

Imaging and Breast Cancer Detection

Physician's Roundtable



Philip Shaver, MD

Breast cancer is the most common non-skin malignancy among women in the United States, second only to lung cancer as a cause of cancer-related death. In 2006, approximately 212,920 women in the United States were expected to be diagnosed with invasive breast cancer and 61,980 with in situ cancer. Healthy Living magazine recently assembled three Eisenhower Medical Center physicians to discuss risk factors for breast cancer, screening and detection. The participants were Board Certified physicians Leora Lanzkowsky, MD, Radiology, and Medical Director, Eisenhower Schnitzer/Novack Breast Center; Deborah Rubin, MD, Radiology, Breast Imaging Specialist; and, Philip Shaver, MD, Cardiology, who served as moderator.

DR. SHAVER: Leora, age is an important risk factor. Just how important is it over the spectrum of a woman's lifetime?

DR. LANZKOWSKY: It's definitely the number one, most important factor. One in eight women over their lifetime will have breast cancer.

DR. SHAVER: It's not uncommon for a woman to tell me "no one in my family has had breast cancer, so I'm obviously at low risk."

DR. LANZKOWSKY: One in eight women have breast cancer. Only about 20 percent of breast cancers are inherited, and only about five to 10 percent are due to the BRCA [breast cancer] genes. The strongest risk factor is age.

DR. SHAVER: How do you find our population in the Coachella Valley different from populations on the east coast or in the Midwest?

DR. RUBIN: Our population is unique in that we have a greater percentage of elderly women, and they are very healthy elderly women. But, as we see a large number of older women, we're going to find more women with breast cancers.

DR. SHAVER: It's thought that elderly women with more fatty breasts are easier to image, but are elderly women you evaluate different as far as body fat content, or incidence of breast augmentation?

DR. RUBIN: We see a surprising number of elderly women with augmentation mammoplasties in our environment. It's generally believed that the older a woman gets, the more fatty her breasts become; however, we do also see a lot of older women who have very little body fat, and have very dense breasts. The denser the breast is, the more difficult it would be to detect breast cancer on a mammogram.

DR. SHAVER: Leora, it has been feared that if you start doing screening mammography at an early age, you expose the breast to radiation which might in itself be potentially harmful. Do you feel that the benefits still outweigh the risks and that we should really ignore that?

DR. LANZKOWSKY: Well, we can ignore it, because it simply isn't true. Mammography and screening does not cause breast cancer. We know that early detection saves lives, because with ductal carcinoma in situ, and even Stage 1 small cancers, the five year survival is almost 98 percent; whereas, if we see a woman has Stage 4 or metastatic disease, she has about a 26 percent chance of survival. We know that if we find it early, she can be treated. However, since the risk of developing breast cancer is less in a younger woman, the recommendation is to start most women at age 40.

DR. SHAVER: How accurate is mammography? How many times do we miss cancer? How many times do we overdiagnose it, and lead to further testing?

DR. RUBIN: I would start off by saying that it varies with the density of the breasts. So mammography is very sensitive in women with fatty breasts, because fatty breasts are gray on the mammogram and masses are white. We can see a mass fairly easily in a woman with a fatty breast. As the tissue gets denser and denser, there's less and less contrast in which to detect a mass.

DR. LANZKOWSKY: Routine mammography, in other words, film screen detects 50 percent of breast cancers in dense breasts. A new study that was reported recently, in the New England Journal of Medicine, about digital mammography and dense breasts quotes about 70 percent detection. So that means 30 percent will not be detected, or we may recall them for additional types of studies that see the breast tissue better.

DR. SHAVER: You mentioned digital mammography. How does that differ from film screen mammography?

DR. RUBIN: Digital mammography, which we have at Eisenhower, is more sensitive because it is digital. The radiologist can manipulate and darken the image, and any abnormalities can actually be made more visible. With film, you only have the image, like a chest x-ray, that is produced to review.

DR. SHAVER: If mammography doesn't detect it, how do you know to call them back?

DR. RUBIN: We also can see other signs of breast cancer on mammograms, including things like architectural distortions, that you can also see on other modalities, but you can pick them up on mammography, even with dense breasts.

DR. SHAVER: What's the next step?

DR. LANZKOWSKY: In a large group of women, there should be a second type of test done, whether it's an ultrasound or just additional mammography magnification views, or MRI, which has been found to be very useful, or a new test, called Breast-Specific Gamma Imaging (BSGI) or scintimammography.

