Editor’s Note

As I write this, it is a crazy time of year. Right now I am in Dallas, in the middle of an ice storm. A day ago, I was in Houston, where the temperature was 85 degrees Fahrenheit!

In this issue of the Society of Breast Imaging (SBI) Newsletter, Mimi Newell discusses subspecialty certification (formerly known as Certification of Added Qualification (CAQ)). This article was written because one of our readers wanted more information on this important topic. We thank Mimi for the great article, and we thank you for letting us know what you want to read. Please continue to send your suggestions to us at info@sbi-online.org.

One of the great things about working on the SBI Newsletter is that I get to interact with great people. Two major contributors on the editorial board, Phan Huynh and Bernie Redd, are completing their terms. I would like to thank Phan and Bernie for their wonderful contributions. THANK YOU!

Two fantastic new additions to the editorial board are Michael Linver and Louise Miller. Michael has contributed an article to this issue, discussing how he uses nuclear medicine studies in his practice. I look forward to working with Louise and Michael.

Catherine Dexter has taken over Abray Stillson’s role as the main SBI liaison for the Newsletter. This change in responsibilities allows for better alignment in their roles: Catherine in marketing and communications and Abray in education. Abray did a super job supporting the newsletter, and Catherine, who assembled this issue, is off to a great start! Thanks again to Abray for continually going beyond the call of duty. I look forward to working with Catherine as the SBI Newsletter transitions to a new, more user-friendly format.

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President’s Column: Education Alphabet

One of our society’s core values is that excellent educational programs improve knowledge and clinical care. The Society of Breast Imaging (SBI) Board of Directors decided that it was important to invest in new ventures which would help fulfill our goals. We wanted to improve our website and enhance our involvement in social media, provide the necessary tools for our members to obtain their Maintenance of Certification (MOC) credits through our society, and offer live and online courses which would allow the participants to stay current with new breast imaging technologies and methodologies. In addition, we wanted the participants to reinforce existing knowledge and learn new practice skills.

As a result, our staff began the investigation of both external and internal resources which would provide the necessary tools for this task. After thorough vetting of the companies we found the appropriate ones. Under the leadership of both Dr. Eric Rosen (Secretary/Treasurer) and Dr. Wendy DeMartini (Communications Chair), our website has undergone a major overhaul. Catherine Dexter, Marketing and Communications Specialist, has helped the SBI connect with our members through Twitter, Facebook, and LinkedIn, and we continue to see increased activity from SBI members and non-members alike. We have also created an SBI application for smartphones and tablets which will allow attendees at SBI meetings to customize their meeting schedules; follow the program schedule; view biographies of the faculty members; as well as see, in diagram form, the layout of the meeting site and the exhibit hall.

MOC remains a process in evolution. Previously, those enrolled in the program needed to obtain 75 category 1 continuing medical education (CME) credits over a three year period. Recently, the American Board of Radiology (ABR) amended this rule, and the ABR now requires that 25 of the 75 CME credits be in the form of self-assessment continuing medical education (SAM/SA-CME). Dr. Kate Appleton and her SAM committee have worked diligently for months to create online modules to help satisfy this rule. In combination with attendance at SBI’s live meetings, participants will be able to obtain the necessary SAM/SA-CME credits per year. Online modules will be available soon. Documentation of Practice Quality Improvement (PQI) remains an important element of MOC. To address this, Dr. Heidi Umphrey has developed three distinct programs to meet this requirement. These programs have been approved by the ABR, and they will be available on the SBI website in the near future.

The SBI weekend breast MRI course, which took place for many years, was highly successful. In the near future, it will continue to be offered as an enduring, online product offering CME and SA-CME credits. This will benefit both members and non-members who were unable to attend the course. Under the direction of Dr. Elizabeth Morris (Education Chair) a new weekend course program was created. A case-based course which focuses on digital breast tomosynthesis (DBT) and also included multimodality interesting cases with audience participation was developed by Dr. Laurie Fajardo, who has extensive experience with DBT. Drs. Margarita Zuley, Christopher Comstock, and Michael Linver have agreed to serve as faculty members. The new course will offer 11.5 Category 1 CME credits, 8.5 SAM credits and will provide the 8 hours of new modality training in DBT, which
MQSA requires. The DBT course was held in Orlando on January 18-19, 2014 and it will be held in Las Vegas on September 20-21, 2014.

Starting in 2015, the SBI will move to an annual meeting format, replacing the biennial Postgraduate Course. The SBI/ACR Breast Imaging Symposium will continue to feature the highly popular plenary sessions, refresher courses, debates and question and answer sessions.

The above-mentioned programs are very exciting. However, how do we do this? SBI staff, with the support of Pam Wilcox (ACR Assistant Executive Director) and a skilled information technology team have helped to integrate existing SBI/ACR hardware and software with newly acquired products. Technology from companies called Peach New Media, 3S, and DotNetNuke, are now common parlance among our staff. These products are all used in conjunction with the new Learning Management System (LMS) which is the backbone for these new ventures. This framework should serve us well for many years to come.

Finally, I would be remiss if I did not acknowledge our SBI staff. Yasmeen Fields (Executive Director), Abray Stillson (Education Programs Manager) and Catherine Dexter (Marketing and Communications Specialist) have worked countless hours in order to make this new undertaking a success. There is no way we could have reached this milestone without their efforts.

So there you have it -- education alphabet: CME, SAM, SA-CME, MOC, PQI, DBT, LMS, ACR and SBI. These letters will play an important role in our continuing education as breast imagers. Thankfully, with the help of the above-mentioned people and the new technology, we will be able to maintain and further develop our professional skills in this rapidly evolving health care environment.

Murray Rebner, MD, FACR, FSBI
President, Society of Breast Imaging
The Potential of Breast CT for Breast Cancer Screening and Diagnosis

By John M. Boone, Ph.D., FSBI, Karen K. Lindfors, MD, FSBI, and Shadi Aminololama-Shakeri, MD

Introduction
Mammographic sensitivity is limited due to masking of cancers occurring in dense breast tissue. Modalities such as breast tomosynthesis and ultrasound have been proposed to overcome the tissue superimposition issues in projection mammography. Our laboratory has focused on the development of dedicated breast computed tomography (bCT) (1). We have built four breast CT scanners and have imaged over 600 women in clinical trials at the University of California (UC) Davis and the University of Pittsburgh.

Breast CT Hardware

Acquisition Details
In our dedicated bCT scanners, the woman lies prone with the single breast to be imaged in a pendant position (Fig. 1). A flat-panel detector based CT system (Fig. 2) rotates 360° around the breast while the patient is in a breath-hold. About 500 projection images are acquired in 16.6 seconds at 60-80 kV, using a 400×300 mm detector. These data are used to reconstruct a ~5123 (or greater) volume data set of the breast. Radiation dose levels are adjusted to deliver the same dose as two-view mammography.

Breast CT Spatial Resolution
For each reconstructed breast CT volume data set (~5123 on the first 3 scanners), the coronal images have a section thickness of approximately 0.25 mm, and voxel dimensions in the other
planes run between 0.25 mm and 0.35 mm, depending upon the diameter of the woman’s breast. Over the past 12 years, we have improved the spatial resolution of the breast CT systems dramatically by upgrading the design of the scanners. For example, the limiting resolution of these breast CT scanners has increased from ~0.8 line pairs (lp)/mm (Prototypes 1 and 2) to ~2.8 lp/mm (Prototype 4); a 3.5 fold improvement.

**Viewing Software**

Dedicated bCT is a true three-dimensional (3-D) modality, which allows for perfectly-registered orthogonal views of the breast (Fig. 3). While two-dimensional (2-D) and 3-D mammographic craniocaudal and mediolateral-oblique views allow different angular perspectives of the breast, the breast compression used precludes true orthogonal viewing. An important feature of the bCT viewing software is the ability to dynamically adjust slice thickness in all three directions. This gives the interpreting This visualization tool also allows for precise measurements of length, area, or volume, as the variable magnification issues are factored out in the reconstruction process.

