threshold is based, is not biologically sound. We know from animal studies that no radiation dose is completely safe. All of our current limits are based on threshold. The feeling

Continued on next page

I've seen evidence of PSC damage in practicing interventional radiologists in their early 30s.

Ziv J. Haskal, M.D.

Continued from previous page

that we are protected if we do not exceed that level is incorrect.”

More than a decade ago, Dr. Worgul predicted that astronauts would develop cataracts from their forays into space. Recently, a paper was published reporting that flight path inclination can be correlated to cataract formation in astronauts.

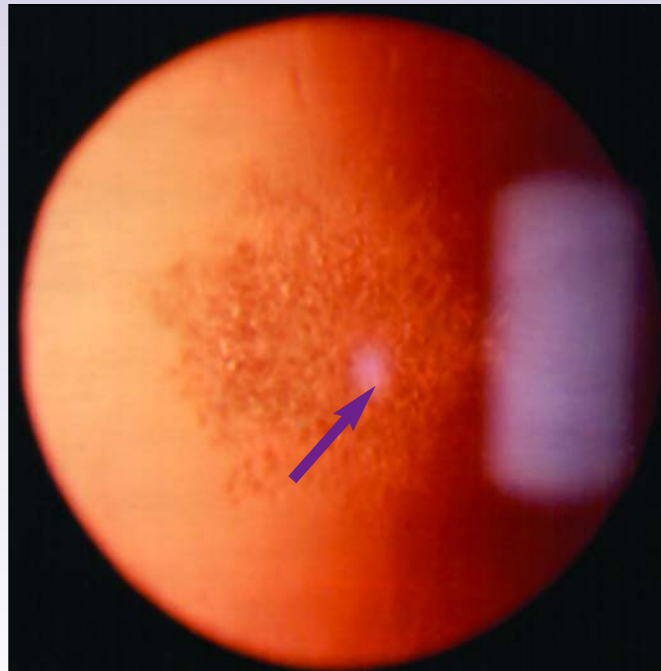
Dr. Worgul says he believes the threshold dose should be reduced to as little as 10 percent of today’s current recommendation and that eventually a risk per unit dose will be developed without consideration of a threshold.

The eye lens, along with bone marrow, is highly sensitive to radiation. Because PSC cataracts form in the back of the lens, they decrease contrast sensitivity before they affect visual acuity. This differs from most forms of age-related cataracts, which interfere with visual acuity first.

“One of the most important findings was that the changes observed were found in interventional radiologists in their mid-40s,” says Anna Junk, M.D., lead author and ophthalmologist at Albert Einstein College of Medicine. “Even though these small opacities will not yet interfere with the ability to work, they have to be taken seriously because they reflect radiation exposures dating back 10 or more years.”

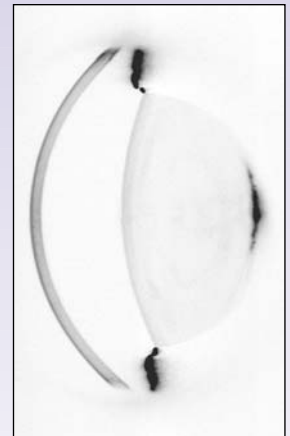
She echoes Dr. Haskal’s warning to interventional radiologists. “It is to be expected that more recent exposure will lead to cataract progression and possi-

Posterior Subcapsular Cataract



A retroillumination photo showing the opacity in the backside of the lens. This cataract causes glare and poor vision in bright light conditions as well as poorer reading vision.

Photo courtesy of *AgingEye Times*.



A radiation-induced cataract in its typical PSC manifestation. The centrally-placed black shadow at the back of the lens is the cataract.

Image courtesy of Basil V. Worgul, Ph.D.

bly disabling consequences even if work habits are changed immediately,” Dr. Junk says. “Interventional radiologists need 20/20 vision in both eyes to have excellent stereopsis and to perform the delicate procedures demanded in their occupation. The treatment, cataract extraction, is a frequent and very successful surgery, but is still associated with risks that can negatively affect outcome and visual rehabilitation. For interventional radiologists even successful cataract surgery could result in less than optimum out-

comes and define the end of their career.”

Lindsay S. Machan, M.D., along with Drs. Junk, Haskal and Worgul, is organizing a larger study to confirm the findings. The team notes that there are a lot of data from the feasibility study that have yet to be analyzed. “We will be delving deeper into all the information we collected and expect to have additional results in the future,” they say. □

Note: This paper will be presented during a special focus session at RSNA 2004. The session, SIR Invited Papers, will be on Thursday, December 2.



Salvage Radiotherapy May Help Prevent Local Recurrence of Prostate Cancer

Timely use of salvage radiotherapy following radical prostatectomy may increase the cure rate in some patients at high-risk for cancer recurrence, according to a new multi-center study. The retrospective review of 501 patients was published in the March 17 *Journal of the American Medical Association (JAMA)*.

Lead author Andrew J. Stephenson, M.D., from the Department of Urology at Memorial Sloan-Kettering Cancer Center in New York, and colleagues found a durable response to salvage radiotherapy in some patients with high-grade disease and/or a rapid PSA doubling time (PSADT), who were previously thought to be destined to develop progressive metastatic disease.

“We demonstrated that subsets of patients who were thought to be incurable could still achieve a durable response when salvage radiotherapy was administered early in the course of recurrent disease,” says Dr. Stephenson. “Urologists may be reluctant to treat patients with salvage radiotherapy because previous studies have reported that it is ineffective for cancers with these aggressive features.” The literature suggests that few patients who receive secondary treatment after radical prostatectomy will undergo salvage radiotherapy.

In this study—the largest of its kind published so far—the principal indicators of disease progression despite salvage radiotherapy were:

- Gleason score of 8 to 10
- Preradiotherapy PSA level greater than 2.0 ng/mL
- Negative surgical margins



Matthew Katz, M.D.
Massachusetts General Hospital



Robert Wollman, M.D.
St. John's Health Center



Bradley C. Leibovich, M.D.
Mayo Clinic

- PSADT of 10 months or less
- Seminal vesicle invasion

Over a median follow-up of 45 months, the researchers found that half the cohort (250 patients) experienced disease progression after treatment, 10 percent (49 patients) developed distant metastases, four percent (20 patients) died from prostate cancer and four percent (21 patients) died from other or unknown causes. The four-year progression-free probability after salvage radiotherapy was 45 percent.

In an accompanying editorial, Mitchell S. Anscher, M.D., professor of radiation oncology at Duke University Medical Center in Durham, N.C., writes: “Following radical prostatectomy, PSA should become undetectable within a few weeks; if the patient is cured, PSA should remain

undetectable for the rest of his life. Currently, for the vast majority of men treated for prostate cancer, the first sign of recurrence is an increasing PSA level. ... Unfortunately, an increase in PSA level does not, per se, distinguish a local recurrence in the prostate bed from occult distant metastases. This distinction is critically

All prostatectomy patients should be evaluated by a radiation oncologist to determine whether they would benefit from radiation therapy.

Mitchell S. Anscher, M.D.

important, because a local recurrence may be cured with salvage external-beam pelvic radiotherapy, whereas occurrence of distant metastases would not be considered curable with currently available therapies.”

Dr. Anscher says while the study has some limitations, it makes a significant contribution to the prostate cancer literature and shows that early treatment is better. “If you take the whole

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world of people with rising PSAs after prostatectomy, probably 15 to 20 percent of them get referred for radiation. This study would suggest that the majority of them would benefit," he says. "Even in the worst groups, there was a proportion of patients who were salvageable with radiation therapy. I've always argued that we shouldn't wait until prostate cancer recurs—because most of them will—so we might as well go ahead and treat them early with a low dose of radiation and head it off at the pass."

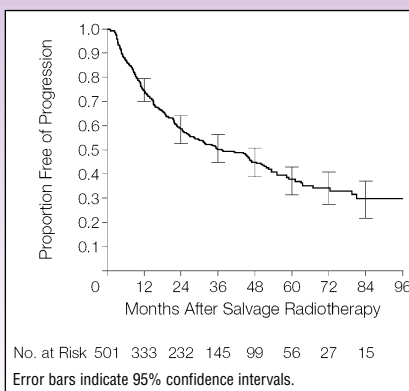
He further suggests, "All prostatectomy patients should be evaluated by a radiation oncologist to determine whether they would benefit from radiation therapy."

Study co-author Matthew Katz, M.D., a radiation oncologist at Massachusetts General Hospital and an instructor at Harvard Medical School, says salvage radiotherapy should be offered soon after PSA failure to maximize the treatment's success. However, "with longer follow-up, patients that have the worst prognostic factors may end up having a higher chance of side effects than actually getting PSA control," says Dr. Katz. "It's not unreasonable to try to select people that have a good chance of having PSA control for those you should treat. In the absence of randomized trials, it doesn't mean you can't still offer treatment, but it should be offered because it may be helpful, not because it doesn't have short-term side effects."

Dr. Katz concedes that postoperative radiotherapy exposes the bladder and rectum to more radiation than definitive prostate radiotherapy, but at the dose given in the study—median 6,480 rad (64.8 Gy)—"It is generally well-tolerated and does not produce serious complications."

At least one radiation oncologist is skeptical about this study's clinical value. Robert Wollman, M.D., medical director of radiation oncology at St. John's Health Center in Santa Monica,

Kaplan-Meier Estimate of Progression-Free Probability After Salvage Radiotherapy



(JAMA 2004;291:1325-1332) Copyrighted © 2004, American Medical Association. All rights reserved. Printed with permission.

Calif., says only randomized trials will answer key questions about salvage radiotherapy.

"Without randomized trials the debate about the value of salvage radiotherapy will continue," he says. "The biggest problem with this study is there is no comparative non-radiated group. It also shows that at 45 months, half the patients were not salvaged by the therapy. What do you think that's going to be at 90 months? It's going to get worse. I don't think this paper helps me much with clinical practice."

Dr. Katz agrees that randomized trials will carry more weight, but disagrees the study offers nothing new to clinicians. "This study offers clinicians better estimates that you can provide to patients so that they can make informed decisions," he says. "It also shows that the potential for cure exists, though it remains unclear who benefits the most. Because the use of salvage radiotherapy remains controversial, patients should be aware of the likelihood of success so they can balance the decision to undergo radiation or consider other potential therapies that are under investigation."

A leading authority on prostate cancer, Bradley C. Leibovich, M.D., gives the study a mixed review. "The follow-up on this study is too short to determine the true impact of salvage

radiation on prostate cancer survival," says Dr. Leibovich, an associate professor of urology at the Mayo Clinic. "We have previously shown that of the patients that have a rising PSA after radical prostatectomy, 27 percent recur more than five years postoperatively. We must therefore assume that a higher number of patients will eventually fail salvage radiotherapy with longer follow-up. However, this study clearly supports what we've been thinking all along, which is, if you're going to do radiation, earlier is better than later, and that you can probably get a pretty good idea which patients are failing locally versus systemically by a few clinical parameters, including PSA doubling time."

While the study indicates that patients with rapid PSA doubling times and positive margins may represent a favorable group for salvage radiation therapy, Dr. Leibovich says PSA response may not translate to ultimate improvement in survival. "Further follow-up is clearly required. Those patients that have a rapid PSA doubling time, a short interval between prostatectomy and a rise in the PSA and high Gleason scores are more likely to have systemic disease. The long-term benefit of radiating those patients is unclear," he says.

Adenocarcinoma of the prostate is the most commonly diagnosed malignancy in men in the United States, according to statistics cited in the *JAMA* study. In 2003, 220,900 new cases and 28,900 deaths from the disease were reported. In addition, approximately 30,000 men annually will develop a biochemical recurrence after radical prostatectomy. □

Note: To view the abstract for the JAMA study, *Salvage Radiotherapy for Recurrent Prostate Cancer After Radical Prostatectomy*, go to jama.ama-assn.org/cgi/content/abstract/291/11/1325. To view the accompanying editorial, go to jama.ama-assn.org/cgi/content/full/291/11/1380.

