President's Column

Since 1985, The Society of Breast Imaging (SBI) has evolved from a group of six expert breast imagers into a vibrant organization of over two thousand eight hundred radiologists, technologists and physicists. We have a defined purpose as well as core values, mission and goals. It is important for us to remember these.

Our purpose is to save lives through the early detection of breast cancer.

Our core values include:

- Patients first. We value our patients and treat them with respect and compassion. Excellent education and clinical care. We believe world class educational programs improve knowledge and clinical care.

- Scientific integrity. We believe in honesty, transparency and evidence based decision making.

- Quality imaging. We believe in safe and appropriate high quality breast imaging.

- Trusted information. We believe accurate and accessible information facilitates better decision making.

- Diversity. We believe breast cancer knows no race, creed, or geographic borders.

- Collaboration. We value partnerships with patients, colleagues and other organizations worldwide.

Our core mission is to save lives through early detection, quality education and trusted information provided to patients, physicians, and organizations worldwide.

Our key goal is to become the most recognized resource for breast imaging among scientific organizations, physicians, patients and the media by 2016.

Like any good business or organization, it is necessary for us to periodically stop and look at our performance in these areas. We believe that we have met our goals in all areas except one – becoming the most recognized resource for breast imaging among scientific organizations, physicians, patients and the media. This does not imply that we will remain static in the other key areas. However, getting our message out has always been problematic.

We believe that excessive negative media coverage of breast cancer publications which are not based on science as well as a lack of coverage on articles which demonstrate a benefit of screening mammography have severely impeded our key goal. Let us look at several examples.

The article by Bleyer and Welch published in the New England Journal of Medicine purports that over the past 30 years, screening mammography has only slightly reduced the rate at which women present with advanced breast cancer. The authors also stated that there has been a marked overdiagnosis of breast cancer and the actual decline in breast cancer mortality has been minimal at best. This article received extensive media coverage.1

There were numerous responses to this article, including an excellent rebuttal by Dr. Daniel Kopans2 and a statement from the SBI.3

In Memoriam: Handel E. Reynolds, MD, FACR, FSBI

By Jeff Allen, MD, Valerie Jackson, MD, FACR, and Debra Monticciolo, MD, FACR

It is with great sadness that we note the passing of a remarkable individual, Dr. Handel Reynolds, who died June 14th, 2013 in Georgia. Dr. Reynolds was a Society of Breast Imaging (SBI) fellow since 1995, and he made great contributions to our field. After receiving his medical degree from the University of South Florida, Handel became a resident at the Indiana University School of Medicine in Indianapolis. That training included six months of breast imaging training under Valerie Jackson, MD, who is now the chair of radiology at Indiana University. Dr. Reynolds’ first appointment was at Indiana University, where he eventually rose to the rank of Associate Professor of Radiology with tenure and Chief of the Breast Imaging Section. In 2002, he moved to private practice in Atlanta, Georgia.

Dr. Jackson noted that Handel exhibited superb organizational and leadership skills early in his career. “He was an extraordinary teacher, winning all of the major teaching awards at our institution, as well as being a popular lecturer for postgraduate courses. He inspired many of our residents to subspecialize in breast imaging and he was always surrounded by a group of adoring former trainees and colleagues at the Radiological Society of North America (RSNA), the SBI, and the American College of Radiology (ACR) National Conference on Breast Cancer (NCBC) meetings,” Dr. Jackson said. Dr. Reynolds recently visited Indiana University as the Campbell-Klatt Distinguished Visiting Professor in May, 2013, and he was fondly greeted by his former colleagues and inspired a new generation of radiology residents and fellows.

Dr. Reynolds recently published a book, The Big Squeeze: A Social and Political History of the Controversial Mammogram, as well as more than 30 peer reviewed articles, numerous abstracts and three

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They all noted that the article was based on poor assumptions, estimates and extrapolations and not on direct patient data. The authors had no knowledge of which patients received mammography, nor did they know which cancers were detected by mammography. This information did not get publicized.

An article by Peggy Orenstein, a breast cancer survivor, was published in The New York Times magazine section on April 25, 2013. She criticized the overselling of the benefits of screening mammography. She also noted that the harms of mammography did not receive enough attention and also that there was substantial overdiagnosis of breast cancers which were not going to kill patients.

Again, many responses were written which pointed out the flaws in her article. These were submitted to The New York Times and also an op-ed piece was submitted to The Wall Street Journal. Only a brief commentary by Dr. Kopans was published on April 29, 2013 in The New York Times – not in letters to the editor, but in a daily blog.

On the other hand, an important paper based on the Norwegian screening trial was published this year in Cancer. It noted that over the past 15 years, there was a 43% decrease in breast cancer deaths for those women who participated in the trial. These results occurred in women who were screened every other year. Had they been screened annually, the benefits would have been greater. This article received no publicity.

A paper published in The Journal of Medical Screening in 2012 performed a literature review on the issue of overdiagnosis. The authors noted that the most plausible estimates of overdiagnosis are between 1-10%. They concluded that the higher estimates in the literature are based on a lack of adjustment for breast cancer risk and/or lead time. This article was not publicized. There are numerous other examples of lack of media attention to articles which demonstrate a positive benefit for what we do as breast imagers.

The SBI Board of Directors realized that our own internal analysis might be biased or not extensive enough. As a result, we asked a consulting marketing firm to look at our society and evaluate our market. The consultants noted that we have numerous strengths, which include our credibility and our ability to influence the market, our alignment with the American College of Radiology (ACR), our members who are thought leaders in our field and that we, as an organization, have no negative market perception to overcome.

They also observed several weaknesses. Our messages tend to be misaligned. Our lack of influence with the media is noteworthy, and we need to be more proactive in getting our message out to the appropriate people.

The consultants suggested that we might consider new ideas to help us improve our influence. These included the greater use of social media. Blogs have become extremely important in the dissemination of information. We were told that many members of the media get their ideas for stories from comments they have read in blogs. Also whiteboard talks on specific subjects have also become popular and could be applied to topics such as the benefits of screening mammography.

They also suggested that our marketing communications plan make greater use of tools such as patient video testimonials and the potential alignment of our society with like-minded groups. Every action item would be monitored with specific metrics to see if there were positive effects. The firm will present its final proposal to the Board later this month. We are also in the process of engaging a second firm to perform a similar analysis and create a plan of action for us to consider. It is always good to examine more than one option.

The strength of our society is based on the skills of our membership. Our adherence to our core values has gained us respect from our patients and our clinical colleagues. We have much to be proud of. However, we cannot remain idle while our significant contributions toward reducing breast cancer mortality are marginalized by the media. We are determined to increase our visibility and influence. The process has begun. “

Murray Rebner, MD, FACR
President, Society of Breast Imaging

**References**


3. ACR/SBI: Bleyer and Welch breast cancer screening article in NEJM

4. deeply flawed and misleading.


**Editor’s Note**

In this issue of the Society of Breast Imaging (SBI) Newsletter, Dr. Marc Homer has written a brief history of the SBI’s first three decades. In a relatively short time, the work of six founding members (Drs. Carl D’Orsi, Stephen Feig, Marc Homer, Harold Moskowitz, Myron Moskowitz, and Ed Sickles) has blossomed into an energetic organization of 2800 members.

What will the SBI look like 30 years from now in 2043? I believe that breast imagers will continue to play an integral role in breast health, and breast imaging research will gain in sophistication and impact. As the SBI grows and evolves, it is important that the membership be actively engaged. In addition, we will need new leaders to help us overcome the constant struggles in the world of breast imaging. The SBI is interested in your participation, and the SBI Newsletter welcomes your thoughts and comments. If you are interested in participating on a SBI committee or if you have comments regarding the SBI Newsletter, please contact the SBI at info@sbi-online.org.

In this issue, we pay tribute to Handel Reynolds, MD, who died on June 14, 2013. Handel was an excellent radiologist, a superb teacher, and a dedicated SBI fellow. I always looked forward to talking to Handel at the SBI meeting and other radiology meetings. We miss Handel in a big way.
How to do Breast Imaging Research in Private Practice

Part 1: Types of Research Suited to Private Practice

By John Lewin, MD, FACR

While academic radiologists publish the majority of the clinical papers in breast imaging, some of the most important papers have come from radiologists in private practice. Landmark clinical studies evaluating ultrasound characterization of solid masses by stereotactic biopsy, screening ultrasound in women with dense breasts and computer-aided detection (CAD) for screening mammography were performed in private practice settings. It is certainly possible to do good quality clinical research in a private practice setting. In fact, in some ways, it is easier to do clinical research in a private setting than in an academic institution. For one thing, private practice researchers typically face less institutional bureaucracy than their academic counterparts. Also, private practice radiologists often have larger practices from which to derive data or recruit patients.