**Breast CT Clinical Performance**

**Clinical Trials**

Several clinical trials comparing bCT to other breast imaging modalities in women with BI-RADS® 4 and 5 assessments, based upon standard imaging, have been reported. Early work (2) in 69 women showed that unenhanced bCT was significantly better for visualization of masses (p<.002), but that mammography outperformed bCT for visualization of calcifications (p<.006). Since improved detection of early stage breast cancers, including ductal carcinoma in situ (DCIS), over standard 2-D mammography is critical to the success of any new imaging modality, it was clear that the sensitivity of bCT required improvement, thus the use of contrast-enhanced (CE) bCT was studied. In 54 reported BI-RADS® 4 and 5 breast lesions (3), malignancies...
were seen significantly better on CE bCT compared to unenhanced bCT (p<.001) or mammography (p<.001). Malignant lesions enhanced an average of 55.9 Hounsfield units (HU), whereas benign lesions enhanced 17.6 HU (p<.001).

More recent work (4) has shown that when BI-RADS® 4 and 5 microcalcifications are considered, DCIS is equally well seen on CE bCT and mammography, both of which are significantly superior to unenhanced bCT for DCIS visualization. Benign calcifications are significantly better seen on mammography than on either enhanced or unenhanced bCT. Quantitative enhancement of DCIS (mean of nearly 60 HU) was significantly greater than enhancement of benign calcification lesions. Of note, all DCIS lesions enhanced, while the majority of benign lesions showed no enhancement, suggesting that CE bCT has the potential to reduce benign breast biopsies.

Comparisons of bCT to other modalities, including tomosynthesis and magnetic resonance imaging (MRI) are underway. A study reported at the 2013 Radiological Society of North America (RSNA) meeting (5) showed that in 103 BI-RADS® 4 or 5 lesions, malignant masses had significantly greater conspicuity on CE bCT than on mammography or tomosynthesis (p<0.05). Benign masses and malignant calcifications were seen equally well on all three modalities.

In a study of 24 cancers and 33 benign lesions, presented at the 2011 RSNA meeting (6), CE bCT was reported as equivalent to MRI in diagnostic performance. Among five radiologist readers, CE bCT correctly classified 83.6% of the benign lesions and 94.2% of the cancers. MRI correctly classified 86.1% of the benign lesions and 93.3% of the cancers (p>0.63). These results suggest that CE bCT may be an alternative to MRI in the evaluation of breast lesions.

Breast CT: Clinical Examples

Case 1:
A 61-year-old woman presented with a palpable mass at 10 o’clock in the right breast. Mammography showed dense breasts and an enlarged right axillary node, but there was no mammographic evidence of malignancy. The unenhanced sagittal bCT (Fig. 4a) is unremarkable. After contrast administration (Fig. 4b), a 2.7 cm irregular, ill-defined mass is seen anteriorly. The
patient was repositioned in the scanner prior to contrast administration. An axial bCT image (Fig. 4c) shows the enhancing mass anteriorly and an enlarged axillary lymph node, which was positive for metastatic disease. A corresponding post-contrast T1-weighted fat suppressed MRI (Fig. 4d) performed following a core biopsy shows the mass, representing infiltrating ductal carcinoma with susceptibility artifact from the marking clip at the posterolateral edge of the lesion.

**Case 2:**
A magnification compression view of the left breast (Fig. 5a) in a 51-year-old woman shows a 5 mm focus of pleomorphic microcalcifications in the 2 o’clock position. A coronal unenhanced bCT (Fig. 5b) shows faint microcalcifications (arrow). The corresponding CE bCT (Fig. 5c) shows a 5 mm focus of enhancement (arrow) at the site of the calcifications. Core biopsy of the microcalcifications revealed DCIS with microinvasion.

**Summary**
Dedicated bCT offers true 3-D visualization of the breast, which can mitigate the effects of superimposed tissue seen with mammography. In addition to clinical studies highlighted above, mathematical analyses of breast images (7, 8) demonstrate that the anatomical texture produced by thin-section bCT is more conducive to mass lesion detection than 2-D or 3-D mammography. Recent improvements in spatial resolution will almost certainly improve the detection of microcalcifications on unenhanced bCT. Breast CT can be considered as the gold standard for quantifying breast density (9). Physiologic information can be obtained when intravenous contrast is utilized, increasing both the sensitivity and the specificity of bCT. The expected cost of bCT should be more reasonable than MRI, and the compact footprint and lower siting costs should allow bCT system deployment in most breast imaging clinics. Although currently in its developmental infancy, breast CT appears to be a promising new modality which will add considerable flexibility to both screening and diagnostic breast examinations. Image-guided biopsy and image-guided radiofrequency ablation (RFA) are potential future applications using the breast CT platform.

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Pay-For-Performance (P4P): What Do I Need To Know?

By Bernadette Redd, MD

The Institute of Medicine (IOM), one of four national academies for science in the United States (US), has as its mission to provide advice on national health policy. The IOM has been garnering public attention since publishing its 1999 report titled “To Err is Human, “which focused on medical errors and safety (1). In this report, the IOM noted that between 44,000 and 98,000 people die in hospitals each year as the result of preventable medical errors (1). The report generated tremendous national interest. In 2001 and 2002, the IOM issued two other major reports, leading to a recommendation for incentivized payments to health care providers to encourage the delivery of higher quality health care (2, 3). The incentivized programs have become our current day pay-for-performance (P4P) programs.

The goal of all P4P programs is the same: to improve the quality, efficiency, and overall value of health care (4). Two of the more common financial incentive models are a bonus system and an at-risk financial model (2). With the bonus system, health care providers are rewarded with a bonus if they meet or exceed predetermined quality or performance measures (2, 4). For example, the Physician Quality Reporting Initiative (PQRS), discussed in this column previously, is currently a leading P4P program in the nation. Participants receive a bonus or financial reward for reporting on specific quality measures for a given percentage of relevant patients. Radiologists participating in the PQRS program have the option of being given a bonus for having a program in place that automatically generates a mammogram reminder letter for women age 40 years and above. With an at-risk financial model, payer withhold part of the expected reimbursement (2). The PQRS program will change from a bonus program to an at-risk system in 2015, when penalties will be assessed for noncompliance (4).

The quality measures assessed in P4P programs fall into four categories: process, outcome, patient experience, and structure (4).

A process measure would evaluate whether or not an intervention was performed that has been shown to improve health care outcomes (e.g., a smoker being counseled to stop smoking). An outcome measure would assess whether or not a particular intervention improved patient health. Patient experience measures evaluate patients’ perceptions of and satisfaction with the care provided. Structure measures relate to infrastructure features used in the course of treatment, such as information technology systems (4).

Public and private payers have adopted P4P programs. The California Pay for Performance Program, a private sector program founded in 2001, is the largest physician incentive program in the country (4). The Centers for Medicare and Medicaid Services (CMS) have initiated public sector P4P programs such as PQRS. The P4P initiatives that will be most applicable to radiology are still being determined. The results of a recent P4P program involving radiologists in the
Department of Radiology at Massachusetts General Hospital (MGH) and Harvard Medical School were published in the American Journal of Roentgenology (AJR) in September 2010 (3). The MGH radiology department, in conjunction with the Massachusetts General Physicians Organization at the hospital, determined that there was a need for improvement in final report approval turnaround time. A P4P initiative was established to improve turnaround time. The authors concluded that “a radiologist P4P program appears to have a marked effect on expediting final report turnaround times, which continues after its termination.” Review of the PQRS P4P initiative for radiologists, however has been less enthusiastic. A review from 2007-2010 found that “only a minority of radiologists successfully qualified for financial incentives under PQRS, but that the number had increased each year” (5). Participation in the PQRS program requires significant effort, and the cost of implementation has been criticized. Other studies, not specific to radiology, on the effects of P4P programs have also had mixed results (4).

Despite the mixed results, it is likely that P4P programs will expand nationally with the implementation of the Affordable Care Act. It is also recognized that cost considerations, in addition to quality, will be an integral feature of the programs in the near future (4). Quality assessments of health care services and physician reimbursement are expected to be inseparable. However, it is also understood that in order for a reporting or quality measure program to be successful, it needs to be perceived as being relevant (6).

The challenge for radiologists is to identify and participate in the relevant quality assessment programs that will lead to better health outcomes. 