MR Microscopy Offers Promise for Future Patient Care

Researchers at the University of Oxford in England have developed a simple, narrow, funnel-shaped waveguide instrument that could produce magnified MR images of organs and other features deep within the body.

The waveguide technology permits detailed examination of features located at its tip. This could allow more reliable diagnoses of potentially life-threatening soft tissue diseases such as cancer or aneurysms, for example, during laparoscopic surgery.

“There was a basic problem in MR imaging in that the resolution is directly linked to having a very strong field gradient and very well-tuned receiver electronics to detect the MR signals and correlate them to spatial positions,” says one of the inventors, David Edwards, Ph.D., M.A., a professor in the Department of Engineering Science at Oxford. “To circumvent this, we considered how one might increase the resolution without having to use huge fields.”

The device they developed basically works as a funnel for the electromagnetic fields used in MR imaging, constricting and concentrating them so that the field strength at the tip of the device is significantly concentrated.

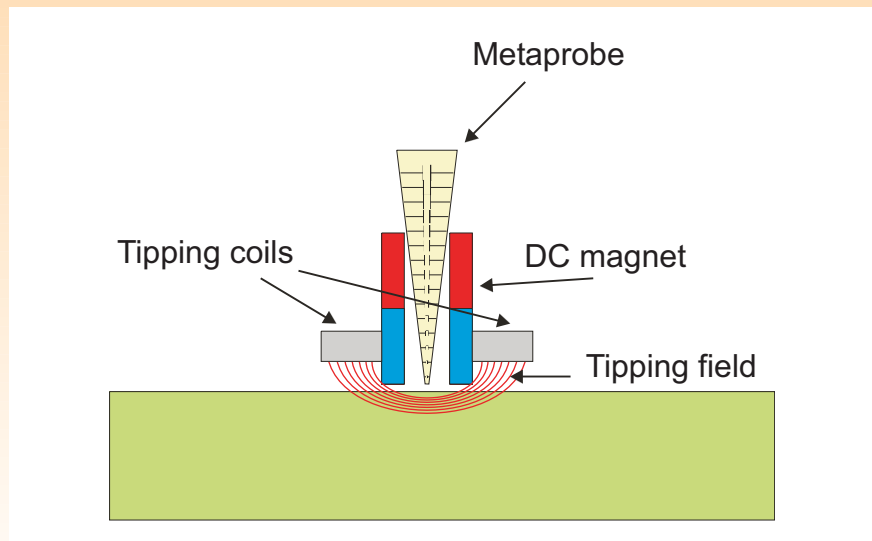
Dr. Edwards and his colleagues see a number of possible applications. “We believe we can get

10 micron resolution images from standard MR strength magnets using this technique, but we have not yet targeted

*We believe we can get
10 micron resolution images
from standard MR strength
magnets using this technique*

David Edwards, Ph.D., M.A.

MR Microscope



Waveguide (yellow pie slice-shaped bit) made up of resonant loops and associated tipping magnets.

Image courtesy of David Edwards, Ph.D., M.A.

a specific diagnostic application at this time,” he says. “At the current stage of work the technology is probably more of a research tool for biochemistry and materials science.”

He adds that MR imaging is a very useful technique for microscopy because it offers a method to identify chemical/atomic species and their spatial distribution in real time.

The new MR microscope technology will not have an immediate impact on patient care, but in the future, it may be used in diagnostic procedures. “We see the main gain it offers is enhancement of the resolution of functional MR imaging and there-

fore could possibly have wide application in this area,” says Dr. Edwards.

Waveguides with tips as narrow as 10 microns have been proposed. This could potentially magnify the field distribution presented at the tip of the device by several hundred times.

“It is envisaged that this new technology is as significant to MR imaging today as zoom lenses were to photography in the past,” says Robert Adams, Ph.D., a project manager for Isis Innovation Ltd., the technology transfer company for Oxford. “It will also help to make the process a much less daunting experience for the patient.” □

Radiology Clerkships on the Rise

To many observers, it's a matter of balance—weighing the benefits of direct patient service against the pressing need to train the next generation of physicians. As radiology assumes a larger role in diagnostics, medical educators feel increasing pressure to give all medical school graduates a firm background in the subject's art and science. But finding the resources to fully support those radiology courses of study within the medical school framework can be an overwhelming challenge.

The Association of American Medical Colleges (AAMC) reports that 28 American medical schools required radiology clerkships for the 2003-2004 academic year. Ten years ago, only 16 colleges required students to complete radiology clerkships as part of the medical school core curriculum.

Today's clerkships last longer too. These intensive courses of study averaged four weeks in 2004, while in 1994 the average clerkship was just 2.3 weeks. Students who participate in clerkships are exposed to lectures and basic image interpretation under the supervision of hospital and university radiologists. Most clerkships offer exposure to subspecialty areas, with observation of procedures and opportunities to participate in image review sessions with faculty.

Indiana University is one of the schools offering clerkships as part of the core curriculum. The school's stated



Petra Lewis, M.D.
Dartmouth Medical School



Robert A. Novelline, M.D.
Harvard Medical School

We're getting a lot of interest from those who have been exposed to radiology through clerkships, but many could be attracted if they were formally introduced to radiology earlier in their medical school careers.

Petra Lewis, M.D.

objective is to give students a basic familiarity and confidence in ordering imaging studies. Besides learning about the strengths and limitations of different imaging studies, the student should

attempt to relate abnormal radiologic findings to pathophysiology with logic and confidence, which will lead the practitioner to a more efficient imaging work-up of the patient.

David A. Boyajian, a fourth-year student at Harvard Medical School, completed his month-

long radiology clerkship last year. "I thought it was extremely valuable. It's valuable no matter what field you wind up going into as a clinician," he says. "You're going to need some kind of imaging to help with diagnosis of

patients. It's useful to have some understanding of which radiologic modalities can help you. The other chief benefit is that you should have some facility with looking at images, drawing your own conclusions and comparing those with other physicians."

"It's not easy to make a prediction but I anticipate more schools in the United States will incorporate exposure to radiology into the curriculum," says Deborah Danoff, M.D., associate vice-president in AAMC's Division of Medical Education. "There is an awareness of the need and also of the resources required from the schools to offer clerkships."

Robert A. Novelline, M.D., a professor of radiology at Harvard Medical School, literally wrote the book on teaching radiology to medical students. His *Squire's Fundamentals of Radiology* textbooks are used all over the world to introduce medical students to the various methods of imaging the human body and its structures.

“Students say to me, ‘things are changing so fast!’ And I say, ‘The rate of change you see today will never be this slow again,’” explains Dr. Novelline, who is the chair of the RSNA Refresher Course Committee. “There are rapid changes in the technology. Teaching has to keep up with this.”

The required four-week radiology clerkship at Harvard is very popular with students. “They say ‘I don’t believe how much I learned this month,’ and not just radiology but also about medicine, surgery, finding a lung cancer, looking at pediatric diseases and reviewing anatomy. They learn about other fields of medicine,” Dr. Novelline says.

Even if medical educators all agreed that requiring a radiology clerkship is essential, they are not sure how they’d find the four weeks in school calendars or in the already-crowded curriculum. Offering radiology clerkships requires a commitment by the institution to provide qualified teaching staff as well.

“There is limited value in students just wandering around the department,” says Petra Lewis, M.D., an associate professor of radiology at Dartmouth Medical School. “We have now developed a structured elective and students get a lot more out of it. But if this becomes a required course, then we

have doubled the number of students in the department during the year and we need staff to teach this extended curriculum. You have to be supported by both the medical school and the department to give the staff academic teaching time. Otherwise students just spend time watching radiologists interpret studies at the viewbox or PACS workstation. While this is valuable, if that is all they are doing, it is not a radiology course.”

Longitudinal Course of Study

The newest approach is to teach radiology longitudinally, or to integrate instruction into existing clerkships and curricula. This method tends to be more acceptable to curriculum committees and more consistent with the way radiologists interact with specialists from different disciplines. However, it requires coordination among faculty and a uniform approach throughout.

Harvard Medical School plans to change to a longitudinal course of study in the 2006 academic year. “You’ll probably need a week of orientation regardless,” says Dr. Novelline. “Either way, the concern is that students may not get the presentation material in the correct sequence. Also, in our required clerkships, we are sure radiologists are teaching.”

Dr. Lewis concurs: “When you sit

in reading rooms, you sometimes hear incredible misinformation being given to students by clinicians. Things change rapidly in radiology and some physicians from other specialties may not be on top of what the current imaging recommendations are, or how to interpret the results.”

Whether medical colleges decide to commit to a required clerkship is something curriculum committees will continually review. Dr. Lewis says for those with a stake in the radiology profession, there is another important factor to consider: “We have to excite students about radiology. They have to decide on a specialty so soon now that we could be losing the opportunity to attract the best and brightest students. We’re getting a lot of interest from those who have been exposed to radiology through clerkships, but many more could be attracted if they were formally introduced to radiology earlier in their medical school careers.”

Dr. Lewis wants every student to learn what David Boyajian found during his clerkship: “Every field of medicine is influenced by radiology. The take-home message for us is what an exciting field it is.” □

Note: For more information, go to services.aame.org/currdir/section4/start.cfm.

Required Radiology Clerkships

- Albany Medical College
- Albert Einstein College of Medicine of Yeshiva University
- Boston University School of Medicine
- East Carolina University (Brody) School of Medicine
- Emory University School of Medicine
- Harvard Medical School
- Indiana University School of Medicine
- Kirksville College of Osteopathic Medicine
- Louisiana State University School of Medicine – New Orleans
- Mayo Medical School
- Meharry Medical College
- Stony Brook University School of Medicine
- SUNY Upstate Medical University
- Texas A&M College of Medicine
- Universidad Central del Caribe School of Medicine, Puerto Rico
- University of Cincinnati College of Medicine
- University of California, Los Angeles, Geffen School of Medicine
- University of California, Irvine, College of Medicine
- University of Illinois College of Medicine – Peoria
- University of Iowa Carver College of Medicine
- University of Miami School of Medicine
- University of Puerto Rico
- University of South Dakota School of Medicine
- University of Texas – Galveston Medical School
- University of Texas – San Antonio Medical School
- University of Texas – Southwestern
- University of Wisconsin Medical School
- Wake Forest University School of Medicine

Source: Association of American Medical Colleges, March 3, 2004

RSNA Members Look Ahead to RSNA 2004 with a Look Back

You hear it all the time at the RSNA annual meeting: “I’ve been coming to these assemblies for at least nine years” or “This is my 16th time here.” But not many people can play the number game with Thomas S. Harle, M.D., or Peter R. Hulick, M.D., M.S.

Dr. Harle has attended every RSNA annual meeting since 1957, except for one. Since this year marks the 90th RSNA Scientific Assembly and Annual Meeting, Dr. Harle says, “Well, I guess that means I’ve been to more than half of them.”

Today, Dr. Harle is a professor of radiology at Wake Forest University School of Medicine in Winston-Salem, N.C. In 1957, he was an intern at Passavant Hospital in Chicago. His radiology chairman at Northwestern University’s School of Medicine was Earl Barth, M.D.

“Dr. Barth took me aside and said, ‘You need to come to this meeting we have in Chicago,’” explains Dr. Harle. “So from 1957 to this day, I’ve missed only one meeting.”

Dr. Harle was so impressed with RSNA as an organization that he became a volunteer. He served for many years, including as chairman of the Scientific Program Committee, before being elected to the RSNA Board of Directors in 1986. He was RSNA president in 1993.

Memories of the Palmer House

One of Dr. Peter Hulick’s earliest memories of the RSNA annual meeting was some 50 years ago. “I traveled with my mother and father to Chicago. I was about five or six years old when I was first exposed to the RSNA annual meeting,” he explains. “We stayed at the



Thomas S. Harle, M.D.
Wake Forest University School of Medicine



Peter R. Hulick, M.D., M.S.
Christiana Hospital

Palmer House and my father took me to see some of the exhibits.”

