INSIDE THIS ISSUE:
Highlights From the EUSOBI Annual Scientific Meeting 2018
Breast Imaging and Health Care in Tanzania

Zebras captured on camera by Thomas Frenna, MD, on safari near the Ngorongoro Crater, Tanzania, after spending 2 weeks at NSK Hospital in Arusha for RAD-AID International. Read the full story in this newsletter.
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# Committee Members

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**INTERESTING CASE:**  
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Editor’s Note

The Mission of the SBI Newsletter Committee

The exuberant and indefatigable SBI newsletter team outdid itself with the final issue of 2018. It is one of our best yet. I think you’ll agree that issue after issue the members of this committee—which include technologists, SBI staff, radiologists, a professional editor, and a graphic designer—collaborate and excel to produce something thoughtful, informative, and unexpected. They never fail to impress and surprise me with their ideas, contributions, and endless self-motivation.

Until now, we haven’t specifically described our goal or unified vision in writing. There is no inspirational photo of a natural wonder to release the grip of writer’s block or a hand-painted quotation adorning the wall of our boardroom to unite and guide us when tempers flare (technically, that would require a boardroom). Strewn across the country and sometimes the globe, we rarely enjoy the luxury of connecting face-to-face. Words bind us together. With this in mind, this summer we directed a little of our energy toward explicitly articulating our common vision, purpose, and goals. So if we ever need a beacon, these words will provide a guiding light. I’m pleased to share the new mission statement of the SBI newsletter:

To empower and expand the diverse global breast imaging community through honest journalistic coverage of significant events, personal perspectives, scientific discoveries, and inspirational stories from all facets of our field for our members.

We want to continue to connect and bring our local, national, and international communities together. We have so much to learn from each other and we can do that through shared science. But we can also learn through shared personal experience.

The newsletter is created by SBI members for SBI members. You don’t have to be on the committee to participate. I have been thrilled to receive, publish, and learn from the myriad of adventures and struggles of our diverse and fascinating collective. We’ve printed stories on how to build a grassroots movement on Facebook to save screening (Rivera, 2016 Issue 3), how to survive a devastating clinic fire (Grear, 2016 Issue 4), how to create a consensus for BI-RADS in Uganda (Scheel, 2017 Issue 1), and how the New York Breast Imaging Society was created (Mango, 2017 Issue 2). These stories, and many more, were written by members of the SBI who were not part of the Newsletter Committee, and we are grateful for them. We hope this newsletter inspires you and adheres to the mission described above. Do you want to support the mission of the SBI newsletter with a story of your own? We look forward to hearing from you.

I sincerely hope the product we deliver matches the mission described above. The SBI was born in the USA (queue Bruce Springsteen) and has built a global following through years of collaboration and outreach.

Peter R. Eby, MD, FACR, FSBI
President’s Column

OUR SBI MISSION:
To save lives and minimize the impact of breast cancer

OUR SBI VALUES:
Patient-centered and evidence-based care
Excellence in education
Scientific integrity
Collaboration and collegiality
Respect for diversity and inclusiveness

Jay Baker, MD, FACR, FSBI
President of the SBI

Autumn means membership renewal time for the SBI. Every year around this time I worry whether our members will see the same value that I see in the society. Will they continue to embrace an organization that I view as the premier group supporting breast imagers in this country? This year I have no reason to fret. During this past summer alone the SBI has announced several programs that will benefit its members for years to come. Three of these are especially exciting.

First, the Summer Webinar Series is already a great resource for our members. The SBI Communications Committee, chaired by Linda Moy, MD, FSBI, has put together an excellent series of webinar lectures delivered by some of the SBI’s best and brightest, speaking on key topics that affect the daily practice of all breast imagers. Katerina Dodelzon, MD, of Weill Cornell Medical Center, kicked off the series with an excellent discussion of the work-up and management of palpable breast masses. Susan Harvey, MD, of Johns Hopkins University, followed with an informative, science-based, and entertaining discussion of appropriate imaging for diffuse and focal breast pain. Other excellent presentations have included “Tips and Tricks to Performing Ultrasound-Guided Procedures,” by Debbie Bennett, MD, of Saint Louis University, and “Imaging of Nipple Discharge,” by Jane Karimova, MD, of Beth Israel Deaconess Medical Center. The series name changed to SBI Live Webinar Series at the conclusion of summer, and important topics were added for autumn. All of these webinars are free to members and may be accessed through the E-learning link under the “Education” drop-down menu on the SBI website or at https://www.sbi-online.org/EDUCATION/E-Learning/livewebinarseries.aspx.

Second, the society launched SBI Connect, a new online forum to facilitate discussions among breast imagers from around the world. This forum, built on a platform similar to ACR Engage, has been remarkably successful in its first few weeks. There have already been 160 threads covering topics as wide-ranging as how to handle calcifications in the nipple, whether breast biopsies are more appropriately considered clean/aseptic procedures or sterile procedures, and whether abbreviated breast magnetic resonance imaging is ready for prime time. These and many other topics have generated hundreds of posts and replies and tens of thousands of page views. The SBI now has a tool for our members to seek answers and share knowledge, which ultimately benefits all of our patients. This is a result of the hard work of the SBI Connect Committee, co-chaired by Rebecca Seidel, MD, from Emory University, and Eric Rosen, MD, from the University of Colorado, and thanks to many months of sustained effort by Nicole Hardy, the SBI’s own world-class membership and marketing specialist. Connect at https://connect.sbi-online.org/home.

Last but far from least, in October the society formally announced perhaps its most ambitious effort to date: the creation of the Journal of Breast Imaging (JBI). It seems hard to believe, but the JBI will be the first journal devoted solely to the science of breast imaging. Each issue of JBI will include original research, scientific and educational reviews, clinical practice notes, unknown cases, editorials, and more. Thanks to the tireless efforts of the journal’s first editor-in-chief, Jennifer Harvey, MD, FACR, FSBI, working with the society’s executive director, Yasmeen Fields, CAE, JBI will provide members with what many have long sought: a journal home for all things breast imaging. I can’t think of a more important contribution this society can make to the care of our patients than educating breast imagers through this new endeavor.

With all of these and countless other benefits for SBI’s members, I do hope breast imagers everywhere will see the value of joining the society or continuing their membership.

Jay A. Baker, MD, FACR, FSBI
President, Society of Breast Imaging
The kids are back in school, summer vacation is a distant memory, and autumn is upon us. Our breast imaging centers are abuzz with the excitement of Breast Cancer Awareness Month, and many SBI members are preparing for the annual meeting of the Radiological Society of North America. The SBI committees have been expanding and connecting the breast imaging community, engaging our clinical colleagues, and informing our patients. Here are some updates on their progress.

The Resident and Fellowship Section, co-chaired by Rend Al-Khalili, MD, and Sadia Choudhery, MD, invited 5 new members this summer. Members of this section, including junior and senior residents and fellows from various organizations, represent the SBI’s diverse members in training and advocate for breast imaging as a specialty. Matthew M. Miller, MD, of the University of Virginia, leads the creation of case reviews, one of the primary tasks under the purview of this section.

The Breast Imaging Fellowship Match Committee, chaired by Rachel Brem, MD, FACR, FSBI, met to discuss the results from this year’s fellowship match and concluded that a survey for recently matched fellows would be beneficial. This survey is being developed by a group of residents and fellows chaired by Michelle Lee, MD. The Program Directors Subcommittee worked this summer to contact programs that are outside the match. This subcommittee is currently developing talking points and tips to guide all program directors.

Members of the Communications and Advocacy Task Force and Social Media Committee hosted a Twitter chat, “Breast Cancer Risk Assessment in Young Women: Better Education = Better Health,” in observance of Breast Cancer Awareness Month and Health Literacy Month. The chat was moderated by Amy Patel, MD, and Rebecca Seidel, MD. Members also engaged our Facebook audience via a live Q & A with Dr Seidel. Our Instagram followers observed a day in the life of a breast imager by Anjali Malik, MD.

After months of development, SBI debuted its all-new members-only online community at the end of August. The SBI Connect Committee, chaired by Dr Seidel and Eric Rosen, MD, FSBI, was instrumental in testing the community and ensuring quality control prior to launching the program. The committee will develop strategies to drive member engagement and continue to promote SBI Connect through other digital channels like Twitter and Facebook. SBI is grateful for its dedicated members and extends a special thanks to the beta testing group, who also helped test functionality in SBI Connect.

The Education Committee will continue the live webinar series on ACR Appropriateness Criteria and Practice Parameters throughout September and October. The 7 webinars address the management of common clinical conditions and provide detailed explanations with images for less common scenarios. Join the live upcoming webinars on September 26, October 9, and October 23! The committee is continuing to work on plans for the 2019 Symposium in Hollywood, Florida (April 4-7, 2019). It’s never too early to start planning for the SBI Symposium!

The Membership Committee will focus on 2 initiatives aimed at gaining a better understanding of the wants, needs, and makeup of SBI membership. The committee will develop a member satisfaction survey to measure the perceived value of the SBI membership benefits and to identify areas in need of improvement. To build a more robust profile of new members, the committee will also refine the demographic information captured in member profiles.

