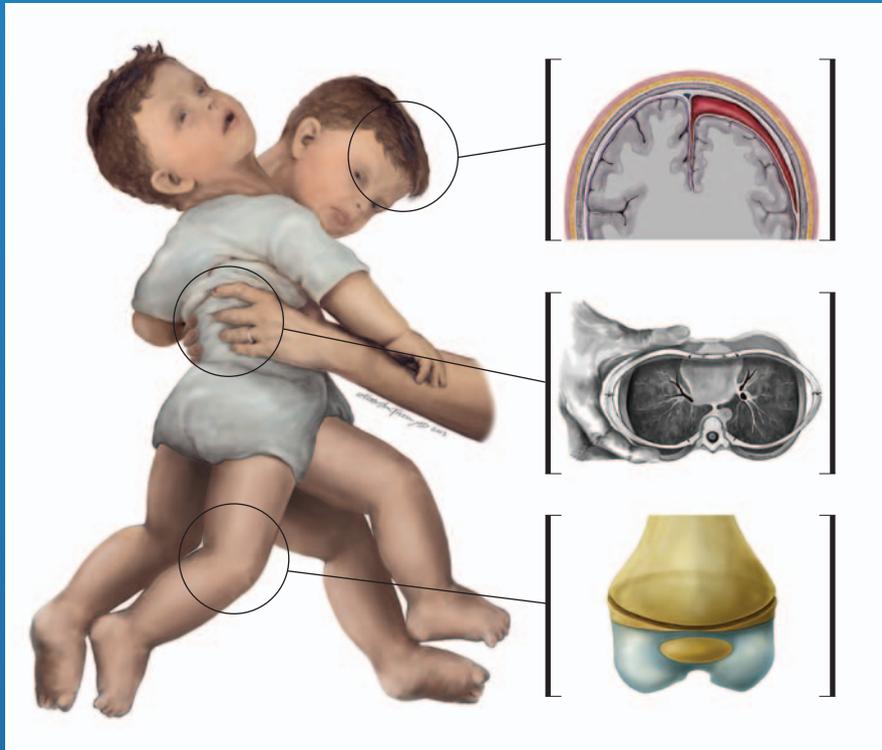


RSNA *News*



Radiologists Help Uncover Child Abuse

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- Collins Exuberant about Future of Medicine
- Resident Work Limitations in Effect
- Education Innovations Drive New Course Series at RSNA 2003
- Two Radiologists Set to Attend Their 50th RSNA Meeting
- History of the RSNA—Part 24

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RSNA News

July 2003 • Volume 13, Number 7

Published monthly by the Radiological Society of North America, Inc., at 820 Jorie Blvd., Oak Brook, IL 60523-2251. Printed in the USA.

Periodicals postage pending mailing with postage in Oak Brook, IL 60523, and additional mailing offices. POSTMASTER: Send address correction "changes" to: *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523-2251.

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

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Fraser, Stolberg Earn Queen's Medal

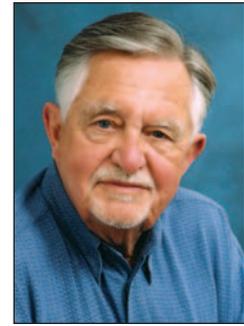
Two Canadian radiologists are being honored with a Commemorative Medal for the Golden Jubilee of Queen Elizabeth II. RSNA Past-President **David B. Fraser, M.D.**, from Musquodoboit Harbor, Nova Scotia, and **Harald O. Stolberg, M.D.**, from Hamilton, Ontario,

received their medals earlier this year and will be honored at the Canadian Association of Radiologists (CAR) annual meeting in October.

CAR nominated Dr. Fraser for his work in Canada and with RSNA representing the interests of Canada abroad. Dr. Stolberg was nominated for his work with the American College of Radiology on evidence-based medicine and radiology standards in Canada and in the United States.



David B. Fraser, M.D.



Harald O. Stolberg, M.D.

Gillard Earns UK Health Grant

Jonathan H. Gillard, M.D., F.R.C.R., from the Department of Radiology and Wolfson Brain Imaging Center at the University of Cambridge in the United Kingdom, is the recipient of a \$300,000 grant from the U.K.

Department of Health's New and Emerging Applications of Technology program.

Dr. Gillard applied for the grant with data collected from his 2000 RSNA Research Seed Grant project, "Assessment of Normal Brain Tissue Response Following Radiotherapy Using MR Dynamic Contrast Enhancement Imaging and Diffusion Tensor Imaging at 3 Tesla."

"It is unlikely that we would have received that funding if we hadn't been able to supply preliminary data from our RSNA funded work," he says. "I am indebted to my long-term mentor and friend, R. Nick Bryan, who has always been so supportive."



Jonathan H. Gillard, M.D., F.R.C.R.

Campbell Earns Outstanding Educator Award

The Philadelphia Roentgen Ray Society has awarded its 2003 Outstanding Educator Award to **Robert E. Campbell, M.D.**, editor of *Contemporary Diagnostic Radiology* and contributing editor to *RSNA News*.

Dr. Campbell is also a past-president of RSNA, a founding trustee of the RSNA Research & Education Foundation and a retired clinical professor of radiology at the University of Pennsylvania School of Medicine.



Robert E. Campbell, M.D.

Feig Receives SBI Gold Medal

Stephen A. Feig, M.D., a professor of radiology at the Mount Sinai School of Medicine and director of Breast Imaging at Mount Sinai Hospital in New York City, is the recipient of the 2003 Gold Medal from the Society of Breast Imaging (SBI).

SBI honored Dr. Feig because "for more than 25 years, [he] has been a leader in the mammography debate. He is nationally and internationally recognized for his leadership in clinical mammography, his accomplishments in breast imaging research, his dedication to teaching, and his sense of mission as an advocate of screening."



Stephen A. Feig, M.D.

Savatovsky, Legmann Share Benefits of RSNA

One of RSNA's newest corresponding members, **Julien Savatovsky, M.D.**, from the Radiology Department at Hospital Cochin in Paris, is so enthused about all of RSNA's educational opportunities that he is actively

recruiting residents from his area to become RSNA Corresponding Members-in-Training.

With the help of his program director, **Paul Legmann, M.D., Ph.D.**, an RSNA member since 1987,

Dr. Savatovsky has forwarded more than 70 applications for RSNA membership so far. All applicants are radiology residents who are entitled to free Corresponding Member-in-Training status. Among the many

benefits they receive are free admission to the RSNA annual meeting and free online access to *Radiology* and *RadioGraphics*.

Stanley New AJR Editor-in-Chief

Robert J. Stanley, M.D., has been named the new editor-in-chief of the *American Journal of Roentgenology (AJR)*, effective November 1, 2003.

“My hope is to maintain and enrich the quality and popularity of the *AJR*. By changing to a Web-based, online process of manuscript submission and review, I hope to expand the possibilities of journal content and appearance over the next 5 to 10 years,” says Dr. Stanley.



Robert J. Stanley, M.D.

“My predecessor, Dr. Lee Rogers, will complete his term as editor-in-chief with the journal in outstanding shape. It will be a formidable challenge to move the journal to the next level.”

Dr. Stanley will be based out of the University of Alabama at Birmingham, where he will continue to do clinical work. He recently stepped down as chair of the Department of Radiology after serving in that position for 20 years.

Dorfman Joins NCI

Gary Dorfman, M.D., is a new special assistant for the Biomedical Imaging Program at the National Cancer Institute. He will be responsible for planning and implementing programs to advance research in the development of image-guided interventions and their clinical application in cancer patients.

Dr. Dorfman, a past-president of the Society of Cardiovascular and Interventional Radiology (now the Society of Interventional Radiology), is an emeritus professor of radiology at Brown University, and vice-chairman and professor of radiology at the University of Massachusetts Medical School.



Gary Dorfman, M.D.

Pope AFIP Distinguished Scientist

Thomas L. Pope Jr. M.D., a professor of radiology and orthopedics at the Medical University of South Carolina in Charleston, has been named the 2003-2004 Armed Forces Institute of Pathology (AFIP) Distinguished Scientist, a position supported in part by a contribution from RSNA.

As the Distinguished Scientist, Dr. Pope will study the correlation between abnormal radiologic images and their underlying pathologic processes. His participation will enhance the educational programs and help fulfill the mission of the Department of Radiologic Pathology at AFIP.



Thomas L. Pope Jr., M.D.

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.

RSNA: PROGRAM & GRANT ANNOUNCEMENTS

HIPAA in Perspective: What it Means in Real Life Radiology

RSNA is sponsoring a one-day course on October 11, 2003, in Oak Brook, Ill., during which attendees will learn about issues relevant to HIPAA.

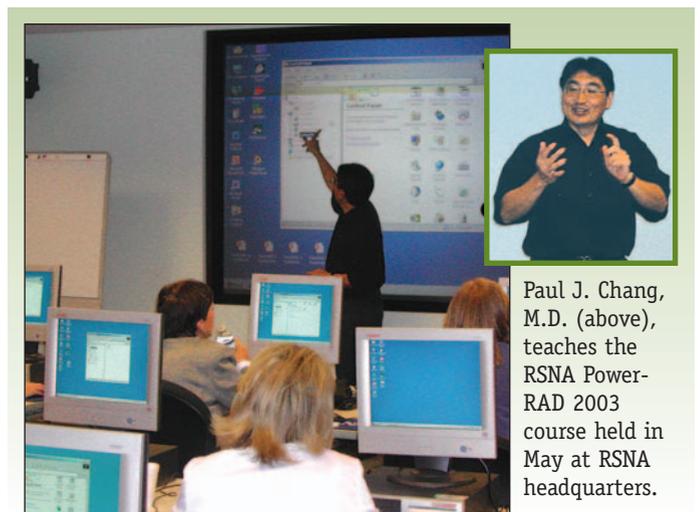
Session topics include:

- An Introduction to the Security Standards
- HIPAA's Regulatory and Legal Risks
- Making HIPAA Real
- Balancing Security with Reality
- Hot Topics and Breaking News



Registration fees are \$199 for RSNA members and \$235 for non-members.

For more information, contact the RSNA Education Center staff at (800) 381-6660 x3747 or ed-ctr@rsna.org.



Paul J. Chang, M.D. (above), teaches the RSNA Power-RAD 2003 course held in May at RSNA headquarters.

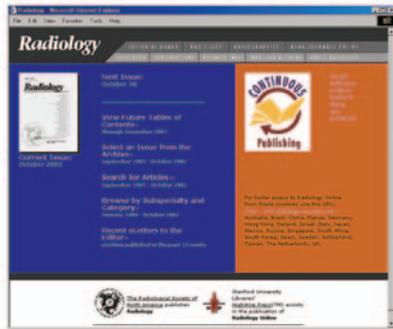
One-Third of Radiology Readers Access Online Journal

More than 12,000 readers (36.67 percent) of RSNA's peer-reviewed science journal, *Radiology*, take advantage of the journal's online features. With continuous publishing via *Radiology Online* (radiology.rsna-jnls.org), scientific material becomes available several weeks in advance of print—currently four to six weeks or more prior to the mailing of the printed issue.

One example of how online availability helps to speed access to important scientific information is in the case of severe acute respiratory syndrome (SARS). On May 8, *Radiology Online* published the first of two SARS articles that will appear in the August print version. Alerted through an RSNA E-News Alert, RSNA members accessed the full-text article nearly 1,200 times on May 8 and more than 5,900 times from May 8 to May 15.

Because of the importance of these articles, they are open access—meaning everyone, including nonmember radiologists and physicians from other specialties, can read them. A third SARS article, to be available in the September issue of *Radiology*, was posted in mid-June.

If you are not receiving e-mail communications from RSNA, go to www2.rsna.org/timssnet/login/tnt_login.cfm. After logging in, click on My Profile and then E-News Subscriptions.



