



SRU Newsletter

Harriet J. Paltiel, MD, Editor-in-Chief ■ Susan Roberts, Managing Editor



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President's Letter



John J. Cronan, MD
President

As I write this letter, it appears that summer may finally have come to New England. I am looking forward to a wonderful summer. I hope you all will enjoy it also.

The Executive Board met in Boston on May 5, 2015 for a one-day strategic planning session. A number of issues were discussed. I will briefly review them with you.

As you are aware, we have been in partnership with the American College of Radiology (ACR) for the administrative leadership in running the SRU. The ACR manages a number of radiology societies, and we have enjoyed a very satisfactory relationship with the organization for many years. Susan Roberts is actually an employee of the ACR, assigned to oversee the SRU. The contract with the ACR will expire soon, and in addition Susan has announced her retirement, effective at the end of the calendar year. Hence, we need to prepare with the ACR for a new contract and to find a new administrator to oversee the day-to-day activities of the organization. Susan spent some time in June at ACR headquarters and during this timeframe ACR staff was briefed on the particulars of day-to-day operation of the SRU. This should help in recruitment of the correct person to be our administrator. I know many people are anxious about this. Susan has done a phenomenal job. However, with her help and good planning we will transition smoothly.

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President's Letter (continued)

There has been much discussion about the opportunity to put lectures from the members of the society on our webpage. These would be free of charge for those who have a membership in the SRU. We would charge others who wish to utilize these lectures and do not belong to SRU. We are in the process of getting the technical glitches ironed out. In addition, many of the speakers at the annual meeting will be asked to provide a lecture for videotaping.

The format and program for the annual meeting, which will be held October 23-25 in Chicago, has been completed. Leslie Scoutt and Bill Middleton have done an outstanding job in putting together the program. There will be an emphasis on workshops, with 36 scheduled on Saturday, October 24. Workshops allow us to have a bigger faculty and also provide a smaller venue for more open discussion during the presentations. The extreme diversity of topics is wonderful because everyone seems to have different interests in the world of ultrasound. We look forward to a great meeting in October, and I hope to see you there.

As you are aware from recent e-mail announcements, we have lost several Fellows in the past year. Death eventually captures us all. The Executive Board has discussed the opportunity for our legacies to include the SRU. We do not currently have a formal program for this, but are exploring an opportunity for members, while alive, to determine that they would like acknowledgement to be made to the SRU at the time of their passing. Family members, while they would like to do something special, are not really knowledgeable about what to do or how to do it. I will be providing more information between now and the annual meeting on opportunities to consider. While colleges, universities and hospitals and other not-for-profits have been doing this for a long time, societies have only more recently become active. Many of us have a strong professional link to the SRU, and this would allow us to participate in a more tangible legacy.

Ultrasound continues to grow outside of diagnostic imaging. I have recently seen lectures in our hospital by the ER docs and pulmonary docs on chest ultrasound and how to detect pneumothoraces and pneumonia. I paid attention to some of these and have also noted while getting ready to do a thoracentesis, ultrasound findings of pneumothorax. The proliferation of ultrasound outside of diagnostic imaging is exponential at the moment. At the annual meeting we are making an effort to elucidate some of the techniques that are developing. We need to know what these procedures are and to understand them outside of diagnostic imaging.

As you know, we try to hold a consensus conference every two years. Recently we held two in consecutive years. These conferences cost the society approximately \$30,000 each. The next consensus conference will be scheduled before the 2016 annual meeting, and we are exploring what topic should be discussed. The topic must be timely, controversial, and with an outcome that will have an impact on improving delivery of healthcare. All of our previous consensus conferences have been able to do that, with leading publications amplifying our message. If you have suggestions for topics for future consensus conferences, please send them to sroberts@acr.org as soon as possible.

The SRU Foundation is our primary mechanism of financing the consensus conferences. We need your contribution to maintain solvency of this effort. Please donate now or at the annual meeting. The success of the consensus conferences has done much to elevate the stature of the SRU.

The position of radiology in medicine seems to still have some degree of negativity associated with it. On a personal level, I am surprised by this. I have been extolling my faculty and residents to publicly praise imaging and to acknowledge its value. We have also made a concerted effort to talk to medical students in their first and second years and in particular to spend time with the third-year students early in their rotations to talk to them about diag-

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President's Letter (continued)

nostic imaging. It is amazing how good the results have been. In 2015, only three Brown medical students went into radiology. As of today, nine students are going into radiology in the 2016 Match.

Remember, a little bit of effort goes a long way in growing imaging and particularly ultrasound. We need to really go out of our way to be ombudsmen for our specialty.

Have a great summer!

Members in the News

Robert D. Harris, MD and John P. McGahan, MD participated in a teaching trip to University Hospital in Port au Prince, Haiti June 6-10, 2015.

Monzer Abu-Yousef, MD recently received a Lifetime Service Award from the American Board of Radiology.

Beth McCarville, MD received the John Caffey Award for Best Clinical Research Paper at the

2015 annual meeting of the Society for Pediatric Radiology for her paper entitled "Contrast Enhanced Ultrasound in the Assessment of Pediatric Solid Tumor Response to Anti-Angiogenic Therapy."

Harvey L. Nisenbaum, MD was elected President of the World Federation for Ultrasound in Medicine and Biology (WFUMB) at the WFUMB 2015 World Congress. In addition, Dr. Nisenbaum was awarded a Special Dean's Award at the 2015 graduation ceremonies of the University of Pennsylvania Perelman School of Medicine.

October 23 - 25, 2015
The Westin Michigan Avenue
Chicago, IL

**Future
Annual
Meetings**

October 21 - 23, 2016
Hyatt Regency Baltimore
Baltimore, MD



Global Radiology

Robert D. Harris, MD

*"One man's meat is another man's poison."
Lucretius, Roman philosopher and poet, 99-55 BC*

I know this is going to strike some radiologists as heresy, but I am so grateful that some very smart people created the compact ultrasound (US) unit. This is what has allowed me to help lead the charge into "global radiology", if you will, and compact US, I am convinced, is the direct avenue for the most efficient and beneficial adaptation of imaging technology in low resource settings.