Dr. Hulick’s father, Peter Vaughn Hulick, M.D., was a therapeutic and diagnostic radiologist who spent his entire career at St. Francis Hospital in La Crosse, Wis.

“I also remember going to the basement of the Palmer House to hear a broadcast of one of my favorite radio shows, *Big Jon and Sparkie*,” he says. *Big Jon and Sparkie* was a Cincinnati-based children’s radio show that aired in parts of the Midwest, according to radio historian Chuck Schaden.

Today, Dr. Hulick is a radiation oncologist at Christiana Hospital in Newark, Del. He was the chairman of the department until last December. Like his father, he is a graduate of Jefferson Medical College of Philadelphia, and a member of RSNA.

“I joined RSNA in 1977. I’ve been

to the annual meeting 20 to 25 times over that period,” he says. “I saw it move from the Palmer House to McCormick Place. In fact, when I first started to attend the meeting as an adult, I deliberately stayed at the

I was about five or six years old when I was first exposed to the RSNA annual meeting.

Peter R. Hulick, M.D., M.S.

Palmer House. It was so nostalgic for me. Later, I stayed wherever I could find a hotel—that’s how popular this meeting has become.”

He laughs and adds, “Since I attended my first meeting 50 years ago, I’m looking for my 50-year pin this year.”

Attending the RSNA annual meeting has become a family tradition as well as a professional tradition for the Hulicks. In 1982, Dr. Hulick brought his seven-year-old son to his very first meeting, although by then, restrictions kept his son from viewing the exhibits until he was 16. Peter J. Hulick, M.D., is now 28 years old and is finishing his



In the early 1980s, the technical exhibition (shown above) was held in the Lakeside Center of McCormick Place. Now, the technical exhibition spans both Hall A and B of the North and South buildings of McCormick Place.

residency in internal medicine at the Mayo Clinic in Jacksonville, Fla.

Expanding to McCormick Place

Dr. Harle also remembers the meetings at the Palmer House. “The scientific exhibits would be on one floor of the hotel and the technical exhibits on another. The main lectures were held in the Grand Ballroom. Refresher courses would take place in conference rooms and converted bedrooms,” he explains.

Dr. Harle says that as the meeting grew in popularity, the Palmer House became overcrowded and uncomfortable. “It was a major decision to move the meeting to the Lakeside Center at McCormick Place. There were fears that the meeting would not survive the move,” he says. “The other problem with the move is that you couldn’t sneak back up to your hotel room for a nap or to catch the Sunday football game.”

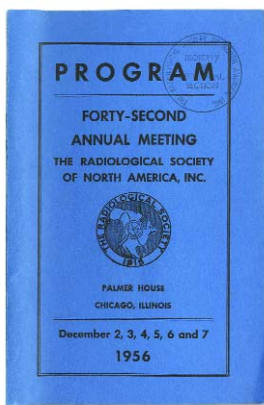
Dr. Harle was the chairman of the Scientific Program Committee when the decision was made to further

expand the meeting to the North Building at McCormick Place. “We were again concerned that it would be too much, but that decision turned out to be a good one,” he says.

Dr. Hulick agrees the move has been beneficial to RSNA—even if it involves some exercise. “As a radiation oncologist, most of the programs I attend are in the North Building of McCormick Place, but I still do a great deal of walking. Some years, I’ve worn my pedometer just to see the distance I walk,” he adds. “It is about three miles per day.”

Dr. Harle says he’s pleased to see the growth of the meeting. “It’s one of the strengths of the organization. The

annual meeting has truly become an international meeting thanks to the contributions from radiologists from around the world,” he says, describing how RSNA leaders met with their European counterparts to exchange ideas about the meeting and to find ways to strengthen radiology worldwide. “The European radiology leaders were most appreciative of this. The European Congress of Radiology incorporated many of our ideas and gave credit to RSNA. This benefits both organizations and all of radiology and was truly one of the highlights of my involvement with RSNA,” Dr. Harle says. □



1956 RSNA Annual Meeting Program.

Note: For more information about the history of RSNA, a 25-part series is available at www.rsna.org/about/history/.

RSNA 2004 Refresher Courses

Refresher course enrollment for RSNA 2004 begins June 21. See page 25 for more information or go to RSNA’s Web site, www.rsna.org, and click on the annual meeting logo.



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PACS: A Guide to the Digital Revolution

Keith J. Dreyer, Amit Mehta and James Hunter Thrall

With contributions from leaders in the field of PACS, this user-friendly guide addresses the introductory concepts, computing fundamentals, advanced imaging technologies and future opportunities. This text is geared toward radiologists, technologists, administrators and IT professionals wishing to gain a broader understanding of this emerging field. 408 pp., 122 illus.

RSNA Member Price \$85.50

BOOK

Atlas of Virtual Colonoscopy

Abraham Dachman

Virtual colonoscopy is a rapidly developing technique that promises to be safer, more economical and less intrusive than conventional diagnostic tests for colon cancer. Renowned radiologist Dr. Abraham Dachman and a distinguished list of international contributors have prepared a comprehensive atlas that explains and depicts the entire range of this new technique. The *Atlas of Virtual Colonoscopy* is a necessary resource for all radiologists and gastroenterologists who desire to learn about VC. 276 pp., 479 illus.

RSNA Member Price \$112.50

CD-ROM

EZTNM for the AJCC Cancer Staging Manual

Frederick L. Greene, Charles M. Balch, Irvin D. Fleming and Fritz April

EZTNM for the AJCC Cancer Staging Manual, 6/e and the *AJCC Cancer Staging Handbook*, 6/e provide the first physician-designed professional grade cancer staging program for handhelds. *EZTNM* puts TNM staging

for 50 different anatomic sites at the user's fingertips. It is an essential and ground-breaking resource for all healthcare professionals who care for cancer patients.

RSNA Member Price \$35.95

BOOK & CD-ROM

AJCC Cancer Staging Manual

Frederick L. Greene, David L. Page, Irvin D. Fleming, April Fritz, Charles M. Balch, Daniel G. Haller, Monica Morrow

The *AJCC Cancer Staging Manual and Handbook*, prepared by the American Joint Committee on Cancer, are used by physicians and health care professionals throughout the world to facilitate the uniform description of neoplastic diseases. The staging information in the *AJCC* is uniform with the *UICC* and must be used for all tumors staged as of January 1, 2003. The manual includes 45 staging forms on CD Rom for individual or institutional use. 480 pp., 95 illus., with CD-ROM.

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408 pp., 37 illus.

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BOOK

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BOOK

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Basic Science and Clinical Practice

Peter E. Valk, Dale L. Bailey, David Townsend, Michael N. Maisey

This book covers the basic scientific principles and clinical applications of PET in research and medical practice and contains a final section discussing future directions of PET. It will be an invaluable reference resource to advanced research laboratories, clinicians, graduates and advanced trainees general nuclear medicine and radiology practices requiring more in-depth knowledge of the principles of PET. 904 pp., 546 illus.

RSNA Member Price \$152.00

BOOK

PET and PET-CT in Oncology

Peter Oehr, Hans-Jürgen Biersack, and R. Edward Coleman

In clear and straightforward fashion, this book offers instructive information and overviews of the basic principles of PET and PET-CT as well as the routine clinical PET scanning procedures for all important oncological indications. It is designed to serve as a reference work for specialists in nuclear medicine and radiology and for oncologists. It also provides student and physicians in other medical specialties with a general introduction to the effective integration of this modern technique into routine clinical diagnostics. Above all, this volume illustrates the importance of PET and PET-CT in comparison with other imaging techniques. 350 pp.

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BOOK

Normal and Abnormal Swallowing

Imaging in Diagnosis and Therapy

Second Edition

Bronwyn Jones

This beautifully illustrated volume presents an updated approach to the role of imaging in the diagnosis and treatment of the patient with dysphagia. Centered around the "gold standard" imaging modality, i.e. videofluorography, the text also includes chapters on other modalities such as ultrasound, computed tomography and magnetic resonance imaging. 308 pp., 248 illus.

RSNA Member Price \$143.00

BOOK

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Molecular Imaging and Its Biological Applications

Michael E. Phelps

This book is a comprehensive guide to PET and PET CT and serves as a valuable resource for practicing physicians and residents. The text covers topics ranging from the basic principles of physics, molecular assays, preparation of molecular imaging probes and biochemistry relevant for PET. Additionally, clinical applications in cancer, cardiovascular diseases and neurological disorders are thoroughly discussed. 616 pp., 250 illus.

RSNA Member Price \$152.00

BOOK

Atlas of Cross-Sectional and Projective MR Cholangio-Pancreatography

A Teaching File

Lieven van Hoe, Dirk Vanbeckevoort, Werner van Steenberghe

Magnetic resonance cholangio-pancreatography (MRCP) is a novel non-invasive technique for diagnosis of pancreatic-biliary disease. This book highlights the advantages, limitations and indications of MRCP, including specific examples that showcase the utility of this technique in a large variety of clinical conditions. 429 pp., 450 illus.

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BOOK

Imaging in Oncology

Janet Husband, Rodney H. Reznek

Building on the foundations laid by the first edition, the second edition of this widely acclaimed book addresses all aspects of cancer imaging, from diagnosis through to long-term follow-up. It is a state-of-the-art

Continued on next page

Continued from previous page

text covering the application of imaging in all tumors. The authors provide an extensively referenced, evidence-based analysis of the role of imaging in planning treatment and expert opinions on the advantages and limitations of all relevant imaging modalities, including ultrasound, CT, MRI, PET/CT, and other nuclear medicine techniques. *Imaging in Oncology*, Second Edition is essential reading for radiologists and all members of a multidisciplinary cancer team. 1800 pp.

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B O O K

Donald School Textbook of Ultrasound in Obstetrics & Gynecology

Asim Kurjak, Frank A. Chervenak

Featuring more than 650 color illustrations, this definitive volume provides comprehensive and expert coverage on the practical applications of ultrasound. The text is divided into three parts: general aspects, obstetrics and gynecology. It includes recent technological breakthroughs in diagnostic ultrasound, including the advent of color Doppler, power Doppler, and three-dimensional and four-dimensional imaging. All contributors are either present or former teachers at the 8 branches of the Ian Donald school. A comprehensive text with state-of-the-art images, the book is of value to obstetricians, gynecologists, and medical ultrasonographers. 819 pp.

RSNA Member Price \$134.96

B O O K & C D - R O M

Radiology of the Chest and Related Conditions

FW. Wright

To interpret radiologic images accurately, it is essential to have a thorough knowledge of how disease processes cause abnormal radiologic appearances. An understanding of relevant anatomy, lung functions and alterations produced by physiological and pathological processes is also necessary. This book provides an extensive reference text and accompanying database of images on CD-ROM. It includes an introduction to reading chest radiographs, basic anatomy and physiology. The book reviews the various disease processes affecting the chest plus related abnormalities. It also includes a discussion of imaging techniques, biopsy and bronchography, as well as tips on interpreting radiological images. 912 pp.

RSNA Member Price \$269.96

B O O K

High Risk Atherosclerotic Plaques: Mechanisms, Imaging, Models and Therapy

Levon Kachigian

Vulnerable plaques are associated with inflammation, thrombosis, rupture and apoptosis. Greater understanding of the cellular and molecular pathogenesis of high-risk plaques, together with the ability to visualize and diagnose the lesions, will lead to

effective treatments for acute coronary syndromes. *High Risk Atherosclerotic Plaques: Mechanisms, Imaging, Models and Therapy* brings together timely, authoritative in-depth reviews by renowned international cardiologists and scientists covering the definition, structure, cellular and molecular mechanisms of high risk plaque development, animal models of vulnerable plaque, plaque imaging, and current and future therapies. 256 pp.