RadLex Earns Service Mark, First Draft of Lexicon Under Way

RSNA has obtained a 10-year registered service mark for RadLex — a pilot project in RSNA's effort to develop a lexicon for uniform indexing and retrieval of radiology information resources.

Meanwhile, the RadLex Committee for Thoracic Radiology met at RSNA Headquarters in April. This committee will publish the first draft of a lexicon for its subspecialty/anatomic area in time for RSNA

RadLex®

2003. Committees in other areas will use the same process to build the components of a general radiology lexicon.

The result will be a rich vocabulary that can be used to describe an imaging examination with terms for modalities, techniques, visual features, anatomy and pathology. The lexicon will be used for many information resources, including teaching files, clinical trials databases, structured clinical reports, Web-based information resources and image archives.

NIBIB Report Available

A final summary report is now available from the "NIBIB Workshop on Defining the State-of-the-Art in Biomedical Imaging: Research Needs for the Future" held in March in Mississippi. To see the report and other information about the workshop, go to www.nibib.nih.gov/events/Jackson/Jackson2003.html.

ACR Forms Advocacy Alliance

The ACR Board of Chancellors has approved a resolution to switch all advocacy activities from the College, which is a 501(c)(3) organization, to a new 501(c)(6) organization called the American College of Radiology Association.

"The change in tax status means radiology can take a more proactive role in its political efforts, efforts that are prohibited under the College's current tax status," says E. Stephen Amis Jr., M.D., chairman of the ACR Board of Chancellors.



ACR Approves Statement on Functions of Radiologist Assistants

With radiologists facing a workforce shortage of near-crisis proportions, the ACR Council has approved a policy statement, jointly developed with the American Society of Radiologic Technologists, regarding the roles and responsibilities of a radiologist assistant (RA).

The radiologist assistant is identified as an "advanced-level radiologic technologist who works under the supervision of a radiologist to enhance patient care by assisting the radiologist in the diagnostic imaging environment." The RA performs patient assessment, patient management and selected exams. As conceived, the radiologist assistant will not interpret radiologic examinations nor transmit observations other than to the supervising radiologist.

For more information, see the ACR Web site at www.acr.org.

Story Ideas Welcome

RSNA News encourages readers to submit story ideas and suggestions to rsnanews@rsna.org.

RSNA News

NIH Extramural Awards

The National Institutes of Health has released the ranking tables for its Fiscal Year 2002 extramural awards. For more detailed information, go to grants1.nih.gov/grants/award/trends/medschc.htm.

NIH Awards to Medical Schools Fiscal Year 2002

RANK	MEDICAL SCHOOL	LOCATION	NUMBER	AMOUNT
1	Johns Hopkins University School of Medicine	Baltimore	896	\$382,006,714
2	University of Pennsylvania School of Medicine	Philadelphia	933	347,729,353
3	Washington University School of Medicine	St. Louis	701	328,381,301
4	UCSF School of Medicine	San Francisco	740	313,335,255
5	Baylor College of Medicine	Houston	555	262,124,966
6	University of Washington School of Medicine	Seattle	649	260,434,828
7	Yale University School of Medicine	New Haven, Conn.	676	253,554,962
8	Duke University School of Medicine	Durham, N.C.	598	245,462,465
9	UCLA School of Medicine	Los Angeles	603	241,869,389
10	University of Pittsburgh School of Medicine	Pittsburgh	600	226,297,614

NIH Awards to Medical Schools

Department=Radiation-Diagnostic/Oncology

RANK	INSTITUTION	LOCATION	NUMBER	AMOUNT
1	University of Michigan Medical School	Ann Arbor, Mich.	40	\$21,759,269
2	Washington University School of Medicine	St. Louis	49	20,850,820
3	University of Pennsylvania School of Medicine	Philadelphia	51	19,951,686
4	Duke University School of Medicine	Durham, N.C.	27	12,787,635
5	Johns Hopkins University School of Medicine	Baltimore	37	12,524,371
6	Stanford University School of Medicine	Stanford, Calif.	26	11,469,865
7	Yale University School of Medicine	New Haven, Conn.	30	9,750,591
8	University of Washington School of Medicine	Seattle	17	9,038,319
9	UCSF School of Medicine	San Francisco	30	8,603,399
10	University of Minnesota Minneapolis Medical School	Minneapolis	25	8,056,764

New NIBIB Structure Announced

The National Institute of Biomedical Imaging and Bioengineering has announced a new organizational structure and management plan for the Institute.

The new organization has a “modular” structure based on the four primary aspects of Institute activities and operations:

- Extramural Science Programs
- Intramural Science Programs
- Office of Science Administration
- Office of Administrative Management

Details of the new structure and management plan are available at www.nibib.nih.gov/news/currentnews.htm#news051303a.



LETTER TO THE EDITOR



TO THE EDITOR

I read with interest the article on the Canadian Association of Radiologists (May 2003, *RSNA News*).

I think a great deal of credit should go to Dr. Ian Hammond, the present president of CAR who spearheaded the effort. You forgot to even name him in your piece. To give credit to the present CEO rather than the president is like giving credit of the U.S. victory in Iraq to General Franks. I hope RSNA will correct this error.

PASTEUR RASULI, M.D.

DR. RASULI,

Of course the events described in the article owe much to all of the CAR leadership. While Drs. John Radomsky and Ian Hammond—the subsequent CAR presidents—have played a major role in the evolution of more recent events in Canada, our advice is that the article fairly represents the previous events in recent history as they occurred.

BRIAN C. LENTLE, M.D.

RSNA PRESIDENT-ELECT
1997-1999 CAR PRESIDENT



RSNA News welcomes Letters to the Editor. Let us know what's on your mind. Send your letter by mail to *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523, by fax to (630) 571-7837, or by e-mail to rsnanews@rsna.org. Please include your full name and telephone number. Letters may be edited for purposes of clarity and space.

Collins Exuberant about Future of Medicine

Still ebullient after the recent completion—ahead of schedule and under budget—of the Human Genome Project (HGP), Francis S. Collins, M.D., Ph.D., director of the National Human Genome Research Institute, painted a rhetorical picture of a Brave New World of medical capabilities over the next few decades as he spoke to an audience of imaging professionals at the American College of Radiology's 80th annual meeting.

HGP's biggest contribution to medicine is that it's leading to the discovery of the genetic roots of common diseases such as diabetes, cancers, mental illness and heart disease. The next stage of the project is creating a haplotype map (HapMap) of the human genome.

The human genome is thought to contain at least 10 million places where there are some slight code variations called single nucleotide polymorphisms or SNPs. A haplotype is a block of SNPs. Most of these variations have been around since the caveman and most are negligible. HGP has succeeded in sequencing three billion base pairs of genes, but only about four million SNPs have been identified so far.

Theoretically, researchers could hunt for genes using a map listing all 10 million SNPs, but there are major practical drawbacks to that approach. Instead, the HapMap will find the chunks into which the genome is organized, each of which may contain dozens of SNPs. Researchers then only need to detect a few tag SNPs to identify that unique chunk or block of genome and to know all of the SNPs associated with that one piece.

This strategy works because genetic variation among individuals is organized in "DNA neighborhoods," called

haplotype blocks. SNP variants that lie close to each other along the DNA molecule form a haplotype block and tend to be inherited together. SNP variants that are far from each other along the DNA molecule tend to be in different haplotype blocks and are less likely to be inherited together.

To find the genetic answer to diabetes, for example, one would collect 1,000 DNA samples from patients with diabetes, 1,000 from patients free of the disease, and then compare each SNP.

Developing this HapMap is the job of the successor international project to the HGP, which started last fall. "With the HapMap, we should be able to identify the genetic and environmental risk factors for all major diseases in the next eight to 10 years," Dr. Collins predicted. "We will also be able to make predictions on who is developing illness before the signs appear."

Designating haplotypes will be a powerful tool because there is so little variation in human genomes. Dr. Collins said that 99.9 percent of human genetic codes are identical. Only one-tenth of a percent varies from person to person. "That one tenth of a percent will probably reveal the underlying disposition to diabetes, heart disease and cancer," he explained.

The future for the HGP wasn't always so bright. The project began in 1990 amidst quite a bit of naysaying. Many thought the sequencing of three billion base pairs of genes would be prohibitively expensive. "Perhaps the most disturbing criticism," remembered Dr. Collins, "was that the work would be so mind-numbingly boring that no good scientist would want to be part of it. People said we would attract the bottom feeders of the mediocrity of the



Francis S. Collins, M.D., Ph.D.
Director, National Human Genome Research Institute

scientific community."

In the beginning, many scientists expected to find 100,000 genes in the human genome. The total is actually under 30,000. Dr. Collins called that revelation particularly sobering given the fact that other organisms, which we consider quite rudimentary, have gene totals close to 30,000. The fruit fly has 13,000 genes; the round worm has 19,000 genes.

"Researchers in China a few months ago discovered that rice has 55,000 genes, so have more respect for lunch," Dr. Collins joked.

Why don't humans have more genes than rice? Dr. Collins hypothesized that human genes may multitask to a greater extent than we had thought. For example, each human gene makes three different proteins through alternative splicing.

As the window into the human genome widens with the development of HapMap, and physicians are able to

Continued on next page

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predict predisposition to major diseases, genomic discovery will then take on therapeutics.

Dr. Collins used Gleevec™ (imatinib mesylate) as an example. In chronic myelogenous leukemia (CML), two chromosomes mistakenly swap chunks of DNA. In the exchange, a signaling protein gene loses the information that specifies the protein's off switch. Gleevec was designed with a precise understanding of the molecular basis of CML—the chemical goes directly to the abnormal site of the protein produced as a result of the translocation. “Gleevec has taken a disease which was untreatable, to circumstances where 95 percent go into remission,” Dr. Collins noted. “That is the paradigm we want to see happen for diabetes and the other diseases.”

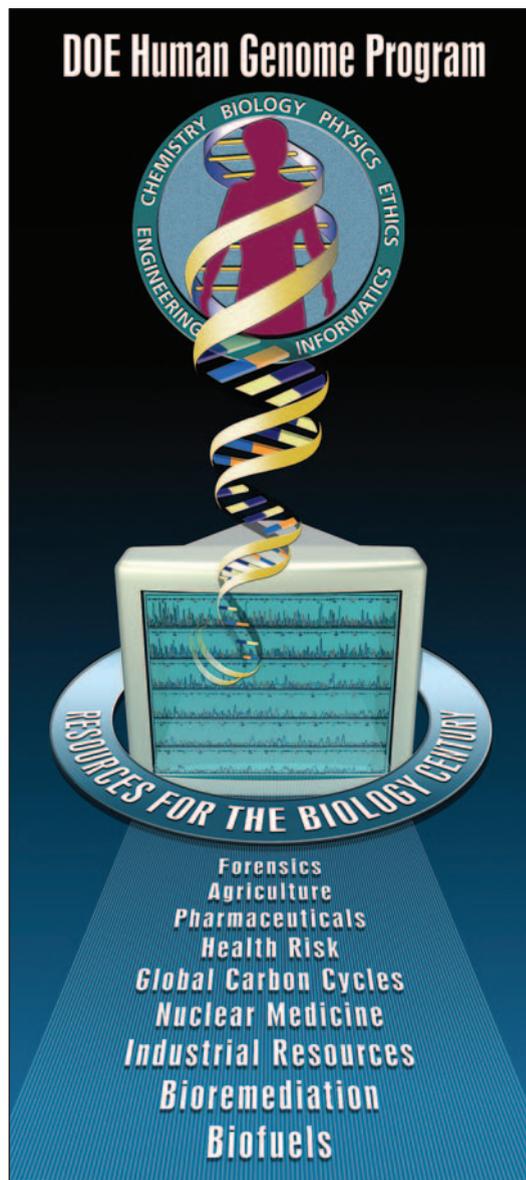
Even though he was speaking to an audience of radiologists, Dr. Collins did not focus much on the genomic revolution's implications for imaging, but did refer to molecular imaging a couple of times. “How would you in vivo figure out whether a gene is turned on or off in a particular tissue in a noninvasive way?” he wondered. “We have some ideas there and we are working closely with the new NIH Institute on Biomedical Imaging and Bioengineering to make sure we take advantage of all opportunities.”