SBI membership dues invoices have been sent. Please remember to visit the SBI website (https://www.sbi-online.org/Membership/JoinSBI.aspx), review your contact information, and pay your dues to avoid any interruption of your benefits.
To save lives and minimize the impact of breast cancer.

Breast Imaging and Health Care in Tanzania

By Joanne M. Rispoli, MD; Vinay Prabhu, MD, MS; Anne-Marie Lugossy, RT(R); Munir Ghesani, MD, FACNM; Thomas Frenna, MD

In October 2017, Thomas Frenna, MD, Vinay Prabhu, MD, MS, and Joanne M. Rispoli, MD, had the opportunity to visit NSK Hospital in Arusha, Tanzania, through RAD-AID International. Their visit focused on improving breast imaging practices and raising breast health awareness. This opportunity is available as an elective to fourth-year residents in the New York University diagnostic radiology residency program.

Incidence of Breast Cancer in Tanzania

The reported incidence of breast cancer in Tanzania and other East African countries is much lower than in the United States and Europe. This is largely because of the absence of breast cancer screening, resulting in underdiagnosis of early-stage breast cancers that are detected at a much higher rate in other regions of the world. According to a 2017 report on behalf of the Ministry of Health, Community Development, Gender, Elderly and Children of the United Republic of Tanzania, breast cancer is the second most common cancer and second leading cause of cancer mortality in Tanzanian women. Most patients present at a late clinical stage, and triple-negative breast cancers are diagnosed in many. The lifetime risk of developing breast cancer in Tanzania is 1 in 20. Approximately half of all women diagnosed with breast cancer die of the disease.

Screening and Breast Health Awareness

Tanzania does not offer screening mammography. A hierarchical referral system with tedious patient transfers through the health care system causes delays and inefficiencies in care. Patients are transferred from primary care clinics to district hospitals to regional referral hospitals to zonal hospitals and finally to the 2 national hospitals. Awareness of breast cancer is also lacking, with a shortage of organizations and societies disseminating educational information. Several surveys of female patients in Tanzania have indicated limited knowledge of and misconceptions regarding risk factors for developing breast cancer, such as carrying money under a brassiere. Additionally, there are few breast-trained pathologists, radiologists, medical oncologists, radiation oncologists, and surgeons. As a result of these multifactorial deficiencies, approximately 80% of women in Tanzania in whom breast cancer is diagnosed have advanced-stage (stage III or IV) disease, when most treatments are ineffective and outcomes are poor.

Radiology Training

Tanzania has a severe shortage of radiologists and radiology technologists, with approximately 50 radiologists and 400 technologists for a population of 53 million people. Tanzania has a limited number of programs in which MDs can receive radiology training, including Muhimbili University of Health and Allied Sciences in Dar es Salaam and Kilimanjaro Christian Medical Centre in Moshi. The Kilimanjaro Christian Medical Centre diagnostic radiology program was started in 1998 and has graduated 5 radiologists since 2002. These programs must tackle the challenge of limited resources and often failing equipment, which act as a barrier to learning.

Availability of Imaging Modalities

Although the hospital in Arusha that our group visited via RAD-AID International offered ultrasound, digital mammography, and breast magnetic resonance imaging (MRI), this is far from the norm. Ultrasound and plain radiography are the primary diagnostic modalities in Tanzania and are widely available, but most clinical settings lack mammography and MRI. In fact, there are only 6 MRI scanners in the entire country of Tanzania. The existing units are often purchased secondhand or are donated, and repairing these units can be extremely difficult and costly. In addition, skilled breast radiologic technologists, ultrasound technicians, and MRI technologists are scarce in Tanzania, resulting in suboptimal operation of these systems. No facilities offer needle localization, automated breast ultrasound, or tomosynthesis.

Breast imaging is exclusively interpreted by general radiologists trained most commonly at one of Tanzania’s 8 medical schools. Breast imaging fellowships do not exist in Tanzania. In our limited experience, the BI-RADS lexicon and categories appear to be used infrequently. Adequate monitors for diagnostic viewing of mammograms are rarely available.
Preoperative Diagnosis
Patients are most frequently referred for breast imaging services during visits to local primary care clinics that reveal a breast symptom or physical examination finding (e.g., pain, lump, or discharge). In our experience, the imaging modality of choice (ultrasound or mammogram) is highly variable, if imaging is even considered. Biopsies are seldom performed, given the lack of skilled interventionalists and pathologists. Palpable lesions are often surgically removed without an imaging study or biopsy or even a pathologist reviewing the excised tissue. As a result, many women do not know whether they truly carry a diagnosis of breast cancer.

Reimbursement and Billing
The National Health Insurance Fund was established in 2001 primarily to assist public servants with medical costs. Similar programs have subsequently been established to cover other Tanzanian citizens. Most citizens not covered by one of these programs rely on private insurance or personal funds to pay for medical costs.1

Our Interventions
Our group quickly realized that the standard practice of breast cancer screening and work-up in the United States would not be ideally suited for Tanzania. We took the following small steps to bring best practices to the local hospital in Arusha:

- Providing the local radiologist with the ACR BI-RADS Atlas and adapting its guidelines for the services available in that area
- Visiting local primary care and gynecology physicians to learn about ordering practices and attitudes toward breast cancer
- Creating informational pamphlets so referring physicians could review common indications for imaging symptomatic patients during Breast Cancer Awareness Month
- Increasing awareness of breast cancer by providing posters in waiting areas to explain the clinical findings of breast cancer to patients
- Observing and providing feedback to technologists during breast imaging examinations
- Reviewing high-yield cases daily with the local radiologist to provide a “mini fellowship” in breast imaging
- Revising the hospital’s mammogram, ultrasound, and MRI report templates to reflect BI-RADS lexicon and categories

Conclusion and Future Challenges
Because of the current lack of infrastructure, a multidisciplinary team that assessed breast health care in Tanzania in 2017 recommended that doctors “prioritize the detection, treatment and diagnosis of symptomatic breast cancer (cancers that are detectable without the use of mammography).” The team also stated that “the introduction of screening mammography is not advised, until systems for the management of symptomatic disease are well established and functioning.”1

Tanzania is currently at the earliest stages of breast imaging, during which appropriate utilization should be the focus. The Pink Ribbon Red Ribbon foundation, an entity whose focus is to reduce deaths from cervical cancer and breast cancer, has identified Tanzania as a key area to promote screening of cervical and breast cancers. They have set a goal of screening 50% of women aged 30 to 49 years for cervical cancer every 5 years and have implemented the development of national training guidelines for clinical breast examinations by the Ministry of Health, Community Development, Gender, Elderly and Children.

We can make a difference in beautiful countries like Tanzania by sending talented and knowledgeable radiologists and technologists to share their experiences and best practices with the underserved populations of the world.

Drs Rispoli, Prabhu, and Frenna are radiologists at New York University Langone Health and may be contacted at joanne.rispoli@nyumc.org, vinay.prabhu@nyumc.org, or thomas.frenna@nyumc.org. Munir Ghesani, MD, FACNM, is the director of RAD-AID Tanzania for RAD-AID International.

References
Beyond the Reading Room: Multidisciplinary Electives Enrich Our Relationships With Colleagues and Patients

By Martha Ksepka, MD

Caring for patients as part of a multidisciplinary team is a key component of breast imaging. We radiologists frequently represent the front line in discussing a breast cancer diagnosis. It is a privilege to help patients during this difficult time. Although rewarding, it can also be challenging, particularly when patients ask about what to expect regarding treatment options. During my fellowship this past year, I was exposed to breast pathology, surgical oncology, plastic surgery, medical oncology, and radiation oncology services during a month-long multidisciplinary rotation. This experience helped me understand the perspective of patients with newly diagnosed breast cancer. It also taught me how to better serve both patients and referring physicians.

Rotating through the pathology department taught me the importance of communication with our pathology colleagues. Pathologists routinely examine representative slides of tissue and, in questionable cases, examine additional levels from the tissue block. Radiologic-pathologic discordance should be communicated to the pathologist, who may then review additional tissue-block levels for clarity. Throughout this rotation I was reminded of the importance of seeing things from our colleagues’ perspectives. With 1 patient, the radiologist noted that the biopsy target was a “lobule versus mass.” This confused the pathologist, who naturally assumed the term lobule referred to a component of the terminal ductal lobular unit rather than a nonspecific imaging appearance, which the radiologist had implied.

One of the most eye-opening aspects of this rotation was exposure to the patient experience. I learned about the social aspects of care that can impede chemotherapy and the challenges of attending radiation treatments 5 days a week for multiple weeks. I observed the concerns of patients and their families during treatment. I recall a 71-year-old woman with stage III breast cancer receiving neoadjuvant chemotherapy who asked the oncologist, “My granddaughter wants to know when I can hug her.” This question demonstrated to me how breast cancer impacts a patient’s entire family. Although chemotherapy is effective, it suppresses the immune system to a point where even a hug can put patients at risk of contracting an infection, which affects not only patients but also their loved ones.