RSNA Member Price \$89.96

B O O K

A Radiologic Atlas of Abuse, Torture, Terrorism and Inflicted Trauma

B.G. Brogdon

Two distinguished radiologists and a renowned odontologist combine their lifetime collections of photographs dealing with radiologic diagnosis of violence. This atlas not only includes radiographs related to clinical forensic medicine, but also illustrates the radiologic techniques that detect arms, explosives and other weapons. Providing over 700 large, black and white radiographs and 30 full color photos, the atlas allows for quick reference in cases of child abuse, police brutality, starvation and other results of trauma. Radiologists in crime laboratories will have comparison photographs to recognize foreign material, such as letter bombs, as well as homicide by irradiation. 328 pp.

RSNA Member Price \$125.96

B O O K

Atlas of Multiplane Transesophageal Echocardiography Two Volume Set

Martin G. St. John Sutton

In recent years, transesophageal echocardiography has become one of the most exciting imaging modalities in modern clinical cardiology. Single plane and biplane transducers are now making way for multipane transesophageal echocardiography. *Atlas of Multiplane Transesophageal Echocardiography* provides cardiologists, anesthesiologists and cardiac surgeons with a comprehensive analysis of cardiac imaging. The text explains how to measure and interpret cardiac chamber sizes and function. Transesophageal echocardiographic images are juxtaposed with top-quality anatomic specimens, nearly 3000 images in total, to give a clear understanding of normal and abnormal cardiac anatomy. 984 pp.

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B O O K

Neuroimaging in Psychiatry

Cynthia H.Y. Fu

Over the past decade, fantastic discoveries have been made about how the brain works (or doesn't work) in psychiatric illness. However most books and reviews have been written from a technical point of view, directed primarily towards experts. *Neuroimaging in Psychiatry* is an introductory, easy-to-read guide focusing on the clinical relevance of neuroimaging findings, targeting psychiatrists and other non-expert clinicians

as well as students. 288 pp.

RSNA Member Price \$107.96

B O O K

Cardiovascular Magnetic Resonance: Established and Emerging Applications

Albert Lardo

Cardiovascular Magnetic Resonance was written by specialists who use MRI for the diagnosis and evaluation of the progression of cardiac disease in their patients. Recent research and publications present some exciting developments: high-resolution magnetic resonance has the potential to image coronary plaque; new contrast agents are aiding the diagnosis of underlying cardiac disease states; and cardiac MRI has a role in percutaneous coronary interventions. These discoveries will help clinicians treat and even anticipate cardiac abnormalities. 582 pp.

RSNA Member Price \$251.96

B O O K

MRI Manual of Pelvic Cancer

RA. Hulse

This title is an essential reference for all radiologists using magnetic resonance imaging to identify and diagnose pelvic cancer. Aimed at radiologists with little experience of MRI of pelvic cancer, the book starts with three introductory chapters focusing on basic pelvic anatomy, imaging and reporting. The subsequent chapters focus on each of the major groups of pelvic cancer using a consistent format to aid diagnosis. Written by internationally renowned authors, this title will be an invaluable bench reference for all those required to report on MR examinations, with accurate cancer staging aided by the extensive use of high quality MR images of pelvic cancer. 266 pp.

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B O O K

Case Studies in Interventional Cardiology

Martin T. Rothman

To perform effectively and efficiently in the catheterization laboratory, the operator must have comprehensive knowledge and a sound understanding of coronary anatomy and disease. *Case Studies in Interventional Cardiology* helps the operator to recognize an array of coronary lesions, and it helps the operator to address those lesions with a variety of tools. Martin Rothman has selected a range of specialists to comment on the topic and provide case studies. Both experienced and recently qualified interventional cardiologists contribute to the text, profiling those cases that have had an impact on their interventional practice. A broad range of conditions is explored, from surprising to common. 352 pp.

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C D - R O M

Interactive Hip

Andrew Chippindale, Fares Haddad, Jorge Gallante, Marchi Maheson, Sarah Muirhead-Allwood, Edmund Chao, David W. Stoller

Detailed and labeled 3D model of the hip joint and upper leg that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by text, MRI, clinical slides, video clips and 3D animations.

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C D - R O M

Interactive Knee

Paul Aichroth, Vishy Mahadevan, Justin M. Harris, David W. Stoller

Detailed and labeled 3D model of the knee that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by text, MRI, clinical slides, video clips and 3D animations.

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C D - R O M

Interactive Foot & Ankle

Vishy Mahadevan, Robert Anderson, Lloyd Williams, Penny Renwick, David W. Stoller

3D model of the foot and ankle

that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by text, MRI, clinical slides, video clips and 3D animations.

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C D - R O M

Interactive Hand

D.A. McGrouther, Judy C. Colditz, Justin M. Harris, David W. Stoller

3D model of the hand, wrist, forearm and elbow that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by text, MRI, clinical slides, video clips and 3D animations.

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C D - R O M

Sports Injuries: The Knee

Paul Aichroth, Roger Wolman, Tracy Maunder, Andrew Amis, Anthony Bull

3D model of the knee that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by sports injuries, rehabilitation and biomechanics text, clinical slides, video clips and 3D animations.

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C D - R O M

Orthopaedics In Action:

Primary Hip Arthroplasty

T.W.R. Briggs, M.Ch. (Orth) FRCS, Consultant Orthopaed, S.R. Cannon, J. Skinner

3D model of the hip that can be rotated and layers of anatomy added or stripped away. It covers all aspects required for primary Total Hip Arthroplasty, from patients first visit to outpatient clinic through pre-operative planning phase and the surgical procedure itself, utilizing both lateral and posterior approaches. Descriptive text is supplemented by live surgery video clips and 3D animations.

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Detailed and labeled 3D model of the entire spine that can be rotated and layers of anatomy added or stripped away. 3D model is supplemented by chiropractic examination, conditions and treatment sections including text, clinical slides, video clips of tests and treatment.

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tendons, fractures, arthropathy, coalitions, osteochondral defects, osteonecrosis, impingement, tarsal tunnel and neural entrapment, achilles, masses, infections, plantar fasciitis and parts & accessories. Fully indexed for ease of use, the hard cover volume is built to assist readily in daily practice and study of this complex and often difficult area. 200+ pp.

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B O O K

MRI Total Body Atlas Vols. 1-3 Set

Stephen J. Pomeranz, M.D.

Complete set of the definitive, comprehensive anatomic reference not only commonly referenced structures throughout the body, but also spaces, areas between joints and less frequently imaged anatomic locations. 768 pp.

RSNA Member Price: \$630.00

B O O K

MRI Total Body Atlas Vol I Neuro

Stephen J. Pomeranz, M.D.

Definitive, comprehensive anatomic reference detailing not only commonly referenced structures in the brain and spine, but also the larynx, neck spaces, and cranial nerves. 229 pp.

RSNA Member Price: \$225.00

B O O K

MRI Total Body Atlas Vol II Ortho

Stephen J., Pomeranz, M.D.

Definitive, comprehensive anatomic reference detailing not only commonly referenced structures in the musculoskeletal axis, but also areas between the joints in the extremities. 326 pp.

RSNA Member Price: \$225.00

B O O K

MRI Total Body Atlas Vol III Body

Stephen J. Pomeranz, M.D.

Definitive, comprehensive anatomic reference detailing not only commonly referenced structures in the chest, abdomen and pelvis, but also the brachial plexus, uterus and testes. 213 pp.

RSNA Member Price: \$225.00

B O O K

Gamuts & Pearls Ortho MRI

Stephen J. Pomeranz, M.D.; contributing authors: Timothy J. Jenkins, N. Judge King III, Mark J. Paluszny and R. Eric Shields

Subdivided into shoulder, elbow, hand & wrist, hip & thigh, knee, foot & ankle, musculoskeletal system and protocols & predicaments chapters, there is a wealth of information here for the busy imager at an extremely affordable price. 396 pp.

RSNA Member Price: \$85.50

B O O K

Gamuts & Pearls Neuro MRI

Stephen J. Pomeranz, M.D. and Peter J. Smith

Subdivided into brain, spine, head & neck and protocols & predicaments chapters, there is a wealth of information here for the busy imager at an extremely affordable price. 398 pp.

RSNA Member Price: \$85.50

D V D

Cardiac MRI Conference Series: Cardiovascular MRI Techniques

Wojciech Mazur, M.D.

Dr. Mazur addresses such topics as the anatomy of an MRI scanner, how to image the heart, cardiac analysis and spin tagging. The viewer is treated to coverage of stress modalities, rest-stress MR perfusion and spiral CT coronary angiography. Dr. Mazur also discusses the sizing spinal CT coronary angiography.

RSNA Member Price: \$135.00

C D - R O M , V H S

Conference Series 23 Lecture Set

Stephen J. Pomeranz, M.D. and John Reeder, M.D.

This video recorded lecture series invites you into our state-of-the-arts theatre for lectures regarding musculoskeletal anatomy and pathology, subdivided into knee, foot & ankle, hip, shoulder, elbow, and hand & wrist.

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B O O K

Breast MRI in Practice

Edited by Ruth Warren and Alan Coulthard

This book provides practical and pragmatic guidance in breast MRI for all professionals involved in breast imaging or in the care of patients with breast disease. 269 pp.

RSNA Member Price \$119.00

B O O K

Cross-Sectional Diagnostic Imaging: Cases for Self- Assessment

Nicola Strickland and Preeti Gupta

Specifically aimed at candidates taking their higher exam in clinical medicine (such as the Boards Examination in the US), *Cross Sectional Diagnostic Imaging* focuses on cross-sectional imaging (CT, MR, US and also includes nuclear medicine isotope imaging) since these techniques have become integral to modern clinical medicine. 448 pp.

RSNA Member Price \$40.50

B O O K

Endocavitary MRI of the Pelvis

Edited by Nandita M. deSouza

MR imaging has become a crucially important investigative tool in pelvic disease where the soft tissue contrast enables more accurate diagnostic information to be obtained. *Endocavitary MRI of the Pelvis* puts the new developments in this area into perspective. 184 pp.

RSNA Member Price \$54.00

B O O K

Exercises in Clinical Nuclear Medicine

Gary Cook and Jane Dutton

Exercises in Clinical Nuclear Medi-

cine provides 10 mock papers for those preparing for the reporting section of higher examinations in radiology. 160 pp.

RSNA Member Price \$49.50

B O O K

Handbook of Transrectal Ultrasound and Biopsy of the Prostate

Uday Patel and David Richards

The highly illustrated *Handbook of Transrectal Ultrasound and Biopsy of the Prostate* presents in simple and logical manner the fundamentals of transrectal sonography and focuses on the practical aspects of prostate scanning and biopsy. 136 pp.

RSNA Member Price \$34.00

B O O K

Imaging of the Prostate

Edited by Ethan J. Halpern, Dennis Cochlin and Barry B. Goldberg

Imaging of the Prostate has been edited and written by some of world's leading experts and addresses the problems encountered during patient examination. Superb quality radiological images – ultrasound, MRI and CT illustrate the chapters. 232 pp.

RSNA Member Price \$135.00

B O O K

Imaging of the Scrotum and Penis

Matthew Rifkin and Dennis L. Cochlin

Imaging of the Scrotum and Penis is a problem solving text. It employs a symptom related approach, starting with the clinical history and physical examination, progressing to the imaging modalities. The main imaging modality used in the scrotum is ultrasound and discussion of ultrasound images including Doppler comprises the greatest portion of the book. 304 pp.

RSNA Member Price \$157.50

B O O K

Nuclear Medicine in Radiological Diagnosis

A. Michael Peters

This new clinical reference provides an essential resource for all those working in the field of nuclear medicine and clinical imaging. The emphasis is on the role of nuclear medicine technology as part of an integral radiological approach to clinical problems. 832 pp.