Why don't humans have more genes than rice? Dr. Collins hypothesized that human genes may multitask to a greater extent than we had thought.

He closed with some cautionary notes. Achieving genomic glory in medicine, he said, is predicated upon “paying attention to ethical, legal social issues or the public may be afraid to take advantage of these new developments.”

On May 21, a U.S. Senate committee unanimously passed a measure that would ban companies from using genetic tests to deny insurance coverage, raise insurance premiums or make hiring and other employment decisions. The bill is expected to receive full Senate approval.

Dr. Collins said he also worries about the fact that approximately 40 percent of the genes identified by the HGP have been patented by universities and companies. Even some of the haplotypes that have been recently identified are the subject of patent applications. “All of this is pre-competitive information that in previous years would never have been considered an appropriate topic for intellectual property claims,” Dr. Collins mused. “But things have changed a lot in the past 10 to 15 years. These patents may prove quite a disincentive to future research.” □



U.S. Department of Energy Human Genome Program, www.ornl.gov/hgmis.

Special Focus Session at RSNA 2003

A special focus session, “Molecular Imaging: Potentials and Challenges for Radiology,” will be held from 4:00 – 5:30 p.m. on Monday, December 1, 2003, at RSNA 2003 in Chicago. The session will be moderated by Philip O. Alderson, M.D., president of the Academy of Radiology Research.

Radiologists Help Uncover Child Abuse

Radiology is very important in the discovery and documentation of child physical abuse. A report in the July-August issue of *RadioGraphics* will help diagnostic radiologists who are in the vanguard of detecting these injuries.

The report, “Child Abuse: Radiologic-Pathologic Correlation,” says about one percent of American children are subjected to some form of neglect or abuse, and inflicted injury is responsible for approximately 1,200 childhood deaths annually.

“Radiologists are asked to testify in court about whether or not injuries have been inflicted,” says lead author Lt. Col. Gael J. Lonergan, M.D., formerly of the Armed Forces Institute of Pathology (AFIP). “I thought this review was something that should be put into the literature in an accessible format for general diagnostic radiologists.”

The report reviews the radiologic injury patterns commonly discovered in physically abused children, with special emphasis on the biomechanical forces that produce the injuries, their pathologic and radiologic appearance, and

forensic implications of certain features of the injuries. The paper draws extensively on the pioneering work of pediatric radiologist Paul K. Kleinman, M.D., of Boston Children’s Hospital.

“This is a complex topic. There’s much more involved than just seeing the fracture,” says Dr. Lonergan, who is now with the Austin Radiological Association in Texas. “For example, seeing a rib fracture and knowing what it means, what to infer about how it was caused, how forensically significant it is and determining legal ramifications are the important issues.”

In the report, the authors explain that child physical abuse may manifest as virtually any injury pattern known to medicine, “Worrisome injuries include rib fracture, metaphyseal fracture, inter-hemispheric extraaxial hemorrhage, shear-type brain injury, vertebral compression fracture and small bowel hematoma and laceration, among others.” They also note that the vast majority of these injuries are readily detectable at imaging.

Multiple broken bones over a short period of time suggest physical abuse,



Lt. Col. Gael J. Lonergan, M.D.

as do injuries that are out of proportion to the reported trauma, according to Dr. Lonergan.

“For example, imagine a child presenting with multiple severe abdominal contusions and the history given by caretakers is that they were in a minor fender-bender type of auto accident. That raises suspicion,” she says. “Classic metaphyseal lesions are discovered in up to half of abused children less

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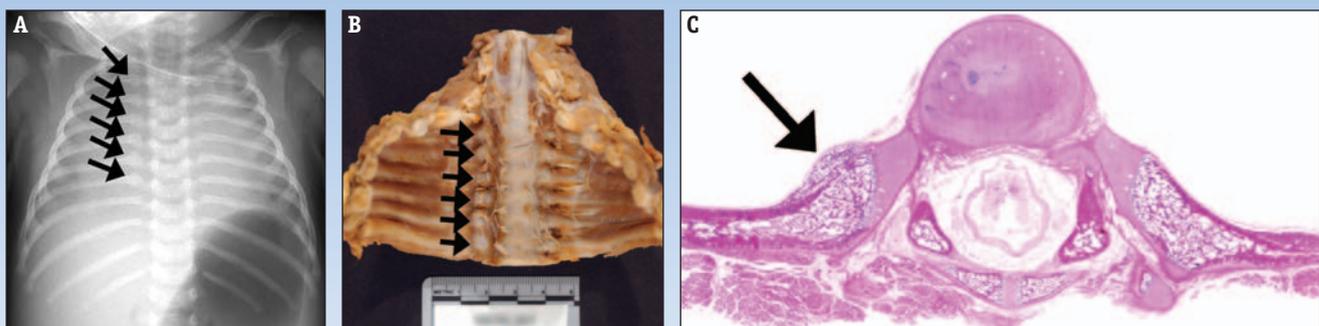


Figure 1: Acute lateral and healing posterior rib fractures in a fatally smothered seven-week-old boy. **(A)** Frontal chest radiograph of the deceased infant reveals widening of the posterior right third through eighth ribs (arrows). **(B)** Autopsy photograph of the resected chest cage shows healing posterior rib fractures (arrows), which are subtle but distinctly larger and more bulbous than the contralateral normal posterior ribs. **(C)** Axial photomicrograph (unmagnified, hematoxylin-eosin stain) of a rib fracture shows mineralized callus (arrow).

(*RadioGraphics* 2003; 23:811-845) Photographs and drawings ©RSNA. Printed with permission.

Continued from previous page

than 18 months of age. In addition to skeletal injuries, the article details the pathologic and radiologic characteristics of visceral and central nervous system

injuries. Among these, non-accidental head injury is the leading cause of morbidity and mortality in battered children.”

Dr. Lonergan says some of the most frustrating barriers to injury evaluation become apparent during the evaluations of children who die unexplained or unexpected deaths. As part of the autopsy, radiographs may be obtained, though they usually are images of large areas of the body or even the whole body of a small child. These images are known as babygrams.

“Medical examiners rely on babygrams done in the morgue that are not typically seen by

radiologists,” says Dr. Lonergan. “While babygrams may be adequate to detect a bullet or major bone fracture, they are inadequate for the detection of subtle injuries of abuse such as classic metaphyseal lesion (CML) and rib fracture.”

She says that a skeletal survey—a full set of high-resolution films—should be more widely used in suspicious cases; however, skeletal surveys may place an economic or logistical hardship on medical examiners who have limited resources and limited or no access to radiologists or radiologic technologists to perform imaging studies and interpret the results.

“If you do get a film in a medical examiner’s office it’s usually going to be a babygram and it’s usually going to be read by the pathologist doing the autopsy,” Dr. Lonergan says. “This constitutes a big hole in the system.”

In addition, metaphyses are not routinely evaluated at autopsy. “Detection of CML, regarded as the most specific radiographically detectable injury in abuse, depends on high quality, small field-of-view films,” she says. “In Dr. Kleinman’s landmark study of

post-mortem imaging, fully 93 percent of infants dying suspicious deaths had evidence of older, highly abuse-specific injuries detected radiographically.”

Classic metaphyseal lesions are discovered in up to half of abused children less than 18 months of age.

— Lt. Col. Gael J. Lonergan, M.D.

The Society for Pediatric Radiology is developing a position paper in conjunction with the National Association of Medical Examiners to outline the optimal radiologic

evaluation of suspicious infant deaths and facilitate radiologic assistance as part of the complete autopsy.

The authors of the *RadioGraphics* article write, “Careful observation of radiologic findings and their correlation with the proposed mechanism of injury and with the developmental capabilities and clinical status of the child are imperative in the evaluation of any child, lest we overlook an important clue to the inflicted nature of an injury and return a child to an abusive environment, with potentially disastrous consequences.” □

Editor’s Note: The full text of the RadioGraphics article is online and free to RSNA members and subscribers at radiographics.rsna.org/current.shtml. Click on AFIP articles, then the Full Text link next to the Lonergan article.

CT or MR Imaging Recommended for Certain Abuse Cases

A STUDY IN THE JUNE 2003 issue of *Pediatrics* supports a recommendation for universal screening in neurologically asymptomatic abused children with certain high-risk criteria—particularly if that child is under one year of age. Of the 51 patients in the study who met the criteria and who also underwent CT or MR imaging, the researchers found that 19 children (37.3 percent) had an occult head injury. Skeletal survey alone missed five out of those 19 cases.

The abstract for this study is available at pediatrics.aappublications.org/cgi/content/abstract/111/6/1382.

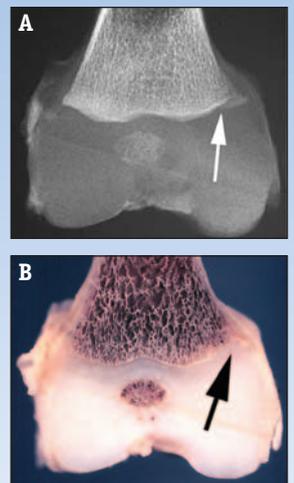


Figure 2: Femoral shaft fracture in an abused five-year-old boy. Frontal radiography shows a transverse fracture of the diaphysis in femoral pin traction. The mother’s boyfriend confessed to pushing a television cabinet on top of the boy.



Figure 3: Sacral fracture dislocation in an abused two-month-old girl. Lateral radiograph depicts a fracture between the fourth and fifth vertebrae, through the intervertebral disk space. The fifth sacral vertebra and coccyx (arrows) are anteriorly displaced. The injury was originally explained as resulting from a changing table fall; the mother’s boyfriend later confessed to slamming the child down in a sitting position.

Figure 4: Subacute CML in a fatally abused seven-week-old boy. (A) Specimen radiograph of the distal femur (overlying soft tissue removed) shows irregular lucency of the medial femoral metaphysis (arrow). (B) Photograph of the fixed, bivalved femur shows physeal cartilage extension into the metaphysis (arrow).



Resident Work Limitations in Effect

As of July 1, all accredited medical teaching institutions must comply with resident training rules imposed by the Accreditation Council for Graduate Medical Education (ACGME). The rules, designed to reduce resident fatigue and protect patients, replace an assortment of regulations assigned to each of the 26 specialties.

The new requirements are:

- 80 hours per week limit, averaged over a four-week period, inclusive of all in-house call activities.
- In-house call no more often than every third night, averaged over a four-week period.
- Limit of 24 hours per shift with allowance of up to six additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics and maintain continuity of medical and surgical care.
- No new patients may be accepted after 24 hours of continuous duty
- Minimum rest period between all daily duty periods and after in-house call that should be 10 hours.
- One full day per seven days free from all clinical, educational and administrative activities averaged over a four-week period, inclusive of all call.
- Faculty and residents/fellows must be educated to recognize the signs of fatigue.
- Policies must be adopted and applied to prevent, monitor, and counteract the potential negative effects of fatigue.

Next January, the federal government, which has been threatening to legislate the issue, will ask the ACGME for proof of compliance.

It's widely accepted that sleep deprivation affects a physician's cognitive



Theresa C. McLoud, M.D.
Massachusetts General Hospital



Susan D. Wall, M.D.
University of California, San Francisco

ability, judgment speed and surgical precision. The issue has prompted considerable discussion in the medical profession and on Capitol Hill.