The most consistent characteristic I saw in patients was a strong determination to overcome breast cancer. Patients were often shocked and fearful during the initial conversation about their diagnosis, but nearly every woman came to her follow-up appointment with a pen and paper in hand, prepared to write down the plan formulated with her treatment team to combat her cancer. This was different from what I witnessed at the time of initial imaging and biopsy. It was encouraging and inspirational to see this transition after a patient’s initial diagnosis.

Our relationship with physicians from other subspecialties should flourish beyond the weekly hour of tumor board. Understanding other disciplines in breast cancer care and the patient experience is invaluable to becoming a better radiologist and member of the multidisciplinary team. Since completing this elective, I have found it easier to converse with my patients, and I am more at ease telling them what to expect during surgical procedures and other treatments. I am also more comfortable speaking to other physicians about pathology and surgical planning. The importance of these relationships goes both ways. I know that my nonradiology colleagues enjoy reviewing relevant imaging studies of our patients and appreciate my contributions to their understanding of the disease. This process also improves patient care.

I am eager to forge relationships with my future collaborating health care providers. As radiologists we are not islands, and we must form bridges with our team and learn from each other to improve the lives of our patients. I highly encourage all radiologists, particularly trainees, to get to know their multidisciplinary team and gain a better understanding of the patient’s journey after a diagnosis of breast cancer.

I would like to thank Dr Janine Katzen for coordinating this elective and editing this article.
Aiming for Quality: Tips for Achieving Optimal Imaging in a Suboptimal World, Part 1

By Dawn Derenburger, RT(R)(M)

Technologists and radiologists aspire to produce images of the highest possible quality every day for every patient. Since the implementation of the Enhancing Quality Using the Inspection Program initiative of the Mammography Quality Standards Act, our awareness of the quality of the mammograms we produce has heightened. We are working collaboratively to ensure that standard imaging criteria established by accrediting bodies are being met and monitored on a regular basis. Technologists are given feedback on whether the quality of their images measures up to standards. Radiologists may identify improvements needed to optimize imaging. Meeting all of the required criteria on every image and for every patient may be challenging because of many intersecting variables such as body habitus, health conditions, sensitivity, language barriers, type of machine, and the patient’s level of anxiety. Technologists must use their creative positioning skills and knowledge of patient and breast anatomy to obtain the best images possible for each individual. Technologists encounter many types of challenges daily. Some of these challenges, along with tips and suggestions for optimizing images, are discussed in this article.

Imaging Patients Who Have Difficulty Standing

Mammography of patients who have difficulty standing—for example, those who are kyphotic or use a wheelchair—may be difficult for both the technologist and the patient. Examination of a patient with kyphosis can be performed with the patient sitting on a stable stool without wheels or on a chair without armrests. This positioning allows the patient to attain a more upright position and keep her face and chin out of the imaging field. Patients in wheelchairs can be transferred to a stool or chair or may remain seated in the wheelchair with the armrests removed.

Imaging Patients Who Have Difficulty Maintaining Balance

Whether a patient is standing or seated, selecting manual compression release instead of automatic compression release allows the technologist to take a position next to the patient while having complete control over the release of the paddle. Mammography requires stability and balance. Let the patient rest between images and proceed when the patient is ready. This can be challenging with facility scheduling and time limitations. However, allowing patients to pause between views may prevent repeated images, technical callbacks, and (more importantly) injuries to patients from unexpected falls or the technologists who catch them. If possible, a second technologist should always help position patients who are unable to stand unassisted or are extremely challenging to position.

In the next issue of this newsletter, other challenging situations will be presented. Together we must use our experience, positioning skills, knowledge, and understanding of patient limitations when encountering challenging situations. We must also use all available resources, such as educational materials, mentors, colleagues, vendors, positioning specialists, and continuing education courses, to obtain the best images possible in these patients.
The SBI Newsletter Committee is excited to provide interesting cases for our members. The print edition includes a brief introduction and key images of the case. We reserve the full discussion and bulk of images, in high-resolution glory, for the digital edition of the newsletter, which is available online to our members (http://www.sbi-online.org/NEWS.aspx). Our hope is that interesting cases will illustrate 1 or more valuable teaching points for a scenario or combination of findings that may emerge in any type of daily practice. We are happy to accept an interesting case from any individual or group. The description of a single extremely rare entity (case report) is discouraged unless there is an important aspect to the work-up, imaging, or clinical picture that merits discussion and can be more widely applied. Please contact Rob Gutierrez, MD, FSBI, for questions or submissions at Robert.L.Gutierrez@kp.org.

Interesting Case:  
So Much More Than a Rash: Dermatomyositis as a Paraneoplastic Syndrome in Breast Cancer

By Cynthia W. Hanemann, MD; Nancy Emelife, MD; Leslee McNabb, MD; Tanner Henrie, BA

The patient is a 60-year-old BRCA1 gene mutation carrier who presented with a violaceous rash involving much of her upper body. The rash was most pronounced on her hands and elbows (Figures 1 and 2). The patient reported joint pain and exquisite tenderness in her fingertips.

Figure 1. The rash is pronounced over the patient's elbow.

Figure 2. The erythema is most notable at the distal interphalangeal joints.
The patient’s greatest concern, however, was that the rash was also present on her breasts. This was distressing to the patient because of her history of 2 previous breast cancers and BRCA1 status. Therefore, mammography was performed.

Figure 3. Right breast craniocaudal (A) and mediolateral (B) views demonstrate a small focal asymmetry of equal density in the lower inner quadrant (blue arrows).

Continued on page 12>
Mammography demonstrated a small focal asymmetry of equal density in the lower inner quadrant of the right breast (Figure 3). Targeted breast sonography demonstrated a round mass measuring 4 × 4 × 3 mm corresponding to the mammographic finding (Figure 4). A prominent but otherwise morphologically normal axillary lymph node was also seen in this patient, who had previously undergone complete axillary node dissection. Ultrasound-guided biopsy of the mass yielded a diagnosis of her third breast cancer, a triple-negative invasive ductal carcinoma.

Although the patient had undergone prophylactic hysterectomy and oophorectomy in 2011, she had elected not to have prophylactic mastectomy. After the diagnosis of her third breast cancer, she opted for bilateral mastectomy and consulted a plastic surgeon, who ordered a computed tomography (CT) angiogram for deep inferior epigastric perforator flap reconstruction planning. The study confirmed that the patient was a good candidate for mastectomy and reconstruction. The plastic surgeon then ordered positron emission tomography/CT, which showed a hypermetabolic, lytic left sternal lesion (Figure 5).

Figure 4. Ultrasound images of the right breast without (A) and with (B) color Doppler demonstrate a round, hypoechoic mass with indistinct margins and central echogenicity but without internal Doppler signal at the 3-o’clock position, 3 cm from the nipple (white arrows).
Figure 5. A left sternal lesion measuring 1.5 × 1.3 × 3.3 cm was hypermetabolic on positron emission tomography (A) and associated with sternal osteolysis on CT (B). The lesion was contralateral to the current breast carcinoma and had a maximum standardized uptake value of 8.2.

The patient underwent a sternal biopsy, which confirmed that the lytic lesion was positive for ER, PR, and ERBB2 (formerly HER2). The lesion was therefore consistent with metastasis from the patient’s previous (second) breast carcinoma, which had been in the left breast.

Dermal biopsy revealed that the rash was due to dermatomyositis presenting as a paraneoplastic syndrome associated with her breast carcinoma. Whether the rash was associated with the new primary carcinoma or the sternal lesion/metastatic disease was unclear.

Dermatomyositis is a rare inflammatory condition that causes cutaneous manifestations and symmetric, progressive muscle weakness. The primary cutaneous finding is a violaceous, symmetric rash. The hands, elbows, and knees may contain skin papules on the extensor surfaces (Gottron papules). The heliotrope sign refers to eyelid erythema and associated periorbital edema. More extensive violaceous rashes manifest as the shawl sign, V sign, or holster sign.

Although most cases of dermatomyositis are idiopathic, 15% to 30% are manifestations of an underlying malignancy with the highest incidence in patients over the age of 45 years. Dermatomyositis as a paraneoplastic syndrome may occur prior to, concurrent with, or subsequent to the diagnosis of malignancy.

Dermatomyositis is most often observed as a paraneoplastic manifestation of lung, ovarian, and breast cancers. However, the association with breast cancer remains uncommon. Only 25 documented and confirmed cases are reported in the literature. Dermatomyositis is seen more frequently in invasive breast cancer and in late-stage disease.

Treatment of the paraneoplastic syndrome is necessary because treatment of the carcinoma is frequently inadequate. However, dramatic improvement has been documented after breast carcinoma excision. High-dose glucocorticoid treatment or steroid-sparing agents may be used. The skin lesions may be useful as markers of disease recurrence. All documented patients with recurrent or progressing skin lesions were found to have recurrent cancer.