References
RSNA 2013 Breast MRI Summary

By Peter Eby, MD, FSBI

The 2013 meeting of the Radiological Society of North America (RSNA), like prior meetings, offered results from a plethora of breast magnetic resonance imaging (MRI) scientific investigations from around the world. There were 26 papers presented in three sessions dedicated to breast MRI and an additional 20 papers presented in sessions devoted to other breast imaging modalities such as ultrasound or positron emission tomography (PET) that included comparison to breast MRI data. It would be impossible to review all 46 papers here, so I have tried to summarize some of the most memorable presentations.

The Monday morning marathon session included overviews of breast MRI topics by experts in their respective fields. Mitchell Schnall, MD, PhD discussed the current and future state of contrast-enhanced MRI, Savannah Partridge, PhD described diffusion weighted imaging (DWI) and Michael S. Middleton, MD, PhD reviewed magnetic resonance spectroscopy (MRS).

Highlights of the session included three presentations on shortened or abbreviated acquisition protocols. Roel D. Mus, MD presented the findings of an experimental protocol using 20 repeated 4.3 second TWIST scans after contrast injection to evaluate the rapidity of enhancement in known cancers. The authors measured the amount of time between contrast appearing in the aorta and the breast lesion. The time to enhancement (TTE) averaged 4.3, 8.6 and 12.9 seconds for grade III, II and I invasive ductal cancers, respectively. Invasive lobular cancer enhanced in 8.6 seconds, on average. The authors concluded that TTE provided a non-invasive method to predict tumor grade.

Time-resolved gadolinium-enhanced MRI of the breast was presented by Hanan Sherif, MD. Dr. Sherif and colleagues evaluated the very early onset of lesion enhancement on time-resolved ultrafast gadolinium-enhanced MRI as a differentiator between benign and malignant breast lesions. They performed a series of four 10 second acquisitions with five mm thick slices immediately after contrast injection in 200 patients with 249 lesions (66 were malignant). They found that nearly all malignancies enhanced within the first 20 seconds with high specificity (94%). This type of high temporal and low spatial resolution protocol could be added to the beginning of a contrast-enhanced scan to improve specificity.

A third scientific paper on shortened scanning, Sensitivity of an abridged breast MRI protocol to detect a known breast cancer, was presented by Laura Heacock, MS, MD. Dr. Heacock and colleagues tested a four minute contrast-enhanced protocol at 3 Tesla (T) in patients undergoing MRI for extent of disease evaluation. There were 100 malignancies, and the sensitivity was 98% when the readers had the appropriate history and prior examinations. Some cases of pure DCIS were missed. Adding T2-weighted images increased the scan time to nine minutes and significantly improved reader confidence and specificity. Amazingly, interpretation time for the entire scan was less than a minute for this protocol. The readers knew that all patients had cancer, so the results may not be translatable to screening patients.

I was particularly excited by these studies because of the potential to capture additional kinetic information from the earliest portion of our scans. These developments may shorten our imaging protocols and interpretation times while improving specificity.
On Monday afternoon at the breast MRI scientific session, Lars J. Grimm, MD garnered the Resident Trainee Research Prize for a paper titled Can breast cancer molecular subtype help select patients for preoperative MRI? The authors performed a retrospective review of 305 consecutive preoperative breast MRI examinations and classified them according to molecular subtype: luminal A, luminal B, HER2 or basal. The authors evaluated all cases for extent of disease and compared subtypes. Multifocal and multicentric disease was significantly more common in luminal B (49%) and HER2 (59%) subtypes when compared with luminal A (31%) and basal (25%) subtypes. The authors suggested that the selection of patients for preoperative breast MRI could be based on the molecular subtype.

On Wednesday afternoon, the Medical Student Trainee Research Prize was given to Kirti Magudia for the study titled Ability of background parenchymal enhancement (BPE) on breast MRI to predict tumor response to neoadjuvant chemotherapy (NAC). The researchers studied changes in the primary tumor and contralateral BPE in 86 consecutive patients before and after NAC. Response Evaluation Criteria in Solid Tumors (RECIST) were used to assess response in the known cancers. The researchers found no association between tumor response and initial BPE or changes in BPE after NAC.

Finally, there was an interesting study titled Prepectoral edema as a morphological Sign in MR-mammography, presented by Clemens G. Kaiser, MD. The authors observed high T2 signal edema along the anterior margin of the pectoralis major in multiple breast cancer patients. Subsequent retrospective review of 1109 consecutive examinations revealed prepectoral edema associated with 26% of invasive cancers. This sign was 97% specific, and it may be useful in a screening setting if T2-weighted sequences are obtained. The authors hypothesized that altered permeability of tumor vasculature in invasive cancers results in edema.

RSNA Breast MRI Summary, continued from previous page

2013 RSNA: Breast Ultrasound Wrap-Up

By Regina J. Hooley, MD

There were more than 20 breast ultrasound scientific papers presented at the 2013 Radiological Society of North America (RSNA) meeting. A variety of topics were addressed, including magnetic resonance imaging (MRI)-directed ultrasound, elastography, lymph node evaluation, and screening ultrasound.

The first breast imaging session Sunday morning opened with an analysis of MRI-directed ultrasound. Adrienne Newburg from New York, NY evaluated 59 suspicious MRI detected non-mass enhancement lesions, noting that MRI-ultrasound correlates were identified in only 24% of cases, with a low cancer yield, concluding that ultrasound may not be beneficial in these cases. Mathijn de Jong compared the performance of three-dimensional (3D) ultrasound to MRI, showing that 3D ultrasound has the potential to reliably detect and classify benign and malignant breast lesions.
Sunitha Bachawal presented an interesting molecular imaging study using ultrasound microbubbles targeted to mice endothelial growth factor receptors, revealing its ability to accurately identify breast cancers in vivo. Marion Scoggins from Houston, TX explained how ultrasound can be used to predict the estrogen receptor (ER) status in ductal carcinoma in situ (DCIS) as 62% of ER negative lesions, which usually present as shadowing masses, were seen on ultrasound.

Eunjeong Kim from Seoul, South Korea showed that automated breast ultrasound could detect 96% of malignant calcifications seen on mammography, similar to the hand-held ultrasound detection rate. In an investigation of 105 patients with pathologic nipple discharge, Hyun Kyung Jung, also from Seoul, concluded that ultrasound was superior or equal to galactography in 75% of cases, while galactography was equal or superior to ultrasound in only 49% of cases.

Elastography was a dominant topic early in the week. Kyung Hee Ko showed that shear wave elastography (SWE) is useful in characterizing breast lesions < 2 cm in size. Andrew Evans discussed the potential of SWE in predicting lymph node involvement in women with invasive breast cancer. In a separate study, Dr. Evans presented data regarding the use of 3D gray scale imaging and SWE to characterize peritumoral stiffness and vascular invasion. Jung Min Chang from Seoul demonstrated improved diagnostic performance with SWE and B-mode sonography in lesions detected on screening ultrasound, as no cancers were found with a maximum elasticity value < 65 kilopascals (kPa) or a dark blue elastography pattern. In a second study, Dr. Chang explained that SWE plus B-mode US was accurate in detecting residual tumor, potentially useful for surgical planning. Also, Mukta Mahajan combined strain elastography features and B-mode ultrasound in the analysis of 215 breast lesions, demonstrating an increased overall diagnostic performance.

Yu Mee Sohn from Seoul concluded that ultrasound-guided fine needle aspiration (FNA) was best in the preoperative evaluation of axillary lymph nodes, compared to ultrasound alone, or positron emission tomography (PET)-computed tomography (CT). Rakhee Goel explained that even in the presence of a normal mammogram and no relevant medical history, isolated abnormal axillary lymph nodes warrant biopsy, as significant non-breast cancer pathology can be diagnosed.

Thursday’s session was dedicated to screening. Karen Drukker from Chicago, IL explained that the combination of automated breast ultrasound (ABUS) and mammography increased reader performance. Woo Jung Choi demonstrated an accuracy of 97.7% and a low recall rate with automated breast volume scanning, comparable to the accuracy of hand-held ultrasound. In a study of 30 biopsied breast lesions presented by Cherie Kuzmiak from Chapel Hill, NC, there was equal or slightly greater confidence in lesion visualization using automated ultrasound compared to hand-held ultrasound, suggesting that suspicious lesions seen on automated ultrasound may not require rescanning.