One state—New York—has a resident work law that results in fines for hospitals that don't comply (see sidebar). Experience in New York and other institutions already in compliance suggests that resident benefits are accompanied by increased costs to teaching hospitals, and strains on the physician-patient relationship, treatment continuity and certain aspects of resident training.

"Of course you want residents to be able to go home, and have time to spend with family or to read and study. You want them to have a life outside the hospital. But focusing on a number in terms of hours and hours between shifts may move us away from traditional training goals," says Sanjeev Bhalla, M.D., assistant professor of radiology at the Mallinckrodt Institute of Radiology in St. Louis, which has already brought its program into conformity. "The residents on night float

like the idea of working two nights and getting a third night off. In order to do that, we've had to get people out earlier at night and in earlier for readouts in the morning. Nothing compares with sitting down with an attending and reading a case live."

Theresa C. McLoud, M.D., director of education in the Department of Radiology at Massachusetts General Hospital, and RSNA Board Liaison for Education, says hospitals will need to provide additional support for residents so that they can focus more on the patient: "These guidelines are good for patient care and shouldn't be difficult to implement in radiology. It's important that we protect the health of our residents and make sure they can function well. We shouldn't need federal or state legislation to do that."

While the ACGME rules govern in-house activities, they don't limit the number of times a person can be paged at home in the middle of the night to read radiographic studies via a PACS

Continued on next page

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unit. "Radiology needs to address the often-forgotten fundamental issue regarding duty hours—how much sleep a person is getting and how fatigued he or she is," says Susan D. Wall, M.D., professor, vice-chair of radiology, and senior associate dean at the University of California San Francisco.

Ingrid Philibert, director of field activities for ACGME, says interruption at home is a difficult issue: "It's up to the profession and it's up to our sense of reason that says if care is especially difficult or prolonged, there ought to be relief. If the fellow has been up all night, there ought to be good sense within the program to tell him to take the morning off. You simply can't write the rules at that level of specificity without becoming a micro-manager. Rules can be toxic."

The Domino Effect

Financially strapped teaching hospitals may be hard-pressed to comply with the new rules. "The expense of this mandate is a major issue to all concerned and it's not to be underestimated," says Dr. Wall, chairman of the *RSNA News* Editorial Board. "Teaching institutions have been able to deal with residents doing work that probably should be designated as another person's responsibility. That means somebody else will have to be hired and that's a big expense at a time that teaching hospitals are under dire eco-



Seymour H. Levitt, M.D.
University of Minnesota



Sanjeev Bhalla, M.D.,
Mallinckrodt Institute of Radiology

nomics stress and don't have that kind of margin."

Philibert says hospitals in New York were slow to comply with the state's regulations because of the expense of hiring physicians' assistants, extra radiologists and others, "You wouldn't have to be an especially smart CFO to understand that a resident who works 80 hours a week and costs you \$40,000 to \$50,000 is a better deal than a nurse practitioner who works, say, 35 to 40 hours a week and will cost you in New York between \$95,000 and \$115,000."

Costs aside, teaching hospitals will have to hire additional staff, says Seymour H. Levitt, M.D., from the Department of Therapeutic Radiology at the University of Minnesota: "It's not fair

to the patients or to the physicians or anybody else to have people working when they're exhausted. This is extremely important because, in the past, some programs have essentially utilized residents to take a position in place of staff. I think that's wrong. These youngsters are there for training."

At Mallinckrodt, which has 64 residents in training, Dr. Bhalla fears that residents will become overly focused on their hours: "Our philosophy has always been that every film—every study—is looked at first by a resident and then by an attending. In the past decade, we've had to modify that because volume requires attendings to pick up dictaphones and start dictating. If we become too centered on resident

Continued on page 12

The New York Experience

New York State's 13-year-old mandatory limits on resident work hours has made the lives of young radiologists "more normal and humane," according to Carrie Ruzal-Shapiro, M.D., associate professor of radiology and pediatrics at the Columbia College of Physicians and Surgeons in New York City. The "405" law generally mirrors the new ACGME rules, except that viola-

tors face monetary fines rather than loss of accreditation.

Dr. Ruzal-Shapiro says perceived improvements have come at the expense of physician-patient and resident-faculty relationships, "When I was a house officer, even though I was an intern and patients had attendings, they really viewed me as their doctor because I admitted them and I was there every day

and at night."

She says the manpower issue has also been difficult. This year Columbia hired its first physician assistants to work in interventional radiology doing pre- and post-procedure checks. It has also hired another pediatric nurse practitioner to help with sedation and a staff radiologist to do weekend work.

"Attendings dictate a great

many more cases without resident involvement," she says. "In chest and pediatrics, residents dictate fewer than half of the studies."

She adds, "Twenty years ago, residents knew they were going to give up several years of life to devote to training. Now, people no longer think it's an appropriate thing to do."

Education Innovations Drive New Course Series at RSNA 2003

Radiologists attending RSNA 2003 will be able to participate in an exciting new refresher course series—Case-based Review courses.

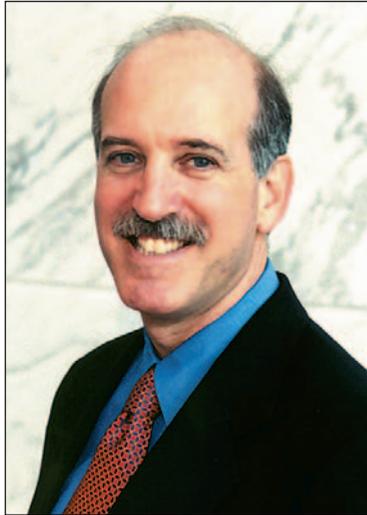
Unlike any other courses offered during the annual scientific assembly, these Case-based Review courses will each be held on a single day, in a problem-based interactive format.

“The problem for many RSNA registrants is that they can’t stay the whole week at the meeting,” says Robert A. Novelline, M.D., vice-chairman of the RSNA Refresher Course Committee. “They can only spend a couple of days in Chicago and then they have to return home so that their colleagues can attend for a few days.”

While ease of scheduling is an important consideration for attendees, they also want to be challenged and stimulated. That’s exactly what will happen during the Case-based Review courses.

“Interactive teaching is a direction that is considered very popular today and an excellent way to teach. This is RSNA’s first major experiment in Refresher Course interactive teaching,” says Dr. Novelline, who is also a professor of radiology at Harvard Medical School and director of emergency radiology and undergraduate radiology at Massachusetts General Hospital in Boston.

“In each session, there will be a preliminary introduction, the instructor will show unknown cases and then the audience will have to solve the cases and answer questions,” explains Dr. Novelline. “Audience members will have electronic controls. After the case is presented and the questions are



Ronald J. Zagoria, M.D.
Chairman, RSNA Refresher Course Committee



Robert A. Novelline, M.D.
Vice-Chairman, RSNA Refresher Course Committee

asked, each person can respond.”

The instructor will know immediately the percentage of people who got the question right and the percentage of people who got the question wrong.

The instructor can then alter the

each course is full.

Dr. Novelline, Refresher Course Committee Chairman Ronald J. Zagoria, M.D., and RSNA staff met with the leadership of the three related subspecialty societies, Society of Interventional Radiology, American Society of Neuroradiology and Society for Pediatric Radiology, to get their suggestions for course directors and curriculum.

“The benefits of attending this course are that a registrant can complete it in one day, it will be in a much more thought-provoking format than listening to a lecture, and it will be taught by a superb faculty in a challenging problem-based fashion,” says Dr. Novelline.

The benefits of attending this course are that a registrant can complete it in one day, it will be in a much more thought-provoking format than listening to a lecture, and it will be taught by a superb faculty in a challenging problem-based fashion

—Robert A. Novelline, M.D.

remainder of the teaching based on the understanding of the audience for each of the questions being asked.

Case-based Review courses will be offered in three subspecialties during RSNA 2003—neuroradiology on Monday, vascular/interventional radiology on Tuesday and pediatric radiology on Wednesday. Registration for courses began June 23 and will continue until

Essentials of Radiology

Last year was the first time RSNA offered the Essentials of Radiology refresher course series. The series was

Continued on next page

Continued from previous page

so popular, it will be offered again this year.

“We anticipated a few hundred people

CME Credits for Europeans Attending RSNA 2003

NEW! CME credit at RSNA 2003 will be recognized by the European Accreditation Council for CME (EACCME). This will be on an hour-by-hour basis. RSNA works closely with the American Medical Association and has met the requirements by which it can award category 1 credits to international attendees that will be accepted by the EACCME.

Radiologic Technologists and others requiring technologist continuing education (CE) credit should indicate their need for CE credit at the time of registration.

might come to each session, but we soon had to move the courses into rooms accommodating 1,100 people—and we still had to turn people away,” says Dr. Zagoria, a professor and vice-chairman for medical affairs, and section head of abdominal imaging at Wake Forest University Baptist Medical Center in North Carolina. “This year, we are again seeing strong registration for the Essentials courses.”

The Essentials series provides 90-minute courses in eight subspecialties over

a two-day period. The course block includes sessions on imaging of the breast, chest, liver, shoulder, pediatric, trauma, ultrasound and urology.

“In a concentrated period, you can be exposed to some of the best speakers in the world who are experts in their topics and get a broad review course on general radiology,” says Dr. Zagoria. “The most popular part of the RSNA meeting is the refresher courses. Having the Case-based Review courses and the Essentials of Radiology courses in a concentrated format makes them even more popular.”

New this year, attendees can sign up for single Essentials courses, rather than the entire block of courses.

If you have already registered for RSNA 2003, you may register for refresher courses at www.rsna.org/register. Click on Refresher Course Enrollment, enter your meeting confirmation number and then enter your selections. If you have not yet registered for RSNA 2003, see page 21 for further instructions. □

CASE-BASED REVIEW COURSES

Monday, December 1

Neuroradiology

8:30 a.m. – 5:45 p.m.

Tuesday, December 2

Interventional Radiology

8:30 a.m. – 6:00 p.m.

Wednesday, December 3

Pediatric Radiology

8:30 a.m. – 5:00 p.m.

ESSENTIALS OF RADIOLOGY

Tuesday, December 2

Essentials of Ultrasound Imaging

8:30 a.m. – 10:00 a.m.

Essentials of Pediatric Imaging

10:30 a.m. – 12:00 p.m.

Essentials of Chest Radiology

1:00 p.m. – 2:30 p.m.

Essentials of Shoulder Imaging

2:45 p.m. – 4:15 p.m.

Wednesday, December 3

Essentials of Liver Imaging

8:30 a.m. – 10:00 a.m.

Essentials of Urology

10:30 a.m. – 12:00 p.m.

Essentials of Trauma CT

1:00 p.m. – 2:30 p.m.

Essentials of Breast Imaging

2:45 p.m. – 4:15 p.m.

Did you know?

WHILE RSNA AND MOST RADIOLOGISTS commonly use the term continuing medical education (CME), the professional medical world is now using the term continuing professional development (CPD).

CME programs are actually a subcategory of CPD. The concept is one of continuous self-improvement where physicians are continually assessing what they know and how they are practicing and seeking out new knowledge and training to strengthen themselves in various areas.

The AMA officially changed its terminology from CME to CPD a few years ago. Canadians have also been using CPD for a few years.

Resident Work Limitations in Effect

Continued from page 10

work hour issues, we will lose sight of other parts of resident training.”

He adds that the number of academic attendings has declined in the face of increasing volume and the question becomes, Who picks up that extra work? “I think it would be junior faculty, which would adversely affect resident training in the long run,” he says.