References
Burnout has 3 hallmark symptoms: physical/emotional exhaustion, depersonalization, and feelings of lack of efficacy. Recent studies have demonstrated that a large percentage of US physicians report experiencing at least 1 symptom.\(^1\) Physician burnout is becoming a national health crisis. It is directly attributable to loss of control over work, increased performance measurements, and inefficiencies in the work environment. Many previously well-adjusted and engaged physicians have been stressed to the point of burnout, prompting them to retire early, reduce the time they devote to clinical work, or leave the profession altogether.\(^2\)

The Intersociety Summer Conference (ISC) addressed this topic in Stowe, Vermont, from August 3 to 5, 2018. The theme of the conference was “Strategies for Managing Stress to Mitigate Burnout.” The ISC is an annual meeting sponsored by the ACR. It was established to (1) promote collegiality within the field of radiology, (2) foster and encourage communication and interchange among the national radiological societies, and (3) identify, evaluate, and make recommendations on problems and areas of concern in radiology identified by the member societies. The 2018 meeting drew the largest attendance and representation to date, with 35 societies sending 1 or more representatives.

During the 3-day conference, the attendees discussed multiple strategies to reduce stress and mitigate burnout. They agreed that in addition to individuals taking action, it is important for leaders in radiology to proactively develop strategies to prevent burnout. Those in leadership positions should also be aware of the signs of burnout and be prepared to offer early intervention when needed. With 45% of radiologists reporting symptoms of burnout, we must move beyond dialogue and focus on actionable steps.\(^1\)

**Measuring Burnout**

To effectively address an issue, we must have quantitative data. Multiple tools are available, depending on the needs of the department, organization, or group. Some of the tools discussed during the conference are the Maslach Burnout Inventory, the Stanford Professional Fulfillment Index, the Physician Well-Being Index, and the Mini Z Burnout Survey. Data collection allows for more accurate assessment and establishes a baseline from which progress can be measured.

**Appropriate Staffing**

Staffing should be commensurate with the workload and sufficient to ensure reasonable time off between shifts. If an unexpectedly high volume of work occasionally occurs, it may be more helpful to offer to pay 1 or more members to voluntarily work additional hours than to routinely require all radiologists to work longer.\(^3\)

**Improve Efficiency**

Strategies for improving efficiency include eliminating unnecessary tasks, delegating responsibilities that could be performed by others (such as reading room coordinators), and increasing the availability of support staff. The goal should be to reduce unnecessary work as much as possible or to align tasks with appropriately skilled staff members.

**Restore a Sense of Control**

Leaders are advised to implement strategies that increase physician satisfaction. Satisfaction is high when teamwork is emphasized and individual physicians feel involved in the decision-making process. Leaders should give radiologists some control over their work lives by asking them to identify areas of dissatisfaction and addressing these if possible.\(^3\) Fostering a climate of respect is important. Those in positions of leadership should attempt to listen to, engage, and recognize staff members. Small acts of praise and acknowledgment on a regular basis can have a significant impact on overall morale.

**Stress Reduction**

Doctors who consistently work in a high-stress environment are more likely to experience burnout. Appropriate scheduling, time for adequate rest, and fairness in the workplace are important for preventing burnout. Introducing multiple changes too quickly can be stressful. Reducing isolation is also a way to help prevent burnout. Purposely building a strong sense of community and connectivity, by organizing get-togethers outside the workplace, for example, can be helpful.\(^3\) Organization of a wellness committee is another preventive measure that may be useful. A wellness committee is a group of individuals who attempt to be proactively aware of issues affecting individual physicians.

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**By Nina Watson, MD**

Burnout has 3 hallmark symptoms: physical/emotional exhaustion, depersonalization, and feelings of lack of efficacy. Recent studies have demonstrated that a large percentage of US physicians report experiencing at least 1 symptom.\(^1\) Physician burnout is becoming a national health crisis. It is directly attributable to loss of control over work, increased performance measurements, and inefficiencies in the work environment. Many previously well-adjusted and engaged physicians have been stressed to the point of burnout, prompting them to retire early, reduce the time they devote to clinical work, or leave the profession altogether.\(^2\)

The Intersociety Summer Conference (ISC) addressed this topic in Stowe, Vermont, from August 3 to 5, 2018. The theme of the conference was “Strategies for Managing Stress to Mitigate Burnout.” The ISC is an annual meeting sponsored by the ACR. It was established to (1) promote collegiality within the field of radiology, (2) foster and encourage communication and interchange among the national radiological societies, and (3) identify, evaluate, and make recommendations on problems and areas of concern in radiology identified by the member societies. The 2018 meeting drew the largest attendance and representation to date, with 35 societies sending 1 or more representatives.

During the 3-day conference, the attendees discussed multiple strategies to reduce stress and mitigate burnout. They agreed that in addition to individuals taking action, it is important for leaders in radiology to proactively develop strategies to prevent burnout. Those in leadership positions should also be aware of the signs of burnout and be prepared to offer early intervention when needed. With 45% of radiologists reporting symptoms of burnout, we must move beyond dialogue and focus on actionable steps.\(^1\)

**Measuring Burnout**

To effectively address an issue, we must have quantitative data. Multiple tools are available, depending on the needs of the department, organization, or group. Some of the tools discussed during the conference are the Maslach Burnout Inventory, the Stanford Professional Fulfillment Index, the Physician Well-Being Index, and the Mini Z Burnout Survey. Data collection allows for more accurate assessment and establishes a baseline from which progress can be measured.

**Appropriate Staffing**

Staffing should be commensurate with the workload and sufficient to ensure reasonable time off between shifts. If an unexpectedly high volume of work occasionally occurs, it may be more helpful to offer to pay 1 or more members to voluntarily work additional hours than to routinely require all radiologists to work longer.\(^3\)

**Improve Efficiency**

Strategies for improving efficiency include eliminating unnecessary tasks, delegating responsibilities that could be performed by others (such as reading room coordinators), and increasing the availability of support staff. The goal should be to reduce unnecessary work as much as possible or to align tasks with appropriately skilled staff members.

**Restore a Sense of Control**

Leaders are advised to implement strategies that increase physician satisfaction. Satisfaction is high when teamwork is emphasized and individual physicians feel involved in the decision-making process. Leaders should give radiologists some control over their work lives by asking them to identify areas of dissatisfaction and addressing these if possible.\(^3\) Fostering a climate of respect is important. Those in positions of leadership should attempt to listen to, engage, and recognize staff members. Small acts of praise and acknowledgment on a regular basis can have a significant impact on overall morale.

**Stress Reduction**

Doctors who consistently work in a high-stress environment are more likely to experience burnout. Appropriate scheduling, time for adequate rest, and fairness in the workplace are important for preventing burnout. Introducing multiple changes too quickly can be stressful. Reducing isolation is also a way to help prevent burnout. Purposely building a strong sense of community and connectivity, by organizing get-togethers outside the workplace, for example, can be helpful.\(^3\) Organization of a wellness committee is another preventive measure that may be useful. A wellness committee is a group of individuals who attempt to be proactively aware of issues affecting individual physicians.
and the organization. With the support of leadership, a wellness committee should be able to suggest or endorse measures that bring about purposeful change. Burnout should not be stigmatized. Invite dialogue about the issue and encourage those experiencing symptoms to seek assistance without judging them.

**Restore Lifestyle Balance**
Physicians should focus on improving their physical health and emotional well-being. They should maximize the time spent in activities that they find important and rewarding, including activities outside of work. Groups/departments should ensure that all members take a sufficient amount of time off from work. Radiology leaders should model and promote behaviors that lead to wellness and advocate for practices that reduce stress.

Members of the Intersociety Committee and leaders of the national radiological societies realize that burnout must be addressed in the field of radiology and requires continued attention. Addressing physician well-being will benefit patients, physicians, and the health care system. Medical organizations, department heads, group leaders, and individual physicians share a responsibility to address and mitigate this issue. This is essential because “physicians who are well can best serve their patients.”

**References**

The breast imaging community is diverse, and there is artistic talent that lives and breathes among us. We define art broadly to include all visual and literary works such as drawings, paintings, photographs, cartoons, and poems. We welcome artistic submissions from all SBI members in any subject. We also invite SBI members to nominate nonmembers whose art pertains to our field of breast imaging. Please contact Jiyon Lee, MD, at Jiyon_L@hotmail.com with your submissions and nominations.

**Artistic Impressions:**
**Kathryn Pearson Peyton, MD**

*By Jiyon Lee, MD*

**JL:** Why did you choose music and what does it mean to you?

**KPP:** My preradiology life was focused on the violin, studying music performance (along with biological sciences) in college. For many hours of the day, I was trying to convey “feeling” in my music and connect emotionally with my audience. Aside from learning intense focus and perseverance, I believe that this directly impacted my career in medicine as I always knew that “how my patients felt” was the most important task. I firmly believe in Maya Angelou’s motto [that people] will remember not what you say, not what you do, but how you make them feel. Music feeds the soul and can turn anyone’s “down” day into an “up” day [by] soothing anxiety, empowering one’s will, giving energy, sparking memories, warming the heart.