RSNA Member Price \$260.00

B O O K

Textbook of Diagnostic Imaging in the Elderly

Mario Impallomeni, Pauline Smiddy, Walter L. Curati, Martin Lipton and David Allison

Textbook of Diagnostic Imaging in the Elderly is the first authoritative textbook on the subject of geriatric imaging. This text allows the physician to maximize the unique and essential contribution that imaging can bring to clinical diagnosis of disease in the elderly patient. 432 pp.

RSNA Member Price \$202.00

B O O K

MRI Manual of Pelvic Cancer

Edited by P.A. Hulse and B.M. Carrington

This title will be an essential reference for all radiologists using

Continued on next page

Continued from previous page

magnetic resonance imaging to identify and diagnose pelvic cancer. Intended for those new to pelvic cancer staging, the book starts with three introductory chapters focusing on basic pelvic anatomy, imaging and reporting. Subsequent chapters focus on each of the major groups of pelvic cancer using a consistent format to aid understanding. 200 pp.

RSNA Member Price \$86.00



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CD-ROM

Gamuts in Radiology Version 4.0

By Maurice M. Reeder, M.D., with MRI Gamuts by William G. Bradley Jr. and Ultrasound Gamuts by Christopher R. Merritt

The innovative and versatile *Gamuts In Radiology 4.0* contains the entire *Gamuts in Radiology 4th Edition* textbook, plus more than 5,000 radiographic images. *Gamuts 4.0* covers every modality of radiologic imaging, including ultrasound, CT, MRI, mammography, angiography and plain films.

- A 19-member expert editorial board has reviewed, expanded and updated the existing gamuts, including references, and then added over 300 new gamuts (primarily in ultrasound, MRI and CT). *Gamuts 4.0* now has more than 1,700 lists of differential diagnoses!

- Over 4,000 new images have been added. *Gamuts 4.0* now totals over 5,000 teaching images, making it the ultimate teaching resource for radiologist and resident training, and board review.

- Using its exhaustive database of over 6,500 individual diagnoses and disease entities, *Gamuts 4.0* combines the strengths of artificial and human intelligence. The highly innovative Computer-Assisted Radiological Diagnosis System contained on the CD allows the radiologist to accurately make diagnoses or suggest a very limited differential diagnosis in problem cases. *Gamuts 4.0* is an essential component of any PACS or RIS system for solving complex cases and making diagnoses at the viewbox.

RSNA Member Price: \$247.00

CD-ROM

Essentials of Radiology

By Judith Korek Amorosa, M.D.

The *Essentials of Radiology* is designed to teach the basics of current radiology practice. It is useful for medical students (starting at any level), residents of all specialties,

clinical colleagues, physician assistants, nurse practitioners, nurses, technologists, hospital administrators, managed care administrators, lawyers and lay support groups. This CD-ROM contains over 330 interactive cases using the well-established teaching methods of Dr. Lucy Squire. In all, there are over 900 questions included in the course and over 2,300 images (including x-ray, CT, HRCT, MRI, nuclear imaging, static ultrasound, real-time ultrasound and real-time fluoroscopy). This is truly a comprehensive overview of the essentials of radiology and represents over 50 hours of radiology instruction for the beginning student.

RSNA Member Price: \$125.00



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BOOK

Atlas of Human Anatomy, Third Edition

The ultimate anatomy atlas for medical study, clinical reference, and patient education, this updated masterpiece offers the power of over 500 precise visual images that teach without an overwhelming amount of confusing text. Chosen by more students for their anatomy coursework than any other human anatomy atlas published today. Paperback, 2003

RSNA Member Price \$55.16

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Atlas of Human Anatomy, Third Edition

Casebound edition of the *Atlas of Human Anatomy* includes the FREE CD (*Interactive Atlas of Human Anatomy, v3.0*) packaged with the book.

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Netter's Atlas of Human Embryology

With more than 300 Netter illustrations, plus schematics, tables, and concise text, this unique atlas provides comprehensive coverage of the major processes, events, and concepts related to normal and abnormal embryonic development. Includes brief descriptions of the developmental plan for each body system or region, key concepts, terminology, and more.

RSNA Member Price \$31.96

BOOK

Netter's Atlas of Human Physiology

This new systems-based illustrative atlas of human physiology adds a concise, mechanistic and conceptual description to each Netter illustration—300 in all. These key concepts will serve as a review of the broad, clinical applications to medical, dental, allied health and undergraduate physiology courses.

RSNA Member Price \$31.96

BOOK

Netter's Atlas of Human Neuroscience

This clinically-relevant atlas gives both students and practitioners integrated coverage of the peripheral and central aspects of the nervous system. Updated information, along with 325 Netter and Netter-style illustrations, provide comprehensive neurosciences foundations for history and physical examination, and for understanding diagnosis and diseases. Outstanding guide for USMLE and other licensure examinations.

RSNA Member Price \$36.76

BOOK

Netter's Concise Atlas of Orthopaedic Anatomy

This concise, easy-to-use atlas of orthopedic anatomy utilizes Netter images from both the *Atlas of Human Anatomy* and the 13-volume *Netter Collection of Medical Illustrations*. Each image includes key information on bones, joints, muscles, nerves, and surgical approaches. Each chapter contains clinical material showing trauma, minor procedures, history and physical exam, disorders, and radiology.

RSNA Member Price \$34.80

BOOK

Netter's Obstetrics, Gynecology and Women's Health

This comprehensive clinical guide uses a quick-reference tabular format to present the major diseases and conditions traditionally seen in the practice of obstetrics and gynecology, as well as general medical conditions commonly seen in women. Includes more than 200 topics and over 300 Netter illustrations.

RSNA Member Price \$51.96

BOOK

Netter's Internal Medicine

Designed to help practitioners manage everyday medical problems with confidence and authority, this superior reference is also invaluable to students, residents, and specialists who need quick access to reliable clinical information. Combines over 450 Netter images and the most current knowledge on common diseases/conditions, diagnostics, treatments and protocols into a single, easy-to-use guide.

RSNA Member Price \$67.96

BOOK

Atlas of Palpatory Anatomy of Limbs and Trunk

Serge Tixa

Palpation anatomy is based on the manual inspection of surface forms—a visual and instructive method of investigating anatomic structures. In this new atlas, each structure is shown with a photo and is accompanied by a description of the technique used. Netter illustrations are used to introduce each section of the atlas and highlight key anatomical structural features.

RSNA Member Price \$44.00

BOOK

Netter Anatomy Charts

With 20 charts, and more coming in 2004, this growing series of rich, full-color anatomical charts is based on the same medical art and images found in *Netter's Atlas of Human Anatomy, Third Edition*. They're generously sized at 20" x 26" for easy viewing on a classroom, lab, or exam room wall and laminated for easy cleaning and years of durability. 2003 Single Chart

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Two Chart Set

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NEWSLETTER

The RBMA Bulletin

Your premier resource when it comes to radiology education. The RBMA Bulletin includes featured stories written by industry professionals as well as pertinent articles on practice management, compliance issues and legislation, HIPAA and ACR updates. You will also find up-to-date information on RBMA educational seminars, conferences, networking opportunities and products. Published six times per year.

RSNA Member Price: \$90.00

BOOK

The HIPAA Workbook for Privacy and Security

The *HIPAA Workbook for Privacy and Security: A Radiology Guide to Implementation of the Health Insurance Portability and Accountability Act* is a radiology-specific guide to implementing the HIPAA Privacy and Security Standards that includes sample policies and procedures, consent and authorization forms, sample business associate and chain of trust agreements, planning and implementation guidelines, and much more.

RSNA Member Price: \$995.00

Radiology in Public Focus

Press releases have been sent to the medical news media for the following scientific articles appearing in the June issue of *Radiology* (radiology.rsna.org):

Effect of Smoking on Restenosis during the 1st Year After Lower-Limb Endovascular Interventions

Smoking 10 or more cigarettes a day may protect vessels from restenosis after lower-limb endovascular interventions, presumably because the carbon monoxide from smoking has a potent anti-inflammatory and antiproliferative capacity.

Martin Schillinger, M.D., and colleagues from the University of Vienna Medical School prospectively studied 650 patients who underwent percuta-

neous transluminal angioplasty (PTA) of iliac or femoropopliteal arteries with or without stent implantation.

They found that patients who smoked 10 or more cigarettes a day had a 50 percent reduced risk of restenosis compared with non-smokers.

“Our findings, however, certainly do not suggest that we should recom-



mend smoking to patients or rush to treat patients with carbon monoxide inhalation therapy after PTA. The dangers of carbon monoxide inhalation may outweigh the benefits,” the researchers write.

(*Radiology* 2004;231:831-838)

Peritoneal Violation and Organ Injury Using Triple-Contrast Helical CT in Penetrating Torso Trauma: Prospective Study in 200 Patients

Triple-contrast helical CT can help facilitate non-operative management of patients with penetrating trauma to the torso—even in patients with peritoneal violation.

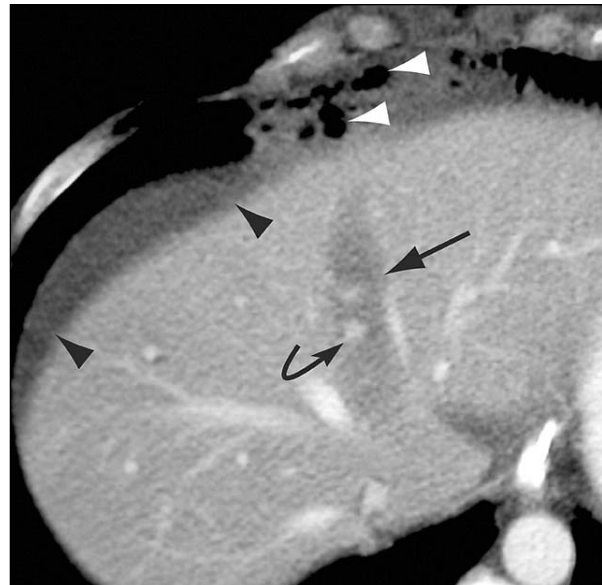
Kathirkamanathan Shanmuganathan, M.D., and colleagues from the University of Maryland Medical Center, prospectively studied 200 hemodynamically stable patients to determine both peritoneal violation and extent of organ injury.

They found that 34 percent (68/200) of patients who had no clinical or radiographic findings to suggest peritoneal perforation, in fact, had peritoneal violation diagnosed on CT. CT results had a 97 percent sensitivity, 98 percent specificity

and were 98 percent accurate for peritoneal violation. CT displayed 28 liver, 34 bowel or mesenteric, seven splenic and six renal injuries.

The researchers write, “Given the high sensitivity and specificity of CT for detecting peritoneal violation and organ injury reported in this study, our trauma surgeons currently are more enthusiastic to obtain follow-up CT if results of the initial CT are non-specific or equivocal for intraperitoneal injury that might require exploration.”

(*Radiology* 2004;231:775-784)



Transverse CT scans show peritoneal violation in a 37-year-old woman stabbed multiple times in the chest and abdomen. Large liver laceration (straight arrow) with active bleeding (curved arrow). Free intraperitoneal fluid (black arrowheads) is seen anterior to the liver. Air bubbles (white arrowheads) are seen along the knife track.

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RSNA press releases are available at www.rsna.org/media.

Journal Highlights

Cerebral Perfusion CT: Technique and Clinical Applications

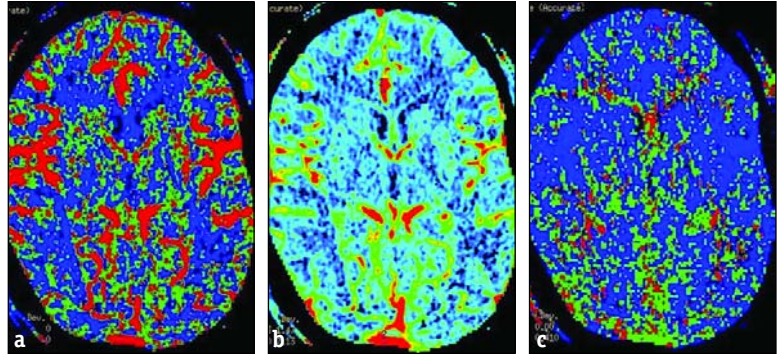
Perfusion CT is a relatively new technique that allows rapid qualitative and quantitative evaluation of cerebral perfusion by generating maps of cerebral blood flow, cerebral blood volume and mean transit time.