Two papers emphasized the importance of training both technologists and radiologists. Using technologist performed hand-held screening ultrasound, Glenys Da Costa from New York, NY showed the cancer detection rate to be 3.4 cancers per 1000 women scanned with a positive predictive value (PPV) of 8%. Kanchan Phalak showed that screening ultrasound resulted in a supplemental cancer detection rate of 2.6% in women with a history of lobular neoplasia. Finally, Regina Hooley from New Haven, CT presented data regarding screening women with dense breasts with both tomosynthesis and ultrasound, showing that the supplemental cancer yield from ultrasound was 1.9 cancers per 1000 women screened.

In summary, there were many excellent ultrasound presentations from around the world, demonstrating a wide range of exciting applications. ✤
RSNA 2013 Mammography and DBT

By Stamatia Destounis, MD, FSBI

This year’s Radiological Society of North America (RSNA) annual meeting included presentations and workshops on a wide range of topics in breast imaging, from breast magnetic resonance imaging (MRI) and contrast-enhanced mammography, to automated breast ultrasound and nuclear imaging. An overview of some of the topics related to mammography will be provided in this article, with a focus on digital breast tomosynthesis (DBT), contrast-enhanced mammography and breast density.

DBT was represented well at the RSNA meeting, with a total of 57 scientific papers and posters. The topics presented ranged from identifying malignant lesions on DBT to contrast-enhanced tomosynthesis to the introduction of a synthesized view (C-View™). Dr. Giovanna Mariscotti presented results from a retrospective reader study that compared the diagnostic performance of digital mammography with that of digital mammography combined with DBT (combination mode imaging with one compression) for the detection of invasive lobular carcinoma. Six readers compared the imaging studies and concluded that the use of the combination of digital mammography and DBT resulted in significantly higher sensitivity with improved diagnostic accuracy. Dr. Pragya Dang presented data from another retrospective combination DBT and digital mammography study in which the authors evaluated 172 biopsy-proven invasive cancers and concluded that DBT was significantly better than conventional mammography when detecting cancers.

Dr. Per Skaane presented results from a large prospective analysis of 12,271 synthesized two-dimensional (2D) (C-View™) plus DBT screening examinations. Dr. Skaane reported findings from eight radiologists who prospectively and independently interpreted 12,271 screening examinations, including full field digital mammography (FFDM) plus DBT and C-View™ plus DBT. Participants read both the standard craniocaudal (CC) and mediolateral oblique (MLO) views in two modes; FFDM plus DBT and C-View™ plus DBT and utilized a five-point scale to rate the probability of cancer when interpreting the studies. Results from this analysis were impressive, as no significant difference in cancer detection was found between the two modes (100 cancers/12,271 screening examinations (0.81%) for FFDM plus DBT and for C-View™ plus DBT). Dr. Skaane concluded that synthetic 2D mammograms plus DBT allow for similar interpretive performance when compared to standard FFDM in combination with DBT.

Andres Alcazar Peral and colleagues compared synthesized 2D mammograms combined with DBT versus DBT plus FFDM. The study determined that the use of synthesized 2D mammography improved the characterization of lesions compared to FFDM. Synthesized 2D imaging was found to have at least the same sensitivity as FFDM. The study results were similar to the results of Dr. Skaane’s study, concluding that the synthetic 2D mammograms with DBT allowed for similar interpretive performance as standard FFDM in combination with DBT. These two studies are important as C-View™ technology is currently being evaluated for clinical implementation. More research is still needed to evaluate the specificity of synthesized 2D mammography.

Reading time of DBT examinations was an additional topic evaluated by Dr. Skaane. As expected, the study found that DBT examinations
took longer to read than FFDM examinations. In a prospective analysis of the interpretation times of seven radiologists reading 2,000 DBT examinations, DBT reading times decreased with experience.

Study results for those reporting on contrast-enhanced mammography and DBT were promising. Dr. Eva Fallenberg presented interesting results from a reader study titled Contrast-enhanced spectral mammography versus mammography and MRI – clinical performance in a multi-reader evaluation. Ninety patient examinations were analyzed in this study, and all of the patients underwent surgery. Contrast-enhanced spectral mammography images, mammograms, and MRI studies were interpreted by two blinded independent radiologists with a minimum of four weeks between the two readings. Results for mammography showed the sensitivity to be 84.1% and 67%, and for contrast-enhanced spectral mammography, 90.2% and 88.8%, for both readers, respectively. The sensitivity of MRI was 91.1% and 90%, for both readers, respectively. Specificity was 100% and 80% for mammography, 81.8% and 90% for contrast-enhanced spectral mammography and 71.4% and 50% for MRI, for both readers, respectively. The findings led the authors to conclude that contrast-enhanced spectral mammography and MRI showed similar sensitivity for the index cancer, and that mammography and contrast-enhanced spectral mammography outperformed MRI in specificity.

Study results were presented by Dr. Maxine Jochelson on the incidence and the appearance of benign, focally enhancing lesions and diffuse parenchymal enhancement during contrast-enhanced dual energy digital mammography. The focal areas of enhancement were assessed by biopsy, correlation with the clinical history, or correlation with MRI. The results showed focal enhancement in 11 out of 100 cases, and five cases required tissue sampling to exclude malignancy. Diffuse background enhancement was present on both MRI and contrast-enhanced dual energy digital mammography in 26 out of the 100 cases. These study results stress the importance of identifying and appreciating benign lesions in order to avoid unnecessary biopsies.

Dr. Chen-Pin Chou presented on a prospective study titled Contrast-enhanced breast tomosynthesis versus dynamic contrast-enhanced breast MRI in the diagnosis of suspicious breast lesions on mammograms. This study enrolled 102 women with 90 histological findings and showed a 97%/63% and 91%/63% sensitivity/specificity for contrast-enhanced breast tomosynthesis and dynamic contrast-enhanced MRI, respectively, and concluded that both had similar diagnostic efficacy for mammographically suspicious breast lesions, but that contrast-enhanced breast tomosynthesis was faster than contrast-enhanced MRI.

A hot topic throughout this past year has been breast density. As states continue to adopt breast density legislation, radiologists are left wondering what the best approach is for implementing changes in their practice. As expected, this topic was associated with several presentations at the 2013 RSNA annual meeting. Dr. Stephen Feig presented Breast density based screening, discussing the effect of breast density on breast cancer risk, as well as strategies for the use of supplementary screening modalities, such as ultrasound and MRI. Utilizing the recent experiences in Connecticut and California, Dr. Feig provided practical advice to help radiologists respond to breast density legislation.

Dr. Jennifer Trinh and colleagues conducted a survey over a three month period. During the survey, 153 women at a county hospital were asked if they were aware of their breast density. Study staff informed the women
about the decreased sensitivity of mammography in dense breasts as well as the association between dense breasts and cancer risk. Upon providing this information, the women were asked about their interest and willingness to pay for additional screening if they were notified that they had dense breast tissue on their mammography screening examinations. The results from the county hospital respondents were compared with results from women undergoing screening mammography at an academic outpatient radiology clinic. The results showed that both populations had an interest in knowing their breast density as well as in obtaining additional screening, however women attending the county hospital were less willing to incur out-of-pocket expenses in comparison to the women attending the academic outpatient radiology clinic. These results demonstrate the potential disparity that exists in healthcare when supplemental screening is not covered by insurance, an important issue as the country continues to adopt breast density legislation.

Several abstracts utilized automated breast density software, such as the results presented by Dr. Fiona Gilbert on Correlation of breast cancer incidence with breast density as assessed by an automated assessment tool in A Comparison of Tomosynthesis with Digital Mammography in the United Kingdom (UK) National Health Service (NHS) Breast Screening Programme (the TOMMY trial).

The RSNA meeting highlighted many important developments in breast imaging with newer technologies involving mammography, DBT, and contrast-enhanced mammography. Breast density reporting and software technology also played a big role at the RSNA meeting, given the legislation that has been implemented in several states and various patient awareness campaigns.

RSNA 2013 MBI and BSGI Update

By Gary J. Whitman, MD, FSBI

Over the last decade, improvements in detector technology have led to improved nuclear medicine images (molecular breast imaging (MBI) and breast specific gamma imaging (BSGI) of the breast at lower doses.