Scott Preusen, M.D., J.D., a fourth-year diagnostic radiology resident at

Loyola University in Chicago, welcomes the regulations, which he says will make it easier to study during his off hours. His main concern is the reporting of infractions.

“Most of the grievances to the ACGME will be filed by residents,” he says. “If ACGME denies accreditation or puts a program on suspension, it’s the residents who will be hurt because they’d be in an unaccredited program.”

However, Philibert gives reassur-

ance that whistle-blowers will be cloaked in confidentiality and residents will be given plenty of time to either graduate or move to another program before accreditation withdrawal occurs.

For more information on the new requirements, go to www.acgme.org/DutyHours/wkgroupreport611.pdf. □

Two Radiologists Set to Attend Their 50th RSNA Meeting

Alexander R. Margulis, M.D., and William R. Eyler, M.D., have something in common. Both are in their 80s, both are still practicing radiology and both will be celebrating 50 years of perfect attendance at the RSNA Scientific Assembly this fall.

“I first attended the 1953 congress at the Palmer House as a senior resident and clinical instructor at the University of Michigan, and have religiously attended the meetings every year since,” says Dr. Margulis. “The RSNA annual meeting has throughout my professional career been the annual highlight scientifically, educationally and socially. Besides being the unique place for learning it was always also the site to meet friends and renew associations.”

Dr. Margulis is a pioneer in radiologic education. During his many years at the University of California San Francisco Medical School, he introduced new technologies into clinical effectiveness—most notably in MR imaging—and was instrumental in transforming the institution into the vital facility it is today.

He works as an attending radiologist at the New York Hospital-Cornell Medical Center. “Reminiscing about the time when the meetings were held at the Palmer House, I am impressed how over the years the congresses got bigger and more complex, but still managed to retain the high quality of science while always being a model of superb organization and order,” he says.



Alexander R. Margulis, M.D.



William R. Eyler, M.D. (left), received an RSNA Gold Medal in 1976.

I return from the meetings recharged and proud to be a member of a professional group from which volunteers are doing so much to contribute to education, to the advancement of knowledge and to mutual support. I look forward to RSNA 2003.

—William R. Eyler, M.D.

Dr. Eyler concurs: “Keeping abreast of progress in our specialty is never easy. The meeting offers the opportunity to acquire an intensive update. Exhibits, papers, refresher courses and

informal discussions all are useful aids to the effort.”

Dr. Eyler has been an active RSNA member his entire career. He served as editor of *Radiology* for 20 years (1966-1985), and continues to be the Society’s Historian—a position he has held since 1974. For many years concurrently, Dr. Eyler was also the chairman of the Radiology Department at Henry Ford Hospital in Detroit and continues to practice there.

“I return from the meetings recharged and proud to be a member of a professional group from which volunteers are doing so much to contribute to education, to the advancement of knowledge and to mutual support,” he says. “I look forward to RSNA 2003.” □

History of the RSNA—Part 24

The Mid-1990s

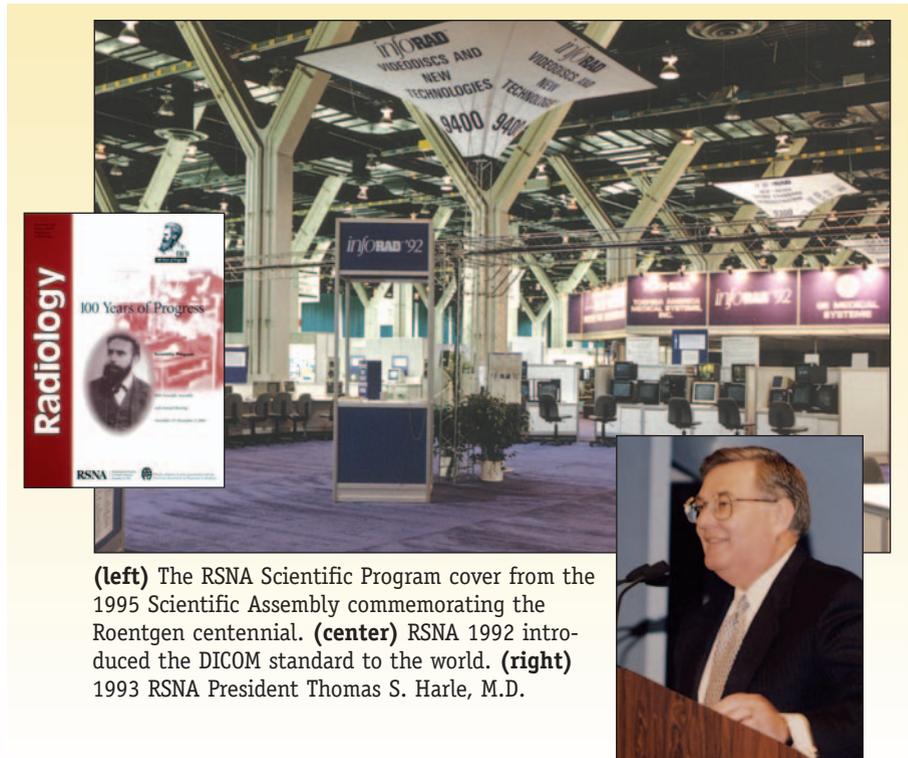
Digital technology was burgeoning in the early 1990s. At the 1992 RSNA Annual Meeting, *infoRAD* featured the first public demonstration of a standard for digital imaging and communications in medicine (DICOM), developed by the American College of Radiology and the National Electrical Manufacturers Association. DICOM has subsequently become the universal standard for medical imaging.

Earlier that year, RSNA made its debut on cable television. “Radiology Update,” a series aimed primarily at radiologists, was produced by Lifetime Medical Television in association with the Society. Several months later, the show was cancelled when Lifetime Medical changed formats. The Radiology Today video series also was discontinued due to lack of subscribers and advertising support.

Education Center Formed

1993 was marked by many successes. The RSNA educational materials library included courses on slides and audiocassettes as well as videocassettes. To develop educational materials in new electronic formats such as compact discs and the Internet, the Board of Directors established a Learning Center. RSNA President Thomas S. Harle, M.D., headed the editorial board that selected the materials for the new Learning Center.

RSNA also began enlightening the public about the role of radiology in healthcare. The Society contributed money for imaging exhibits at Chicago’s Museum of Science and Industry and helped organizations, such as Radiology Centennial, Inc., educate patients about radiology.



(left) The RSNA Scientific Program cover from the 1995 Scientific Assembly commemorating the Roentgen centennial. (center) RSNA 1992 introduced the DICOM standard to the world. (right) 1993 RSNA President Thomas S. Harle, M.D.

Envisioning the Future

Concerned about the fast-paced technological changes and the evolution of healthcare toward a managed, for-profit system, Society leaders believed radiologists must adopt a proactive stance regarding the shaping of their futures in medicine. Consequently, they created a thinktank called FutuRAD, which studied the coming changes and recommended new activities and programs for RSNA.

Meanwhile, planners of the 1993 annual meeting were taking advantage of technological changes. The *Scientific Program* was offered in an electronic format and a new fiberoptic communication link, called RSNAnet, allowed exhibitors to transmit radiologic images and other scientific information between the East and North buildings

of McCormick Place. Also, *infoRAD* featured a deployable teleradiology unit for use during war or disaster relief.

In his President’s Address, Dr. Harle acknowledged the relationships RSNA had developed with international organizations such as the European Congress of Radiology, the British Institute of Radiology and the Japan Radiological Society. He also announced that RSNA had formed the Research Development Committee, “to provide support to members in their development as researchers and investigators.”¹

As RSNA objectives increased, so did the number of staff members at the Oak Brook headquarters. By 1994, the Society employed nearly 100 individuals.

Digital Advantages

RSNA 1994 showed how digital images could be transferred through a computer network that used the DICOM standard introduced at the 1992 meeting. RSNA members could have their picture taken at designated kiosks scattered throughout McCormick Place, then see their digitized image at a technical exhibit. The Learning Center exhibit showcased a new RSNA Web site (soon to be called *RSNA Link*). In addition, 1994 RSNA President O. Wayne Houser, M.D., focused on advances in neuroradiology during his address and called soft-tissue radiology “one of the most important medical advances of the 20th century.”²²

More than 55,000 people attended the scientific assembly that year. Fortunately, McCormick Place was also expanding. A new South Building, with a grand concourse and 870,000 square feet of exhibit space, was due to open in 1996. Meanwhile, RSNA meeting managers obtained additional conference space by using two Lake Michigan cruise ships, which were moored in a slip behind McCormick Place.

Roentgen Celebration Year

In 1995, radiologists worldwide marked the 100-year anniversary of Roentgen’s discovery of the x-ray. It was also the year during which RSNA was represented by its first woman president, Helen C. Redman, M.D., and, by the summer of 1995, Stanley S. Siegelman, M.D., announced he would retire as editor of *Radiology*.

RSNA 1995 convened at the end of the Roentgen centennial year. RSNA leaders chose the meeting theme “Architects of the Future,” preferring to look forward rather than backward. The meeting featured a “Radiology Department of the Future,” which showcased 21st-century patient care by highlighting new ideas, equipment, techniques and concepts within futuristic settings. RSNA also introduced a database of funding opportunities.

International Leader Lost

In early 1996, RSNA Board member Derek C. Harwood-Nash, M.B., Ch.B., D.Sc., died suddenly of a cerebrovascular event at his home in Toronto. During the previous two decades, he had been the “goodwill ambassador” for radiology by encouraging worldwide cooperation among radiologists. His position on the Board as liaison for publications was filled by R. Nick Bryan, M.D., Ph.D.

Also in 1996, the RSNA Corporate Relations Committee, after much feedback from manufacturers of radiologic devices, recommended that a white paper be developed that would “document the plight of U.S. industry and medical practitioners and describe how the worsening situation [was] ultimately detrimental to patient care and research efforts in the United States.”²³

The paper, “The FDA and Its Impact on the Transfer of Technology to Radiology,” was subsequently presented at a conference in Washington, D.C. Speakers representing radiology practice, industry and the FDA debated whether the FDA was too slow to approve medical devices.

Healthcare in Chaos

By late 1996, the medical field was evolving toward a system of health maintenance organizations that allegedly put profits before patient access and led indirectly to decreased funding for many aspects of medicine, including research. Radiologists became worried that in this new cost-conscious environment, many simpler radiologic procedures might be performed by non-radiologists.

To address those concerns, the RSNA annual meeting was themed “Progress Through Partnership.” Society President Ernest J. Ferris, M.D., reminded radiologists that “continued cooperative efforts are necessary to provide optimal healthcare in the future.”²⁴

Advancing computer technology helped RSNA put annual meeting publications online. Also, the Society

began accepting electronic scientific abstracts of papers to be considered for RSNA 1997.

Considering Orlando

Despite more opportunities to access medical education at home, the scientific assembly continued to grow. Total registration for the 1996 meeting topped 61,500, and the Board of Directors was becoming concerned with Chicago’s increasing inability to provide hotel rooms at reasonable prices. Many attendees were sharing hotel space. Others were staying in hotels in the suburbs. Consequently, the Board of Directors began considering other sites for the annual meeting.

Orlando seemed to have enough hotel rooms and a convention center large enough to house the scientific assembly, but Chicago officials soon realized their city was about to lose the largest annual medical meeting in the world and the more than \$100 million in revenue meeting attendees brought to the city.

Mayor Richard M. Daley brought city officials, hotel managers and labor leaders together to develop improvements in the hospitality, number of hotel rooms available and prices offered to RSNA attendees and exhibitors. The Board decided to keep the RSNA Scientific Assembly in the Windy City until at least until 2011. □



Derek C. Harwood-Nash, M.B., Ch.B., D.Sc.