I was on a career path to become a concert violinist when I developed ganglion cysts in my left hand (courtesy of Brahms’s Violin Concerto). Needing to undergo hand surgery in the spring of my third year of college, I recognized I would be unable to continue practicing 4 to 8 hours a day for a lifetime. I was fortunate to be able to return to the violin after 6 weeks of recovery, performing the Sibelius Violin Concerto, Chausson’s Poème, and Schubert’s Death and the Maiden string quartet in my senior year. Medical school became my backup plan.

While in medical school, it became clear that my entire family was affected by breast cancer—great-grandmother, grandmother, mother, and aunts—which led me to a career in breast imaging. During radiology residency at UCSF [University of California San Francisco], my violin sat dusty in its case aside from playing at the weddings of my medical school classmates. I am grateful to have been taught by Ed Sickles, MD, FACR, FSBI, and coresidents Jessica Leung, MD, FACR, FSBI, Beth Burnside, MD, FACR, FSBI, and Nina Vincoff, MD, and my screening and diagnostic patients.

When my own high-risk screening MRI [magnetic resonance imaging] showed the early signs of bilateral breast cancer, I

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underwent bilateral mastectomy and decided to retire from clinical high-volume breast imaging after 15 years. However, I was still motivated to help our patients. The tremendous and recurring problem of obtaining prior comparison mammograms for women seeking screening at new facilities drove me to action. I founded the nonprofit organization Mammosphere to store and exchange mammograms and other breast imaging studies in the cloud. I have worked with health care IT [information technology] to provide true interoperability and improve accuracy of mammography image interpretation for patients. Mammosphere was acquired in 2016 by lifeIMAGE. The current platform empowers women via image exchange and a patient engagement tool to electronically and securely request (with consent), upload, store, and share images with their physician, consultant, or anyone with an email. By engaging patients to own and electronically share their medical images they can actively participate in the future of their health and wellness.

Playing has slowed, but I still try to enjoy the violin as often as possible. I found a string trio to play music [with] on Sunday afternoons (while enjoying wine…we sound better the more we drink). We perform locally for benefits but mostly we play for the enjoyment of our families and as inspiration to our children. I met my husband at a Jacksonville Symphony Orchestra concert with Rostropovich playing the cello solo. He was chair of the symphony board, and we are still supporters of the symphony and organizations that benefit children’s music education. Our 10-year-old son plays the violin, the drums (electric, thankfully), and acoustic guitar. Our 12-year-old son plays the piano and electric guitar—a little classical in the morning, a little rock ‘n’ roll in the afternoon. Our formal living room is a conservatory with 9 instruments. Music remains hugely important in my life and is my gift to my children.

Dr Lee, what does Kathryn’s art mean to you and why do you want to share it with SBI members?

JL: Kathryn has been playing the violin since age 4, soloed with orchestras since 11, and served as concertmaster of orchestras throughout California as well as first violin in the World Youth Symphony Orchestra. She has performed for the Queen of England, President Reagan, Prince Philip, and the United Nations. I am awed by Kathryn’s multiple talents and adaptive, indefatigable drive. I am grateful that our medical field was her chosen backup plan. She is a beautiful example of how personal experiences may be transformed into advocacy. The importance of obtaining prior exams to avoid false-positive recalls should be emphasized and deserves more of our energy to raise awareness. Thank you, Kathryn. And please do play violin for us sometime. Maybe at a future SBI meeting?

Debut Novel From an SBI Member

By Peter R. Eby, MD, FACR, FSBI

Heather Frimmer, MD, is a radiologist specializing in breast imaging and has been a member of the SBI for over 10 years. Her debut novel, Bedside Manners, was published on October 16, 2018, in the heart of Breast Cancer Awareness Month. Heather still finds it hard to believe that very soon, “…people I’ve never met will be holding my book and reading my words.”

Four years ago, she decided to try an introductory writing class to give the right side of her brain a bit of exercise. On the last day of class, Heather’s instructor suggested she write a novel. Heather thought this idea was crazy, but she couldn’t get the suggestion out of her mind. Being a driven, type A personality, Heather immediately started writing the novel that would become Bedside Manners. She went on to join a writing workshop that definitely helped her see the novel to completion.

Heather wanted to use her writing to pay tribute to all of the women she has had the honor of caring for as a physician. The subject of the book came to her very easily. Heather noticed so many different reactions to a breast cancer diagnosis and varied ways of coping with the treatments and adverse effects. Bedside Manners explores this topic alongside Joyce Novak, a 60-year-old woman with a diagnosis of breast cancer. In this mother-daughter story, Joyce must abandon her caregiver role and become the patient. Her daughter, Marnie, just completed medical school and is looking forward to her surgical internship and upcoming wedding. But when one of her patients dies, she must learn to strike a balance between doctor and daughter. The dual narrative allowed Heather to explore the emotional undercurrents of the situation from different viewpoints and also gave her an opportunity to show how a breast cancer diagnosis affects a woman’s entire family.

Here is the opening paragraph of the book:

Chapter One: Marnie

See one, do one, teach one.

The commonly recited medical school adage played over and over in Marnie’s mind as she walked past the nursing station, room 523 approaching much too quickly. It wasn’t even noon on the first day of her surgery rotation and already she’d been given an assignment way out of her comfort zone. Before turning into the patient’s room, she stopped to wash her hands, willing her heart to slow down. Was she really expected to change a colostomy bag on her first day? Could this be a joke? Maybe it was a rite of passage that all fourth-year medical students went through on their first day on the wards. The floor nurse who had given her the assignment had certainly earned her reputation as a joker. Stories about the clever tricks Darlene played on unsuspecting newbies always circulated amongst the students. Though Marnie had known this rotation would be challenging and emotional, she had not expected to be asked to change a colostomy bag on her first day. She’d never even seen one.

Many people ask Heather how she finds the time to write with a busy job and a family. The answer is that she writes whenever and wherever she has time—sometimes after work or on weekend mornings, but mostly on her day off. Heather says she writes best with a bit of background noise, perhaps because she’s used to lots of activity and interruptions at work. She wrote most of this book at her local bookstore café, powered by a large iced coffee with a splash of milk. Heather says, “Writing can be challenging and frustrating, but becoming a writer has added amazing depth and richness to my life and I cherish the people I’ve met along the way.”

This book is a labor of love for Heather. She is using a hybrid publishing model that requires her to make an initial investment. If there are any profits from this book, Heather plans to donate a percentage to Pink Aid, a local charity in Fairfield County, Connecticut. She expects to write more books and is already drafting the next one, but she won’t quit her day job. She loves breast imaging too much.
Breast Cancer Statistics

Japan is about the size of Montana, with a population of 126 million. In 2016, the average life expectancy was 87.1 years for women and 81.0 years for men. Of cancers in women, breast cancer is first in incidence and fifth in cancer-related mortality. One in 11 Japanese women will develop breast cancer during her lifetime. In 2013, breast cancer was diagnosed in 77,000 women, and about 13,000 women died. In 2016, there were 14,000 breast-related deaths. At the end of the 20th century, the peak mean age of breast cancer incidence in Japan was 45 to 49 years, which is younger than in the United States. Data from 2010 indicated a shift in incidence to older women (60-64 years). This change seems to be related to a change from a traditional Japanese to a Western lifestyle and diet. According to one study, the cancer incidence among Japanese immigrants in Los Angeles and Hawaii was higher than among Japanese people in the homeland. However, mean age was not reported.

Screening Guidelines

The Japanese Breast Cancer Society’s 2015 screening guidelines recommend mammography for women 40 years and older and do not specify interval or duration. The society states that evidence is insufficient to support screening by supplemental ultrasonography. Japan has 2 screening systems: population-based and opportunistic screening. Population-based screening is conducted by the government or the patient’s employer, which provides total or partial reimbursement. Opportunistic screening is provided according to patient preference, and the patient pays the examination fee.

Attendance to breast cancer screening is a major obstacle in Japan and in 2013 was only 36.4%. According to a 2010 survey of over 32,000 women of various ages, the reasons for not undergoing screening were the absence of a lump or other breast symptoms (35.6%), perception that screening is expensive (33.8%), and lack of opportunity to receive screening service (30.3%). The last 2 reasons are misperceptions; the government or patient’s employer provides reasonable reimbursement, and population-based screening is available for all women of eligible age (although the age covered depends on the local government). A 2006 survey of 22,000 women and men revealed other potential limiting factors: patients had no time to receive screening, did not think screening was necessary, or were afraid that disease would be detected. This survey did not explore social stigma or other possible barriers.

Guidelines for Mammography and Ultrasound

Mammography and ultrasound are interpreted according to domestic guidelines in Japan. These guidelines are similar in some ways to BI-RADS, although some aspects (such as assessment categories) are different. In the Japanese guidelines, assessment category is not firmly linked to management. For example, the Japanese guidelines state that category 3 lesions are probably benign but may need further evaluation, whereas BI-RADS recommends short-interval follow-up for category 3 lesions.

Training of Physicians and Breast Specialists

To earn a medical bachelor’s degree, Japanese students enter a 6-year undergraduate program after high school. (Earning a nonmedical bachelor’s degree takes 4 years.) Students then complete a 2-year residency followed by a fellowship match. They can usually enter programs of the specialty of their choice. After training at certified institutions for 5 years, they apply for board examination.