Part 1 of this series will describe the most common types of research performed in the private practice setting, the retrospective review; the prospective analysis of a clinical practice; and the prospective clinical trial.

Whether one is in private practice or in academics, the easiest clinical research project to perform is the retrospective review of clinical data. Performing this type of research requires only an idea, a sufficient number of patients and some careful record keeping. Results from standard clinical practice are aggregated to evaluate a hypothesis or, more commonly, to look for trends. A common design is to pick a set of imaging features and determine how well each feature, or combination of features, correlates with malignancy. A retrospective review usually does not require informed consent, since there is no risk to the patient. Institutional review board (IRB) approval for the review may be required by a journal prior to publication. This type of IRB approval is usually easy to obtain.

The next most common type of research is the prospective analysis of a clinical practice. This type of research typically involves a minor modification of a clinical practice that does not affect the patient’s overall care. A well-known example is the 2001 CAD study by Freer and Ulissey. In this study, the authors modified their screening mammography practice slightly by keeping track of their assessments both before and after looking at the CAD marks. Because CAD was part of their standard care, clinical care was not affected, but important information about CAD’s performance was obtained. That study was performed without either IRB approval or informed consent, but I suspect most journals today would require at least IRB approval prior to publication.

The most difficult study to do is the prospective trial, where clinical care is significantly altered. In treatment-oriented fields, such as oncology, such clinical trials typically involve randomizing subjects to one of two treatment arms, but the design of most breast imaging trials is to add the test being evaluated to the standard clinical care and compare the performance of the added test to the standard one. This design has the advantage of directly comparing the cancer detection rate and specificity of the two tests on the same subjects and is the most common design for American College of Radiology Imaging Network (ACRIN) trials and industry-sponsored clinical trials. The disadvantage of this design is that there is no control group for comparing long-term outcomes, such as interval cancer rate or mortality. Most private practices (and most academic groups) will participate in prospective clinical trials by joining as an accruing site in an existing multicenter trial designed and run by either ACRIN or a company. It is possible, however, for a motivated researcher to initiate a single- or a multi-institutional study from a private practice. Stereotactic breast biopsy, for example, was first evaluated in a three-site prospective clinical trial initiated from a private practice.

While basic science research is likely to remain the purview of academic departments, when it comes to clinical research, private practice breast imagers have similar opportunities as their colleagues in academics. The barriers to performing the research, and the amount of work needed, depend on the type of project being considered, with the prospective clinical trial typically being the hardest to do. Whether joining an existing multicenter trial or attempting to initiate a trial at one’s home institution, there are many steps needed prior to enrolling the first subject. These steps will be covered in Part 2 of this series.

References


In Memoriam: Handel E. Reynolds, MD, FACR, FSBI

book chapters. He has served on innumerable committees in the ACR, the RSNA, and the American Roentgen Ray Society (ARRS) and was a sought after speaker for the national SBI and ACR meetings in breast imaging. He became a fellow of the ACR in 2007 and won the Heun Y. Yume, MD Faculty Teaching Award at IU in 1995, 1996, 1998, 1999, and 2000. He won the Indiana University Teaching Excellence Recognition Award in 1997.

Once in private practice, Handel continued to have a tremendous influence and impact on his patients and his colleagues. His partners, Jeff Allen, MD, and Purna Sharma, MD, looked to him as a role model. Dr. Allen noted at Handel’s memorial service: “Handel was one of those rare, remarkable people one is sometimes fortunate enough to come across in life who has a profound influence on everyone and everything with which he or she interacts. Handel was a radiologist’s radiologist—he possessed a brilliant analytical mind, yet was modest and unassuming. He was a caring, compassionate physician to our patients and a role model and mentor to our staff. In short, the ideal breast imager you wanted down the hall from you.”

Anyone who has heard Handel speak at one of our national meetings knows how gifted a teacher he was. He was utterly outstanding and brought a unique energy to everything he did. The SBI mourns this great loss but also celebrates Handel’s extraordinary life and contributions. Dr. Jackson summarized our feelings in saying, “Handel will be remembered forever as an extraordinarily skilled clinical radiologist, a thoughtful scholar, a passionate patient advocate, a kind and inspiring mentor, and a wonderful friend.” We all will miss him tremendously. ❖
Tomoynthesis: A Change for the Better

By Liane Philpotts, MD, FACR

As a screening test performed on normal, asymptomatic women, it is of paramount importance that mammography adhere to the Hippocratic ‘do no harm’ rule. Screening mammography, performed by obtaining two views of each breast, is a compromise between keeping radiation levels low while adequately imaging the majority of the breast tissue. Historically, most findings cannot be fully assessed on these routine views. With roughly 10% of women recalled after screening mammography, many are subjected to additional imaging, and the majority of the recalled women are ultimately determined to have no significant findings. The need for additional imaging is inconvenient, costly, and anxiety-provoking for women. Women recalled from screening do not know the severity of the mammographic abnormality. Many assume the worst. The anxiety associated with the uncertainty of having breast cancer is understandably pronounced in many patients.

Additional views are required for several basic reasons: to determine if a lesion is real or just a ‘pseudolesion,’ to better characterize a true lesion, or to better determine lesion location in the breast (triangulation). These additional views commonly include true lateral, spot compression, spot magnification, and rolled views. With these tailored mammographic views, most initial findings can be better characterized.

Women have been recalled after screening mammography since mammographic screening began. Women recalled following an abnormal mammogram generally undergo additional mammographic imaging and often ultrasound. Such work-ups are time and effort intensive. Diagnostic mammograms are more costly compared to screening mammograms and the reimbursement does not reflect the radiologists’ time spent on image interpretation and communication with the patient. If the need for diagnostic mammography to assess screening mammography findings was reduced, a shift in the ratio of diagnostic and screening cases could prove to be cost-effective for practices.

With the introduction of digital breast tomosynthesis, or three dimensional (3D) mammography, data have suggested that most programs will find a reduction in recalls with this technology. The ability of tomosynthesis to resolve summation artifacts, in addition to better characterizing some benign findings (such as lymph nodes or dermal calcifications) eliminates the need for recalling many patients. Therefore, one of the main reasons for performing additional views (i.e., to assess the presence of a real lesion or a pseudolesion) is decreased. False positives are a major criticism of screening mammography, and the reduction in the number of recalls is a major advantage of tomosynthesis.

The ability to localize a lesion in the breast and to better characterize its features, traditional reasons for obtaining additional views, is also better achieved by tomosynthesis. The use of tomosynthesis in screening can result in an expedited diagnostic work-up, including sending patients directly to ultrasound without any additional views. A study at Yale showed a statistically significant reduction in the number of additional views obtained in diagnostic mammography (average of 2.6 compared to 3.3) in addition to an increase in the number of patients having ultrasound only (14.3% versus 3.7%) for patients having tomosynthesis screening compared to standard two dimensional (2D) mammographic screening. With tomosynthesis, there is less of a need for spotting and triangulating to determine if and where a lesion is in the breast. Many patients can avoid additional views and have ultrasound only. Beyond the reduction in the recall rate, tomosynthesis can also have a profound effect in subsequent diagnostic mammography.

For patients who are recalled from 2D screening mammography, the use of tomosynthesis in diagnostic mammography is also beneficial. In addition to the localization and characterization benefits stated above, observer studies have shown increased accuracy with tomosynthesis compared to spot compression views. The process of obtaining tomosynthesis views as opposed to multiple additional 2D lateral, spot, or other views can dramatically expedite otherwise lengthy diagnostic work-ups. This time savings benefits the patient, the technologist, and the facility, as overall resource utilization is improved.

Additional views have traditionally been the main focus of tailored diagnostic mammographic work-ups needed to fully assess patients with suspicious findings on screening mammography. While screening mammography can reduce mortality from breast cancer, the ‘costs,’ including false positives, are what limit its universal acceptance. Reducing the need for additional views could shift the balance more favorably for mammography. With tomosynthesis, the need for such additional imaging will likely be reduced. This will have multiple benefits, including an improved balance in the benefits and the ‘risks’ of screening mammography, along with reduced inconvenience and stress for women, expediting diagnostic work-ups, and potentially an overall financial benefit. These are exciting developments in our field. The traditional methods of mammographic work-up are changing and it looks like it is for the better!!