I made my initial fumbling steps in 2004-2005 when I began to do teleUS research with a Dartmouth medical student named Veljko Popov, from Serbia. With a small grant from the AIUM, we journeyed to his hometown to test out the low-end software we had generated to send images and cine clips across the Atlantic. This was modestly successful, garnered us a couple of peer-reviewed papers, and started a trend towards writing about my global experiences (see selected bibliography). I also had discovered, around the same time, that our anatomy department at Dartmouth was nesting some slightly dated Sonosite 180 Plus machines, not capable of scanning cadavers as was hoped (due to formalin). I was friendly with the chair of the anatomy department, and he somewhat reluctantly agreed that the US machines would serve the population of low-resource developing countries more than gathering cadaveric notes and organic dust sitting on the shelves in the anatomy lab. We thus donated and trained MDs on our first SS 180 in Zrejanin, Serbia, thereby initiating a modest flow of machines to low resource settings.

My next trip was to Nicaragua in 2006 with a Dartmouth group that has a yearly service/mission trip to the northeast, near Siuna. The public hospital



Scanning a patient in Siuna, Nicaragua in 2006, and simultaneously testing an audio-visual connection, low-bandwidth but real-time connection back to Dartmouth-Hitchcock. The learners are, from left to right, a nurse practitioner, a general surgeon and an internist. We donated a refurbished Sonosite unit to the local public hospital as its first imaging modality; there was an ultrasound machine in private practice not widely available to the impoverished general populace. The Dartmouth group, returning a year later, learned that a Nicaraguan radiologist had been hired to attend part-time. A television monitor had been hooked up to the Sonosite 180 Plus.

there is significant in size, perhaps 80 beds, but at the time had no imaging whatsoever available. We donated and trained local MDs on a unit there for three days, getting them comfortable with basic OB and abdominal scanning. The following year, there was a reduction in the maternal mortality rate in the region from twelve to six deaths, which may have been related to the now-public US capability in the region, although this is difficult to prove.

In 2010, my then college-aged daughter and I had the chance to go to northern Haiti, near Cap Haitien, to donate a Sonosite machine that had been purchased by Medical Imaging Partnership, a small NGO headed up by SRU Fellow Vikram Dogra. It was a most satisfying venture, getting five whole

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Global Radiology (continued)

days to train people on the US unit at another hospital that was the only one in the area that had any sort of imaging. We were headed home with a stop in Port au Prince on January 10, 2010, a day of infamy in Haiti. The devastating earthquake hit while we were supposed to be in Port au Prince. Fortunately, our flight there had been canceled due to bad weather, and we felt the significant tremor on the north coast while waiting for a rental car. To make a long story short, we turned the car around after listening to the radio for an hour, stayed in Cap Haitien that night, watched CNN, Fox News and all the networks televising from a darkened, demolished Port au Prince, and decided to fly out of the Dominican Republic two days later, shaken but unharmed.

My itinerary in those early years sounds like George W. Bush's minor axis of evil: Serbia, Nicaragua, and Vietnam, all countries that the US has attacked in the last 50 years or so. What I found, instead, was a population of grateful but poor and more-or-less desperate people eager to get on with the bare necessities of life, health care being one of them. Subsequent short-term missions (one to two weeks) performed with my wife, Julia, a perioperative nurse who is a jack of all trades, have included Haiti (four more times, and from where I am finishing this piece in early June), West Africa (three times pre-Ebola and courtesy of the hospital ship Africa Mercy, operated by the faith-based organization Mercy Ships), Tanzania, and, most recently, Ecuador, this past winter. The latter country was the second time I led senior residents in radiology to experience a glimpse of global radiology. The trip was a huge success, at least on the part of the Ecuadorians and the NGO we traveled with, Ecuadent. We lectured extensively (20 hours), taught hands-on skills in ultrasound, and helped to interpret digital mammograms and CT (from a refurbished but shiny 16 slice GE scanner). This all took place at a brand new public hospital in Puyo, in the Amazon basin of interior Ecuador; the president had recently built this showcase to garner support from the mostly antagonistic indigenous natives, a ploy which seemed to be working.



Ultrasound teaching on a laptop GE model (graciously loaned to us by GE) in Hinche, Haiti in 2013. The Haitians represent a variety of physicians including internists, family practitioners and general surgeons.

A number of my ultrasound colleagues, internationally renowned educators and researchers, will venture anywhere in the world as long as the tap water is potable. I, on the other hand, seem to pursue ultrasound in places where the bar is set significantly lower: toilet paper (if available) must be thrown in the waste basket, and not down the commode, if it is functioning; or I have access to a free-standing outhouse (as we did in Nicaragua in 2006).

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Global Radiology (continued)

The global radiology elective is now an established program at Dartmouth, and in my impending retirement from there, it is poised to carry on with other staff members. And, who knows, I may be back there (part-time) after a nine-month sojourn to Rwanda in September, through the grant Human Resources for Health. This is a seven-year program (funded by the Clinton Foundation-USAID-NIH) that borrows clinicians from 23 US medical schools in various specialties to work in Rwanda for six to twelve months at a modest salary. In doing so, we are helping to raise the provision of Rwandan health care, which results in a great personal reward to the participating physician. I am the second US radiologist to go there, and hopefully there will be more radiologists to follow me. (Anyone interested? Ultrasound is the perfect subspecialty to do this.) And to think that it all started with a Serbian medical student, a semi-generous chair of anatomy, and the creation of inexpensive, portable, and robust compact ultrasound units: one might call it the perfect storm, or the triple crown of global radiology!

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In Memoriam

Anna S. Lev-Toaff, MD
1954–2015

We regret to inform you of the death of one of our Fellows, Anna S. Lev-Toaff, MD, FACR, FSRU, FAIUM, on April 3, 2015, after a battle with multiple myeloma. At the time of her death, Anna was a professor in the Department of Radiology at the Hospital of the University of Pennsylvania, having spent the majority of her professional career at Thomas Jefferson University. She was the mother of Rachel, David, Miriam and Benjamin, grand-

mother of Matan, Gefen and Naveh, and sister of Esther and Debbie.