The Japan Central Organization on Quality Assurance of Breast Cancer Screening conducts mammography and ultrasound certification. Physicians and ultrasound technologists must attend a 2-day course and pass an examination. Competence is ranked according to examination scores. Maintenance of certification requires completion of a renewal course every 5 years. Most certified breast screening specialists are surgeons. Young radiologists can receive breast imaging training from senior breast specialist colleagues, at conferences taught by surgeons, at refresher courses, or by independent learning through textbooks. Other than the renewal course, no professional metrics to determine competency or ongoing performance standards are set. Japan has no official performance auditing process like the Mammography Quality Standards Act in the United States.

Historically, surgeons in Japan have performed most breast screening, diagnostic imaging, and imaging-guided biopsy procedures in addition to breast surgical procedures. A few radiologists perform breast biopsies. Radiology is increasing...
in popularity but is still understaffed, especially in breast imaging. Radiologists do interpret most breast magnetic resonance imaging (MRI) studies and conduct most MRI-guided breast biopsies, which are offered by a limited number of institutions. Surgeons who cannot consult radiologists to interpret breast MRI studies report the MRI results themselves. Most breast MRI examinations are performed to assess the extent of disease prior to a surgical procedure or to evaluate the effect of primary systemic therapy. A risk estimation model is not yet available in Japan, and only a few institutions offer MRI for opportunistic screening.

Breast Density
The proportion of women with dense breasts is higher in Asian women than in other racial groups.7 To date, no large-scale studies indicate how many women from Japan have dense breasts. In studies with small sample sizes, the proportion varied from slightly less than 50% to over 80%.8,9 Over the past few years, awareness of breast density and supplemental screening has increased. The Japanese Ministry of Health, Labour and Welfare recently announced plans to survey the status of breast density among Japanese women. The ministry is cautious about giving women their breast density results, especially in community-based screening, until the results and recommendations are validated. An apparent paradox is that Japanese women are more likely to have dense breasts than women in the United States, but their lifetime breast cancer risk (1 in 11 women) is lower than that of US women (1 in 8 women). This difference is presumably due to other genetic or lifestyle factors.

Japan Strategic Anti-cancer Randomized Trial and Combined Categorization
The Japan Strategic Anti-cancer Randomized Trial is a randomized controlled trial conducted by Ohuchi and colleagues to test the efficacy of ultrasonography adjunctive to mammography in breast cancer screening of women aged 40 to 49 years.10 The investigators randomly divided 72,717 Japanese women into an intervention group (mammography plus ultrasound, n = 36,752) and a control group (mammography only, n = 35,965). Participants were screened twice in 2 years. Sensitivity was significantly higher in the intervention group than in the control group (91.1% vs 77.0%, P = .0004), whereas specificity was significantly lower (87.7% vs 91.4%, P < .0001). More cancers were detected in the intervention group than in the control group (184 [0.50%] vs 117 [0.32%], P = .0003). Eighteen (0.05%) interval cancers were detected in the intervention group, as compared with 35 (0.10%) in the control group (P = .034). The recall rate was 12.6% in the intervention group and 8.8% in the control group. The investigators will continue to report subsequent outcomes, including cumulative advanced breast cancer incidence in each group and the mortality reduction effect of supplemental ultrasound. The Japan Association of Breast Cancer Screening recommends that physicians who are engaged in breast cancer screening using both mammography and ultrasound read the examinations together and provide a single assessment.

Challenges in Breast Care
Challenges include increasing attendance to screening and also perhaps addressing the social stigma of a cancer diagnosis. Many people in Japan enjoy bathing naked in the hot springs, but cancer survivors who have undergone breast surgery are hesitant to show others their breasts. Patients fear public disclosure of their diagnosis because this may inconvenience family members or work colleagues. Job dismissals are illegal but do happen. The primary nonprofit organization for breast cancer awareness is the Japan Pink Ribbon of Smile and Happiness campaign. This organization encourages hospitals and clinics throughout Japan to open mammography services on the third Sunday in October to encourage busy women to receive screening.

In summary, breast density is presumably higher in Japanese women than in women of other racial groups, although we have only started to understand the true distribution. The Japan Strategic Anti-cancer Randomized Trial has shown that adjunctive ultrasonography increases the sensitivity and rate of breast cancer detection, highlighting the importance of combining mammography and ultrasound. Low attendance is a challenge for breast cancer screening in Japan. We hope that awareness of breast density and the potential role of adjunctive ultrasound will improve screening attendance. Breast cancer screening and diagnosis (other than by MRI) have historically been performed by breast surgeons in Japan, but more radiologists are joining the field.

References
Physics & Technology Column

Highlights of the 14th International Workshop on Breast Imaging

By Robert Nishikawa, PhD, FSBI

Approximately 130 researchers with an interest in breast imaging, including 10 radiologists, attended the 14th International Workshop on Breast Imaging in Atlanta, Georgia. The workshop, hosted by Elizabeth Krupinski, PhD, Michael Cohen, MD, FACR, Mimi Newell, MD, FACR, FSBI, and colleagues from Emory University, focused on the latest technical developments and clinical results for different breast imaging modalities.

The meeting started with a beautiful overview of “Current Controversies in Breast Imaging” by Dr Newell, followed by 2 equally interesting papers. The first was presented by Ritse Mann, MD, PhD, from Radboud University Medical Center, the Netherlands. He discussed using deep learning–based computer systems decision support to help radiologists improve their breast cancer detection when reading mammograms. The outlined decision support tool provides a cancer likelihood score for any region on the mammogram queried by the radiologist (by using a mouse click). The tool also allows the radiologist to restrict computer-aided detection (CAD) prompts to regions with very high probability of being a cancer, thereby reducing false-positive CAD indicators. Whereas the CAD prompts had high positive predictive value, the decision support system had high negative predictive value by operating at high sensitivity for detecting cancer.

Sarah Lewis, PhD, from the University of Sydney, Australia, presented the second paper in collaboration with visual psychologists from Harvard University and the University of York, England. Mammograms of either a normal breast or a breast that was initially read as normal but received a cancer diagnosis in the next screening round were flashed on the screen for 0.5 seconds. Radiologists’ accuracy in identifying mammograms that revealed a cancer diagnosis in the next screening round were flashed on the screen for 0.5 seconds. Radiologists’ accuracy in identifying mammograms that revealed a cancer was better than that of random guesses ($P < .001$). This result indicates that advanced image analysis methods may be able to determine the presence of mammographically occult cancers, such as in women with dense breasts.

Another study analyzing a longitudinal series of screening mammograms of women with dense breasts was presented by my colleague, Juhun Lee, PhD, from the University of Pittsburgh. A computer model correctly predicted which women would develop breast cancer (area under the receiver operating characteristic curve [AUC] of 0.78) by extracting features from mammograms read as normal. This work uniquely correlated the mammographic features with a radiologist’s cancer development score, which was determined by the radiologist reviewing 1 to 3 prior consecutive screening examinations.

James Mainprize, PhD, from the University of Toronto, Canada, presented a similarly themed paper. The authors modeled the masking effect of breast density by determining the detectability (using a model observer) of a simulated lesion located at different positions in the mammogram. They were able to obtain an AUC of 0.75 in a cohort of 90 interval cancers and 186 screen-detected invasive cancers. Furthermore, for BI-RADS density 3 and 4, they estimated that 60% of masked cancers could be identified at a specificity of 79%.

Lonie Salkowski, MD, PhD, FACR, from the University of Wisconsin, found fewer technical recalls with digital breast tomosynthesis (DBT) plus synthetic 2-dimensional mammography than with conventional 2-dimensional digital mammography ($P < .001$). In particular, recalls due to motion had the greatest decrease. This is not necessarily because patient motion is less prevalent during DBT and synthetic mammography but because motion is harder to detect on this type of examination. Kirti Kulkarni, MD, from The University of Chicago, showed in a randomized controlled trial that patients listening to nature sounds had reduced pain and anxiety compared with those not listening to recorded sound when undergoing a core-needle biopsy. Ingrid Reiser, PhD, also from The University of Chicago, presented work illustrating the phenomenon that long narrow structures, such as spiculations, have reduced detectability if they are oriented parallel to the detector (ie, confined to a single reconstructed slice) and are in the source-trajectory direction (ie, parallel to the chest wall in the craniocaudal view).
Numerous studies employed deep learning. The applications included detection and segmentation of masses on mammograms, distinguishing benign from malignant masses on the basis of mammographic features of the mass and the background parenchyma stroma, detection of clustered microcalcifications in both the mammogram and the synthetic mammogram, classification of mammographic clustered microcalcifications, reconstruction of DBT scans, automated identification of pectoral muscle on mediolateral oblique mammograms, quality control in DBT, predicting the risk of interval cancers, analysis of breast histopathological images, predicting clinical phenotypes from breast magnetic resonance imaging, predicting readers’ estimates of mammographic density, differentiating benign from malignant breast histopathological images, reducing noise in mammograms, creating synthetic mammograms, and simulating human observers with deep neural networks.