References
The Early History of The Society of Breast Imaging: The First Five Years

By Marc J. Homer, MD, FACR

As the Society of Breast Imaging (SBI) approaches its 30th birthday, it may be interesting to review its genesis. This history has been condensed from my previous article which appeared in the millennial SBI Newsletter in January 2000. The history which follows is based upon letters and memoranda from those years.

It is not certain whether the idea for creating a society with a focus on breast imaging was the idea of one person or whether the idea occurred to several people simultaneously. What is certain is that the very first document I have in my possession, dated January 4, 1984, is a memorandum from me to Drs. Carl D’Orsi, Stephen Feig, Harold Moskowitz, Myron Moskowitz, and Ed Sickles. Its topic is “Formation of a breast imaging society.” This memorandum was the result of numerous conversations the six of us had about the creation of a new society. In this memorandum, the name, the Society of Breast Imaging, was proposed. The suggested mission of the society was “to provide a forum for radiologists committed to aspects of breast imaging with expertise in research, clinical work, or teaching, to meet annually with their peers to present new ideas, seek advice, and ask for opinions in a structured yet comfortable setting.” The possibility of a one day course after a closed meeting, given by the members and possibly local physicians who were not necessarily members of the society, was advanced. Members had to be diplomates of the American Board of Radiology or hold equivalent certification from another country. This memorandum and numerous phone calls between the six founding members of the SBI laid the groundwork for the pivotal year of 1985.

A memorandum dated February 8, 1985 from my office contains the following: “All of us (6) thought that we should declare the Society to be formed at this time and one of our top priorities will be working on formulating by-laws. So congratulations – we have now formed the Society for Breast Imaging!” Of note is that in this “historic” document, I got the name of society wrong since the name we agreed upon was the Society of Breast Imaging! (I later corrected my blunder in a subsequent communication.)

The meeting which laid the foundation for the society took place on the evening of April 24, 1985 when the six founding members were attending the American Roentgen Ray Society (ARRS) meeting in Boston. The agenda included election of officers, discussion and approval of the content of the invitation letter to join the society, and discussion of a constitution and by-laws. I was elected president, Carl D’Orsi, MD was elected vice-president, and Harold Moskowitz, MD was elected secretary-treasurer. We all decided to hold the society meeting at the 1985 Radiological Society of North America (RSNA) meeting in Chicago. It was felt that this first meeting should be “introductory in nature.” There were 31 other radiologists who were invited to join this new society. A copy of the actual letter of invitation sent to these radiologists, and their acceptance letters are preserved in the SBI office.

For the rest of the year, our energies were directed towards making the first society meeting in Chicago a success. We all realized that if the other radiologists who joined the society did not perceive the need for this new society or did not share our enthusiasm, our first meeting might also be our last! I am sometimes asked whether someone took a photograph at this April 24th organizational meeting in Boston. The answer is no. I am not really certain that any of us gave much thought as to whether this meeting merited photographic documentation for the future!

On November 19, 1985, the new SBI held its first meeting in the Hyatt Regency Hotel in Chicago, between 4:00 and 6:00 PM. Twenty-one members were in attendance. According to the minutes of the meeting, a treasury was to be started with an initiation fee of $100 charged to each member. A motion was made and unanimously approved to limit membership to 100 members. What younger members of our society may not fully understand was that the mere presence of so many breast imagers in the same room could be considered a success story in and of itself! At that time, there were many controversies raging. These included whether or not xeromammography was superior to film screen mammography, whether dysplasia could be diagnosed by mammography, whether parenchymal patterns were predictors of risk, and whether there was a role for thermography in the detection of breast cancer. Discussions about these topics often became heated. Offentimes, these discussions divided rather than united the small number of radiologists who devoted much of their professional energy to the detection of breast cancer.

My letter of November 22, 1985 to the members of the executive committee (Drs. Carl D’Orsi, Stephen Feig, Gloria Frankl, Harold Moskowitz, Myron Moskowitz, and Ed Sickles) delineated some of the divisiveness at the meeting. There was a great deal of discussion about whether there was really a need for a new society focusing on breast imaging. At the 1985 meeting, there was a serious discussion about a proposal for the members to think about whether there was a need for the SBI and then to meet at the next RSNA meeting, a year later, to discuss our thoughts. I can say that the notion of holding everything in abeyance for one year, just to think about whether we should exist, was not an acceptable option to the founding members. Another issue discussed at the 1985 meeting was the concern that radiologists might use their membership in this society as a marketing tool to promote their practices. We were determined that the academic mission of the SBI, as stated in the constitution, would not be misused, and we agreed that we would report to the leadership of the SBI any appearance of the society name in an advertising capacity.

The focus of the activities of the society in 1986 is best summarized in a letter to the membership dated July 1, 1986. It stated that “the Executive Committee unanimously voted that for this year, we should concentrate our energies on strengthening our Society and working on the educational program for our next annual meeting.” Important decisions in that year included formalizing a fair mechanism for having invited members join the society, rejection of an invitation to become part of the multidisciplinary Society of Breast Diseases (we thought that this approach was a certain guarantee to lose our identity), and tabling the idea to hold an open course (we felt this would dilute our energies). On December 2, 1986, the second SBI meeting was held in Chicago at the Hyatt Regency Hotel. One of the more noteworthy items discussed was opening up the society by establishing a two-tiered membership system for general members and fellows. No decisions were reached. The scientific portion of the program was organized by Drs. Carl D’Orsi and Gloria Frankl. The theme of the program was “Who are we and how do we practice breast imaging?” The answers to a questionnaire filled out...
The Early History Of The Society of Breast Imaging, continued from previous page

the members about our various practices were discussed. It is quite interesting to read the summary of the answers. For example, most members (62%) rarely or never used magnification, most (71%) utilized ultrasound in up to 10% of cases, while only a minority (31%) performed specimen radiography on all needle localization cases. Things have certainly changed in the last 30 years!

In 1987, the executive committee felt that a meeting should be held on the west coast to prevent the SBI from getting a regional reputation. On March 3, 1988, the third meeting of the SBI was held at the Century Plaza Hotel in Los Angeles and took place during the National Conference on Breast Cancer (NCBC), organized by the American College of Radiology (ACR). Records from that meeting indicate that the membership had grown to 54 members. At the end of 1987, the balance in the treasury was $3,530.63. When the society started, no treasury existed and to get the society off the ground, expenses were paid out of the pockets of the six founding members. At the 1988 meeting, the slate proposed by the nominating committee was unanimously approved. Carl D’Orsi, MD was the new president, Harold Moskowitz, MD was the new vice-president, and Lawrence Bassett, MD was the new secretary-treasurer.

Up until this time, the issues addressed by the SBI were internal ones. Towards the end of 1988, this changed when for the first time, the society was confronted with two external issues. The first pertained to a policy statement issued by the American Society of Plastic and Reconstructive Surgeons (ASPRS). As detailed in a letter to the general membership by Dr. D’Orsi, information issued by the ASPRS stated that regarding women with implants, “experienced radiologists can perform mammography on those women with similar accuracy as the nonaugmented patient and that these women should seek these radiologists to perform and read their mammograms.” When reading the communications between Dr. D’Orsi and a representative from the ASPRS, it is clear that the plastic surgeons were not “eager” to disclose that mammography in the patient with an augmented breast cannot be as sensitive as in the same breast without augmentation. The SBI formed its own policy statement regarding this topic, which was published in the American Journal of Roentgenology (AJR)\(^1\). As a result of this dialogue, the ASPRS modified its policy statement.

The second issue, which was potentially explosive, was addressed in a September 11, 1989 letter by Dr. D’Orsi to the members of the SBI. He enclosed an article from the obstetrics-gynecology literature\(^2\) in which the author, Dr. Norbert Gleicher, proposed that mammograms should be performed in the offices of gynecologists and be interpreted by gynecologists. The SBI formed a standing subcommittee to monitor political matters such as this one. As we all know, because this proposal did not progress, a turf battle never materialized. Perhaps the fear of malpractice suits worked for the benefit of the radiologists!

The fourth meeting of the SBI took place at the Palmer House on November 28, 1988 during the week of the RSNA meeting in Chicago. In a letter to the membership dated October 20, 1988, Dr. D’Orsi outlined the major items on the agenda for discussion, including the unresolved issues of whether the society should hold a course, and whether the society should restructure its membership requirements. In that letter, Dr. D’Orsi also announced that the society was accepted into the Intersociety Commission of the ACR. We were proud of this acceptance because it reflected the credibility of our new society within radiology.