At a Tuesday morning scientific session of the 2013 Radiological Society of North America (RSNA) meeting, Dr. James Hugg from Gamma Medica in Simi Valley, CA reported on a meta-analysis of MBI and BSGI studies, evaluating the role of MBI or BSGI in high-risk screening, diagnostic work-ups, and determination of the extent of disease in women with known malignancies. When MBI or BSGI was used to screen women with mammographically dense breasts, MBI or BSGI demonstrated a prevalence of 12.9 cancers/1000 women, compared to 3 prevalent cancers per 1000 women screened with mammography. In diagnostic work-ups, MBI or BSGI had a sensitivity of 94% and a specificity of 85%. Regarding extent of disease evaluation, additional cancers were found with MBI or BSGI in 8% of cases.

Dr. Jean Weigert from Mandell and Blau MDs PC in New Britain, CT assessed the performance of BSGI in addition to mammography and ultrasound in a community breast center setting. In this multicenter
RSNA 2013 MBI and BSGI, continued from previous page

study, there were 731 patients who underwent mammography, sonography, and BSGI. There were 180 malignancies confirmed on pathology. The authors showed that BSGI can improve cancer detection, as BSGI detected 14 additional malignancies. BSGI had a sensitivity of 82%, mammography had a sensitivity of 72%, and ultrasound’s sensitivity was 63%. When mammography and ultrasound were combined, the sensitivity was 90%. When BSGI was added to mammography and sonography, the sensitivity increased from 90% to 98%.

Dr. Carrie Hruska from the Mayo Clinic in Rochester, MN evaluated false positive findings on adjuvant screening MBI examinations in women with mammographically dense breasts. There were 105 false positive findings in 1557 women participating in the study with a negative reference standard (benign biopsy or negative/benign imaging at one year). Seventy of the 105 findings were shown to represent benign findings on diagnostic mammography, ultrasound, and six month follow-up MBI studies. The most common false positive MBI finding was due to background uptake of technetium-99m sestamibi. Thirty-five of the 105 findings underwent biopsy. Twenty-six lesions were biopsied with sonographic guidance, seven lesions were biopsied with magnetic resonance imaging (MRI) guidance, and two lesions were biopsied with stereotactic guidance. There were 11 fibroadenomas, six regions of benign breast tissue, five regions of fibrocystic change, four papillomas, three radial scars, two regions of stromal fibrosis, two regions of pseudoangiomatous stromal hyperplasia, and two regions of atypical ductal hyperplasia.

Dr. Hruska also presented a study looking at background parenchymal uptake of Technetium-99m sestamibi in women with mammographically dense breasts (heterogeneously dense and extremely dense). Screening MBI examinations were reviewed in 1274 women. Parenchymal uptake was classified as photopenic in 21%, mild in 65%, moderate in 11%, and marked in 3%. Moderate and marked breast parenchymal uptake was noted in 31% of pre- and peri-menopausal women and in 19% of women using hormonal contraceptives. The prevalence of moderate and marked breast parenchymal uptake correlated with increased parenchymal density on mammography. However, in each mammographic density category, there were substantial proportions of women with photopenic and moderate/marked breast parenchymal uptake. The authors hypothesized that breast parenchymal uptake may be associated with functional activity in mammographically dense breasts.

In the future, as our knowledge of the risks and benefits of MBI and BSGI progresses, it is likely that we will gain a clearer understanding of the role of nuclear medicine studies in breast imaging. In addition, it is likely that we will further our knowledge of radiopharmaceutical uptake – including understanding how radiopharmaceutical uptake correlates with the risk for developing breast cancer.
**Tomosynthesis Coding and Billing**

By Sally Herschon, MD

Digital breast tomosynthesis (DBT) was approved by the United States Food and Drug Administration (FDA) for screening and diagnostic mammography in February 2011. Since then, many practices have acquired this technology and are using it to the benefit of their patients. However, there is currently no Current Procedural Terminology (CPT) code that specifically applies to DBT. The American College of Radiology (ACR) has advised the use of the unlisted diagnostic procedure code 76499, in addition to codes G0202, G0204 and G0206, which are used to bill full field digital screening and diagnostic mammography. There has been variable use of the unlisted procedure code among practices. Some practices bill this code, and have variable success in collecting; others do not bill it at all; and still others bill insurers only for the digital diagnostic or screening mammogram and charge the patient an upfront cash fee for DBT.

On November 6, 2013, the Centers for Medicare and Medicaid Services (CMS) posted an answer to a frequently asked question (FAQ) on its website stating that DBT should be billed using only one of the three standard screening and diagnostic digital mammography G codes.

The ACR then issued a statement on November 14, 2013, stating: “The ACR disagrees with this coding recommendation and is in the process of requesting that CMS revise its coding guideline. The digital mammography codes do not accurately describe the procedure performed or take into consideration the additional work and associated practice expense involved with breast tomosynthesis. Therefore, the ACR maintains its current recommendation of reporting an unlisted procedure code to describe digital breast tomosynthesis while this is being discussed with CMS.”

Another statement by the ACR, on November 26, 2013 cautioned members that since CMS issued a statement that DBT is a covered service, it is inappropriate for practices to use the 76499 add-on code for Medicare beneficiaries. As of this writing, it is still inappropriate to bill the 76499 code for Medicare beneficiaries, but the 76499 code can be billed to third party payers.

There is an ongoing letter writing campaign to encourage CMS to allow the unlisted code. Society of Breast Imaging (SBI) members are encouraged to write to CMS (and copy their congressional delegation), requesting that the add-on code be allowed until a real DBT code is approved. The ACR has submitted a formal request for a CPT code for DBT, and this request will be reviewed at the February 2014 CPT Editorial Panel Review for possible inclusion in the 2015 billing cycle, if approved.

**What are breast imagers doing?**

In my own academic practice, we have chosen to use the add-on code for record keeping, but the assigned value for this code is $0.50. Neither insurance, nor patients, therefore, receive a bill.

I have done an informal survey of practices around the country. The responses I received came from different geographic regions, private facilities, and community hospitals and academic centers. I found that there is great variability among
radiologists and how their practices deal with the DBT issue. There is also variability by geographic region regarding how various local carriers interpret CMS rules.

Q: Did you bill the add-on 76499 code before November 2013 and if so, did you get paid?

A: Responses to this question varied from not using the code at all, to using it and getting paid by at most 15-20% of carriers. Many lamented the effort in billing which was great, with little return. Some made this effort initially and then stopped; believing the return to be not worth the effort. One respondent billed it but never got paid by a single insurer. In some cases, the hospital was billing the add-on code for the technical component but the radiologists were not billing the code for the professional fee. One respondent reported that although the practice might set the charge for this code relatively low; at $20, for example, due to contracting with insurers, the insurance company billed the patient for $130. I have also heard that some academic practices do not wish any research comparing DBT results to two-dimensional (2D) screening to be influenced by patient economics and are, therefore, not charging an upfront fee and not billing any additional codes for DBT.

Q: If you were billing the add-on code, are you still billing it now that CMS has said that it is not appropriate to bill this code for DBT? In other words, have you changed your practice? Do you handle Medicare patients differently from private pay patients?

A: I received some interesting responses to this one. One person stated that CMS was not paying for the add-on code and delaying all payment (even for the G codes) and asked for all medical records on the case. This respondent felt that all payments were delayed because of the 74699 billing and the practice was being held hostage by CMS. Another respondent said that the group has stopped billing this code for the professional component and that the hospital is still billing the technical component (the hospital was not aware of the FAQ), but the hospital will be stopping this practice soon now that there has been notification. While one person said that the practice does not do anything that CMS says not to do, others are abiding by ACR recommendations until they are told by ACR not to bill this code. Another said that their local CMS is unaware of the national CMS guidelines and is not applying them, so the practice continues to bill this code and continues to receive no payment for it. Most do not handle Medicare patients any differently in terms of billing compared with private pay patients.

Q: Do you charge patients an upfront cash fee? If so, how much do you charge?