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2. Dr. Houser reviews the progress of neuroradiology in President’s Address. *RSNA Daily Bulletin* 28 Nov 1994:1A.
3. RSNA develops white paper on the FDA. *RSNA News* 1996; 6(1):4,6.
4. Ferris EJ. Welcome. *RSNA Daily Bulletin* 1 Dec 1996:1A.



The entire *History of the RSNA* series, to date, is available on our Web site at www.rsna.org/about/history/index.html.

Working For You

NEW!

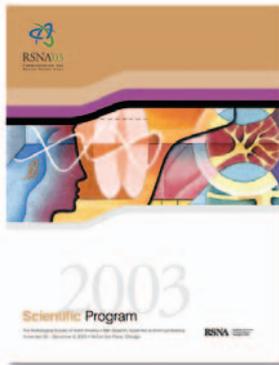
Request Your Copy of the RSNA 2003 Scientific Program

RSNA members can now take advantage of a valuable membership benefit—choosing to have their one free copy of the RSNA *Scientific Program* mailed to them in advance of RSNA 2003, or picking up the program at RSNA 2003.

To exercise this option, go to www.rsna.org/program, then click on your preference.

An electronic version of the Scientific Program will be available on *RSNA Link* (www.rsna.org) by the end of October to allow attendees to study it in advance of the meeting and create a customized schedule that will provide maximum, individualized coverage of the plenary sessions, scientific papers, scientific posters, education exhibits and technical exhibits.

All requests for the print RSNA *Scientific Program* must be received by September 1, 2003.

**NEW!**

Toll Free Number

RSNA now has a toll free number for membership inquiries. The number is (877) 776-2636 for calls originating in the United States and Canada. Outside of the United States and Canada, call (630) 571-7873. Members may also request information by e-mail at membersh@rsna.org. For other inquiries, call (800) 381-6660 or (630) 571-2670.

Coffee Mugs for Chief Residents

Each July, RSNA sends a congratulatory gift to all new chief radiology residents in the United States. This year, chief residents will receive a coffee mug to acknowledge their accomplishment and congratulate them on their choice to be involved in radiology. RSNA membership is free to residents.

RSNA is also diligently working with program directors to make sure that all first-year residents take advantage of free membership in RSNA. Residents who submit a completed application by August 15 will receive three complimentary print copies of *Radiology* (October, November and December 2003) and two complimentary issues of *RadioGraphics* (September-October, November-December 2003).

InteractED Awards 93,000 Category 1 Credits

RSNA's online education resource, InteractED (www.rsna.org/education/interactive), continues to be an important resource for the radiology community. InteractED currently features 316 programs including cases of the day, education exhibits, refresher courses and cardiovascular imaging programs. More than 8,600 InteractED registrants have been awarded 93,000 certificates of AMA category 1 credit. RSNA members have free access to InteractED, while non-members pay \$15 for seven-day access per program. For more information, contact the Education Center at (800) 381-6660 x7715, (630) 590-7715 or ed-ctr@rsna.org.

New Cases of the Day

Nuclear Medicine

Paige B. Clark, M.D., and Kathryn A. Morton, M.D., coordinators

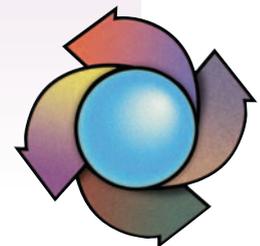
Pediatric Radiology

Sara M. O'Hara, M.D., coordinator

Ultrasound

Teresita L. Angtuaco, M.D., Gwendolyn M. Bryant-Smith, M.D., and Eric D. Sale, M.D., coordinators

RSNA education materials are also available through the RSNA online Education Resources Catalog at www.rsna.org/education/catalog.



If you have a colleague who would like to become an RSNA member, you can download an application at www.rsna.org/about/membership/memberapps.html, or contact the RSNA Membership and Subscription Department toll free at (877) 776-2636 (U.S. and Canada), (630) 571-7873 or membersh@rsna.org. For other inquiries, call (800) 381-6660.

SERVICE TO MEMBERS:

My chief responsibility is oversight and quality control of the Society’s official journal, *Radiology*. I work closely with journal Editor, Anthony V. Proto, M.D., and the *Radiology* Editorial Office staff in Richmond, Va.; Assistant Executive Director for Publications and Communications Roberta Arnold; and Assistant Directors Diane Lang and Carol Douglas, as well as staff manuscript editors, the production team and vendors, to ensure that the approximately 300-page monthly journal is produced efficiently and delivered to members and subscribers in a timely fashion.

I was the point person on *Radiology*’s development of continuous publishing—online publication of original research reports in advance of their appearance in the printed journal. Continuous publishing has brought important radiology research information to readers up to seven weeks earlier than is possible if that material appeared only in the print journal. In addition, certain articles have been published online several months before their appearance in print, including clinical reports on the radiologic



NAME:
John J. Humpal, M.A.
POSITION:
Managing Editor,
Radiology
WITH RSNA SINCE:
April 15, 1996

features of anthrax infection and, more recently, chest radiography and CT findings of severe acute respiratory syndrome (SARS).

WORK PHILOSOPHY:

I am detail-oriented and organized, which comes in handy in my position. Those of us who work on *Radiology* are handling three issues of the journal at a time. As managing editor, it is my job to pull together some 50 pieces of writing for each of those issues, from 50 different authors, edited by eight different manuscript editors. That is a lot of paper to keep moving! My job would be impossible if RSNA had not staffed the Publications Department with an excellent team of editorial and production personnel. We editors are often seen as working alone in our closed offices, but the reality is that we do and must labor together to not merely publish our journal each month, but to also maintain the high standards that were established for RSNA publications.

JOURNALS

Radiology in Public Focus

A press release has been sent to the medical news media for the following scientific article appearing in the July issue of *Radiology* (radiology.rsnaajnl.org):

“Invasive Ductal Breast Carcinoma Response to Neoadjuvant Chemotherapy: Noninvasive Monitoring with Functional MR Imaging—Pilot Study”

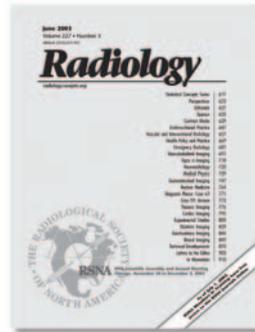
Functional MR imaging may be useful in monitoring tumor response to neoadjuvant chemotherapy.

Jean-Paul Delille, M.D., from Massachusetts General Hospital and Harvard Medical School in Boston, and colleagues studied the extraction flow product (EFP) displayed by contrast-enhanced MR

images of 14 women with proven breast cancer. MR imaging was performed before and after neoadjuvant chemotherapy.

The researchers write, “Since neoadjuvant chemotherapy is receiving increased attention for management of locally advanced breast cancer, tools to monitor tumor response are desirable to permit optimization of the chemotherapy course and the timing of surgery.”

(*Radiology* 2003; 228:63-69)



RSNA press releases are available at www2.rsna.org/pr/pr1.cfm.

Technology Helps RSNA Scholar Make Exciting Medical Discoveries



In 1989, Michael Garwood, Ph.D., was named an RSNA Research & Education Foundation

Research Scholar. Today, he is one of the world's leading researchers in high-field-strength MR imaging.

Dr. Garwood says the RSNA Research Scholar Program was extremely beneficial in the early stage of his career: "When I received the RSNA Scholar Award, I had very few people working with me. I needed to be in the laboratory often, yet I still needed to find time to do extensive background reading to educate myself. The Scholar Award helped me concentrate on obtaining preliminary research and results to support my ideas. Eventually, those results were used to successfully obtain significant federal funding."

That early research is the basis for his current discoveries in breast cancer. Currently, he is conducting two National Institutes of Health studies, "MRS and MRI of Breast Cancer at Very High Magnetic Field" and "Adiabatic Pulses and Sequences for Imaging and Spectroscopy." In addition, he is researching "Prediction of Chemotherapy Response by Magnetic Resonance Spectroscopy" for the Department of Defense.

Dr. Garwood is a professor in the Department of Radiology at the University of Minnesota. He was recently named the Lillian Quist-Joyce Henline Chair in Biomedical Research.

When he was an RSNA Scholar, Dr. Garwood focused on the development of combined MR imaging and spectroscopy methods for brain tumor diagnosis and treatment.

William M. Thompson, M.D., a pro-



Michael Garwood, Ph.D.
1989 RSNA Research & Education Foundation Scholar

fessor of radiology at Duke University in Durham, N.C., is one of Dr. Garwood's mentors.

"Michael has blossomed into one of the world's great MR researchers. His earlier work in brain tumor studies combined with high field techniques and how systems work has led to exciting discoveries on how to differentiate cancerous and non-cancerous breast tumors," Dr. Thompson says.

They met in 1986 at the University of Minnesota when Dr. Garwood was a post-doctoral candidate. "Michael is an amazing character. One of my regrets in leaving the University of Minnesota is missing the chance to work with him," says Dr. Thompson, a member of the R&E Foundation's Public Relations Committee.

"RSNA invested wisely in Dr. Garwood years ago. Today, he is five to 10 years ahead of the field," Dr. Thompson adds.

Dr. Garwood attended the University of California in Santa Cruz. He



William M. Thompson, M.D.
Professor of Radiology
Duke University

studied Chemistry and Biology and graduated with honors. He then received his Ph.D. in Chemistry.

In the chemistry department, magnetic resonance is an indispensable tool for determining molecular structures and sample composition. In the early 1980s, techniques for applying MR spectroscopy in vivo for biomedical research and the clinic were just being developed. "This was an area that excited me and was where I wanted to work. I knew one day my efforts might have an impact on the quality of people's lives," he says.

Following graduate school, Dr. Garwood says it made sense to go to the University of Minnesota. "I wanted to work with one of the best researchers in the field, Kamil Ugurbil, Ph.D. Dr. Ugurbil had a superb relationship with Dr. Thompson, who was chairman of radiology at the time. Dr. Thompson greatly valued radiologic and MRS research and wanted to see it grow in his department. It was a natural place

for me to be. Bill hired me and gave tremendous support and encouragement,” Dr. Garwood says.

“I’ve been lucky all my life,” he adds.

Plans for the Future

Dr. Garwood’s excitement for clinical MR spectroscopy has been boosted by the recent increased availability of high magnetic field scanners. These are systems with 3 T or higher field.

“The clinical value of MRS has been limited by the fact that the chemicals we hope to measure in the tissues exist at low concentrations, and therefore, their MR signals are weak. However, it is known that the MR signal intensity increases at least linearly with the magnetic field strength used, so the new high-field scanners that are currently being installed in radiology departments will offer new possibilities and will improve the quality of clinical MRS data,” he says.

“I plan to continue advancing high field MRS techniques so they can be used to obtain valuable physiologic data from tissues in many parts of the body,” he adds.

Dr. Garwood says he thinks MR spectroscopy may develop into an indispensable tool in clinical radiology and oncology.

“For example, the chemical information that can be obtained non-invasively with MRS has tremendous potential to improve the accuracy of diagnoses and to predict early whether a cancer patient is responding to the treatment regimen chosen by the clinician. I want to see the technique used to guide and optimize the choice of drugs used for cancer treatment. Also, I want to advance the use of MRS to predict the efficacy of new drugs and treatments so that they can be transferred from the laboratory to the clinic more quickly,” he says.

RSNA remains an important fixture

in Dr. Garwood’s career. “The annual meeting is an important venue to share ideas and receive valuable feedback on our research, particularly from clinicians who are to be the ultimate users of the technology we’re developing,” he says.

His advice for future radiology researchers: “Don’t do it for the glory. Do it because it’s what excites you. If something in life excites you enough that you find yourself thinking about it often, then you’ll come to know that topic well and you’ll have creative thoughts about it. Seek a supportive environment and good collaborators.”