Since a majority of SBI members were going to attend the RSNA meeting, the fifth meeting was also held at the Palmer House in Chicago on November 30, 1989. According to the minutes from that meeting, the SBI membership increased to 63 members, and the balance in the treasury skyrocketed to $8,847.28. The new officers elected were Ed Sickles, MD as president, Valentine Jackson, MD as vice-president, Lawrence Bassett, MD as secretary-treasurer, and I was elected to head the newly formed membership committee, whose mission was to review all applications for membership in the SBI. The members of the executive committee consisted of the officers as well as Drs. Franklin S. Alcorn and Carl J. D’Orsi. The SBI was poised to enter the 1990s.

In 1991, members voted to broaden the society and approved the creation of general membership and fellow categories. In 1993, the SBI put on its first course in Amelia Island, FL, with the largest faculty of any breast imaging course. Currently, the SBI has 2800 members, including radiologists, physicists and technologist affiliates. It is the largest society in the ACR. There are 128 fellows and 10 honorary fellows. I think it is fair to say that none of the six founding members envisioned what the SBI would become in 30 years. ✿

References

NAPBC Update

By Jessica W.T. Leung, MD, FACR

The Board of the National Accreditation Program for Breast Centers (NAPBC) held a two-hour teleconference on June 14, 2013. Representatives from breast imaging on the NAPBC board of directors who were present included Drs. Jay Baker, Jessica Leung, Dana Smetherman, and Gary Whitman.

This meeting commenced with a discussion of accreditation participation, which has shown a steady increase. Currently, there are 500 accredited breast centers in the United States. There are 160 centers in the process of undergoing accreditation or reaccreditation, and five new centers are in the initial application phase. Over half (approximately 60%) of accredited centers are community-based hospitals, and the remaining sites are either NCI-designated centers (25%) or university-based hospitals (13%).

Discussion ensued that academic centers may not feel the need to apply for NAPBC accreditation to be recognized as a comprehensive breast center of excellence. It was noted that even for academic centers, accreditation will ensure comprehensive, multidisciplinary, quality clinical care that meets national standards, with improved organization and...
patient care outcomes. Also, pay-for-performance quality measures in the near future may incentivize academic centers to seek accreditation.

Prompted by recent published statements and championed by Dr. Carl D’Orsi (who is a member of the NAPBC board of directors executive committee), the NAPBC board has adopted a standardized process to respond to public statements that are in direct opposition to NAPBC standards. The NAPBC executive committee will draft the response, which would be made by the entire NAPBC and not identify any specific NAPBC member organization (e.g., the Society of Breast Imaging (SBI)), but may represent the expertise of one or more of the NAPBC member organizations. The response draft will then be reviewed by the administrative sponsor (the American College of Surgeons) and circulated to the entire NAPBC board for comment prior to submission. This process is designed to respond to public statements in direct opposition to the NAPBC mission in a timely and effective manner. With respect to breast imaging controversies, this response effort will involve multidisciplinary support from our clinical colleagues (rather than originating from the breast imaging community only) and minimize any potential appearances of self-interest.

Reciprocity was a theme at this teleconference. A reciprocal relationship between the NAPBC and advocacy groups was promoted, including Living Beyond Breast Cancer, Young Survivors Coalition, Inflammatory Breast Cancer Group, National Lymphedema Network, Susan G. Komen for the Cure, and the American Cancer Society. Susan G. Komen for the Cure has added the NAPBC to its website under section of “Getting Good Care.” The American Cancer Society has listed the NAPBC as a resource on its website under the section titled “Finding Treatment Centers.” Similarly, reciprocity was encouraged between the member organizations (including the SBI) and the NAPBC to strengthen relationships. An annual reporting template is being developed for member organizations to update the NAPBC of their major efforts, meeting dates, and specific areas of collaboration.

Various committees (access and utilization, education and dissemination, international, standards and accreditation, quality improvement and information technology) updated the board regarding their recent activities. The NAPBC will conduct a campaign during Breast Cancer Awareness Month to promote accredited centers. International accreditation programs are being developed, with three pilots sites in Montreal, London, and Dubai. Imaging standards for screening (in addition to diagnostic purposes) are being reviewed. Three breast imaging measures were adopted to elevate the level of care mandated at accredited centers. These measures focused on surgical excision after the diagnosis of atypical ductal hyperplasia at core biopsy, the positive predictive value (PPV)-3 (the probability of cancer among patients undergoing biopsy following a BI-RADS® assessment of 4 or 5), and the recall rate. Whether or not to adopt as a quality measure surgical excision after a diagnosis of atypical lobular hyperplasia at core biopsy was debated; this topic was tabled and returned to committee for further discussion prior to re-presentation to the entire board. The next NAPBC board meeting will be in-person in Washington, DC on October 7, 2013.

References

ARRS 2013 Update: Tuesday and Wednesday

By Beatriz Adrada, MD

The Tuesday scientific session started with Dr. Christopher Comstock from Memorial Sloan Kettering Cancer Center in New York discussing the utility of breast magnetic resonance imaging (MRI) to evaluate the extent of disease in women with known breast cancer. Whether breast MRI has an impact as a preoperative modality is still debatable. The benefits of using MRI as a preoperative modality include detecting contralateral cancer in 3-4% of women, evaluating the chest wall region, and identifying additional sites of malignancy in patients undergoing accelerated partial breast radiation. The downside of preoperative MRI includes cost, false positives, and increasing mastectomy rates.

Dr. Linda Moy from New York University covered the indications for screening MRI. Several publications have demonstrated that the sensitivity for screening MRI varies from 71 to 100% with a specificity of 81-97% and a call back rate of 10%. The call back rate decreases with subsequent exams. The cancer yield for screening MRI is about 1.6-3.6%. According to American Cancer Society (ACS) guidelines, annual MRI is recommended for women who are BRCA1 and BRCA2 carriers and for women with a lifetime risk of developing breast cancer of more than 20%. Screening breast MRI is also recommended for patients with a history of chest wall radiation and women with certain genetic mutations. Currently, there is insufficient evidence to recommend for or against screening MRI in women with lobular carcinoma in situ (LCIS). Limited literature is available regarding LCIS and MRI. Nevertheless, studies have demonstrated a cancer yield in the 2-7% range, which is similar to the cancer yield demonstrated in high risk women for whom screening MRI is recommended (1).

The Wednesday scientific session started with Dr. Margarita Zuley from the University of Pittsburgh discussing the current status of elastography. She pointed out that elastography increases the specificity of ultrasound for characterization of masses. For example, in a multicenter study published by Dr. Wendie Berg and colleagues, 939 masses were evaluated with shear-wave elastography and B-mode ultrasound. The conclusion was that shear-wave elastography can improve accuracy and specificity, leading to a decrease in the number of biopsies of BI-RADS® category 4A masses (2).

Dr. Prakash from Boston presented data on the impact presenting discordant cases at a
weekly breast radiology-pathology conference. At the conference, 1391 cases were presented. As a consequence of this conference, surgery was avoided in 16 (21%) of 75 cases, the need for short-term imaging follow-up was avoided in 33 (44%) of 75 cases, and cancer was detected in five (24%) of 21 cases due a change from concordance to discordance. The investigators concluded that the discussion of cases in a multidisciplinary conference changed the diagnosis or the management in 5.4% of the cases.

Dr. Hanna from Ottawa discussed the clinical pathways of patients with mammographic and sonographic BI-RADS® category 5 lesions with negative core biopsies. The researchers reviewed 1552 lesions labeled as BI-RADS® category 5 between 2002 and 2011. Ninety-five of the lesions were benign. Common causes for false negative lesions were fat necrosis, fibrocystic changes, and typical ductal hyperplasia. The investigators concluded that management of BI-RADS® category 5 lesions is challenging. Dr. Hanna and colleagues suggested that repeating the core biopsy (following initial core biopsy with negative results) in lesions classified as BI-RADS® category 5 may avoid unnecessary surgeries.

Dr. Debenedectis from Boston investigated the upgrades rate associated with incidental papillomas on core needle biopsy and evaluated the necessity of performing surgical excision after diagnosing a papilloma. The researchers found 121 papillomas, and 12 of them were incidental. None of the papillomas were upgraded to invasive carcinoma. If there is evidence of atypia in a papilloma, then excision should be recommended, even if the papilloma was an incidental finding.