A complete In Memoriam will appear in a future issue of *Radiology* and in this newsletter. Donations in her memory can be made to the Society of Radiologists in Ultrasound Foundation: 1891 Preston White Drive, Reston, VA 20191 Attn: Heidi Salkeld. Please indicate that the contribution is in memory of Anna S. Lev-Toaff, MD.

EXECUTIVE BOARD 2014-2015 Society of Radiologists in Ultrasound

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*Left to right: Harriet J. Paltiel, MD; Deborah Levine, MD;
John J. Cronan, MD; Mitchell E. Tublin, MD;
Douglas L. Brown, MD.*

*Questions about or suggestions for the newsletter should be sent to sroberts@acr.org
or harriet.paltiel@childrens.harvard.edu*

Toshiba Residents Program

The Toshiba Residents Program is funded by a grant from Toshiba America. The grant allows the SRU to waive the \$350 registration fee and provide a travel stipend of \$650 for up to 15 residents or fellows (trainees) with an interest in pursuing a career in ultrasound in order to attend the SRU annual meeting.

Program Criteria

- Applicants must be nominated by an SRU member (Active, Charter or Fellow). If there are no SRU members at your institution, please contact sroberts@acr.org.
- Trainees from institutions in the United States and Canada are eligible for nomination.
- The winner of the 2015 Member-in-Training award is not eligible for the program, but will be invited to participate in all Toshiba Resident activities at the meeting.
- A maximum of 15 trainees will be accepted for the program, unless fewer than 15 applications are received.
- Nominees must submit a brief (200-word maximum) explanation of their interest in pursuing a career in ultrasound.
- Nominees must also submit a letter from the program director who is responsible for their training as of October 2015 confirming their residency or fellowship program, and also confirming that they have been given permission to attend the meeting if they are selected for the Toshiba program.
- Nominees who are selected for the program will be expected to submit an ultrasound-related teaching case to *Ultrasound Quarterly*, the official journal of the SRU, by September 25, 2015, to be considered for publication. If the case is not received by the deadline, the candidate will be removed from the list of Toshiba Residents and an individual from the waiting list will be selected to attend in his or her place.
- All expenses incurred to attend the meeting, with the exception of the waived registration fee and the \$650 stipend, are the responsibility of the participant or his or her radiology residency program.
- Stipends will be mailed to participants by check after the meeting. No stipends will be issued to anyone who is accepted to the program but fails to attend.

Nomination Instructions

[Click here](#) to submit a nomination. The deadline for receipt of nominations is **July 15, 2015**. Nominations received after that date will not be accepted. Participants in the program will be selected based on merit, as judged by the 200-word essay described above. Applicants and their nominators will be notified shortly after the deadline whether or not they have been accepted for the program.



Coding Corner

John M. Benson, MD

A comment I often hear, especially as passed along from the coding team at the ACR, is the following:

“It is standard in our radiology practice when performing routine second trimester OB ultrasound exams, in addition to the basic anatomic organ survey, to always image cardiac outflow tracts, cerebral ventricles, fetal face, number of extremities, open hands view, umbilical cord, cord Doppler if indicated, diaphragms, etc. Our coding and billing staff tells us we must charge code 76805-ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (>14 weeks); transabdominal approach; single or first gestation. Because it is our standard practice to exceed the minimum standard, why can't we charge code 76811-ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach; single or first pregnancy?”

The correct answer, as indicated in the 2003 edition of *CPT Changes-An Insider's View*, is that code 76811 indicates an extensive fetal ultrasound evaluation and detailed anatomic survey required for pregnancies at elevated risk of fetal congenital abnormalities (birth defects). Code 76811 includes

all of the elements described in code 76805 as well as a detailed evaluation of the fetal anatomy such as cardiac outflow tracts, lip formation, measurements of hands and feet, head and brain. Incidentally, there is an add-on code for detailed fetal anatomy in multiple gestation, 76812, which should always be reported with the primary procedure code 76811.

The ACR member raising the question should be commended for including detailed anatomy as part of their routine second trimester ultrasound. CPT 76811 is intended to be used when there is a specific concern for an increased risk of birth defects. This concern must be expressly mentioned in writing in the order from the requesting practitioner *and should be dictated in the report*. Examples might include family or personal history of a specific congenital anomaly (list the specific anomaly in the report indications), abnormal maternal serum markers such as triple screen or nuchal translucent (NT) markers. The member may be reminded about CPT 76820-Doppler velocimetry, fetal; umbilical artery. This can be used when requested by the practitioner for the purpose of timing delivery in cases of suspected growth restriction and other high-risk situations.

We hope this helps clarify a common concern. As always, kudos go out the ACR coding staff support, Committee on Coding and Nomenclature, and Economics Committee on Ultrasound.

Reference: *2015 Ultrasound Coding and User's Guide*, American College of Radiology.

What's Your Sound Diagnosis?

The SRU's presence on Facebook is anchored by the weekly What's Your Sound Diagnosis contest, which has drawn a significant amount of attention from the sonography community. The contest consists of a weekly case challenge in which an ultrasound image or video is posted. Members of the Media Committee as well as

members of the public have submitted cases, and users from all over the world have posted their diagnoses in the Comments field. The SRU will send you a \$10 Starbucks gift card if you send a case that is posted on Facebook. Please send your interesting cases to srucases@gmail.com.

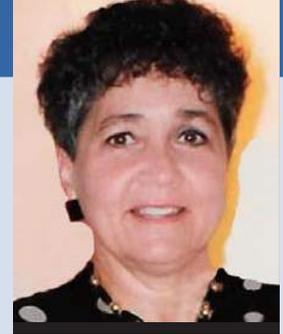
In Memoriam

Carol A. Mittelstaedt, MD
1946–2015

Dr. Carol A. Mittelstaedt, a.k.a. “Dr. Mitt” by her colleagues and students, passed away peacefully in her sleep on March 12, 2015. She was born in Florida in 1946, and grew up in Little Rock, Arkansas. She attended the University of Arkansas and graduated from the U of A Medical School. Carol was a devoted physician and pioneer in the early days of ultrasound, having completed a specialized ultrasound fellowship at the Medical School of the University of California in San Diego. Carol was one of the first women to join the Department of Radiology at the University of North Carolina Medical School in 1976, and was a very active imaging division leader, physician, professor, and mentor before retiring 38 years later in 2014.