A: These answers varied from no upfront fee, to a $150 upfront charge. There were situations with an upfront fee applied at one facility covered by the practice and no upfront charge at other facilities covered by the same group. Mostly, I found the upfront fee varied from $30-100, with $50 seeming to be the most popular charge. Some only charged a nominal $5-10. One respondent said that the patient pays an upfront fee for the screening study but is not charged any additional fee if DBT is requested as a callback in the diagnostic setting. Another added that the group did not charge insurance for DBT if used in the callback setting. Another said the group had stopped asking for any upfront charge as it was not worth paying the billing office staff for the small amount charged and the charge also antagonized patients.

Q: Do you use the synthesized 2D image (C-View™) instead of 2D imaging? If so, how do you bill for this?

A: Most respondents were not currently using C-View™ but were either contemplating using it...
soon or were in the process of purchasing it. Several stated they would likely continue using 2D once they acquired C-View™ while getting used to the images (and possibly until a billable computer-aided detection (CAD) product has approval). One said that the group currently uses C-View™ exclusively (without 2D) and still makes a profit despite the loss of the CAD charge when switching to C-View™. Others will not switch to C-View™ until there was an approved CAD product that can be billed. Another said that the group would not be able to bill anything for a C-View™ examination, as there was no 2D G code charge that would apply, so C-View™ will not be added soon. I was of this opinion until the CMS FAQ came out in November 2013, indicating that DBT is to be billed as a digital mammogram; hence I believe that C-View™ can be billed with the G codes.

Conclusions

It is the Wild West out there. There is no rhyme or reason for the various charging scenarios. Regional and competitive market factors as well as the types of institutions involved likely play a big role. I learned that all radiologists using DBT are committed to it and strongly believe in its value for their patients. Many are suffering financially because of lost productivity related to increased interpretation times with DBT but breast imagers are still performing and promoting it while receiving less reimbursement than they believe they deserve. I am aware of one practice that has switched to all DBT imaging and has hired extra radiologists to cope with the increased interpretation times of DBT. It is clear to me that we will definitely take a hit in the future with reimbursement for breast biopsies (this is already happening) and we will surely take hits in reimbursement, even if a code for DBT is ultimately approved. It is also possible that the code for CAD will eventually be lost as well.

Acknowledgments

I would like to thank the radiologists who responded to my questions so candidly and the helpful staff at Hologic for their assistance with resources for this article.

Useful links:

- Email address to write to CMS about allowing the add-on code: Marilyn.tavenner@cms.hhs.gov
- http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/Downloads/FAQ-Mammography-Services-Coding-Direct-Digital-Imaging.pdf Accessed on 2/19/14

Postscript

On March 5, 2014, the American Medical Association (AMA) posted its Summary of Panel Actions from the February 2014 Panel Meeting. According to the summary, the application submitted by the American College of Radiology (ACR) regarding tomosynthesis was accepted for three Category I CPT Codes. You can see the outcome of the Panel on the AMA web site and refer to the Summary of Panel Actions. These CPT Codes and rates will go into effect January 1, 2015.

The actual CPT Code assignment will not be posted until the fall of 2014.

The Medicare payment rates for all three codes will not be posted until the Final Rule is issued by CMS on or around November 1, 2014.
Interesting Case: A Palpable Abnormality in the Reconstructed Right Breast

By Peter R. Eby, MD, FSBI

A 42-year-old woman presented to the breast clinic with a new palpable abnormality in the reconstructed right breast. Her history was significant for multifocal right breast cancer diagnosed two years earlier. She was treated with bilateral mastectomy, radiation therapy, and an incomplete course of chemotherapy due to side effect intolerance. After completing radiation therapy, she underwent bilateral breast reconstruction with deep inferior epigastric artery perforator (DIEAP) flaps. She presented to the breast clinic with a new palpable abnormality in the reconstructed right breast six months after her reconstructive surgery. An ultrasound of the palpable area was performed.

Given the history of ipsilateral multifocal invasive cancer, additional evaluation with breast magnetic resonance imaging (MRI) was recommended as the next step.

The management of this patient proceeded in an unusual fashion. A mammogram is typically the initial examination when patients over 40 years of age present with palpable abnormalities. That was not done in this case; possibly because of the history of bilateral mastectomy. The differential diagnosis for a sonographic mass with smooth margins that is isoechoic to the surrounding fat includes fat lobules, fibroadenomas, cysts with internal debris, and malignancies. A list that includes malignancy garners a BI-RADS 4 assessment and a recommendation for biopsy. MRI was recommended rather than tissue sampling. Why? MRI can demonstrate malignant chest wall involvement better than ultrasound or mammography. However, MRI is typically not ordered until a tissue diagnosis has been made. In addition, problem-solving MRI is beneficial in only a few specific scenarios when all other avenues have been explored (1).

In this case, MRI provided the diagnosis without an invasive procedure (unless intravenous access is considered an invasive procedure). The mass is isoechoic to fat on all sequences and therefore consistent with a circumscribed or surgically entrapped fat lobule. But could we have arrived at this diagnosis with a faster and cheaper imaging test? Yes, a mammogram could have demonstrated a lucent circumscribed lobule corresponding to the palpable abnormality with less time, less money and less anxiety.

Reference


Opposite page: Fig 2. Axial pre-contrast fat saturated T1-weighted image (A) shows a lobular septated mass (arrow) in the posterior lateral reconstructed right breast corresponding to the palpable abnormality. Axial post-contrast fat saturated T1-weighted image (B) reveals partial rim enhancement (arrow) but no internal enhancement. Axial T2-weighted image (C) demonstrates low signal intensity within the mass (arrow). Axial pre-contrast image without fat saturation (D) shows that the mass is isointense to fat.
Fig 1. (A) Ultrasound shows a 29 x 18 x 18 mm oval isoechoic mass (arrows) with lobulated margins at 7 o’clock along the surgical scar. Doppler ultrasound (B) shows no significant internal vascularity.
Breast imaging has come a long way over the past 25 years, with nuclear medicine being a peripheral but useful modality in that evolution through a variety of applications. We all are familiar with the use of Technetium (Tc) 99m-labeled sulfur colloid for sentinel lymph node identification. Even after the publication of the American College of Surgeons Oncology Group Z0011 trial (1), our surgeons still utilize Tc 99m sulfur colloid as the primary method of localizing sentinel lymph nodes at the time of cancer surgery. This nuclear medicine application in breast imaging is well accepted as a mainstream technique.

Much more controversial is the application of Tc 99m sestamibi imaging (breast specific gamma imaging (BSGI) and molecular breast imaging (MBI)). Although available 15 years ago as Miraluma, its true value was not realized until the availability of the “mini” gamma camera in 2004, dramatically improving resolution and visualization of small breast cancers. Several large studies have since been published showing the value of Tc 99m sestamibi imaging in various clinical and screening settings (2, 3). These studies showed BSGI to have a high positive predictive value (PPV) (69-77%), a high negative predictive value (NPV) (94-96%), and a high sensitivity (91-96%). The median size of the detected invasive cancers was approximately 1.5 cm, with specificity somewhat low at 60-77%.

These results have been very encouraging, so much so that in 2008 we began utilizing BSGI in our practice. We have found several indications for which BSGI has been useful. First and foremost is its role for any patient for whom magnetic resonance imaging (MRI) is indicated, but cannot be performed for technical or medical reasons (patient too large, pacemaker in place, renal disease, or claustrophobia). Here BSGI has proven invaluable, showing the extent of disease in cancer patients, with excellent correlation with pathology following surgical excision.

The second application has been with lesions considered as BI-RADS® category 3, especially suspected fibroadenomas in young patients who do not want a biopsy and who may not be reliable enough to return for a six month follow-up examination. We have found BSGI’s purportedly high NPV to be helpful in these cases, with no cancers to date in the BI-RADS® category 3 lesions which showed no uptake on BSGI studies.

The third scenario in which we have found some application is the patient presenting with a palpable abnormality and no mammographic or ultrasound correlate. If on my physical examination, the palpable lesion is real but soft, I again find the high NPV of BSGI to be useful. One could argue, and rightly so, that perhaps fine needle aspiration (FNA) of this type of a palpable lesion might be a better choice, but again, with careful patient selection (no firm or fixed palpable abnormalities), we have attained a NPV of 100% in this setting.