He says that supportive environment will serve you well. “Remain focused and don’t be easily discouraged when experiments fail or when you’re experiencing a dry spell in funding. Be patient. Good research takes time,” he adds. □

For more information about grants from the RSNA Research & Education Foundation, contact Scott Walter at (630) 571-7816 or at walter@rsna.org.

RESEARCH & EDUCATION: OUR FUTURE

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 between **May 1 and May 30, 2003.**

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A Founding Vanguard Company (1990)

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RSNA President's Circle Membership Tops 50

Membership in RSNA's newest individual giving program has exceeded 50 in less than two years.

"RSNA is one of the best organizations in the world in research and education and deserves support from its members to the best of their ability," says one of the newest President's Circle members, Shirley Yang, M.D., M.B.A., a radiologist at Howard County General Hospital, Johns Hopkins Medicine, in Columbia, Md.

The program was launched at RSNA 2001 in Chicago as a way to provide incentive and recognition to those members who contribute on an annual basis. To qualify for the President's Circle, members must contribute at least \$1,500 in one year.

Seymour H. Levitt, M.D., chairman of the Foundation's Board of Trustees

says the generosity of the President's Circle members enables the Foundation to fund the best-qualified grant applicants. "Our lifeblood—our future—is in the young people. We need to provide an environment for them where they can do research, but also so that they can be educated properly."

In fiscal year 2002-2003, the Foundation provided \$1.7 million in grants, but Dr. Levitt hopes that with more

support from RSNA members, that amount will increase.

"The membership has been doing very well in providing funding, but I think we could do a better job," he says. "Without the funding for research, patients will not have access to new technology and radiology will eventually lose its prominence as a medical specialty. The Foundation has a very important role in securing the future of radiology. RSNA members need to be aware of that." □



**RSNA
PRESIDENT'S CIRCLE
MEMBERS**
\$1,500 per year

Contributions May 2003
Lawrence L. Bauer, M.D.
Philippe A. Grenier, M.D.
Arlyne T. Shockman, M.D.

For more information on becoming a member of the President's Circle, contact Deborah Kroll at dkroll@rsna.org or at (630) 368-3742. You can make an online donation to the Foundation at www.rsna.org/research/foundation/donation/index.html.

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Shirley Yang, M.D., M.B.A.

News about RSNA 2003

Course Enrollment Open

Enroll now for any of the 283 refresher courses being offered at RSNA 2003. These include 45 limited-attendance workshops that feature intensive demonstration, discussion and expanded question-and-answer opportunities. New offerings include Cased-based Review courses (see page 11).

The Essentials of Radiology will be offered again this year. The series consists of eight refresher courses designed for general radiologists, residents and subspecialists who want to review other areas of radiology. The categorical course in diagnostic radiology is Musculoskeletal Imaging—Exploring New Limits. The categorical course in diagnostic radiology physics is Advances in Digital Radiography. There will be an update course on CT physics and technology, and the update course in diagnostic

radiology is Findings at Ultrasound – What Do They Mean?

An electronic version of the *Course Enrollment, Scientific Program and Advance Registration and Housing*

brochure is available at www.rsna.org or by fax-on-demand by calling (847) 940-2146. Enter your fax number and a document number—1300 for the entire brochure, 1350 for refresher courses only or 1375 for the registration forms only.

If you have already registered for RSNA 2003, you may register for refresher

courses at www.rsna.org/register. Click on Refresher Course Enrollment, enter your registration confirmation number and then enter your selections.

RSNA 2003 offers up to 80.5 hours of category 1 CME credit.



RSNA'03

COMMUNICATION FOR
BETTER PATIENT CARE

November 30 – December 5
McCormick Place, Chicago

Registration Made Easy

There are four easy ways to complete the registration process:

■ Online (24 hours a day)

www.rsna.org/register/

Enter your membership identification number found on the mailing label of your brochure or on the cover of *RSNA News*. The entire process takes only a few minutes. If you request hotel reservations, a hotel room deposit will be charged to your credit card.

■ Fax (24 hours a day)

(800) 521-6017

(847) 940-2386 outside the United States and Canada

■ Phone (Monday – Friday, 8:00 a.m. – 5:00 p.m. CT)

(800) 650-7018

(847) 940-2155 outside the United States and Canada

Please be ready to provide the following information:

- Registration information (name, organization, phone, etc.)
- Fax and e-mail address, if available
- Arrival and departure dates
- Preferred hotels
- Type of hotel room preferred (single, double, etc.)
- Special preferences (smoking, special needs, etc.)
- Credit card information (for hotel deposit)

■ Mail

ExpoExchange/RSNA 2003

108 Wilmot Rd., Ste. 400

Deerfield, IL 60015-0823

Keep a copy of your completed registration form for your records.

Registration Fees

BY 10/31	ONSITE	
\$0	\$100	RSNA Member, AAPM Member
\$0	\$0	Member Presenter
\$0	\$0	RSNA Member-in-Training and RSNA Student Member
\$0	\$0	Non-Member Refresher Course Instructor, Paper Presenter, Poster Presenter, Education or Electronic (<i>infoRAD</i>) Demonstrator
\$110	\$210	Non-Member Resident/Trainee
\$110	\$210	Radiology Support Personnel
\$520	\$620	Non-member Radiologist, Physicist or Physician
\$520	\$620	Hospital Executive, Research and Development Personnel, Medical Service Organization, Healthcare Consultant, Industry Personnel
\$300	\$300	One-day badge registration to view only the Technical Exhibits area.

For more information about registration at RSNA 2003, visit www.rsna.org, call (630) 571-7862 or e-mail reginfo@rsna.org.

News about RSNA 2003

ACR Professional Bureau at RSNA 2003

The American College of Radiology Professional Bureau will again bring its state-of-the-art, Web-based Onsite Interview Service to the RSNA Annual Meeting. Job seekers and employers will be able to go online and schedule interviews in advance to take place at the meeting.

The system allows users to post resumes and job advertisements and establish a personal account. The account allows the user to exchange

e-mails with other users and to set up a calendar to schedule interviews; employers set the time of the interview.

New this year will be the ability to schedule two or more consecutive half-hour blocks for any one interview. The system will not allow a time slot to be double-booked, and will alert the user if there is a double-book conflict.

ACR staff will be in attendance to answer questions and space will be available for employers and applicants

to meet. The number of computer workstations will be increased to reduce waiting time. Since the Professional Bureau is Web-based, it can be logged into from any computer with Internet access. Users can reg-

ister early and search the listings before the meeting opens at www.acr.org/dyna/?doc=departments/pro_bur/text.html.

During the meeting, users can check in often to see what's new without having to actually come to the Onsite Interview Service room.

Important Dates for RSNA 2003

Oct. 10	Registration deadline for Non-North American participants to have badge wallet mailed
Oct. 31	Final advance registration deadline
Nov. 30–Dec. 5	RSNA 89th Scientific Assembly and Annual Meeting

ACR Professional Bureau

(Room S102A, South Building)

Sunday-Wednesday . . . 8:00 a.m. – 5:00 p.m.
(last scheduled interview 4:30 p.m.)

Thursday 8:00 a.m. – 2:00 p.m.
(last scheduled interview 1:30 p.m.)

For more information, contact the ACR Professional Bureau staff at (800) 227-3370 or at pro-bur@acr.org.

RSNA 2003 Exhibitor News

Exhibitor Service Kit Available Online

The RSNA 2003 *Exhibitor Service Kit* is available online only at www.rsna.org.

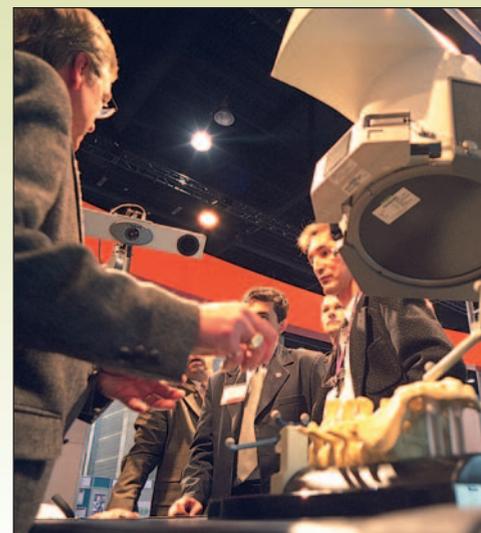
Exhibitors may access the password-protected site to view important information and download service request forms. The online-only kit will make it easier to navigate through the material and find important information such as registration hours, exhibit installation and dismantling hours, rules and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

In addition, the electronic kit will allow online ordering capabilities with many contractors.

Technical Exhibit Hours

Sun., Nov. 30–Wed., Dec. 3 10:00 a.m.–5:00 p.m.

Thurs., Dec. 4 10:00 a.m.–2:00 p.m.



RSNA 2003 exhibitors, who plan to display their new products, should submit their information by October 15 for the *Daily Bulletin's* New Products section.

RSNA 2003 Exhibitor News

NEW!

Pavilion Highlights Mobile Computing in Healthcare

RSNA 2003 will feature its first Mobile Computing Pavilion.

Abstracts are now being accepted for educational presentations on mobile computing topics including:

- devices
- security
- communication protocols
- presentation protocols and programming languages
- healthcare applications
- healthcare efficacy

For more information, contact Stephanie Haney at stephanie@mcomputing.org.

Exhibit space is also available in the Mobile Computing Pavilion. Companies interested in exhibiting should contact Tom Shimala at (630) 368-3760 or shimala@rsna.org.



RSNA'03

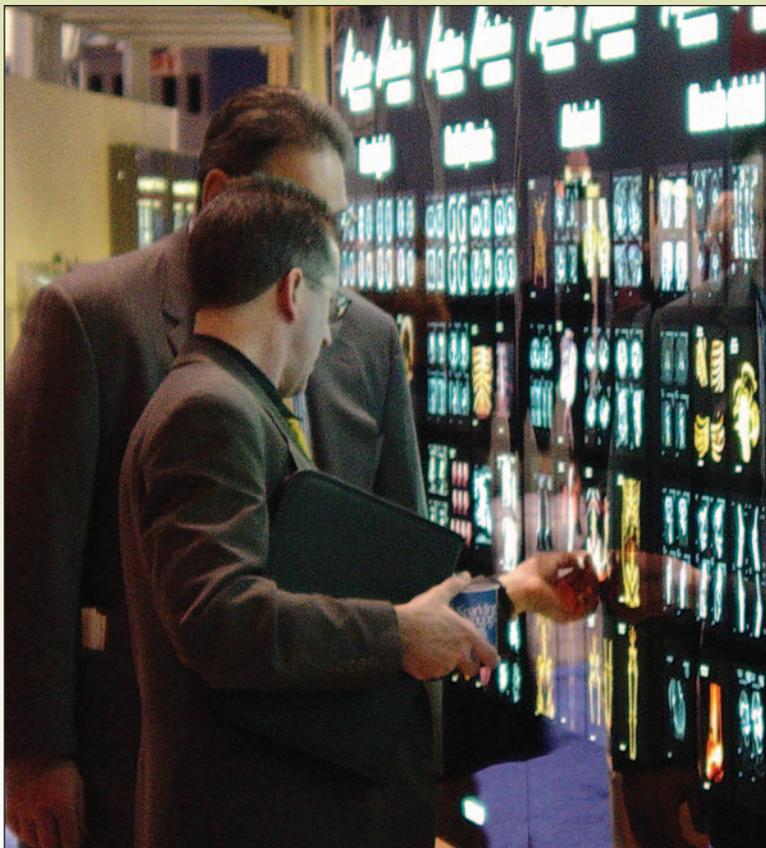
COMMUNICATION FOR
BETTER PATIENT CARE

November 30 – December 5
McCormick Place, Chicago

Buyer's Guide Information Due

Production is under way on the 2003 *Buyer's Guide: Radiology Products and Services*. On June 24, the *Buyer's Guide* proof was mailed to each confirmed exhibitor. To ensure that your company and/or product description is included, your information must be returned by July 31. The *Buyer's Guide* is the official guide to the commercial exhibits at the annual meeting.