“Dr. Mitt” was an invited lecturer at many national and local radiology conventions as well as foreign medical conventions in Chile, Egypt, Hong Kong and Thailand. She was a Fellow of the American Institute of Ultrasound in Medicine and served on its Board of Governors. She also enjoyed active membership in The American College of Radiology, American Roentgen Ray Society, North Carolina Ultrasound

Society, Radiological Society of North America, and Society of Radiologists in Ultrasound. She extensively researched and authored two globally-recognized textbooks: *Abdominal Ultrasound* and *General Ultrasound*, as well as numerous textbook articles.



Carol was preceded in her passing by her brother Dr. James Mittelstaedt and both of her parents, Dr. Stanley and Daisy Mittelstaedt, all of Little Rock. Carol is survived by her brother Jim’s family and two sisters, Janet Hartman of Orlando, Florida and Lynn Warren of Little Rock and their respective families, as well as her beloved twin godchildren Philip and Lauren Hartman.

A memorial reception was held at the The Carolina Inn (North Parlor) on the UNC campus on April 24, 2015.

Donations in memory of Dr. Carol A. Mittelstaedt are encouraged to be given to either the Susan G. Komen Race for the Cure (www.komen.org), or the Carolina Tiger Rescue Center (www.carolinatigerrescue.org).

Out and About with SRU Fellows at ACR 2015

Beverly G. Coleman, MD

SRU Fellows were front and center at ACR 2015: The Crossroads of Radiology, the first all-member meeting ever held by the College. The photo to the right is of four Fellows who served on the 2014-2015 Board of Chancellors. From left to right, Ed Bluth, Chair of the Human Resources Commission; Beverly Coleman, Chair of the Ultrasound Commission; Deborah Levine, Vice-President; and Paul Ellenbogen, most recent Past President.

Many other SRU Fellows were actively involved at this inaugural meeting, which included continuing education for the very first time. Dr. Leslie Scoutt, SRU Program Committee Chair, planned the ultrasound component of the meeting, which was very well received. "Ultrasound Evaluation of Thyroid Nodules: How to Handle the Epidemic", moderated by Drs. Scoutt and Jill Langer, was one of the most popular sessions. Many SRU Fellows were speakers, including Drs. John Cronan, Edward Grant, Jill Langer, Deborah Levine, Levon Nazarian, Larry Needleman, John Pellerito, Erik Paulson, Leslie



Scoutt, and Carl Reading. Dr. Pellerito moderated a session, "Hot Topics in Ultrasound", with a provocative presentation entitled "Is Radiology Ready for Point of Care Ultrasound?"

I stopped to chat with other SRU Fellows while navigating the vast spaces of the Marriott Wardman Park, but will only mention two: Dr. Douglas (Rusty) Brown, most recent SRU Past President, who was inducted as a new Fellow of the College; and Dr. Carol Rumack, a former chair of the Ultrasound Commission, long time Board of Chancellors member, and a recipient of the 2014 ACR Gold Medal.

Mark your calendars for ACR 2016. I hope to see you in Washington, DC next spring.

In Memoriam

William E. Shiels II, DO
1954–2015

Dr. Shiels was Chief of the Department of Radiology at Nationwide Children's Hospital, President of Children's Radiological Institute, Inc., Clinical Professor of Radiology and Pediatrics, a member of the graduate faculty in biomedical engineering at The Ohio State University College of Medicine, and an adjunct professor in the Department of Radiology at the Medical University of Ohio.

He leaves a legacy of outstanding leadership, skill and innovation, particularly in interventional radiology and ultrasound, with a clinical focus on treating infants and children with vascular malformations, bone cysts and bone tumors as well as congenital and acquired abnormalities of the head and neck. He introduced groundbreaking procedures for bone cyst and bone tumor ablation, soft tissue foreign body removal and percutaneous treatment of lymphatic malformations. In 1990, Dr. Shiels invented the Shiels Intussusception Device, an innovative air reduction technique used to treat childhood intussusception that today is used all over the world.

He was the recipient of many awards and widespread recognition, including the 2015 Society for Pediatric Radiology Pioneer Award, presented for work that has had a significant impact on the way pediatric radiology is practiced or perceived; the 2011 Dr. Floyd J. Trenery Memorial Medal from the American Osteopathic College of Radiology (AOCR), the highest honor bestowed to a member of the AOCR; The John Caffey Gold Medal Award, the Society for Pediatric Radiology's highest

academic award, awarded twice, for research work in childhood intussusception and lymphatic malformations; recognition as one of America's Most Compassionate Doctors, Patients' Choice Award 2011; and the 2010 Rotary International District Governor's Humanitarian Award. He was appointed a Fellow of the American Osteopathic College of Radiology in 2002 and was included numerous times on the Best Doctor List for Central Ohio and Best Doctors in America. Dr. Shiels served in the U.S. Army, achieving the rank of Lt. Colonel, and was a consultant to the Surgeon General.



He will be sorely missed, but his invaluable contributions to the field of radiology will benefit patients and colleagues far into the future.