Another application is in a patient with free silicone or partly ruptured silicone implants. In these cases, BSGI displays the breast tissue beautifully without any artifactual interference.

Certainly, if one does not have access to a high quality MRI scanner, then BSGI is a worthy substitute for demonstrating the full extent of a newly diagnosed breast cancer. However, we have an
excellent breast MRI program, and therefore do not routinely utilize Tc 99m sestamibi imaging in this role.

More intriguing but problematic is the projected use of Tc 99m sestamibi imaging for routine screening of women with dense tissue on mammography. Some recent studies have shown MBI to find three times as many cancers as mammography in this role (4). The results of Dr. Rhodes and colleagues are very enticing, but with a slight wrinkle: radiation dose. A recent study comparing radiation dose for Tc 99m sestamibi imaging, positron emission mammography (PEM) and mammography showed that with an injected dose of 20-30 mCi, the lifetime attributable risk (LAR) of fatal cancer is 15-20 times greater with Tc 99m sestamibi imaging compared to mammography (5). Even though the absolute risks are still extremely low, in this age of radiation phobia, such a risk is thought to be too great to promote the use of Tc 99m sestamibi imaging at this time. Hence, we do not presently offer Tc 99m sestamibi scanning as a screening examination. If satisfactory images could be obtained utilizing a dose with a LAR in the same range as mammography, then there may well be a place for Tc 99m sestamibi imaging in screening women with dense breast tissue.

Unfortunately, we are rarely utilizing BSGI at this time in our practice in New Mexico, because Blue Cross of New Mexico has deemed BSGI to be “experimental”, and is no longer reimbursing BSGI. However, we are hopeful that this policy will be reversed in the near future, as we do find that BSGI and MBI play important niche roles in our breast imaging practice.

References
3. Weigert JM, Bertrand ML, Lanzkowsky L, Stern LH, Kieper DA. Results of a multicenter patient registry to determine the clinical impact of breast-specific gamma imaging, a molecular breast imaging technique. AJR 2012;198:W69-75.
Changes to the SBI Website

By Catherine Dexter

On November 22, 2013, the Society of Breast Imaging (SBI) completed an exhaustive upgrade to the society website. The new site features expanded functionality while maintaining the look and feel of the old site. Key features of the new site include an enhanced member forum and an online membership dues payment system.

The society compiled member feedback to create a more robust and user-friendly SBI Forum. The new SBI Forum is organized by subject areas and can be searched by key words. The SBI staff worked closely with Dr. Wendy DeMartini, Website and Forum Committee Chair, to develop a list of top interest areas. The forum will be updated periodically with thought-provoking questions for breast imagers. Threads from the old SBI Forum are still available for additional comments and discussions. These threads can be found in the “Forum Archive 2013” discussion folder.

Another exciting feature of the new site is the online membership dues payment system. At any time, member account information can be accessed on the site via the “My Account” link. If a balance exists on an account for outstanding membership dues, payment can be made immediately online with a valid credit card. Course registration will continue to be offered online.

While these changes may seem small, the functionality added to the site will enable the SBI to offer online learning opportunities in the near future. If you have any questions or comments about the new site, please contact the SBI at info@sbi-online.org.
SBI Staff Update

By Yasmeen Fields

Dr. Murray Rebner introduced the “Education Alphabet” in his President’s Column this issue and you are probably wondering – how many people does it take to manage all of the various software platforms, educational programs, social media messages, and day to day operations that make the Society of Breast Imaging (SBI) a fully functioning organization? It takes three – just three! Abray Stillson, Education Programs Manager, is responsible for the development and management of all educational programs, both live and online. She is currently overseeing the development of several online products that will be released this year. Abray has also worked closely with Dr. Gary Whitman over the past two years to produce the SBI Newsletter, the quarterly membership newsletter. As the SBI continues to grow, it is my responsibility to ensure that the skills and talents of the SBI staff are best utilized where appropriate. As of press time, Abray will be stepping down as staff liaison to the Newsletter Committee, and I am pleased to announce the newest member of the SBI staff, Catherine Dexter, will be filling that role.

Catherine is the Marketing and Communications Specialist for the SBI. Prior to joining the SBI in May 2013, she worked as an Associate in the American College of Radiology (ACR) Membership Services Department and was Communications Manager for Pennsylvania Women Work, a nonprofit social service agency in Pittsburgh, PA. She has a master’s degree in public administration from the University of Pittsburgh and a bachelor of arts degree in history from the University of Mary Washington. She brings seven years of nonprofit fundraising, marketing, and social media experience to the SBI. Catherine currently manages SBI’s online presence, including the SBI website and the SBI Facebook, Twitter, and LinkedIn pages. She also serves as the staff liaison to the Communications Committee, Membership Committee, Media Relations Committee, Scientific Advisory Committee, and the Website and Forum Committee. I am excited that Catherine will join Dr. Whitman in bringing a fresh perspective to the Newsletter Committee with her extensive background and experience.

Abray will now focus on working with Dr. Elizabeth Morris and the chairs of the educational subcommittees to develop an extensive education curriculum that will serve as a guide for breast imagers needing to satisfy their maintenance of certification (MOC) requirements. The curriculum includes opportunities for self-assessment – including continuing medical education (SA-CME) credits, self-assessment module (SAM) credits, continuing medical education (CME) credits, and practice quality improvement (PQI) projects. With so many exciting developments taking place, it is important for the membership to know what is going on and who is working behind the scenes. The next time you are at a meeting or call the SBI office, take a moment to say hello to Abray and Catherine. I promise that in those few minutes you will see what the SBI Board of Directors and I see in them, and you will leave that conversation with a smile on your face. For more information about the SBI committee structure, please visit the SBI website.

From left to right: Abray Stillson, Catherine Dexter, and Yasmeen Fields
Dr. Jackson to Head ABR

Carl D’Orsi, MD, FACR, FSBI

Dr. Valerie Jackson, has recently been named as the new Executive Director of the American Board of Radiology (ABR). Her duties will officially begin on July 1, 2014. Currently, Dr. Jackson is the Eugene C. Klatte Professor of Radiology and Chair of the Department of Radiology at Indiana University School of Medicine. She plans to build on the major achievements of the previous executive directors which have included the revamped examination process and the implementation of the maintenance of certification process. As a good friend and colleague I know that Val will bring intelligence, fairness and leadership to her new position. All at the Society of Breast Imaging (SBI) are extremely proud to have her in our midst and wish her the best of luck in her new role.

BI-RADS Fifth Edition Now Available

By Priscilla Butler, MS, FSBI and Wil Creech

The fifth edition of the American College of Radiology (ACR) Breast Imaging Reporting and Data System (BI-RADS®) Atlas was published at the end of January, 2014. The new atlas is the culmination of years of collaborative efforts from numerous committee and subcommittee members. It provides updates to the standardized breast imaging terminology, report organization, assessment structure, and a classification system for mammography, breast ultrasound and magnetic resonance imaging (MRI) of the breast.

This richly illustrated edition contains over 700 clinical images and numerous charts, tables, and diagrams. A new, separate section on follow-up and outcome monitoring offers auditing procedures and benchmarks applicable to all three breast imaging modalities. Also, the new BI-RADS® edition includes updated descriptors for breast composition, new descriptors for elasticity assessment on ultrasound, and new descriptors for implant assessment on MRI.

The new BI-RADS® is a compendium of information for breast imaging reporting and auditing. It is designed for everyday practice and will help providers issue clear breast imaging reports and help them to evaluate their performance in a standardized manner. Moreover, the atlas will enable breast imagers to improve their clinical practice.
The 2014 National Conference on Breast Cancer

By Bonnie N. Joe, MD, PhD

The 36th National Conference on Breast Cancer (NCBC®), sponsored by the American College of Radiology (ACR), will be held May 8-10, 2014 at the beautiful Arizona Biltmore in Phoenix, AZ. The program committee has put together a great program that promises to be practical and relevant to radiologists practicing breast imaging. This year’s course program will cover hot topics such as breast density, overdiagnosis, and breast imaging economics. As in prior years, the course will span two and a half days with morning plenary sessions and afternoon workshops. Each morning plenary session will provide the opportunity to obtain self-assessment module (SAM) credits, a required component of American Board of Radiology (ABR) Maintenance of Certification.