Radiology

Perfusion CT can be used to assess patients with acute stroke in addition to a wide range of patients with other cerebrovascular diseases.

In an article appearing in the June issue of *Radiology*, Ellen G. Hoeffner, M.D., and colleagues from the University of Michigan Health System in Ann Arbor review:

- Perfusion CT
- Clinical applications
- Controversies



Transverse CT perfusion maps in a healthy adult volunteer show normal perfusion. Various color ramps, selected according to user preference, are used to display the (a) CBF, (b) CBV, and (c) MTT maps.

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To access this article online, go to radiology.rsna.org. (*Radiology* 2004;231:632-644)

CT Angiography of Intracranial Aneurysms: A Focus on Postprocessing

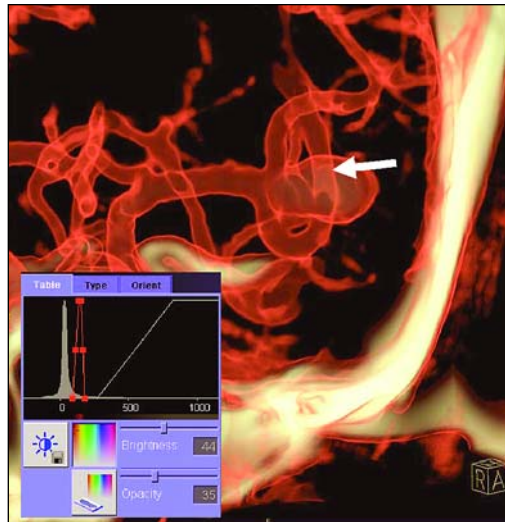
CT angiography is a well-known tool for detection of intracranial aneurysms and the planning of therapeutic intervention. Despite a wealth of existing studies and an increase in image quality due to use of multisection CT and increasingly sophisticated postprocessing tools such as direct volume rendering, CT angiography has still not replaced digital subtraction angiography as the standard of reference for detection of intracranial aneurysms.

RadioGraphics

In an article appearing in the May-June issue of *RadioGraphics*, Bernd F. Tomandl, M.D., and colleagues from the University of Erlangen-Nuremberg in Germany describe the detection of intracranial aneurysms using state-of-the-art CT angiography with emphasis on different methods for postprocessing of CT data and their typical advantages and pitfalls.

CME credit is available

After reading this article and taking the test, the reader will be able to:



One possibility for examining an aneurysm of the left middle cerebral artery (MCA) with direct volume rendering (dVR). This frontal image was obtained by selecting only a small group of voxels with a low opacity. The vessels appear transparent, thus allowing visualization of a branch of the MCA running behind the aneurysm (arrow).

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- Describe the technique of CT angiography performed for detection of intracranial aneurysms.
- List the technical considerations in and limitations of the most common methods of image postprocessing.
- Discuss when to use CT angiography as the sole diagnostic test in a patient with subarachnoid hemorrhage before therapy.

To access this article online, go to radioGraphics.rsna.org.

(*RadioGraphics* 2004;25:637-655)

Working For You

Radiology Program Directors

RSNA is working with radiology program directors to make sure that all first-year residents take advantage of free membership in RSNA. A sampling of RSNA journals and some membership applications will be sent to the program directors.

Residents who submit a completed application by August 15 will receive three complimentary print copies of *Radiology* (October, November and December 2004) and two complimentary issues of *RadioGraphics* (September-October and November-December 2004).

Recruiting Medical Student Members

RSNA membership is also free for medical students. Medical student directors can contact the RSNA Membership and Subscriptions Department for more information at (877) RSNA-MEM [776-2636].

RSNA will have a booth at the American Medical Association's Medical Specialty Showcase, which will be held on June 12 in Chicago. RSNA representatives

will be available to discuss a career in radiology and provide information about the benefits of RSNA membership. The Medical Specialty Showcase will be held at the beginning of the AMA annual meeting.

RSNA will also participate in the International Congress of Radiology meeting this month in Montreal.

WORKING FOR YOU PROFILE

Service to Members:

The editorial staff of the RSNA Publications Department is responsible for the high-quality and timely editing of RSNA publishing projects, such as *Radiology* and *RadioGraphics*, the printed *RSNA Meeting Program*, syllabi for the categorical courses, online educational materials, and the exhibit and digital presentation for the Sunday Image Interpretation Session. Toward this end, I am responsible for hiring, training and supervising the staff manuscript editors who work on all of these projects.

I maintain and arbitrate RSNA editorial style and have just finished writing a major revision of the *RSNA Style Manual*. I work with the editors of the categorical course syllabi and the mod-

erator of the Sunday Image Interpretation Session to help them gather and prepare their materials for presentation and publication. I also edit and manage publication of the printed *RSNA Meeting Program*.

our categorical course syllabi, chairs of committees for the scientific assembly and other RSNA members, as well as all RSNA departments, which is rewarding both personally and professionally.



NAME:
Diane Berneath Lang
POSITION:
Assistant Director of Publications: Editorial

WITH RSNA SINCE:
October 15, 1984

Work Philosophy:

All of us in the RSNA editorial area have a strong interest in medicine and medical research, and the joy in being a medical editor is that each new manuscript provides an opportunity to learn. Our goal is to ensure the information we publish is understandable to all readers. We balance that goal with the urgency to make the information available to the readers. As Assistant Director of Publications: Editorial, I have the opportunity to work with the editors of our journals, the editors of



RSNA Editorial Department (clockwise from top left): Rebecca Ritke, M.S., Scott Schafer, M.M., John Knudson, Esther Witek, Heather Babiar, Jennifer Eberhart, Sandra DeDera, M.A., Nicole Eskra, Alyssa Popowitch, Kim Franks, and Eileen Brazelton. (Not pictured: Dan Halibey)

If you have a colleague who would like to become an RSNA member, you can download an application at www2.rsna.org/timssnet/mbrapp/main.cfm, or contact the RSNA Membership and Subscription Department at (877) RSNA-MEM [776-2636] (U.S. and Canada), (630) 571-7873 or membership@rsna.org.

Program and Grant Announcements

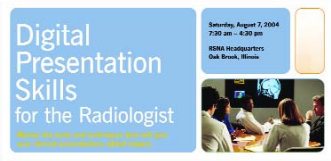
Advanced Course in Grant Writing

The RSNA Advanced Course in Grant Writing teaches participants—generally junior faculty—how to prepare and submit a quality grant application to the National Institutes of Health, the National Science Foundation or other equivalent institution. The participant must possess an M.D. or Ph.D. degree and be a faculty member in a radiology, radiation oncology or nuclear medicine program. Held at RSNA Headquarters in Oak Brook, Ill., the course consists of four multi-day sessions (Sept. 17–18, Oct. 22–23, Feb. 4–5, April 29–30).

For more information, go to www.rsna.org/research/grantwriting/index.html.

Digital Presentation Skills for the Radiologist

RSNA is sponsoring a comprehensive, one-day workshop that will help radiologists master the tools and techniques that will give their clinical presentations added impact. The course, which will include hands-on experience and personalized instructions, will be held on Saturday, August 7, 2004, at RSNA Headquarters in Oak Brook, Ill. Online registration is available at www.rsna.org/education/shortcourses.



Registration Fees: 6.75 AMA PRA category 1 credits available
 RSNA Members: \$199
 Non-Members: \$249

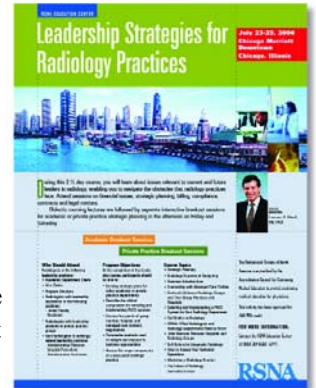
For more information, contact the RSNA Education Center at (800) 381-6660 x7715 or at ed-ctr@rsna.org.

Leadership Strategies for Radiology Practices

Online registration is available at www.rsna.org/education/shortcourses for this dynamic, interactive RSNA course, which will be held July 23–25, 2004, at the Chicago Marriott Downtown.

Directed by Lawrence R. Muroff, M.D., the course is designed for current and future leaders in radiology and focuses on relevant topics including financial issues, strategic planning, billing, compliance and legal matters. Didactic morning lectures are followed by split interactive breakout sessions for academic or private practice strategic planning in the afternoon.

Registration Fees:
 RSNA member: \$695
 RSNA member-in-training: \$295
 Non-members: \$795



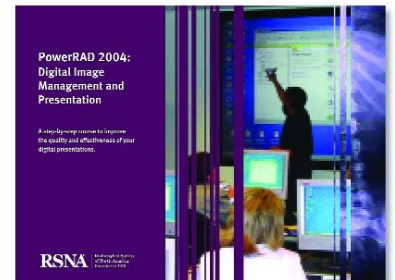
20 AMA PRA category 1 credits available

For more information, contact the RSNA Education Center at (800) 381-6660 x7715 or at ed-ctr@rsna.org.

PowerRAD 2004

Register online at www.rsna.org/education/shortcourses for this one-day RSNA workshop on Saturday, August 28, 2004, at RSNA Headquarters in Oak Brook, Ill.

Paul J. Chang, M.D., from the University of Pittsburgh, will take you step by step through the process of converting analog radiologic images into an electronic format and editing images and text using various lecture software, such as PowerPoint. This course includes printed lecture notes and CD-ROM software. Since RSNA will provide all attendees with the use of a desktop computer for this course, space is limited.



Registration Fees: 7 AMA PRA category 1 credits available
 RSNA Members: \$199
 Non-Members: \$249

For more information, contact the RSNA Education Center at (800) 381-6660 x7715 or at ed-ctr@rsna.org.



Research & Education Foundation Donors

THE BOARD OF TRUSTEES of the RSNA Research & Education Foundation and its recipients of research and educational grant support gratefully acknowledge the contributions made to the Foundation **March 25–April 27, 2004.**

For more information on Foundation activities, a quarterly newsletter, *Foundation X-aminer*, is available online at www.rsna.org/research/foundation/newsletters/x-aminer/x-aminer.pdf.

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Nancy K. Rollins, M.D.
Karen & Joseph A. Ronsivalle, D.O.
Mitchell S. Sandler, M.D.
Michael F.H. Schocke, M.D.
Gary E. Simmons, M.D.
Ronald L. Van Heertum, M.D.
Beatrice & Marnix T. van Holsbeeck, M.D.
Michael E. Waldman, M.D.
Anthony R. Whittemore, M.D.
Scott D. Wiedenmann, M.D.
Francis W. Willi, M.D.
C. Amy Wilson, M.D.



Online donations can be made at
www.rsna.org/research/foundation/donation.

COMMEMORATIVE GIFTS

Hilary M. Gentile
In memory of Moira Wilde
Hannah & Lawrence Goodman, M.D.
In memory of Steven Pinsky, M.D.
Jesus D. Guerra, M.D.
In honor of Rogelio Moncada, M.D.
Ian Hammond, M.D.
In memory of Robert G. Fraser, M.D.

Klaus J. Klose, M.D.
In memory of Lothar Diethelm
Lilian F.L.Y. Leong, M.D.
In honor of Anne G. Osborn, M.D.
Dr. Pat & Patti Lester
In memory of Juan Taveras, M.D.
Theodore A. & Faith B. Tristan
In honor of Mary Jane & James McCort, M.D.