"To wake up every day and be allowed to share generously my God-given gifts and talents as a healing physician for children around the world is an incredibly humbling and meaningful responsibility." — *William E. Shiels II, DO*

"One of the most important things I can do as a teacher is to help young physicians learn how to capture the most valuable three minutes of a patient's first encounter, affirming the value of the child as a person and as THE patient, and learning the value of complete communication including the art of listening, eye contact, and physical touch.....as vehicles that transmit loudly the healing commitment with which they enter the patients' rooms." — *William E. Shiels II, DO*



The American College of Radiology Ultrasound Commission at Work

Beverly G. Coleman, MD, Chair

The American College of Radiology (ACR) Commission on Ultrasound is involved in representing the membership on issues of concern to those radiologists whose practice includes imaging with ultrasound. In May 2015 I completed my first year as the Chair of the Commission, reporting to the Board of Chancellors at the ACR annual meeting in Washington, DC. The members of the commission in 2014-2015 were Drs. John Benson, Brian Coley, Stephanie Coquia (Young Physicians Section), Kristen DeStigter (Council Steering Committee [CSC] Liaison), Peter Doubilet, Kate Feinstein, Ulrike Hamper, Robert Harris, Beverly Hashimoto, Ryan Lo ((Residents/Fellows Section), Mark Lockhart, and Sherry Teefey. Thanks to Drs. Doubilet, Feinstein, Hamper and DeStigter, who rotated off the Commission in May, and welcome to new members Drs. Rochelle Andreotti, Wui K. Chong and Harriet Paltiel, who are newly appointed for three-year terms, and Mark Alson, the new representative from the CSC.

The goals of the Commission include initiation, development and review of ACR practice parameters for ultrasound, ensuring adequate ultrasound training and education for radiology residents, fellows and medical students, managing turf issues related to ultrasound imaging by non-radiology providers, working with the Commission on Human Resources in maintaining open relationships with other ultrasound societies, dealing with ultrasound reimbursement issues and coding guidelines, monitoring efforts to obtain FDA approval of ultrasound

contrast agents, and dealing with technological innovations such as the use of handheld ultrasound imaging devices to provide point of care ultrasound.

The ultrasound caucus had a very productive meeting at the annual meeting this year. Five ultrasound-related practice parameters were approved, all revised in collaboration with other societies including the SRU.

- Collaborative Practice Parameter for the Performance of Diagnostic and Screening US of the Abdominal Aorta
- Collaborative Practice Parameter for the Performance of Peripheral Venous Ultrasound Examination
- Collaborative Practice Parameter for the Performance of Ultrasound of the Prostate (and Surrounding Structures)
- Collaborative Practice Parameter for the Performance of Scrotal Ultrasound Examinations
- Collaborative Practice Parameter for the Performance of Sonohysterography

The Commission has worked cooperatively and tirelessly this past year on the following issues, some of which will remain areas of continued activity.

Point of Care Ultrasound (PoCUS)

The Commission began with an analysis of this issue and presented a report to the Board of Chancellors (BOC) in September 2014. We then began the process of collaborating with the Commissions on Economics, Education and Human Resources to revise ACR Resolution 22 on PoCUS, which was adopted by the BOC in 2013 and deals only with quality and safety. A survey was sent to all SRU members, the Association of Hospital Administrators (AHA) now known as The Association for Medical Imaging Managers, and the Radiology Business Managers Association (RBMA). The response was suboptimal, but the vast majority of respondents indicated that they are aware

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The American College of Radiology Ultrasound Commission at Work (continued)

of PoCUS being performed in their institutions but otherwise have very limited knowledge. The Commission is forming a PoCUS task force with the goal of writing a new resolution that will deal with education, credentialing, reporting and documentation of findings, image archiving and storage, etc.

AIUM Practice Guideline for the Performance of US-Guided Procedures

The commission voted to decline approval/adoption of the guideline, which was based on work from a 2010 AIUM Forum on PoCUS.

Radiologist Participation in Ultrasound Medical Education

The Commission solicited radiologists who are interested in participating in a workgroup on ultrasound education of medical students and radiology residents and fellows. We hope that more radiologists will become active in this arena and will join the Society for Ultrasound in Medical Education (SUSME). The AIUM is sponsoring annual forums to get more medical schools to begin ultrasound training programs. Education factors into PoCUS, since currently ED physicians are leading the effort to promote ultrasound as a diagnostic tool early in medical education.

Sonographer Scope of Practice Document

This document is now final and the plans are to request that the ACR support rather than endorse/adopt this product, which was the result of a task force convened by the Society for Diagnostic Medical Sonography (SDMS) at which Drs. Deborah Levine and Edward Bluth represented both the ACR and the SRU. The document does not allow for independent practice and was carefully worded to ensure that there is always a physician supervising

the sonographer. However, the new requirements are that sonographers "must be" boarded in any primary areas and "should be" boarded in any secondary areas in which they work. This means that sonographers working for radiologists must obtain multiple board certifications, whereas those working for obstetricians, cardiologists and vascular surgeons will need only a single board certification.

Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS)

Commission members participated in the revision of the JRC-DMS National Education Curriculum for Sonographers. Significant revisions and edits were submitted in November on the abdomen, vascular, small parts and informational technology sections. Dr. Stephanie Wilson, who is not a member of the Commission, assisted in editing the GI subsection.

AIUM International Consensus Conference on Adnexal Masses

I participated in this conference, which was held in New York in November 2014, along with SRU members Drs. Deborah Levine and Phyllis Glanc. The action plan is to submit a white paper with the goal of reducing the rates of surgery for benign adnexal masses.

Economics

The Cigna transvaginal ultrasound scare was clarified and the procedure will continue to be reimbursed by this company. Radiologists are being encouraged to adopt Imaging 3.0 principles. Work is now being done on a Category I application for elastography.

United States Preventive Services Task Force (USPSTF) Thyroid Cancer Screening Study

In response to a request for comments on a proposed plan for a study of thyroid cancer screen-

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The American College of Radiology Ultrasound Commission at Work (continued)

ing, the Commission, utilizing the expertise of several members led by Dr. Sherry Teefey, submitted a statement and references on thyroid screening. Drs. Lincoln Berland, Edward Grant, Jill Langer and Franklin Tessler volunteered to serve as experts on the thyroid task force, and their names were submitted to the USPSTF.

Gynecology Lexicon (O-RADS)

A conference call and preliminary conversations were held last year on the establishment of an adnexal lexicon committee. Dr. Rochelle Andreotti will serve as the committee chair and Dr. Phyllis Glanc as the vice-chair, with the establishment of the entire committee in the coming year.