Dr. Plecha from Cleveland presented a paper on shear-wave elastography during second-look ultrasound after breast MRI. They investigated prospectively investigated 73 women with lesions classified as BI-RADS® 4 and 5 on breast MRI. The women underwent second-look ultrasound using B-mode ultrasound and shear-wave elastography. Shear-wave elastography helped to identify five (24%) of the 21 malignancies found by second-look ultrasound.

Dr. Jones from Mayo Clinic in Rochester, MN presented a talk on the use of elastography in high grade invasive cancer. The researchers concluded that a soft appearance on elastography should not dissuade the radiologist from performing a biopsy, as 16% of high-grade malignancies appeared soft on elastography.

Dr. Young from Chicago presented a paper about the usefulness of shear-wave elastography in the evaluation of fibroadenomas. The researchers evaluated 62 fibroadenomas and masses demonstrating fibroadenomatous changes. They found qualitative stiffness and obscuration of mass margins of to be variable. Using shear-wave elastography as an adjunct to B-mode assessment of breast masses may lead to an increased number of biopsies of fibroadenomas.

Dr. Zuley presented a paper comparing seed localization to wire needle localization for surgical margin status, specimen size, and re-excisions. Dr. Zuley and colleagues retrospectively investigated 131 cases, and no significant differences were found regarding margin status, specimen sizes, and re-excision rates when the two localization techniques were compared.

Dr. Patterson gave a historical perspective regarding the evolution of percutaneous breast biopsy. In the past century, open surgery was the only option for a woman with a mass in the breast. Today, the role of open biopsy is limited; most biopsies are performed with percutaneous techniques with several advantages such as lower cost, fewer complications, and less morbidity. Percutaneous breast biopsy helps to appropriately stage the patient and allows the surgeon to plan for one definitive surgical procedure.

A session on radioactive seed localization started with Dr. Kevin Nelson from the Mayo Clinic in Jacksonville, FL, who gave an excellent overview of the accreditation and regulatory issues involved in establishing a successful seed localization program. He stressed that the success of a seed localization program relies on the commitment of a multidisciplinary group, including radiologists, surgeons, and pathologists. All team members need to be trained in radiation safety, handling the seeds, and how to manage radiation safety emergencies. One of the most important aspects of this procedure is to keep an adequate track of the seed at all times.

Dr. Michelle McDonough from the Mayo Clinic in Jacksonville then summarized seed localization techniques and discussed the advantages and disadvantages of radioactive seed localizations. Although, wire needle localizations have been the standard of care for localizing nonpalpable breast lesions, these procedures are associated with shortcomings as well as advantages. The advantages of wire localizations include low cost, worldwide availability, and feasibility to perform the procedures with any imaging modality. Disadvantages of wire localizations include the coupling of the radiology and the surgery schedules, wire migration, and a surgeon’s approach being constrained by the location and approach of the localizing wires. In contrast to wire localizations, radioactive seeds can be placed in the targeted lesion several days before surgery, allowing for easier scheduling in radiology and surgery. Seed localization has been associated with no significant seed migration, and seed localization is more tolerable for the patient, compared to wire localization. Another benefit is the short learning curve for the radiologist as seed localization techniques are similar to established wire localization techniques.

Dr. Sarah McLaughlin from the Mayo Clinic in Jacksonville gave the surgeon’s perspective, championing the radioactive seed localization procedure over wire localizations. The benefits of radioactive seed localization are an improved surgical approach and no migration of the seed during patient transfer. She also explained that there is no interference between sentinel lymph node biopsy and radioactive seed localization since each procedure uses a different radioisotope (iodine 125 for seed localization and technetium-99m sulfur colloid for sentinel lymph node biopsy).

References

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ARRS 2013 Update: Thursday Morning

By Selin Carkaci, MD

The Thursday morning session at the 2013 American Roentgen Ray Society (ARRS) started with a presentation on imaging of high risk lesions by Dr. Margarita Zuley from the University of Pittsburgh. Dr. Zuley gave an update and review of the current literature. Her presentation highlighted the importance of gaining familiarity with high risk lesions as they are frequently found on percutaneous biopsies.

The session continued with a presentation by Dr. Ellen Mendelson from Northwestern University about automated breast ultrasound (ABUS) for breast cancer screening. Dr. Mendelson gave an update about the status of the ABUS technology and its implications for the current clinical practice. She concluded that ABUS will be clinically valuable but it is currently a work in progress and a lot more work needs to be done in terms of engineering and user friendliness.

The morning scientific session began with a keynote presentation on BI-RADS® by Dr. LARA Hardesty from the University of Colorado. Dr. Hardesty noted that the updated BI-RADS® atlas will include lexicons for mammography (fifth edition), breast ultrasound (second edition) and breast MRI (second edition). She noted that both digital and hard copy versions will be available. She then discussed frequently challenging BI-RADS® issues.

Dr. Steenbergen from Woodbridge, CT discussed two years of data on screening breast ultrasound in women with dense breasts. Dr. Steenbergen reported that 132,000 women had screening mammograms and 20,000 women had screening ultrasounds. The addition of screening ultrasound detected 3.4 cancers per 1000 women screened.

Dr. Salem from Cleveland, OH presented the results of a study on screening mammography in women between 40 and 49 years old and the impact on breast cancer stage at diagnosis. In the study, 983 breast biopsies were performed, revealing 212 breast malignancies. Thirty-two percent of the cancers found in the screening population were ductal carcinoma in situ (DCIS), in comparison to only 11% in the non-screening population. Screening patients were more likely to present at an earlier stage and with smaller tumors than non-screening patients.

Dr. Mirochnik from East Meadow, NY presented a project on improving workflow and efficiency in a breast imaging center. The investigators developed a data tracking sheet and they recorded arrival and departure times, following patients through the subdivisions of the department. After the investigators collected the data, they implemented their interventions. The post-intervention data showed a 21.6% decrease in the average time spent in the breast imaging center.

Dr. Palazuelos from Bogotá, Colombia discussed the results of a literature search on the positive predictive values of mammographic BI-RADS® categories. The results of the 27 articles showed that there is a significant correlation between the BI-RADS® 4 subcategories and the likelihood of malignancy.

Dr. Senapati from Cambridge, MA talked about the positive predictive value (PPV) of BI-RADS® category 4 subtypes in an academic medical setting. A retrospective review of BIRADS® 4 and 5 cases assessed by four radiologists was performed. The PPV for category 4a was 13%; the PPV for category 4b was 38%; and the PPV for category 4c was 69%. The PPV for category 5 was 100%.

The session concluded with a keynote presentation on breast density by Dr. Deborah Copit from Albert Einstein Medical Center in Philadelphia, PA. Dr. Copit noted that increasing number of states now mandate the communication of breast density information to the patients. More studies need to be done to validate reproducibility and accuracy of the BI-RADS® criteria for assessing breast density and to determine what additional tests are appropriate in women with dense breasts.

On Thursday, the afternoon session started with a presentation by Dr. Dianne Georgian-Smith from Brigham and Women's Hospital in Boston, MA on asymmetries, masses and architectural distortions. Dr. Georgian-Smith focused on how to increase one's ability to visualize findings and how to differentiate asymmetries and architectural distortions from summation artifacts.

Dr. Marie Ganott from the University of Pittsburgh gave a presentation on common pitfalls in breast imaging and practices to avoid them. She emphasized the importance of comparing current mammograms to several prior mammograms, and she noted the importance of good image quality and positioning. Dr. Ganott also stressed accurate mammographic-sonographic correlation.

Upcoming Events & Activities

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ARRS 2013 Update: Thursday Afternoon and Friday

By Peter Eby, MD

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ean Weigert, MD, FACR from Connecticut (CT), opened the Thursday afternoon session with a discussion on “Screening Breast Ultrasound in Clinical Practice”. She reviewed CT legislation pertaining to breast ultrasound and breast density. Many were unaware of a 2005 CT law requiring insurance coverage for ultrasound screening in women with heterogeneous or dense breast tissue. This critical legislation predated the more familiar law passed in 2009 requiring notification for patients with heterogeneous or dense breast tissue, suggesting additional options for screening. The Radiology Society of CT tried to add American College of Radiology (ACR) accreditation to the 2009 law without success. As of October 2013, breast density legislation has passed in 12 states: AL, CA, CT, HI, MD, NC, NV, NY, OR, TN, TX, and VA. Approximately 17 additional states are considering similar measures. However, only CT has adopted legal requirements for insurance coverage. A federal bill has been introduced by Congresswoman Rosa DeLauro – a breast cancer survivor from CT.