Product News

NEW PRODUCT



Redesigned Sat Pad™

Image Engineering Laboratories, LLC, has redesigned and reintroduced Sat Pad™, a patented, FDA-approved MRI accessory that reduces artifacts in high-field MR studies of the neck, back and extremities.

Sat Pads contain a space-age perfluorocarbon fluid, which reduces inconsistencies in the magnetic fields of MR scanners and allows improved visualization of body structures. The pads are positioned within the MR coils. They also serve to improve patient comfort and immobilization, which results in optimized study outcomes.

Additional pads are being developed for other body parts.

NEW PRODUCT

New LCD Display System

Image Systems Corporation has introduced a new, cost-effective 2MP grayscale LCD display system for medical imaging. The system includes a 19.6-inch, 2MP grayscale display with front and rear sensors, the Image Systems 2MP grayscale controller card and a local and network addressable display calibration system.

The system provides:

- Hands-free calibration
- DICOM conformance
- Multi-monitor support
- Local and network support
- System nonconformance alarms and reporting
- Background backlight stability verification, documentation and adjustment
- Integrated light sensors
- Remote access for conformance checking and calibration

FDA APPROVAL

Virtual Colonoscopy Technology

The Food and Drug Administration has approved the Viatronix V3D System, a system that allows operators to manually interact, turn, zoom and rotate images at will in a “live” volume rendering environment.

“Viatronix V3D-Colon is presently the only available product [on] the market to receive FDA clearance for the purpose of patient screening for detection of colon cancer, polyps, masses and other lesions,” said Zaffar Hayat,

president of Viatronix, Inc. “Based on the results as published in the prestigious *New England Journal of Medicine*, Viatronix V3D-Colon has proven to be equal or better than optical colonoscopy, empowering medical institutions to offer virtual colonoscopy to the general public. Virtual colonoscopy is now clearly ready for prime time.”



The Viatronix V3D-Colon is the first virtual colonoscopy system to receive FDA clearance.

NEW PRODUCT

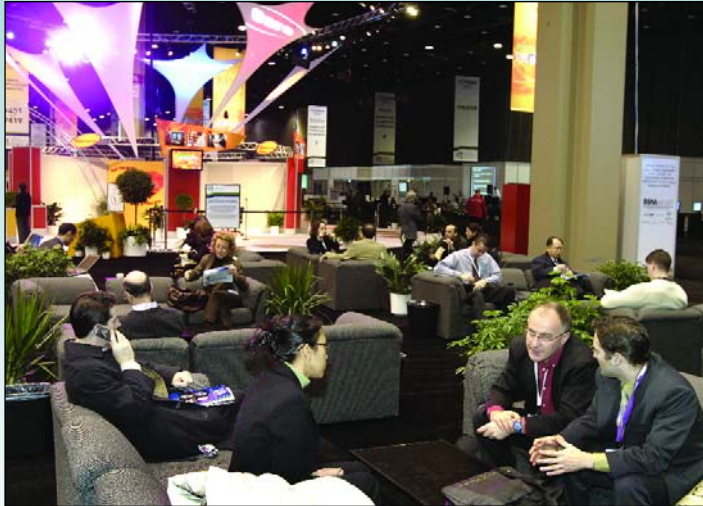
New Digital Platform for Infinix™ -i Series

Toshiba America Medical Systems, Inc., has introduced a new digital fluorography processor and a software upgrade for its Infinix™-i series vascular x-ray system.

The Digital Fluorography Processor 8000 (DFP-8000D) is a user-friendly, icon-driven platform that provides intuitive, rapid tableside controls over image processing and data management. The software upgrade (version V3.10) offers overall system performance for improved productivity and patient care.

“At Toshiba, we are constantly developing new technologies...to meet the clinical demands of today’s interventional radiologists and physicians,” said Don Volz, director of Toshiba’s vascular x-ray business unit. “The new DFP-8000D will enhance visualization of devices used in interventional radiology, as well as offer dose management benefits, and unique functionalities designed to improve patient care and productivity in vascular and cardiac imaging.”

News about RSNA 2004



Additional lounge space will again be available to offer attendees an opportunity to relax and network during the annual meeting. The RSNA Research & Education Foundation will have a special donor lounge near the R&E Pavilion in the Lakeside Center.

Registration Fees

BY 11/12	ONSITE	
\$0	\$100	RSNA Member, AAPM Member
\$0	\$0	Member Presenter
\$0	\$0	RSNA Member-in-Training, RSNA Student Member and Technical Student
\$0	\$0	Non-Member Refresher Course Instructor, Paper Presenter, Poster Presenter, Education or Electronic (<i>infoRAD</i>) Exhibitor
\$110	\$210	Non-Member Resident/Trainee
\$110	\$210	Radiology Support Personnel
\$520	\$620	Non-Member Radiologist, Physicist or Physician
\$520	\$620	Hospital Executive, Commercial Research and Development Personnel, Healthcare Consultant, Industry Personnel
\$300	\$300	One-day badge registration to view only the Technical Exhibits area

For more information about registration at RSNA 2004, visit www.rsna.org, e-mail reginfo@rsna.org or call (800) 381-6660 x7862.



November 28 – December 3, 2004
McCormick Place, Chicago

Course Enrollment Opens June 21

Enrollment begins June 21 for various components of RSNA 2004, including refresher courses, *infoRAD* workshops, hands-on workshops, the NIH grantsmanship workshop, jury trial, investment courses, and RSNA tours and events.

Course enrollment information will be mailed to all RSNA members the week of June 21. The information also will be available on the Internet or by fax on demand.



Download the Course Enrollment or Tours & Events brochure

- 1 Go to www.rsna.org
- 2 Click on the annual meeting logo
- 3 Click on Registration and Housing for a PDF version of the brochure

Receive a Course Enrollment brochure by fax

- 1 Call the fax-on-demand server at (847) 940-2146
- 2 Select a document
 - Enter 1300 for the entire brochure
 - Enter 1350 for course listings
 - Enter 1375 for the registration forms only
- 3 Enter your fax number (including 1 or 011, plus city and country codes)
- 4 Enter your telephone number and extension

Four Ways to Register

Once you download the advance registration information or have it faxed to you, there are four easy ways to complete the registration process:

1 Internet

Go to www.rsna.org

Use your member ID# from the *RSNA News* label or meeting flyer sent to you, or search by your last name. If you have questions, send an e-mail to reginfo@rsna.org

2 Fax (24 hours)

(800) 521-6017
(847) 940-2386

3 Telephone (Monday–Friday, 8:00 a.m.–5:00 p.m. CT)

(800) 650-7018
(847) 940-2155

4 Mail

ITS/RSNA 2004
108 Wilmot Rd., Suite 400
Deerfield, IL 60015-0825 USA

News about RSNA 2004

Request a Printed Copy of the *RSNA Meeting Program*

Beginning in mid-June, RSNA members can request a printed copy of the *RSNA Scientific Assembly and Annual Meeting Program*. The *RSNA Meeting Program* is a benefit of membership.

To request your printed copy, go to www.rsna.org. Click on the annual meeting logo and then on Meeting Program.

Members may also call the RSNA Membership and Subscriptions Department at (877) RSNA-MEM [776-2636] (U.S. and Canada) or (630) 571-7873.

Members can choose to have the printed copy mailed to them, or they can pick up the program at the annual meeting.

The deadline to request a printed copy of the *RSNA Meeting Program* is September

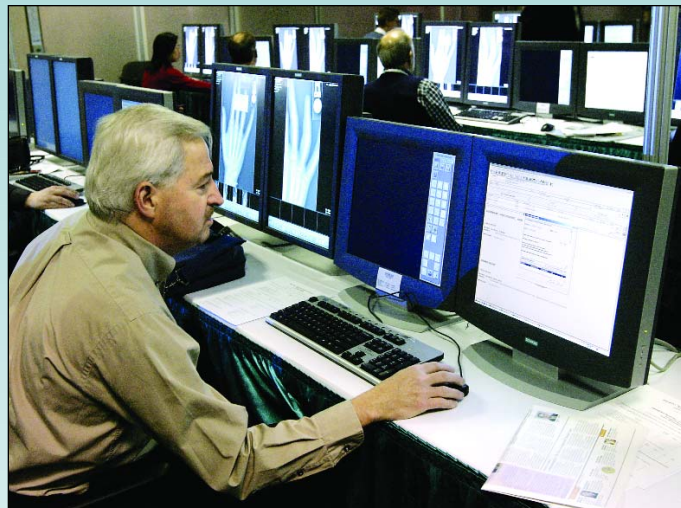
15. Members who do not exercise this Web option will not receive a printed copy. The content of the *RSNA Meeting Program* will be available online before, during and after the meeting. For more information, see page 28.

International Delegates

International attendees are strongly encouraged to apply for a visa at least three or four months in advance of RSNA 2004—in other words, by the end of **July 2004**.

Beginning **September 30, 2004**, foreign visitors (including those from the 27 countries in the Visa Waiver Program) will be photographed and fingerprinted upon arrival at a U.S. airport or seaport. The quick and efficient processes take only a few seconds in most cases. For more information, go to www.dhs.gov/us-visit.

Starting **October 26, 2004**, visa waiver travelers from all 27 Visa Waiver Program countries must present a machine-readable passport or a U.S. visa upon arrival to a U.S. airport or seaport. For more information, go to www.travel.state.gov/vwp.



The 284 refresher courses offered at RSNA 2004 will include 45 limited-attendance, hands-on workshops. Enroll beginning June 21 at www.rsna.org



Important Dates for RSNA 2004

June 21	Course enrollment opens
Nov. 8	Housing deadline
Nov. 12	Advance registration deadline
Nov. 28–Dec. 3	RSNA 90th Scientific Assembly and Annual Meeting

Earn up to 80.5 category 1 CME credits at RSNA 2004. Register online at www.rsna.org.

RSNA 2004 Exhibitor News

June Exhibitor Planning Meeting

Booth assignments will be released June 22 at the Exhibitor Planning Meeting and Luncheon. All RSNA 2004 exhibitors are invited to attend the luncheon from 9:00 a.m. to 1:00 p.m. at Rosewood Restaurant and Banquets near Chicago's O'Hare International Airport. For those who do not attend, booth assignments, exhibitor floor plans and instructions on how to access the online-only Technical Exhibitor Service Kit will be mailed immediately following the meeting.

New at the Exhibitor Planning Meeting will be a Contractor Showcase, where exhibitors will have dedicated time prior to the start of the meeting to interact with RSNA's official contractors.

Technical Exhibitor Service Kit

The RSNA 2004 Technical Exhibitor Service Kit will be available beginning July 6 at www.rsna.org. Near the annual meeting logo, click on the Technical Exhibitor link.

Exhibitors may access the password-protected site to view important information and download service request forms. The online-only kit makes it easier to navigate through the material and find important information such as registration hours, exhibit installation and dismantling hours, rules and regulations, RSNA forms and official contractor information.

The electronic kit also will allow online ordering capabilities with some contractors.

Attendance Rises at 2003 Medical and Healthcare Tradeshows

Medical and healthcare tradeshows in the United States saw attendance rise by nearly seven percent on average in 2003, according to *Tradeshow Week*. As the largest annual medical meeting in the world, attendance at the RSNA Scientific Assembly and Annual Meeting remains well above the average.