Welcome to New Members

The SRU welcomes the following physicians to membership:

Zambaga Ganzorigt, MD	Ulaanbaatar, Mongolia
Jaclyn Mahaffey, MD	Bloemfontein, Zambia
Muhammad Mustafa, MD	Erbil, Iraq
Kushal Parikh, MD	Ann Arbor, MD
Maha M. Jamarkani, MD	Oklahoma City, OK
Wendaline M. McEachern, MD	Clayton, MO
Kianouish Ansari Gilani, MD	St. Louis, MO
Mary J. Clingan, MD	Chesapeake, VA
Rana Fattahi, MD	St. Louis, MO
Malak Itani, MD	Seattle, WA
Vivek R. Patel, MD	Norwalk, CT
Thomas Tullius, Jr., MD	Chicago, IL
Brian Weber, MD	Miami Beach, FL

Elastography Assessment of Liver Fibrosis: Society of Radiologists in Ultrasound Consensus Conference Statement

Richard G. Barr, MD, PhD

Chronic liver disease is a substantial world-wide problem. Its major consequence is increasing deposition of fibrous tissue within the liver leading to the development of cirrhosis with its consequences, portal hypertension, hepatic insufficiency and hepatocellular carcinoma (HCC). Essentially any chronic liver disease may lead to liver fibrosis and progress to cirrhosis. These include infections due to hepatitis B virus (HBV) and hepatitis C virus (HCV), alcohol abuse, nonalcoholic fatty liver disease (NAFLD) including nonalcoholic steatohepatitis (NASH), cholestatic liver disease (primary biliary cirrhosis), iron deposition, and autoimmune causes. Different histological stages of progressive liver fibrosis have been described, from no fibrosis (Metavir stage 0) to the cirrhotic stage (Metavir stage 4). As fibrosis progresses there is increasing portal hypertension, loss of liver function and higher risk of HCC. The stage of liver fibrosis is important to determine prognosis, surveillance, to prioritize for treatment and potential for reversibility. The process of fibrosis is dynamic, and studies have shown that a regression of fibrosis is possible with treatment of the underlying condition (e.g. antiviral therapy in viral hepatitis and immunosuppression in autoim-

mune hepatitis)(1-3). Liver biopsy is considered the reference standard for fibrosis assessment and stage classification and is also able to grade steatosis, necrosis and inflammatory activity. However, biopsy is invasive with potential complications that can be severe in up to 1% of cases (4, 5). Further tissue obtained via biopsy represents roughly only 1/50,000 of the liver volume, which may result in sampling error (6) and is associated with considerable inter-observer variability at microscopic evaluation (7). Another drawback of liver biopsy is the relatively limited number of stages (5-7) in most staging systems. Fibrosis in liver disease is actually a continuous spectrum rather than discrete categories. Despite the drawbacks of liver biopsy, histologic examination can identify the common confounders that result in increased liver stiffness unrelated to fibrosis (8). Therefore non-invasive methods for liver fibrosis assessment have been an intense field of research, including elastographic methods using ultrasound and MRI.

The Society of Radiologists in Ultrasound convened a panel of specialists from radiology, hepatology, pathology and basic science/physics to arrive at a consensus regarding the use of elastography in assessment of liver fibrosis in chronic liver disease. The panel met in Denver, CO, October 21-22, 2014, and drafted a consensus statement. The recommendations in this statement are based on an analysis of current literature and common practice strategies, and are thought to represent a reasonable approach to noninvasive assessment of diffuse liver fibrosis. The consensus conference statement is now available on Ahead of Print in *Radiology* (9).

The goals of the consensus conference were to: 1) understand the variability of elastography measurements (intrinsic and patient factors); 2) review factors that can affect measurements; 3) provide guidance on how to perform the examinations, interpret the results and report the findings; 4) determine where ultrasound elastography can be utilized in clinical practice; and 5) set an agenda for further research.

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Elastography Assessment of Liver Fibrosis: Society of Radiologists in Ultrasound Consensus Conference Statement (continued)

Clinical Indications for Elastography

The main clinical indication for liver elastography is fibrosis staging of chronic liver disease with a main objective of determining the presence or absence of advanced fibrosis. Determining the presence of cirrhosis is important as this will trigger screening/monitoring procedures and establish priority for therapy. Other indications for liver elastography include follow-up of previously diagnosed fibrosis, assessing patients with known cirrhosis (by establishing whether there is clinically significant portal hypertension), and evaluating patients with unexplained portal hypertension. With new treatments that can actually decrease fibrosis in patients with viral hepatitis, another indication is follow-up to assess response to treatment and potentially to tailor further follow-up and therapy (1, 2).

Noninvasive Methods for Assessment of Liver Fibrosis

There are four main methods for non-invasive tissue stiffness-based assessment of liver fibrosis: transient elastography (TE), point quantification shear wave elastography (p-SWE), 2D shear wave elastography (2D-SWE), and magnetic resonance elastography (MRE). Both p-SWE and 2D-SWE use acoustic radiation force impulse technology (ARFI). Although the measurements obtained from each are correlated with each other, and with pathologic stage of fibrosis, they each have inherent strengths and weaknesses, and the measurements provided by each differ. Strain elastography (SE) assessment for liver fibrosis has been reported but the literature is limited and therefore, it was not discussed in this consensus panel (9).

Technical Aspects of Performing Elastography

The technical aspects of performing the examination were discussed, and the panel felt the following were important aspects of obtaining an accurate measurement for the ultrasound-based techniques:

1. Patient imaged in supine or slight decubitus position.
2. Measurements taken from an intercostal position.
3. Right arm raised overhead to increase the intercostal acoustical window.
4. B-mode image should be optimized for the "best acoustical window" to provide the best results.
5. The amount of displacement of the liver is optimized when the ARFI pulse is perpendicular to the liver capsule to limit refraction of the pulse.
6. Measurements should be taken at least 1.5 to 2 cm below the liver capsule.
7. Although liver fibrosis is a heterogeneous process, the "best" accuracy of stiffness value is from multiple measurements in the same location.
8. The site selected should be the best location for "most accurate" measurement, taking acoustical window and depth into consideration.
9. It was the consensus of the panel that breath hold (a few seconds) during quiet breathing led to optimal results. Taking a deep breath, a Valsalva maneuver, or deep expiration changes hepatic venous pressures, which can substantially affect the stiffness measurements.
10. The literature suggests ten measurements should be taken and the median reported. More than 60% of the measurements should be "good" measurements. Further study is needed to determine if a smaller number of measurements would be as accurate.