Dr. Weigert then described the many challenges involved in implementing a screening breast ultrasound program. Despite the 2005 law requiring insurance coverage in CT, billing continues to be problematic due to the lack of a screening ultrasound CPT code. Technical issues include training of sonographers, how many minutes to allow for an exam, what to document and whether hand-held or automated machines should be used. Dr. Weigert raised the very important issue of considerable intra- and inter-observer variability in reporting mammographic density that predicates the need for a screening ultrasound examination. For example, should a patient be eligible for screening breast ultrasound examination if the parenchymal patterns on her annual mammography reports alternate between heterogeneously dense and scattered fibroglandular densities? Should a patient with dense breasts who is recalled for an abnormal screening mammogram undergo a complete bilateral ultrasound at the same time as the diagnostic mammogram? These are logistical challenges that do not have universal solutions yet.

In closing, Dr. Weigert indicated that in the future, screening breast ultrasound may benefit from automated imaging technology, quantitative breast density measurements, screening codes and accreditation, universal Mammography Quality Standards Act (MQSA) supported language and guidelines for tracking, and auditing with mortality as an endpoint.

In her presentation on “Improving Specificity of Ultrasound,” Regina Hooley, MD addressed some of the technical challenges involved in implementing a screening breast ultrasound program. Dr. Hooley cited research showing that handheld ultrasound is improved when feedback is given to sonographers and fellows after scanning by an experienced attending (1). Dr. Hooley also described how patient positioning, transducer frequency, spatial compounding and/or harmonic imaging can show key features or modulate resolution that may improve accuracy. The speed of sound can be optimized for different speeds in different tissues. Dr. Hooley reiterated the importance of reviewing the most recent screening mammogram every time a screening ultrasound is read. Acknowledging that specificity suffers from multiple small findings, Dr. Hooley cited her research, indicating that multiple bilateral similar non-simple cysts or isolated non-simple cysts smaller than 5 mm can be assessed as BI-RADS® category 2 (benign findings) (2).

The meeting concluded with the Case-Based Imaging Review of Breast Imaging on Friday afternoon.

Alexis Nees, MD, from the University of Michigan, organized the five-part course and began by covering breast masses. Her presentation included multiple excellent examples of fat-containing masses, and she noted that that fat-containing masses do not need any intervention when the work-up is complete. Dr. Nees ended with a presentation on the safety and appropriateness of diagnostic mammography in pregnant patients, with negligible fetal doses, citing National Comprehensive Cancer Network (NCCN) and ACR guidelines.

Colleen Neal, MD, from the University of Michigan, provided an eloquent and thorough review of calcifications with numerous cases that classically reflected the current edition of the BI-RADS® atlas.

Jiyon Lee, MD, from New York University, rose to the challenge of illustrating and discussing high-risk lesions in breast imaging. Her presentation included beautiful histology images alongside classic mammographic and sono graphic findings. It was the finest radiology-pathology correlative review that I have seen since the Armed Forces Institute of Pathology (AFIP) course.

Peter Eby, MD, from Virginia Mason Medical Center, discussed common challenges in breast magnetic resonance imaging (MRI) such as the management of foci and very small masses with or without a BI-RADS® category 3 assessment. He finished with a discussion of the rare indications for problem-solving MRI.

Tanya Stephens, MD, from the University of Texas MD Anderson Cancer Center, concluded the session with a review of the management of palpable abnormalities without corresponding masses on mammography. In these situations, the likelihood of malignancy is low but not zero. Dr. Stephens noted that one should not be swayed by a negative mammogram or a negative MRI when the breast tissue is very dense and/or physical examination findings are suspicious. 

References
ARRS 2013 Update: Friday Morning

By Reni Butler, MD

The Friday morning subspecialty track session, focused on emerging research in digital breast tomosynthesis, was moderated by two of the field’s leading experts: Dr. Per Skaane from the Institute of Clinical Medicine in Oslo, Norway and Dr. Stamatia Destounis from Elizabeth Wende Breast Care in Rochester, NY. The morning began with a keynote address by Dr. Skaane, in which he emphasized the limitations of mammographic screening, particularly in women with dense breasts, and the potential for tomosynthesis to improve sensitivity and specificity. Dr. Destounis then presented a series of case examples demonstrating the improved visibility of breast cancer in patients with a range of ages, breast densities, and risk levels, concluding that tomosynthesis is likely to benefit all women.

The session then turned its attention to seven presentations of original research from Yale University, Fundación Santa Fe de Bogotá in Bogotá, Columbia, and Mount Sinai School of Medicine. Dr. Geisel of Yale University led the series with a report of an 11% increase in cancer detection in women screened with a combination of two-dimensional (2D) mammography and tomosynthesis, compared to those screened with 2D mammography alone. Dr. Butler, also from Yale University, followed with a review of suspicious lesions visible only with tomosynthesis, reporting that these lesions typically present as architectural distortions on screening mammography, usually can be seen and biopsied with ultrasound, and tend to represent low and intermediate grade carcinomas, with a significant minority being radial scars.

Next, Dr. Beck of Yale University presented data supporting the use of two views in tomosynthesis, showing that a greater number of cancers were seen only in the CC view, though some were seen only in the MLO view, and the combination of both views provided optimal visualization. Dr. Palazuelos from the Fundación Santa Fe de Bogotá reported two studies from her institution, showing a significant reduction in the screening recall rate with two-view tomosynthesis, albeit at the expense of an increase in radiation dose. Investigators from the Mount Sinai School of Medicine reported on the influence of imaging protocols and breast characteristics, such as tissue density, on the radiation dose associated with tomosynthesis. Dr. Haas of Yale University then concluded the session with a comparison of magnetic resonance imaging (MRI) and tomosynthesis for visualizing additional breast cancers in the ipsilateral and the contralateral breast in newly diagnosed breast cancer patients, showing that some, though not all, MRI-detected additional cancers could be retrospectively seen with tomosynthesis.

An instructional course followed and included comprehensive reviews on the impact of tomosynthesis on breast cancer screening by Dr. Skaane and the practical challenges in its implementation with helpful tips by Dr. Donna Plecha from University Hospital Case Medical Center in Cleveland, Ohio. Dr. Skaane's extensive experience with tomosynthesis in Norway confirmed many of the research findings reported by presenters in the morning session, supporting the consistency of encouraging results with tomosynthesis across national and international institutions. Dr. Skaane discussed in detail his recently published work comparing screening with 2D digital mammography to screening with a combination of 2D mammography and tomosynthesis. This study showed an impressive 31% increase in the cancer detection rate with tomosynthesis. The additional cancers detected with tomosynthesis most often presented as architectural distortions and represented low-to-intermediate grade invasive carcinomas. Ductal carcinoma in situ (DCIS), at the center of the debate that mammography “overdiagnoses” breast cancer, was underrepresented among tomosynthesis-detected cancers. Dr. Plecha concluded the morning with a thorough discussion of the practical considerations in implementing tomosynthesis, including how to educate patients and referring physicians about its advantages and disadvantages, information technology (IT) requirements for data storage and connectivity, effects on daily workflow, and impact on reducing recall rates and increasing breast cancer detection. "

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SBI Membership Committee Update

By Sujata Ghate, MD

In 2012, the Society of Breast Imaging (SBI) membership committee was formed by the SBI president at the time, Debra Monticciolo, MD, in an effort to address member concerns and questions and to better serve current members. The initial task of the membership committee chair, Sujata Ghate, MD, was to evaluate the membership categories in response to several inquiries from retired or partially-retired members. After researching membership criteria from other similarly sized subspecialty radiology societies, the decision was made to establish an emeritus member category which would waive annual membership fees but retain benefits for retired radiologists who have been members of the SBI for 10 consecutive years or more. Additional information for applying for emeritus status may be found on the SBI website (www.sbi-online.org).

The second goal of the committee chair was to form a true committee. Three members who expressed interest and were from diverse geographical locations were recruited: Robert Maxwell, MD (Mayo Clinic, Rochester, MN), Bethany Niell, MD, PhD (Massachusetts General Hospital, Boston, MA), and Pulin Sheth, MD (University of Southern California, Los Angeles, CA). In November 2012, with help from the SBI staff and leadership, a 20 question on-line survey was distributed to all SBI members in order to assess member needs and concerns. We are grateful to the 176 members or approximately 7% of our membership who responded and provided us with the necessary information to improve service to our members. The results of the survey are summarized below.

Overall, members were generally happy with the content provided on the SBI website (www.sbi-online.org) and most found that it was a valuable benefit of membership. However, they did find website navigation somewhat cumbersome and sometimes

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SBI Membership Committee Update, continued from previous page

frustrating. Suggestions made by members included easier log in with access to the entire website with only a single log in, improved access to on-line resources, and inclusion of relevant links to articles and manuscripts.