Finally, others presented work on different imaging systems that are not yet available clinically. These included phase-contrast mammography systems, a system combining dedicated breast positron emission tomography with mammography, and nanoparticles for contrast mammography.

This remains one of my favorite conferences. The conference focuses on breast imaging, has a number of high-quality talks and posters, and is small enough that you can converse with many of the attendees. Hilde Bosmans, PhD, and Chantal Van Ongeval, MD, PhD, will host the next meeting, scheduled for 2020 in Leuven, Belgium. I hope to see you there.
Much of what we know has been validated by scientific investigation and published in web-accessible journals for all to see. But there is so much more we learn through daily experience and interaction with our colleagues and patients. Where is that stored? How can we access it? If we are lucky, a talented veteran colleague will impart wisdom at opportune moments. Our series of articles called “What I’ve Learned” is designed to transmit the experience of our leaders far beyond the halls of their own breast centers to the many young dedicated custodians of the future of breast imaging.

What I’ve Learned:

Michael Linver, MD, FACR, FSBI

By Amber Faast, MD; Jennifer L. Saline, MD

Michael Linver, MD, FACR, FSBI, has been a specialist in breast imaging for the past 31 years and has juggled a career in both private practice and academia, serving as director of the Breast Imaging Center of X-Ray Associates of New Mexico, P.C., and as clinical professor of radiology at the University of New Mexico in Albuquerque. His clinical research and publications in the 1990s helped lay the groundwork for performance of the current medical audit. Amber Faast, MD, and Jennifer L. Saline, MD, interviewed him for this feature.

I was also lucky enough to attend Dr László Tabár’s very first course in the US in 1986. I was a general radiologist at the time, but after listening to his first lecture, I had an epiphany: I wanted to do breast imaging for the rest of my professional life. That was a special moment I would never change.

Just as fortunate was my joining a radiology group that had the foresight to allow me to develop our breast imaging practice based on Dr Tabár’s methods. Otherwise, my career in breast imaging would never have gotten off the ground.

AF and JS: What advice would you give to a brand-new breast imaging fellow?

ML: First of all, follow your passion. If you are not passionate about what you do, you will never be truly happy with your work. If you care about making a difference in the world and saving lives every single day, then you have chosen the right field.

Second, be there in the moment for every patient. Talk to her—make her feel like she is the most important person in the world. Be patient, understanding, responsive, and compassionate. By doing so, you will win your patients over and assure their returning to you for their follow-up, now and in the future. You will give them the best chance of beating their cancer, should you find one.

Lastly, be ready to respond strongly and consistently to the critics of screening. Defend what you do; defend your patients’ right to be screened every year, beginning at age 40.

If you could do it all over again, would you change anything? What? Why?

I am happy and very fortunate to say that I would not really change anything. I was lucky enough to meet the right person 52 years ago at the University of Michigan to share my life with: my wife, Mina Jo. She has been my rock, my confidant, my best friend, and the world’s best mother and grandmother as well.

I am most proud of my family: my supportive and loving parents, my lovely and talented wife, our 3 terrific children, and our 6 beautiful grandchildren. They have truly made every day a blessing.

There are many facets of my professional career of which I am quite proud. First, the 38 years with my group, X-Ray Associates of New Mexico, with whom I created the first freestanding breast imaging center in New Mexico in 2000. Second, my
work as the principal lobbyist in getting legislation passed in New Mexico in 1990, forcing the insurance companies to pay for screening mammograms. Third, my work in developing and promoting the breast imaging audit. Fourth, my role in developing the final rules of MQSA [Mammography Quality Standards Act] as a member of the initial National Mammography Quality Assurance Advisory Committee to the FDA [Food and Drug Administration] from 1994 to 1997. Fifth, promoting the importance of good communication with our patients by combining our passion with our compassion. And last but not least, my work as teacher, speaking and teaching at over 500 breast imaging conferences here and throughout the world over the past 25 years.

What is breast imaging missing?

Nationally, we are missing an organized breast imaging screening program similar to those in place in over 20 other countries. We do have Medicare, but that falls woefully short of providing much-needed mammography screening to those without insurance below age 65.

Also missing is a legislative or organizational means of elevating and maintaining the quality of breast imaging interpretations. MQSA has done a superb job of improving the quality of the images but basically fails to address the quality of the interpretations. A fool with a tool is still a fool.

We also desperately need more impassioned breast imaging spokespersons who are willing to stand up and be forceful voices of reason in our ongoing battles against the enemies of screening. We must continue to be players in this fight—if we don’t speak out for our patients and for what we know is right, no one else will.

What is your favorite place to visit?

My favorite is Jerusalem, the focal point of the 3 major religions, hewn from magnificent Jerusalem stone. It is said that you could spend a year appreciating the beauty and history of every house in Jerusalem. Every time I am there, I fall in love with the city all over again!

What is your favorite hobby?

Music is not only my favorite hobby but, next to breast imaging, my real passion. I love all kinds, from classical to Broadway to jazz to folk. I have sung in various choirs and folk groups and play a variety of folk instruments. I love to compose musical parodies and occasional original songs, including one I wrote for my bride-to-be when I was courting her. Music is the language of my soul.

What is your favorite food?

I love anything sweet, especially ice cream. If I could live on ice cream alone, I would!

Dr Linver continues to be a strong patient advocate, speaking out in support of regular screening mammography and for the critical role of the radiologist in talking to the patient. He is a fellow of the ACR and a fellow of the SBI, the first ever to receive this honor in the entire Mountain West. He and his wife, Mina Jo, recently moved from his beloved New Mexico to Alexandria, Virginia, to be closer to their grandchildren.
RSNA 2018 Preview

By Shadi A. Shakeri, MD; Stamatia Destounis, MD, FACR, FSBI; Linda Moy, MD, FSBI

The 104th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA) will take place at McCormick Place in Chicago from November 25 to 30, 2018. The theme for this year, “Tomorrow’s Radiology Today,” promises to deliver the latest research and hands-on experiences in artificial intelligence (AI) technology, virtual reality, and 3-dimensional printing. As always, opportunities abound at RSNA for enhancing skills and discovering cutting-edge information through 185 scientific sessions and over 400 educational courses. “Deep Learning in Radiology: How Do We Do It?” and “Imaging Cognition 2018: Addiction” are just 2 of many special courses, events, and features to discover at RSNA 2018.

Every year the plenary speakers at the RSNA meeting, usually luminaries in our field, provide a glimpse of the future of imaging and health care systems. Judging by the titles, the plenary talks this year will not deviate from that norm. However, one exceptional detail that is extremely exciting is that 5 of the 8 notable plenary speakers and 50% of the RSNA 2018 Distinguished Honorees will be women.

The Sunday plenary session will commence with the presentation of the Outstanding Educator Award to David M. Yousem, MBA, MD, professor and vice chair of faculty development, Department of Radiology, Johns Hopkins Medicine, Baltimore, Maryland, and the Outstanding Researcher Award to Carolyn C. Meltzer, MD, FACR, William Patterson Timmie Professor and chair of the Department of Radiology and Imaging Sciences and associate dean for research at Emory University School of Medicine, Atlanta, Georgia. The 2018 RSNA meeting program will be dedicated to the memory of William G. Bradley Jr, MD, PhD. Following the award presentations and dedication, RSNA President Vijay M. Rao, MD, FACR, David C. Levin Professor and chair of radiology at Sidney Kimmel Medical College of Thomas Jefferson University and senior vice president of Enterprise Radiology and Imaging, Jefferson Health, Philadelphia, Pennsylvania, will speak directly to this year’s theme in her opening address, “How Emerging Technology Will Empower Tomorrow’s Radiologists to Provide Better Patient Care.” The session will conclude with the Annual Oration in Diagnostic Radiology, “Artificial Intelligence, Analytics, and Informatics: The Future Is Here,” delivered by Michael P. Recht, MD, Louis Marx Professor and chair of the Department of Radiology, New York University Langone Health, New York.

Tuesday afternoon will start with the presentation of the annual RSNA Gold Medal Awards to William J. Casarella, MD, Sarah S. Donaldson, MD, and Deborah Levine, MD. The New Horizons Lecture, “Oscillating Microbubbles—Driving Innovation in Ultrasound,” will be delivered by Flemming Forsberg, PhD. He will discuss innovative applications of microbubbles in diagnostic ultrasound imaging, including the possibility of using targeted microbubbles for drug or gene delivery and a clinical trial of 3-dimensional breast subharmonic imaging.