Day one of this year’s course will begin with a plenary session devoted to breast cancer screening, given the recent wave of state breast density notification legislation prompting questions about supplementary screening. Participants will better understand breast density in terms of breast cancer risk and masking, understand the evidence supporting breast cancer screening, and learn about supplemental screening with ultrasound, magnetic resonance imaging (MRI) and other modalities such as contrast-enhanced mammography.

This first morning’s session ends with the Wendell Scott Lecture, traditionally one of the highlights of the NCBC® program. This year will be no exception as we honor Daniel B. Kopans, MD, FSBI, from the Massachusetts General Hospital who will speak on Perspectives on Overdiagnosis in Breast Cancer. Dr. Kopans’ thoughtful analysis of this controversial topic is a “must see.”

Day two of the course begins with a plenary session devoted to breast imaging practice. Summary of updates found in the new (2014) edition of ACR BI-RADS®, medical-legal issues in breast imaging, incorporating ultrasound and tomosynthesis technologies into your practice, the politics of screening and the economics of breast imaging will be packed into one morning.

The afternoons of the course will be devoted to a broad variety of workshops. There should be something for everyone’s interests and needs. Attendees can select from workshop topics such as calcifications, asymmetries, molecular profiling, economics, tomosynthesis, and whole breast ultrasound. Breast MRI and multimodality case review workshops will be available both afternoons. Audience response technology will be available in these case review workshops to encourage audience participation and to enhance the learning experience. Many workshops will be repeated to maximize the opportunity for participants to attend the workshops of their choice and tailor their own educational experience.

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The final morning will cover advanced topics such as screening interpretation at the threshold for recall, BI-RADS® category 3 interpretation, challenging MRI cases, and management of high risk lesions. The course ends with a one hour unknown case review with the experts where participants can see how “great minds” analyze and review cases.

I would like to take a moment to acknowledge and thank the planning committee members for their dedication and hard work in putting this course together: Christopher E. Comstock, MD, FSBI; W. Phil Evans III, MD, FSBI; Carol H. Lee, MD, FSBI; Michael N. Linver, MD, FSBI; Barbara S. Monsees, MD, FSBI; Debra L. Monticciolo, MD, FSBI; Edward A. Sickles, MD, FSBI; and Pamela Wilcox, RN, MBA, FSBI. Thank you also to the entire NCBC® faculty for taking time from your busy schedules to prepare and present informative lectures and workshops. Last but not least, thank you to Kia Reid, Andrea Craddock, and the rest of the ACR staff for your invaluable support of the 2014 NCBC® meeting.

For more information, please visit http://www.acr.org/meetings-events/ncbc-2014.

To C or Not to C

By Mary S. Newell, MD

In a world where there is ever-increasing pressure to qualify, codify, certify, and accredit, it is worth examining the need for formalization of breast imaging as a subspecialty via American Board of Radiology (ABR) subspecialty certification (formerly known as Certification of Added Qualification, or CAQ). For colleagues in imaging subspecialties that pursue this approach, including pediatric radiology, vascular and interventional radiology, neuroradiology, and nuclear medicine, subspecialty certification involves completion of a fellowship of at least one year approved by the Accreditation Council for Graduate Medical Education (ACGME), followed by a certifying examination.

One argument in favor of subspecialty certification involves hospital credentialing and defense of turf. In many practices and institutions, other specialties vie with radiologists to perform image-guided procedures and interpret imaging studies. This is a legitimate concern for radiology as a whole, but for breast imaging, it may not be one that requires subspecialty certification. Requirements for interpreting mammograms are already highly codified by the Mammography Quality Standards Act (MQSA) and will remain the realm of radiologists. Breast ultrasound and image-guided breast procedures are subject to poaching by other specialties. However, analysis of Medicare data from 2002 through 2008 by Kwan and associates showed that the percentage of percutaneous breast biopsies performed by radiologists versus other specialties increased from 70 to 75% over that time frame (1).

Additionally, we must be cautious when attempting to enact credentialing standards tailored toward certificate-bearing breast imagers for fear that we may be pricing our very capable but not certified radiologist-colleagues out of breast imaging and imaging-guided intervention. This concern was voiced passionately at caucus meetings during several recent Annual Meetings & Chapter Leadership Conferences (AMCLCs) of the American College of Radiology (ACR). Surgeons
may conceivably be able to attend a weekend course that provides them with the credentials that we subspecialists put in place at our institutions with good intentions for the purpose of turf preservation, but our own board-certified colleagues may not qualify because they do not perform enough cases. Most radiologists are likely better qualified than our surgical colleagues on the basis of radiology residency training, with specific educational components in physics, imaging-pathology correlation, image acquisition, and safety. If our goal as a subspecialty is to insure that no one but subspecialty certified breast imagers perform breast imaging studies and do breast imaging guided interventions, then added qualification is appropriate; however, if we are pursuing certification in order to keep other medical specialties at bay, we should consider unintended consequences before proceeding.

A potential reason to formalize our specialty via ABR certification would be to legitimize breast imaging fellowships and to provide greater uniformity among the various fellowship programs. A colleague told me recently that he was disappointed that one his favorite residents chose breast imaging rather than “a real fellowship.” I am not sure from whence this notion sprung, but it may be that this colleague assumed that if the ACGME was not involved, what the trainee does during that year could not rightly be considered a fellowship. An ABR requisite for subspecialty certification does oblige that the fellowship be ACGME-approved, which would certainly lead to a more standardized approach to breast-imaging fellowship training across the country. However, as outlined by way of example in the ACGME Program Requirements for Graduate Medical Education in Vascular and Interventional Radiology (2), there is both good news and bad news. The requirements are largely sensible and desirable; the efforts required to document compliance may not be feasible. As breast fellowships vary in duration, content (women’s imaging versus breast imaging) and structure (fellows at some institutions act as junior attending physicians, able to read and bill independently), imposition of rigid ACGME requirements may not be worth any perceived gains. At this point, the argument may be moot, as ACGME approval currently does not exist for breast imaging fellowships. If greater standardization is desired, the Society of Breast Imaging (SBI) could convene a panel to expand its fellowship curriculum to include guidelines on the fellowship selection process, training milestones, and the evaluation process.

There are pros and cons when considering ABR subspecialty certification for breast imaging. We want to see our subspecialty remain firmly in the hands of well-trained radiologists. We want fellowship education that creates a subset of more highly trained experts who can run outstanding breast centers, carry out research, and educate future breast imagers. We may even want to consider ways to insure that a high quality fellowship experience is delivered by all programs via SBI training guidelines. However, it is quite possible that these goals are not best achieved by formalizing our subspecialty status.

References
On December 2, 2013, at the Society of Breast Imaging (SBI) Fellows Meeting during the Radiological Society of North America (RSNA) meeting in Chicago, five members were recognized and presented as new Fellows of the SBI. Please join us in congratulating:

**Michael T. Nelson, MD**, Professor of Radiology at the University of Minnesota. He has served on local, state, national and international committees, and he has extensive teaching and research experience, especially in breast magnetic resonance imaging (MRI).

**Linda Moy, MD**, Assistant Professor of Radiology at the New York University (NYU) Langone Medical Center. Dr. Moy is the fellowship director for breast imaging at NYU. She is also a member of several committees for the American College of Radiology and is a reviewer for National Institutes of Health and Department of Defense grants.

**Michael A. Cohen, MD**, Director of the Division of Breast Imaging at Emory University. His current research centers on development and testing of new breast imaging technologies (digital tomosynthesis and molecular breast imaging) and evaluating and managing high risk lesions detected on breast biopsy.

**Janice Sung, MD**, Director of Research in the Breast Imaging Fellowship Program at Memorial Sloan-Kettering Cancer Center. Her research has included studies on parenchymal enhancement on MRI, efficacy of MRI screening in women at intermediate risk for breast cancer, tumor ablation techniques, contrast-enhanced mammography and preoperative localization with I-125 seeds.

**Robert N. Nishikawa, PhD**, Associate Professor and Director of the Clinical Translational Medical Physics Laboratory in the Department of Radiology at the University of Pittsburgh. He has won 24 awards including two for best papers, two innovation awards, and one teaching award. He has over 200 publications in breast imaging.