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Elastography Assessment of Liver Fibrosis: Society of Radiologists in Ultrasound Consensus Conference Statement (continued)

11. The interquartile ratio (IQR) should be used to assess the quality of the data. An IQR/median <0.30 suggests a data set is good.

The panel noted that the ultrasound-based methods use varied technologies and the measurements that they report may not be equivalent while the MRE systems use standardized shear wave driver systems, processing algorithms, and display conventions. As a result, measurements obtained from examinations on these different MRI systems can be directly compared.

Confounding factors in stiffness measurements include necrosis, inflammation, and fat deposition (steatosis), co-morbidities (such as acute on chronic disease or vascular congestion) and patient factors (obesity, ascites, medications and prandial state). Pre-test probabilities according to age, gender, ethnicity and lab tests also affect the cut-off values used for different stages of fibrosis. Due to these varied factors, thresholds obtained from specific populations may have limited generalizability for other populations.

Portal hypertension is an important prognostic factor in patients with chronic liver disease and is the pathophysiological basis of most complications of cirrhosis. Upper gastrointestinal bleeding from esophageal varices, ascites and encephalopathy are among the most important clinical manifestations of elevated portal venous pressure. The panel discussed the possible use of spleen stiffness measurement as a non-invasive means of estimating portal hypertension.

Comparative Accuracy of Elastography Methods

The panel reviewed the literature for the four techniques and summarized their findings, noting the advantages and disadvantages for each technique. The panel felt it was more appropriate to report results in meters/second (m/s) as this is what is actually measured. Assumptions are currently made to convert to Young's modulus (kPa) that may change as these technologies advance. Of importance, the kPa from MR is measured as the shear modulus, which is a factor of 3 lower than the Young's modulus reported in ultrasound elastography.

Consensus Statement: Best Practices for Elastography for Diffuse Liver Disease

It was the consensus of the panel that a stepwise approach to the diagnosis of liver fibrosis would be helpful. Patients with decompensated cirrhosis can be diagnosed clinically. In patients without overt decompensated cirrhosis, an assessment with elastography can be helpful. Elastography can be performed by either an ultrasound-based technique or by MRE. The panel felt that the literature suggests that TE and ARFI (p-SWE and 2D-SWE) techniques are at least equivalent. It is the recommendation of the consensus panel to interpret results by using two cut-off values: one to select patients that are at low risk for significant fibrosis (F0 and F1) who would not require additional follow-up and another cut-off value to select patients at high risk for advanced fibrosis or cirrhosis (some F3 and F4) who require different management and prioritization for therapy. Between these two cut-off values there is substantial overlap of fibrosis stages and it may be that likelihood ratios will be a better tool for documenting risk. Additional tests (blood tests, liver biopsy, or MRE) and clinical evaluation will be needed to determine appropriate follow-up when values are in the indeterminate range.

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Elastography Assessment of Liver Fibrosis: Society of Radiologists in Ultrasound Consensus Conference Statement (continued)

Report Elements

The panel recommended that the report for ultrasound-based elastography should provide the median value as well as the IQR/median as a measure of quality. The report should state if these patients are at minimal risk (F0, F1, no follow-up required), moderate risk (F2 and some F3, additional testing is appropriate) or high risk (some F3 and F4, follow-up advised). To allow for improved reproducibility of serial measurements, patient position and equipment used (including machine manufacturer and transducer frequency) should be reported so that similar equipment and technique are used on subsequent studies.

The consensus panel also listed areas for future research, including basic issues such the number of measurements needed, and clinical questions including use for treatment follow-up.

The consensus panel concluded that the literature indicates that elastography techniques can separate patients with no or minimal (Metavir F0 and F1) fibrosis and differentiate them from those with severe fibrosis or cirrhosis (Metavir F3 and F4) with no need for biopsy in these groups unless there are other factors that need to be considered. A middle group between these cut-off values requires additional data to determine follow-up. A consensus of best practices was developed. Additional research is needed in areas of population differences, disease differences, spleen measurement, steatosis, and incidence of HCC related to liver fibrosis grade.

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Ask The Expert

Sheila Sheth, MD
Johns Hopkins University School
of Medicine
Baltimore, MD

How Do I Use 3D Ultrasound in Gynecology?

Endovaginal ultrasound (EVS) is universally accepted as the imaging modality of choice to evaluate the uterus and adnexa. However, despite its excellent resolution, one important limitation of traditional 2D US is its inability to allow visualization of the coronal plane of the uterus.

With the development of 3D capable transducers, multiplanar image acquisition akin to 3D techniques routinely utilized in CT and MR are now available and can add invaluable information to the 2D EVS examination in selected cases of suspected uterine pathology while adding only an extra few minutes to the study.

With a dedicated 3D probe, a sweep through the area of interest selected by the operator is obtained, and if the acquired volume is deemed satisfactory on a brief real-time review, the vaginal probe can be removed, the patient discharged and the data analyzed at a later time.

A reliable post-processing technique to display the mid coronal plane of the uterus, the Z technique, has been described by Abuhamad et al. I have found this technique easy to learn and teach: 1) an automatic sweep through the sagittal plane of the uterus that includes the endometrial stripe (EMS) is performed to acquire the volumetric data; 2) all three orthogonal planes are shown on the screen using a multiplanar display; 3) the refer-

ence point is placed in the midlevel of the EMS on the sagittal plane and the long axis of the EMS is aligned along the horizontal axis using the Z rotation; 4) the reference point is placed in the midlevel of the EMS in the transverse plane and is aligned along the horizontal axis using the Z rotation; 5) the mid-coronal plane of the uterus is then displayed and the Z rotation can be used for orientation purposes. Steps 2 to 5 usually require just a few minutes and may be performed after the patient has left the imaging area. In addition to a multiplanar display, surface rendered images can be obtained if desired.