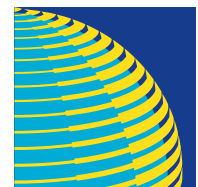
2003	Average	American Heart Association	RSNA 2003
Professional Attendees	7,995	18,219	25,178
Exhibiting Companies	330	352	668
Net Square Feet of Paid Exhibit Space	87,904	179,525	441,400



Important Exhibitor Dates for RSNA 2004

June 22	Exhibitor Planning/Booth Assignment Meeting
July 6	Technical Exhibitor Service Kit available online
July 9	Block Housing deadline date
July 30	Deadline for reduction/cancellation (for full refund) Deadline for Exhibitor Information Form
August 13	Deadline for final payment Deadline for reduction/cancellation (for partial refund)
October 13	Deadline for submission to <i>Daily Bulletin</i> New Products section.
November 12	Exhibitor advance badge request deadline
Nov. 28–Dec. 3	RSNA 90th Scientific Assembly and Annual Meeting

RSNA'04



RADIOLOGY'S
GLOBAL
FORUM

- For more information, contact RSNA Technical Exhibits at (800) 381-6660 x7851 or e-mail: exhibits@rsna.org.
- For up-to-date information about technical exhibits at RSNA 2004, go to www.rsna.org and click on the annual meeting logo.

www.rsna.org

Content Codes for RSNA Educational Materials

RSNA is now using a standard set of content codes for educational and scientific materials to help members optimize their educational activities, as well as prepare for the American Board of Radiology's maintenance of certification (MOC) requirements for self-assessment and continuing professional development.

As a result, some previously used categories will disappear from both the online and print versions of the *RSNA Scientific Assembly and Annual Meeting Program* and some new categories will be used. An expanded article was included in the May issue of *RSNA News*.

In addition to the *RSNA Meeting Program*, CME components in *RadioGraphics* and programs on InteractED will use the new content coding system. The *Walk Through the Week* brochures for the annual meeting will

also be based on the new content codes.

In the online *RSNA Meeting Program*, content codes will appear on the abstract page and will be part of the searchable database. This will make it easy to customize an annual meeting schedule based on an attendee's personal interests.

The codes are assigned first by organ system, then by modality or other. Up to three codes of each subtype are allowed.

For example, interventional breast procedures will be listed under BR (breast) and VI (vascular interventional); body MR abstracts will be listed under MR (magnetic resonance), as well as the codes for whichever body systems are being imaged; and *infoRAD* will be listed under HP (health policy/management/informatics).

Content Codes for CME Credit Categories

BR	Breast (Imaging and Interventional)
CA	Cardiac Radiology
CH	Chest Radiology
CT	Computed Tomography
ER	Emergency Radiology
GI	Gastrointestinal Radiology
GN	General
GU	Genitourinary Radiology
HN	Head and Neck
HP	Health Policy/Management/Informatics
MK	Musculoskeletal Radiology
MO	Mammography
MR	Magnetic Resonance Imaging
NM	Nuclear Medicine
NR	Neuroradiology
OB	Obstetric/Gynecologic Radiology
OT	Other
PD	Pediatric Radiology
PH	Physics and Basic Science
RO	Radiation Oncology
US	Ultrasound
VI	Vascular and/or Interventional Radiology

Subject Index Moved Online

For many years, the printed *RSNA Meeting Program* contained a large subject index based on terms chosen by authors at the time of abstract submission. With the advent of full-text search ability and content coding, this nonstandard subject index has been replaced for RSNA 2004 with the more powerful capabilities of the online *RSNA Meeting Program*.

As a result, the online *RSNA Meeting Program* will have greater importance as a search tool. Some termi-

nals at McCormick Place will be dedicated to searching the online *RSNA Meeting Program*. The terminals will be clearly marked with signs. In addition, there will be more messaging-only terminals this year.

Downloadable Personal Planner

Personal Planner pages that have appeared in the front of the printed *RSNA Meeting Program* will be replaced by a downloadable document or form in the online *RSNA Meeting Program*. This will be distinct from the interactive Virtual Briefcase, an established planner to which attendees can add events, posters, educational exhibits, technical exhibits and other items as they browse the online meeting site.

This year's meeting Web site

was launched in April to give technical exhibitors access to the online exhibitor prospectus and to become the online focus of advance registration and housing for RSNA and AAPM members.

To centralize meeting information, materials that used to appear in the Annual Meeting section of *RSNA Link* will now be accessible through the meeting site. These include speaker and presenter materials, housing information, and the transportation guide.

It's easy to access. Go to the RSNA home page at www.rsna.org and click on the RSNA 2004 logo or the Annual Meeting button.



OTHER WEB NEWS

Web Site Touts Clinical and Economic Benefits of Medical Imaging

The National Electrical Manufacturers Association (NEMA) has launched a new Web site to counter criticism that medical imaging is a driver of healthcare costs. The Web site shows how medical imaging provides economic value by keeping workers productive and adding new efficiencies to the delivery of healthcare services.

MedicalImaging.org draws upon peer-reviewed literature and other documentation, such as reports from private industry, think-tanks and government agencies, to highlight how medical diagnostic and therapeutic imaging technologies help to detect disease early, enabling minimally invasive thera-

pies and ensuring quality and patient safety.

“Medical diagnostic and therapeutic imaging—which makes much of modern healthcare possible—adds enormous clinical and economic value to patients and society,” said Robert Britain, NEMA’s vice-president of medical products. “In addition, medical imaging is introducing new savings to healthcare providers through the productivity-enhancing power of digital and information technology systems.”



New Web Site Shares Genome Sequencing Information

The International Sequencing Consortium (ISC) has launched a free online resource where researchers and the public can get the latest information on the status of genome sequencing projects.

The resource can be accessed through ISC’s home page at www.intlgenome.org. The database enables users to quickly sort sequencing project information by organism, by sequencing group or by funding agency.

Information about each sequencing project includes timetables for completion, along with brief descriptions of sequencing strategies.

Organism (Common Name)	Region	Strategies Purpose	Project Timetable	Sequencing Group	Funders
<i>Ascaris suum</i> (Nematode)	Genome	Whole genome Shotgun 2.0x Draft Assembly	11-2004 Project URL	EMBL (USA) (UK)	NHGRI (USA) (UK)
<i>Ascaris suum</i> (Nematode)	Genome	BAC end/DTA sequencing	2005 Project URL	TIGR (USA) (UK)	NIAD (USA) (UK)
<i>Ascaris suum</i> (Nematode)	Genome	Whole Genome Shotgun	Unknown Project URL	TIGR (USA) (UK)	NIAD (USA) (UK)
<i>Aspergillus fumigatus</i> (Fungus)	Genome	Whole genome Shotgun Draft Assembly	Completed Project URL	Genoscope (France) (UK)	NIAD (USA) (UK) French Ministry of Research, World Health Organization
<i>Arabidopsis thaliana</i> (Mustard weed)	Genome	Whole Genome Shotgun 6.0x (or other large done)	12-2004 Project URL	NCM-HGSC (USA) (UK)	USDA (USA) (UK) NHGRI (USA) (UK)
<i>Arabidopsis thaliana</i> (Mustard weed)	cDNA	Full-length cDNA Sequences	Unknown	KRIEEN (Japan) (UK)	NIH
<i>Arabidopsis thaliana</i> (Mustard weed)	Genome	MTD Finished	Completed Project URL	TIGR (USA) (UK)	NIH (UK)
<i>Arabidopsis thaliana</i> (Mustard weed)	Selected regions	BAC-based Shotgun (or other large done) BDB	Unknown	NSC (USA) (UK)	NHGRI (USA) (UK)
<i>Arabidopsis thaliana</i> (Mustard weed)	Genome	Whole Genome Shotgun 13.0x Draft Assembly	Completed Project URL	EMBL (USA) (UK)	NHGRI (USA) (UK)
<i>Arabidopsis thaliana</i> (Mustard weed)	Selected regions	BAC-based Shotgun (or other large done) Other	Unknown	NSC (USA) (UK)	NHGRI (USA) (UK)

connections Your online links to RSNA

RSNA Link
www.rsna.org
Radiology Online
radiology.rsnaajnl.org
Radiology Manuscript Central
radiology.manuscriptcentral.com
RadioGraphics Online
radiographics.rsnaajnl.org

Education Portal
www.rsna.org/education/etoc.html
CME Credit Repository
www.rsna.org/cme
RSNA Medical Imaging Resource Center
mirc.rsna.org
RSNA Index to Imaging Literature
rsnaindex.rsnaajnl.org

RSNA Career Connections
careers.rsna.org
RadiologyInfo™
 RSNA-ACR public information Web site
www.radiologyinfo.org
NEW
RSNA Press Releases
www.rsna.org/media

RSNA Online Products and Services
www.rsna.org/member-services
RSNA Research & Education Foundation
Make a Donation
www.rsna.org/research/foundation/donation

Community of Science
www.rsna.org/research/cos.html
History of the RSNA Series
www.rsna.org/about/history/index.html
Membership Applications
www2.rsna.org/timssnet/mbrapp/main.cfm

Medical Meetings

July – October 2004

JULY 22–24

Sociedade Brasileira de Angiologia e Cirurgia Vascular (SBACV-ES), Regional Espírito Santo, First Brazilian Congress in Vascular Ultrasound, Vitoria, Brazil
• www.ecovascularvitoria.com.br

JULY 23–25

Leadership Strategies for Radiology Practices, RSNA Education Center, Chicago Marriott Downtown
• www.rsna.org/education/shortcourses

JULY 25–29

American Association of Physicists in Medicine (AAPM), David L. Lawrence Convention Center, Pittsburgh
• www.aapm.org

JULY 29 - AUGUST 1

Intersociety Summer Conference, Loews Le Concorde Hotel, Quebec City, Canada • (800) 373-2204

AUGUST 7

Digital Presentation Skills for the Radiologist, RSNA Education Center, RSNA Headquarters, Oak Brook, Ill.
• www.rsna.org/education/shortcourses

AUGUST 8–12

Society of Computed Body Tomography & Magnetic Resonance (SCBT/MR), Summer Practicum, Chateau Whistler Resort, Whistler, British Columbia, Canada • www.scbtmr.org

AUGUST 10–14

American Society of Interventional & Therapeutic Neuroradiology (ASITN), First Annual Course & Workshops, Boca Raton Resort & Club, Boca Raton, Fla. • www.asitn.org

AUGUST 28

PowerRAD 2004, RSNA Education Center, RSNA Headquarters, Oak Brook, Ill.
• www.rsna.org/education/shortcourses

SEPTEMBER 3–5

American Institute of Ultrasound in Medicine (AIUM), Sonography: A Broad Sweep, Palace Station Hotel, Las Vegas
• www.aium.org

SEPTEMBER 9–12

Society for Molecular Imaging (SMI), 3rd Annual Meeting, Adam's Mark Hotel, St. Louis • www.molecularimaging.org

SEPTEMBER 10–12

Society for the Advancement of Women's Imaging (SAWI), SAWI 2004 Symposium, Palace Hotel, San Francisco
• www.sawi.org

SEPTEMBER 12–15

Radiology Business Management Association (RBMA), 2004 Fall Educational Conference, Miami, Fla. • www.rbma.org

SEPTEMBER 25–29

Cardiovascular and Interventional Radiological Society of Europe (CIRSE), Annual Meeting, Barcelona, Spain
• www.cirse.org

OCTOBER 1–5

North American Society for Cardiac Imaging (NASCI), Cardiovascular Imaging 2004, Ritz-Carlton, Amelia Island, Fla.
• www.nasci.org

OCTOBER 3–7

American Society for Therapeutic Radiology and Oncology (ASTRO), 46th Annual Meeting, Georgia World Congress Center, Atlanta • www.astro.org

OCTOBER 6–9

International Skeletal Society (ISS), 31st Annual Refresher Course, Westin Dragonara Resort, St. Julian's, Malta
• www.internationalskeletalsociety.com

OCTOBER 7–10

American College of Radiology Imaging Network (ACRIN), Semi-Annual Meeting, Ritz-Carlton, Pentagon City, Arlington, Va. • www.acrin.org

OCTOBER 18–22

American Osteopathic College of Radiology (AOCR), Advances in Body MR, The Wyndham New Orleans at Canal Place, New Orleans • www.aocr.org

NOVEMBER 28–DECEMBER 3

RSNA 2004, 90th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • www.rsna.org

RSNANews

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