Comments regarding the SBI Newsletter were overwhelmingly positive. Thanks to the hard work of the newsletter committee, chaired by Dr. Gary Whitman, nearly 83% of survey respondents reported that it was the single most valuable benefit of membership. Regarding format, members were divided on whether they preferred a printed or an on-line format; many preferred both. Current plans are in place to improve the on-line format, allowing easier access on a tablet device.

Most survey responders were aware of but had not participated in the SBI Forum discussions, although those who had, found them pertinent and valuable to their practices. Approximately 43% of the members requested more information on how to access and use the forum, as they found the format difficult to navigate. Similarly, many members were not aware of a SBI presence on social media.

Nearly 75% of the survey responders attended or participated in SBI-sponsored educational courses over the last year. Comments by members were very positive about the content and the presentations. When asked about adding scientific exhibits to SBI soon-to-be annual meetings, most survey responders were supportive or neutral about the changes as long as the educational content was not compromised.

Approximately 45% of the survey responders expressed considerable interest in becoming more involved with SBI committees, however, they were unsure of how to proceed or who to contact for more information. Many were unaware that committees are open to all members of the SBI, not just SBI fellows. The goal in the near future is to expand the committee structure to give opportunities to all who want to participate.

The survey results were presented to the SBI board of directors in June of this year with plans already underway to improve website access and navigation with implementation of a learning management system (LMS) in the near future. After several inquiries from international radiologists, and with the recommendation from the membership committee, the SBI board has decided to institute an international member category. We are currently working on a draft of the policy which will allow us to expand our membership base and include our colleagues from all over the world.

The membership committee will continue to work towards addressing member concerns and increasing participation. We would like to thank all members who responded to our survey, as your participation will help us to improve current benefits and services.

Genetic Risk Assessment and Testing: Personalized Medicine and the Impact on Breast Cancer Screening

By Mary E. Freivogel, MS, CGC and Sara Knapke, MS, CGC – Cancer Special Interest Group, National Society of Genetic Counselors

One of the most significant risk factors for developing breast cancer is harboring a breast cancer susceptibility gene mutation. In the mid-1990s, genetic testing became available for two genes that are responsible for the preponderance of breast cancers in a subset of high-risk families. Mutations in the BRCA1 and BRCA2 genes, which cause 5-10% of all breast cancers and up to 10-15% of all ovarian cancers, are associated with hereditary breast and ovarian cancer (HBOC) syndrome. Although these genes are quite well known, many other genes related to hereditary breast cancer exist. Some are associated with well-defined syndromes with clear clinical management guidelines, such as PTEN (Cowden syndrome) and TP53 (Li Fraumeni syndrome). Others are more newly discovered and the clinical implications of these “moderate risk” genes are less clear, such as PALB2 and CHEK2.

Due to the recent publicity surrounding actress Angelina Jolie's decision to pursue prophylactic mastectomy after genetic testing revealed a BRCA1 mutation, many institutions have noted a dramatic increase in patient interest in genetic risk assessment and testing. Additionally, in response to the recent Supreme Court decision concerning gene patenting, the number of diagnostic laboratories offering BRCA1/2 testing is growing quickly, resulting in increased competition and decreased cost. Many of these laboratories also include BRCA1/2 in multi-gene panels, allowing for simultaneous analysis of high- and moderate-risk genes associated with breast cancer. Therefore, genetic risk assessment and testing for breast cancer risk is becoming more complex but also more accessible and informative.

Previous issues of the Society of Breast Imaging (SBI) Newsletter have explored eligibility for breast magnetic resonance imaging (MRI) screening (winter 2010) and the importance of genetic counseling and testing (winter 2011). These topics continue to gain traction as we enter an era where breast cancer screening is becoming more personalized and more risk-based. As a result, breast cancer risk assessment and genetic testing play critical roles in many breast imaging centers, and the integration of genetic counselors is an important priority for many organizations. Genetic counselors are the ideal healthcare providers to offer risk assessment and genetic testing, allowing patients to understand their personalized risk for breast cancer. This, in turn, leads to discussion of supplemental breast cancer screening exams when necessary, based on standard guidelines and published data.

Up to 6% of women in a screening mammography population are eligible for breast MRI screening based on the American Cancer Society guidelines (due to a lifetime breast cancer risk of >20% as calculated by risk assessment models that are heavily reliant on family history). Although these statistical models are useful in calculating a patient's lifetime risk to develop breast cancer for most women, they are NOT designed to identify patients who may have a hereditary
breast cancer syndrome and face more significant risk (beyond what the models can predict) for breast and other cancers. This is primarily because these models do not evaluate family history of non-breast cancers. Thus, these models must be supplemented by an evaluation of the patient’s personal and family history of key cancer types to identify patients who require referral for genetic counseling. Published data demonstrates that up to 9% of patients in a breast imaging population are candidates for a genetic counseling referral.

The National Comprehensive Cancer Network (NCCN) offers guidelines titled “Criteria for Further Genetic Risk Evaluation” for patients with a personal or a family history of cancer. These guidelines support the need for breast imaging centers to collect data not only about personal and family history of breast cancer, but about other types of cancer as well. The NCCN recently updated these guidelines to recommend consideration of multi-gene panels for certain patients when ordered in consultation with a cancer genetics professional. These panels are complex, primarily due to the increased rates of variants of unknown significance, as well as the inclusion of more newly-discovered “moderate-risk” genes associated with uncertain levels of cancer risk and a lack of clear medical management guidelines.

Breast imaging centers are well-positioned to drive the trend toward personalized breast cancer screening. Given the evolving landscape of genetic medicine and the complexity of comprehensive breast cancer risk assessment, cooperative partnerships between breast centers and genetic counselors are becoming more and more essential to the provision of quality patient care. To locate a genetic counselor in your area, please visit the website of the National Society of Genetic Counselors at www.nsgc.org.

References

A Sonographer’s Perspective on Screening Breast Ultrasound

By Lisa Arnall, RDMS

If you ask sonographers who specialize in breast imaging how they feel about screening breast ultrasound, you may initially see a look of dread on their faces. Most of the time this reaction is due to the fact that, depending on the breast tissue, a screening ultrasound may take two hours with over 100 images. As you can imagine, a study of this nature is not only time-consuming and anxiety-provoking for the patient, but also ergonomically challenging for the sonographer. However, if a patient’s breast tissue is sonographically friendly with few findings, a thorough exam may only take 30-40 minutes.

There are various reasons a patient may need to undergo a screening breast ultrasound examination. A strong family history is the first indication for such an exam. A patient with a premenopausal, first degree relative or multiple premenopausal, second degree relatives who have had breast cancer would place a patient in a high risk category. High risk patients typically begin mammography and ultrasound 10 years prior to the diagnosis of their relative, depending on institutional guideline. Patients followed in a high risk clinic may have a mammogram or a screening ultrasound every six months. Another indication for screening breast ultrasound may be if a patient’s breast tissue is made up of dense parenchyma, which could limit the radiologist’s interpretation of the mammogram.

During screening breast ultrasound studies, the sonographer spends a substantial amount of time with the patient. This is a great opportunity to talk with the patient to help alleviate any stress or anxiety. Simple topics, such as the weather, family pets, or becoming acquainted with the patient’s family breast cancer history, may help to distract the patient’s thoughts from the possible outcome of the ultrasound examination.

When I first began scanning patients for screening exams, I was overwhelmed by the number of benign findings, which would then make me anxious as I was concerned that I may miss something of concern. I would find myself scanning the same area over and over again and questioning whether something was a true abnormality or simply the way the patient’s breast parenchyma interfaced with the surrounding Cooper ligaments and fat. As a result, this would prolong the exam and leave me questioning if I missed important findings.

The key point to remember when there are multiple findings is to be methodical, taking one quadrant of the breast at a time, and remember that you are looking for any suspicious masses. Do not let the simple cysts and other benign-appearing masses distract you. However, it is important to document such findings. With simple cysts, depending on the protocol at your institution, you can document three of the largest cysts in each quadrant with measurements and Doppler flow and perform a cine clip to demonstrate the others. With solid masses, it is important to fully document each mass with measurements, Doppler flow, and cine clips. Scanning both axillary regions may be required as a part of a screening exam as well, especially if a suspicious mass is identified in the breast. The more scanning time a sonographer has accumulated, the more comfortable the sonographer will become with screening breast studies.