■ For up-to-date information about technical exhibits at RSNA 2003, go to www.rsna.org/rsna/te/index.html.



Important Exhibitor Dates for RSNA 2003

- | | |
|-------------------------|--|
| July 31 | Deadline for reduction/cancellation (for full refund) |
| | Deadline for Product Information Form inclusion in RSNA <i>Buyer's Guide</i> |
| Aug. 4 | Hotel assignments are mailed to Block Housing Exhibitors |
| Aug. 15 | Deadline for final payment |
| NEW | |
| Oct. 15 | Deadline for submission to <i>Daily Bulletin's</i> New Products Section |
| NEW | |
| Oct. 31 | Exhibitor badge deadline |
| Nov. 30 – Dec. 5 | RSNA 89th Scientific Assembly and Annual Meeting |

Exhibitor registration at RSNA 2003 will be located closer to the Technical Exhibition, near the Grand Concourse between Halls A and B.

■ For up-to-date information about technical exhibits at RSNA 2003, go to www.rsna.org/rsna/te/index.html.

Product News

FDA APPROVAL

Philips Avalon CTS

Royal Philips Electronics has received FDA approval for the Philips Avalon CTS, a new cordless fetal transducer that allows continuous fetal monitoring and more choices of birthing positions. It also enables monitoring while women rest, bathe or move around.

The Avalon CTS consists of cordless ultrasound, Toco (measuring uterine activity), ECG transducers and a receiver base station that interfaces to Philips fetal monitors.

“Our new cordless fetal transducers provide added comfort for the patient,”



said Laurie Smith, global perinatal business manager for Philips Medical Systems. “The clinician is able to continue fetal monitoring, while allowing the patient freedom of movement and natural birthing positions.”

FDA Seeks Injunction Against Radiation Therapy Company

The Food and Drug Administration (FDA) has entered a consent decree that would, when signed by a judge and entered in district court, stop Multidata Systems International from manufacturing and distributing radiation therapy devices designed to treat cancer. The St. Louis-based company’s radiation treatment planning software reportedly contributed to 28 patients receiving excessive amounts of radiation at one medical facility, causing several deaths.

For more information, go to www.fda.gov/bbs/topics/NEWS/2003/NEW00903.html.

FDA APPROVALS

Signa® EXCITE™ 3.0 T MRI System

GE Medical Systems has received FDA clearance to begin marketing its new 3.0 Tesla ultra-short MR imaging system. The Signa EXCITE 3.0 T combines the increased speed and higher resolution of an ultra-high field system with the breadth of imaging capabilities found on premium 1.5 T systems.

Signa EXCITE 3.0 T offers the world’s largest patient imaging volume with a full 45 cm field-of-view imaging capability. This system enables optimized neurovascular, orthopedic,

abdominal and cardiovascular applications.

“Signa EXCITE 3.0 T is a critical part of our mission to deliver premium technology and advanced applications to physicians around the world,” says Dennis Cooke, general manager of GE Medical Systems’ Global MR business. “Customers no longer need to compromise when choosing an ultra-high field system. Signa EXCITE 3.0 T features 30 percent more coverage than other 3.0 T systems currently available.”



www.rsna.org

IMAGE-GUIDED THERAPIES Media Briefing



Media Briefing Press Releases

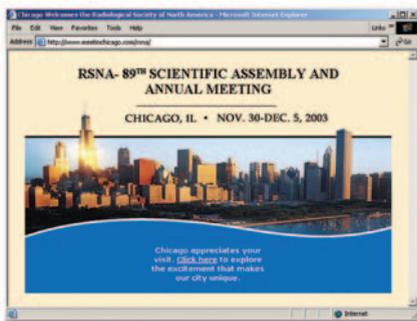
On June 19, RSNA held a daylong media briefing in New York City about image-guided therapies. Press releases and photos from the briefing, along with other RSNA press releases, are available at www.rsna.org/media/.

Visiting Chicago

The Chicago Convention and Tourism Bureau (CCTB) has information for those who will be attending RSNA 2003 in Chicago. A Welcome to Chicago city guide is available at www.meetinchicago.com/rsna/.

The CCTB guide has restaurant and theater listings, maps and transportation advice, addresses and telephone numbers of major attractions, a section on Chicago's downtown shopping districts, tips for international travelers and other information for visitors to the Windy City.

An easy way to reach the city guide is through *RSNA Link* (www.rsna.org/rsna/). Click on the photograph of the night skyline of Chicago.



Course Objectives for RSNA 2003

Refresher course enrollment is under way for RSNA 2003. Course objectives are available through *RSNA Link* (www.rsna.org). Click on Registration, then Register Online.

Virtual Briefcase, the personalized program planner, will be available in late October.

Other additions to *RSNA Link*

■ The names and photographs of recipients of 2003 RSNA Research & Education Foundation research grants can be found in the **RSNALink** Grant Recipients area of *RSNA Link* at www.rsna.org/research/foundation/recipients.html.

■ An area for medical students has been added to the Education Portal. The Medical Students' Corner (www.rsna.org/education/students/) guides students to information about membership, RSNA journals online, InteractED, virtual monographs, the RSNA Virtual Journal Club, *RadiologyInfo.org*, the AMA-FREIDA database and links to other sites.

■ The Education Portal also includes links to important SARS sites (www.rsna.org/education/sars.html).

■ Three procedures were added recently to *RadiologyInfo.org*, the patient information site of RSNA and ACR:

- Vertebroplasty
- Cryotherapy
- Colorectal Cancer Therapy

OTHER WEB NEWS

Use of Health Information on the Net

A national survey finds the use of the Internet to find health information is not as high as sometimes reported. Only 40 percent of Internet users report seeking advice or looking for healthcare information on the Net. Of those, only one-third say the information they found affected a decision about their health or healthcare.

The survey of more than 4,700 Internet users aged 21 or older also reports that only six percent of respondents say they use e-mail to contact a physician or other healthcare professional.

To view the abstract of the study published in the May 14 issue of *JAMA*, go to jama.ama-assn.org/cgi/content/abstract/289/18/2400.

connections Your online links to RSNA

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Radiology Manuscript Central
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radiographics.rsna.org

RSNA Virtual Journal Club
vjc.rsna.org

Education Portal
www.rsna.org/education/etoc.html

CME Credit Repository
www.rsna.org/cme

RSNA Index to Imaging Literature
rsnaindex.rsna.org

RSNA Career Connections
careers.rsna.org

RadiologyInfo™
RSNA-ACR public information Web site
www.radiologyinfo.org

RSNA Online Products and Services
www.rsna.org/member-services

RSNA Research & Education Foundation Make a Donation
www.rsna.org/research/foundation/donation

History of the RSNA Series
www.rsna.org/about/history/index.html

RSNA 2003 Registration
www.rsna.org/register

RSNA 2003 Scientific Program Request
www.rsna.org/program

Medical Meetings

August – October 2003

AUGUST 10-14

International Symposium of Radiopharmaceutical Chemistry (ISRC), Sheraton on the Park, Sydney, Australia
• www.tourhosts.com.au/isrc2003

AUGUST 10-14

American Association of Physicists in Medicine (AAPM), 45th Annual Meeting, San Diego Convention Center, San Diego
• www.aapm.org

AUGUST 10-14

American Healthcare Radiology Administrators (AHRA), 31st Annual Meeting and Exposition, Anaheim Convention Center, Anaheim, Calif. • www.ahra.com

AUGUST 15-18

Society of Molecular Imaging, Second Annual Meeting, Hyatt Regency San Francisco • www.molecularimaging.org

AUGUST 17-22

Radiation Research Society (RRS), 50th Annual Meeting, in conjunction with 12th International Congress of Radiation Research (ICRR), Brisbane, Australia • www.icrr2003.org

AUGUST 24-29

World Congress on Medical Physics and Biomedical Engineering, WC 2003, Sydney Convention & Exhibition Centre, Sydney, Australia • www.wc2003.org

SEPTEMBER 7-11

Imaging in 2020 III, Conference on Molecular Imaging, Jackson Lake Lodge, Jackson Hole, Wyo. • www.imagingin2020.com

SEPTEMBER 13-16

North American Society for Cardiac Imaging, 31st Annual Meeting and Scientific Session, Hotel Adolphus, Dallas
• www.nasci.org

SEPTEMBER 13-17

Society of Chairmen of Academic Radiology Departments (SCARD), Fairmont Waterfront, Vancouver, British Columbia, Canada • www.scardonline.org

SEPTEMBER 17-20

International Skeletal Society, ISS San Francisco 2003, The Fairmont Hotel, San Francisco
• www.internationalskeletalsociety.com

SEPTEMBER 18-21

Royal Australia New Zealand Congress of Radiology (RANZCR), 54th Annual Scientific Meeting, Brisbane, Australia • www.ranzcr.edu.au/open/asm2003/index.htm

SEPTEMBER 19-21

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

SEPTEMBER 20-24

Cardiovascular & Interventional Radiological Society of Europe (CIRSE), Annual Meeting, Antalya, Turkey • www.cirse.org

SEPTEMBER 21-27

Academy of Molecular Imaging, International Conference 2003, Madrid, Spain • www.ami-imaging.org/conference2003

SEPTEMBER 22-26

American Osteopathic College of Radiology (AOCR), Annual Convention, Loews Miami Beach Hotel, South Beach, Fla.
• www.aocr.org

OCTOBER 1-5

American Society of Head and Neck Radiology (ASHNR), 37th Annual Meeting, Marriott Rancho Las Palmas Resort, Rancho Mirage, Calif. • www.ashnr.org

OCTOBER 1-4

Canadian Association of Radiologists (CAR), 66th Annual Scientific Meeting, World Trade and Convention Centre, Halifax, Nova Scotia, Canada • www.car.ca

OCTOBER 11

HIPAA in Perspective: What it Means in Real Life Radiology, RSNA, Oak Brook, Ill. • www.rsna.org (800) 381-6660 x3747 or ed-ctr@rsna.org

OCTOBER 17-19

Society of Radiologists in Ultrasound (SRU), 13th Annual Meeting, Fairmont Hotel, Chicago • www.sru.org

OCTOBER 18-19

Hong Kong College of Radiologists, 11th Annual Scientific Meeting, Hong Kong Academy of Medicine, Aberdeen, Hong Kong • www.hkcr.org

OCTOBER 19-22

Society of Radiation Oncology Administrators (SROA), 20th Annual Meeting, Salt Lake City • www.sroa.org

OCTOBER 19-23

American Society for Therapeutic Radiology & Oncology (ASTRO), 45th Annual Meeting, Salt Palace Convention Center, Salt Lake City • www.astro.org

OCTOBER 19-25

2003 IEEE Nuclear Science Symposium, Medical Imaging Conference and 13th International Workshop on Room-Temperature Semiconductor X- and Gamma-ray Detectors, Doubletree Hotel Portland, Oregon • www.nss-mic.org/2003

OCTOBER 22-23

American Society of Emergency Radiology (ASER), 14th Annual Meeting, Alexis Park Resort, Las Vegas • www.erad.org

OCTOBER 24-26

Society of Computed Body Tomography & Magnetic Resonance (SCBT/MR), New Opportunities in Imaging, Marriott Long Wharf Hotel, Boston • www.scbtmr.org

NOVEMBER 30–DECEMBER 5

RSNA 2003, 89th Scientific Assembly and Annual Meeting, McCormick Place, Chicago • www.rsna.org