The 2018 RSNA meeting is packed with many didactic, informational, and novel breast imaging abstracts. Approximately 16% more submissions were submitted to this year’s meeting than to prior meetings. The topics of interest include diverse exhibits on transgender imaging, gynecomastia, evaluation of imaging findings in adolescents and young adults, and spontaneous/expressed nipple discharge and etiologies.
Many exhibits will cover different lesion findings with subsequent lesion concordance/discordance and pathology correlation. Several abstracts report studies of digital breast tomosynthesis (DBT) and architectural distortion, synthesized 2-dimensional mammograms and implementation, and work-up of DBT-only findings with DBT-guided biopsy or wire localization. Other exhibit topics include interesting findings on breast magnetic resonance imaging (MRI), work-ups, and variations of abbreviated MRI protocols and their benefits. A large number of abstracts cover AI and interesting ways of introducing or implementing it in breast imaging. The Hot Topic Breast Series session on Monday morning will focus on AI applications in radiomics and radiogenomics. Overall, there is a significant increase in the number of abstracts that evaluate machine learning modes in interpreting screening mammograms, ultrasound, and MRI; assessing breast density; and improving patient throughput. The meeting also includes sessions focused on personalized screening and a Hot Topic Session on the management of ductal carcinoma in situ.

Continuing to emphasize international collaboration, the 2018 RSNA meeting will showcase Australia, New Zealand, and the Nordic countries. On Monday, November 26, the “Australia and New Zealand Present” session will feature “Clinical Radiology and Radiation Oncology.” Attendees will also have opportunities to learn about radiology education, training, and reform initiatives; radiation and interventional oncology; and vascular interventional research occurring in these countries. Special programming is also planned for “The Nordic Countries Present,” with a featured session titled “Radiology the Scandinavian Way, Future Potentials” on Tuesday, November 27. This session offers the opportunity to learn more about radiologic innovations from Denmark, Finland, Iceland, Norway, and Sweden and will include a discussion about the implementation of population-based mammography screening service in Denmark.

Finally, live jazz and acoustic guitar performances will tempt you to take a break at various locations as you crisscross McCormick Place with the masses at the largest radiology meeting in the world.

McGovern Place, Chicago, Illinois

MAGNIFY YOUR VALUE

SBI/ACR BREAST IMAGING SYMPOSIUM

THE DIPLOMAT BEACH RESORT
Hollywood, Florida

CONFERENCE
April 4-7, 2019

EXHIBITS
April 4-6, 2019

Registration for the 2019 SBI/ACR Breast Imaging Symposium is now open!

Taking place April 4-7, 2019 in Hollywood, Florida, the theme of this year’s symposium is Magnify Your Value. In keeping with this theme, we aim to provide the high-quality educational content designed to meet your professional needs and optimize the care you deliver. Don’t miss the world’s largest breast imaging symposium – secure your early bird rate by Monday, December 31st! For more information, please visit the 2019 Symposium event web page.

REGISTER TODAY!
By Jiyon Lee, MD

The European Society of Breast Imaging (EUSOBI) Annual Scientific Meeting was held in the storied city of Athens, Greece, from October 11 to 13, 2018. The meeting was expanded to 2.5 days and was preceded by case-based courses on BI-RADS classification, interventional procedures, breast lesions classified as B3 in the European system, and breast magnetic resonance imaging (MRI).

The meeting included over 900 registrants, and the total EUSOBI membership, representing wonderfully broad geography beyond Europe, exceeded the 1000-member milestone. This 2018 collaboration with the Hellenic Society of Breast Imaging and local faculty participation of Greek radiologists, pathologists, surgeons, medical oncologists, and radiation oncologists highlighted the hosting country’s experts and expertise. The meeting featured digital breast tomosynthesis in screening and diagnostic settings, advanced/multiparametric ultrasound, new trending topics in MRI, the role of breast radiologists as therapists, artificial intelligence, and evidence-based imaging. The EUSOBI Young Club also held a symposium on October 14, the Sunday morning after the meeting, to provide insight into career paths within breast imaging.

Of the 71 scientific posters, 10 were from the United States. Zi (Jill) Zhang, MD (resident, Harlem Hospital Center, Columbia University), presented one of the posters. She was excited about “attending my first conference in Europe to expand my horizons, give me the opportunity to learn about the practice of breast imaging in Europe,” and “discuss my poster and its concepts with colleagues from all over Europe.” Jiyon Lee, MD, also presented a poster, drawing interest from radiologists from other countries who sought insight from radiologists from other countries who sought insight about surgical practice guidelines and, because they perform MRI in all patients with cancer, might present possibilities for collaborative research impossible in the United States. Dr Zhang also noted the discussions about vacuum-assisted biopsy at the meeting. Discussions highlighting B3 lesions, debates over management of these lesions, and talks showcasing radiologists as operators (“Minimal Invasive Ablation,” by Federica Pediconi, MD [Rome, Italy], and “Minimal Invasive Excision,” by N. Abdel Razek [Giza, Egypt]) were refreshingly provocative.

Highlights of this meeting also included the Gold Medal award presented to Christiane Kuhl, MD, PhD. Her dynamic presentation titled “DCIS in the Era of MRI” closed with a few slides reflecting her sweet gratitude to those closest to her and the farm and the man with whom she spends her most cherished time. Excellent talks by our own SBI past president, Wendy DeMartini, MD, FSBI (“Breast Imaging in the Era of Value-Based Care”), and Linda Moy, MD, FSBI (“Distant Staging [CT, PET/CT, and PET/MRI]”), were well received. Notable giants such as epidemiologist Stephen Duffy, PhD (London, England), and Prof. Dr. med Sylvia Heywang-Köbrunner (Munich, Germany) were delightfully approachable. You could not know this unless you attended EUSOBI and approached them with earnest questions. They are kind, humble, and curious to get to know you too.

Although some of the details might differ, the often-mentioned compassionate acknowledgment of women’s wishes during management discussions is a theme that should resonate with many of us. The meeting also included discussions about breast density awareness and what to do about it, if anything, depending on each country’s ability and desires. The fact that the European version of the DenseBreast-Info website (https://eu.densebreast-info.org/) has just launched is a telling detail about the breast density awareness movement and notification efforts. All of these discussions have to be contextual according to local factors, which is also true in the United States to some degree.

Another feature of the meeting was the Breast Interpretation Competition featuring a Greek team against a European team (2 radiologists on each team). Each team prepared analyses of 2 cases chosen by the opposing team. The most fun portion of this competition for the competitors and the audience was the extra-point questions about Greek (and sometimes Roman) mythology chosen by the EUSOBI meeting organizers.

Athina Vourtsis, MD, PhD, director of the Diagnostic Mammography Center (Athens, Greece), founding president of the Hellenic Breast Imaging Society, and local EUSOBI
congress co-organizer, was delighted. She said, “I feel that the meeting was a great success. The scientific program was beyond my expectations and overall the lectures were innovative and very comprehensive. This year we had an unprecedented number of attendees, more than 900, bringing together radiologists from all over the world. Additionally, we had a chance to visit the Acropolis Museum, giving the attendees a taste of Greek culture and civilization. I was pleased that DB-I.org [DenseBreast-info] also had the opportunity to announce the launch of the international expansion for European medical providers.”

There is usually a special event during the EUSOBI congress. This year it was hosted at the Acropolis Museum. The exceptional guided tour of the museum and its exhibits, the cocktail hour on the rooftop to marvel at the glowing Acropolis in the not-too-far distance, the white-napkin dinner, and gracious mingling with people from around the world—this type of dressy evening out is one of the hallmarks of the EUSOBI annual meeting as it travels around the world, each year in a different country. Evenings out and about in the Plaka, the local area surrounding the Acropolis, are just one more dimension of the opportunity to explore. There are plentiful crowded restaurants in the Plaka built into the uneven incline toward the Acropolis. The city seems to be grown and fit into and among the local other “ruins”—seemingly harmonious, in an initially jolting way. What was sad, though, was the graffiti. I had heard about the amount of graffiti in the city spaces, and it did indeed detract from the peaceful surroundings. On one late-night stroll with friends, we could hear and then see a man scrubbing the exterior wall of what was presumably his home.

Julia Camps Herrero, MD, incoming president of EUSOBI, had this to say about the meeting: “We are delighted that the scientific program was well received by our attendees.... Our main goal was to present a balanced program of speakers (countries of origin and expertise) and topics: always trying to present the latest developments in different radiologic techniques (sessions on screening, tomosynthesis, MRI, ultrasound) but also addressing the multidisciplinary approach and the challenging areas that will also help us to move on to a new stage (lesion ablation, the radiologist as therapist).

“In the future, we strive to have a wider reach to other breast care specialists in order to emphasize the added value of breast imaging (Wendy gave a splendid talk on this) and...our collaborative network with other European and non-European breast imaging societies which was started a few years ago.”

Although the meeting had over 900 registrants, the room was never crowded. Sightseeing awaited us! And the conflict is understandable. With each year in a new city, the EUSOBI annual meeting should attract the wanderlust in all of us, even if you don’t know you have it yet. So come explore, present an abstract, and see and hear to make you think beyond what’s already familiar. The 2019 EUSOBI meeting will be in Budapest, Hungary, in early October. And it was just announced that the 2020 EUSOBI meeting will be in the famous Malmö, Sweden. See you there?
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For a complete calendar and list of SBI events, please visit [https://www.sbi-online.org/Membership/CalendarofEvents.aspx](https://www.sbi-online.org/Membership/CalendarofEvents.aspx).