Throughout the country, there are many studies being conducted by medical researchers to determine which patients benefit from screening breast ultrasound. However, if you gather a group of women together who are either at high risk for breast cancer or have predominantly dense breast tissue and ask if the statistics matter, I believe the majority would say that peace of mind matters more than the numbers.
Keeping Patient Information Safe in a High-Tech World

By Dorothy A. Sippo, MD, MPH

With the expanding use of electronic health records (EHRs), patients’ health information is becoming more readily accessible across the healthcare enterprise. It is important to consider how health information is protected in the settling of EHRs. Title II, Administrative Simplification, of the Health Information Portability and Accountability Act of 1996 defines protected health information (PHI) and requires that it be secured and kept confidential (1). PHI is health information that can be identified to a particular patient. There are many types of information that can identify specific patients, including names, dates, medical record numbers and contact information.

PHI is kept secure through a combination of administrative, physical and technical safeguards. Administrative safeguards assign responsibility for keeping PHI safe with established policies and procedures. Physical safeguards secure access to healthcare facilities, including workstations and servers. In breast imaging, images may be reviewed with a patient present to facilitate explanation of findings or to guide a procedure. Only information specific to that patient should be visible during the patient encounter. It is helpful to quickly check which patient’s information is visible before beginning a consultation with a patient. Similarly, patients’ transit through diagnostic mammography and breast ultrasound may be tracked using a monitoring board. Such boards should be located in non-patient areas, where they are visible only to healthcare team members.

Technical safeguards include unique user identifications and authentications, auditing of system usage, and secure information transmission. Breast imagers will frequently use multiple applications and multiple workstations in their daily work. This may require separate logins to a workstation for viewing mammography and digital breast tomosynthesis, a workstation for viewing breast ultrasound and magnetic resonance imaging (MRI), a workstation for viewing MRI dynamic contrast-enhancement computer aided detection (CAD), and applications for reporting and viewing health records. The use of multiple applications is best managed with a single sign-on system utilizing enterprise-wide authentication systems. This can simplify management of user names and passwords, thereby ensuring their security. In some instances, sign-on may be accomplished by bringing an identification card close to the workstation’s proximity detector.

Security is compromised when passwords are shared by multiple users or a common password is used for a particular workstation. When planning the purchase of a workstation, one should consider how individual user accounts are administered and if login can be accomplished with a single sign-on system. For example, it may be preferable for breast MRI CAD to be accessed from the picture archiving and communication system (PACS), rather than a standalone workstation. Having the breast MRI CAD integrated with the PACS can streamline the login process for the two systems. It also makes the CAD more readily available at multiple workstations.

PHI is protected with the logoff process, as well as the login process. Automatic logoff should occur once a system has been inactive for a designated time period. Consistent logoff policies can be centralized and span multiple workstations. Breast imagers occasionally have to step away from workstations to consult with patients or perform procedures. The timing of automatic logoffs should be set to reflect these practice patterns. Similarly, the ability to log back in to an application where one left off is also important.

Secure information transmission is a significant consideration in breast imaging, where comparison with prior outside imaging studies is frequently necessary. This may be accomplished with written consent from the patient faxed to the outside institution and then compact discs (CDs) or films are provided to the requesting institution. With appropriate security measures, it is becoming increasingly possible for patients’ imaging studies to be transferred electronically between facilities. Institutions may have established procedures for such electronic transfers, with patients frequently receiving care at multiple facilities. The Radiologic Society of North America (RSNA) Image Share (2) is a pilot project which provides patients with personal health record (PHR) accounts for their medical images and reports, which can then be shared with radiologists across institutions. Each patient has a unique security key used to manage her or his PHR. Administrative, physical, and technical safeguards must be employed to properly protect health information. Understanding legal and technical requirements for PHI facilitates safe storage and transfer of this information.

References

Breast Cancer Risk Models

By Jennifer A. Harvey, MD, FACR

Breast cancer screening has largely been a one-size-fits-all approach with the exception of those at high risk. A risk-based approach to screening would apply resources to those who could benefit most. However, current breast cancer risk models have limited ability to predict risk at the individual level.

A risk prediction model is a statistical tool for estimating the probability that a currently healthy individual with specific risk factors will develop a future condition within a specific time period. How a model reports “risk” is variable. A model may predict the risk of invasive cancer, invasive cancer and ductal carcinoma in situ (DCIS), or only estrogen receptor positive (ER+) cancer within a five or ten year period or a lifetime. Of note, the ten year risk of breast cancer increases with advancing age, but the lifetime risk declines due to the competing risks of other causes of mortality.

The Gail model (also called Gail 1) was developed using Breast Cancer Demonstration Program (BCDDP) data and includes only six variables. The Gail model has been modified by many investigators (Gail 2, Breast Cancer Risk Assessment Tool (BCRAT)). The Rosner and Colditz model (1996, modified in 2000) is based on the Malcom Pike’s theory of breast tissue aging and predicts the risk of ER+ cancer2,3. There are several pedigree-based models that predict the risk of breast cancer and BRCA mutations, including the Claus, the BRCAPro, and the BOADICEA models. These models do not include other risk factors other than family history. The Tyrer-Cuzick model, also known as the International Breast Intervention Study (IBIS) model, is the most comprehensive model; it includes both personal risk factors as well as pedigree-based risk factors, and it is based on data from the IBIS4.

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Breast Cancer Risk Models, continued from previous page

Risk model performance is generally assessed by evaluating calibration and discrimination. Models can be tested internally using original data, but external validation in a different population is important. Calibration compares the expected number to the observed number of events (E/O statistic) and essentially evaluates performance in the population at large. Most models are relatively well calibrated.

Discrimination of a model reflects the ability to predict the risk of disease at an individual level, and this is where most models need improvement. Discrimination is defined as the proportion of randomly chosen pairs (with and without the condition) from the sample where the person with the condition has a higher predicted risk than the one without the condition. Perfect discrimination has a C statistic of 1.0, while 0.5 is random chance with no discrimination. Discrimination is poor to modest among all breast cancer risk models. The Gail 1, the Gail 2, and the Rosner and Colditz models have C statistics ranging from 0.59 to 0.68. The Tyrer-Cuzick model has better though still modest discrimination with a C statistic of 0.76.

Each model has strengths and weaknesses (Table 1). The Gail 2 model is the best validated model, and the only model validated for African-American women. The Gail 2 model should not be used for women with a history of lobular carcinoma in situ (LCIS) or with a paternal family history of breast cancer. For women with a strong family history of breast/ovarian cancer, a pedigree-based model should be considered. The Claus model should not be used for women without a first degree relative with breast cancer. Pedigree-based models also yield the risk of the patient being a BRCA mutation carrier. Women with a >10% risk of being a mutation carrier are considered candidates for genetic testing. For women under age 35 years with a history of LCIS or with multiple risk factors, the Tyrer-Cuzick model is recommended. For women with a history of radiation exposure or other suspected genetic mutations (Li-Fraumeni, Cowden, or Bannayan-Riley-Ruvalcaba syndromes), no model will accurately assess risk.

Current risk models are not great because many breast cancer risk factors have a low association with cancer; the models lack continuous variables, and they lack inclusion of breast density. Breast density is a moderate, independent breast cancer risk factor; at least 15 studies have demonstrated a statistically significant association between breast density and breast cancer. Three modified Gail models have included breast density as BI-RADS categories with minimal improvement in model performance. Inclusion of density as a continuous variable rather than as categories will improve power, likely improving model discrimination. The University of Virginia (UVA) Mammography Project (CDMRP #BC100474) is developing a new risk model that includes automated measurement of breast density as well as pedigree analysis.

Breast cancer is a very heterogeneous disease. It is likely that risk profiles are different for basal cancers and luminal cancers. As models become better able to predict breast cancer risk at the individual level, radiologists will be more able to give tailored advice about screening intervals and modalities to our patients.

References

Imaging Pitfall: The Axilla

By Phan T. Huynh, MD, FACR

A 66-year-old woman presented for a routine screening mammogram. Additional spot compression view and ultrasound of the right breast were performed. What is your BI-RADS assessment?

The depicted mass (Figure 1a) has features (oval shape and partly circumscribed margins) that may suggest a BI-RADS 3 (probably benign) assessment.

However, closer inspection of the mass demonstrates that its margins (arrow) should be termed indistinct on spot compression mammography (Figure 1b) and ultrasound (Figure 1c). Therefore, the mass was deemed to be suspicious for malignancy. Invasive ductal carcinoma was confirmed at ultrasound-guided biopsy.
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