Based on the published literature and my own experience, 3D EVS is most useful to further evaluate or confirm suspected endometrial pathology. I have found it particularly useful in women who have an intrauterine contraceptive device (IUD). While the shaft of the IUD can be readily seen on standard 2D images, visualization of the side arm is best accomplished by scrutinizing the coronal plane. Normally, both arms of the T should be seen within the endometrial cavity and the IUD should be within 3 mm of the fundal portion of the EMS. Abnormally positioned IUDs are a source of pain, cramping and abnormal bleeding. Abnormal positioning includes embedment of one or both side arms of the IUD into the myometrium, low position of the IUD in the cervix or lower uterus, or malrotation of the IUD.

Another common indication for pelvic US in these women is a lost IUD string; a coiled string can be demonstrated on 3D EVS.

Although rare, congenital Mullerian duct anomalies (MDA) can present with amenorrhea, pain or compromised fertility. Diagnosis of the type of MDA is critical, as it influences management and is based on the shape of the uterine fundus and the number and appearance of the endometrial cavities. In experienced hands, coronal images of the uterus afforded by 3D US allow accurate diagnosis, with a reported sensitivity of 86.6% and specificity of 96.9%.

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Ask The Expert (continued)

3D US alone or combined with saline infusion is also valuable in women with a suspected endometrial mass, not only in confirming the presence of a mass (usually an endometrial polyp or submucosal myoma), but also in determining more precisely the location of the mass within the endometrial cavity, thereby facilitating hysteroscopic removal. By placing the reference point on the sagittal and transverse displays, the mass can be easily located on the coronal reformation.

In the first trimester of pregnancy, the addition of 3D US can increase diagnostic confidence in determining the precise location of an eccentrically placed gestational sac and differentiating an eccentric intrauterine pregnancy from an interstitial ectopic pregnancy.

The role of 3D US is more limited in the evaluation of adnexal masses: internal echotexture and septations are usually better seen on 2D US because of its higher resolution. However, in selected cases, 3D US can provide additional information by allowing multiplanar reconstruction in any chosen plane.

In patients with a well-visualized and normal endometrium, 3D US is unlikely to provide additional information. There are also some limitations to 3D US. If the endometrial stripe is thinner than 5mm, the 3D images will be suboptimal. It is also

important to keep in mind that image resolution is highest in the plane of acquisition, with the coronal plane having the lowest resolution. Therefore, as in CT and MR, 3D images should always be interpreted in conjunction with the source images.

In summary, there are many useful applications of 3D US in gynecology. Although there is an initial learning curve, the time commitment is well worth the investment.

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The SRU Foundation (SRUF) is the 501(c) (3) arm of the SRU that provides funding for SRU consensus conferences. The conferences are a high-visibility way of promoting the role that radiology plays in promoting quality ultrasound, and help the society to further its mission to advance the science, practice and teaching of ultrasound in radiology.

SRUF funds come from membership contributions. Please consider making a contribution to support the future of ultrasound in radiology. To make a contribution, please contact info@sru.org.

Society of Radiologists in Ultrasound

2015 Member-in-Training Research Award

General Information

In accordance with the mission of the Society of Radiologists in Ultrasound (SRU) to advance the science, practice and teaching of the subspecialty of ultrasound in radiology, the SRU announces the 2015 Member-In-Training Award.

The award will be given to an SRU in-training member (resident or fellow) for a paper on original research in ultrasound. The first author (the in-training member submitting the work) of the award-winning paper will be expected to present the paper during the October 23 plenary session at the 2015 annual meeting in Chicago, IL. The first author will receive an award of \$1,000.

The abstract will also be submitted to *Ultrasound Quarterly*, the official journal of the SRU, for possible publication.

Requirements

1. The work must be primarily about clinical ultrasound imaging. The in-training member submitting the work must be the first author and must have contributed the majority of the work for the study.
2. The submission shall consist of an abstract not to exceed 500 words, containing the following four elements in separate paragraphs:
 - Purpose or objective of the study
 - Materials and methods
 - Results
 - Conclusion
3. The applicant must submit a current curriculum vitae and a letter from his or her program director attesting that he or she is a radiology resident or fellow in good standing, that the work has been done primarily by the applicant, and that it has not been previously submitted for publication or published prior to its submission to the SRU.
4. Each candidate is limited to one submission.

Submission Instructions

[Click here](#) to submit an abstract for consideration. The submission deadline is **July 15, 2015**. Receipt of applications will be acknowledged via e-mail. The SRU Research and Practice Committee will review the abstracts and submit its recommendation for the award-winning paper to the Executive Board for final approval. Applicants should not contact members of the Research and Practice Committee or the Executive Board regarding activity on their application. The review process will be completed shortly after the submission deadline, and applicants will be notified of the final decision on their applications in a timely manner.



Member-Get-A-Member Campaign

The Member-Get-A-Member campaign has been renewed for the coming year and is currently active. Current dues-paying members will receive a \$100 credit toward their membership dues for each new dues-paying member they recruit, up to a maximum of \$400. You may keep the credit for yourself or you may give the credit to the dues-paying member(s) you recruit.

There are several ways for referred members to join the SRU. The simplest way is to click on "Join" on the top menu bar of the website (www.sru.org) and complete the online application, including the field to indicate the name of the member who referred them. There is also the option to download an application from the site. If this option is used, the prospective

member should write the name of the referring member on the top of the application before returning it so that you will receive proper credit. Prospective members may also request a membership application from info@sru.org and write the name of the referring member on the top of the application before returning it. To receive credit for a referral via the Member-Get-A-Member Campaign, your name must be listed on the membership application of the new members you recruit.

Please encourage your colleagues who include ultrasound as part of their practice to join the SRU today! We look forward to welcoming them as member(s) of the society.



SOCIETY OF RADIOLOGISTS IN ULTRASOUND

25th Annual Meeting & POSTGRADUATE COURSE

Meeting Deadlines

- Member-in-Training Research Award: July 15, 2015
- Toshiba Residents Program: July 15, 2015
- Hotel Reservations: September 28, 2015
- Meeting Registration: October 2, 2015



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The Westin
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