DR. SHAVER: BSGI uses Technetium-99, which is an imaging agent that is not specific for cancer detection. We use it in nuclear cardiology to diagnose heart disease, and we do detect occasionally Technetium uptake in the breast. How has it proven useful in breast cancer detection?

[assets/news/story/CFHImages/200611/roundtableleora.jpg](#) DR. LANZKOWSKY: BSGI in the past couldn't detect small masses; however, the technology has greatly improved. It is more comfortable than mammography and allows the same views of the breast. According to the research, it's the most sensitive and most specific test that exists today. It is more sensitive and more specific than mammography or MRI. "We know that early detection saves lives...since the risk of developing breast cancer is less in a younger woman, the recommendation is to start most women at age 40." — Leora Lanzkowsky, MD

DR. SHAVER: How many centers will be offering this?

DR. LANZKOWSKY: We'll be the first center in all of Southern California, possibly all of California to be offering it. It will be available in January 2007.

DR. SHAVER: So, women, usually older women, with fatty breasts, can get by with just a mammogram. The other higher risk groups, what is the natural progression of studies that you do? Do you start in any of these people with digital mammography?

DR. LANZKOWSKY: They all start with digital screening, all of them.

DR. SHAVER: Here at Eisenhower?

DR. RUBIN: Yes. We're one of the eight percent of the centers in the country that have digital mammography.

DR. SHAVER: So, what happens when you have a digital mammogram, and you're just not sure? It's a dense breast; it's a young woman. You don't have a comparison. So what do you do next?

DR. LANZKOWSKY: Right now, there are two options. Either she comes back for bilateral breast ultrasound, or she is referred for an MRI examination. BSGI will soon be included as an option.

DR. SHAVER: Explain the advantage of MRI. Why shouldn't we just start with MRI, if it's a better test?

DR. RUBIN: MRI is very sensitive detecting invasive breast cancers, and some ductal carcinoma in situ, but MRI doesn't detect all ductal carcinoma in situ, and doesn't show calcifications.

DR. SHAVER: And where does ultrasound fit in, when you recall the patient?

DR. LANZKOWSKY: Usually, we recall to look closer at a specific abnormality, as seen on the screening mammogram, with ultrasound. We can also screen a woman with dense breast tissue. If we can be reassured by ultrasound that there isn't something "hiding" in the dense mammogram, then we'll see them next year.

DR. SHAVER: At what age should we start screening? There remains some controversy between physician organizations.

DR. LANZKOWSKY: Every year, from the age of 40.

DR. RUBIN: I agree. There is no disagreement among radiologists. Screening mammography should begin at 40, and every year thereafter.

DR. SHAVER: If one has a "first degree" relative (a mother or sister) who has breast cancer, while they're menstruating, then they should undergo screening at an earlier age?

DR. LANZKOWSKY: Women who are diagnosed with pre-menopausal breast cancer usually have a more aggressive form and are more often associated with the hereditary types. Their daughters or sisters should begin screening 10 years before the age of the diagnosed breast cancer case. For example, if the mother was diagnosed with breast cancer at age 36, then the daughter should start close monitoring with a mammogram at the age of 26.

DR. SHAVER: Debbie, a word about breast self-examination. "[Eisenhower is] one of the eight percent of the centers in the country that have digital mammography." — Deborah Rubin, MD



DR. RUBIN: We have seen women walk in, and they have found their own cancers from breast self-examination. Their doctors didn't feel it...or didn't feel it was a change, and the mammogram didn't show a change, but she found the lump and she had breast cancer.

DR. SHAVER: What about the woman that says my doctor says that my own self-exam and the doctor doing an exam every year is enough and that screening mammography is unnecessary. Would you say that that's ill advised?

DR. LANZKOWSKY: Yes.

DR. RUBIN: I don't think there are very many physicians who would want to take that type of risk, knowing the statistics.

DR. SHAVER: We didn't mention anything about biopsy, which I think a lot of women associate with breast cancer.

DR. RUBIN: If we have a woman in whom we detect an abnormality on any of our modalities, either a woman who is asymptomatic or a woman who feels a lump, and we identify a mass, she would have a biopsy. If we identify this mass with ultrasound, we would probably biopsy her, and although it sounds like a very daunting procedure, it's not bad. We numb the breast with a local anesthetic. We make a tiny incision, about one centimeter. There's no sutures involved. There's no general anesthesia involved. I've had women go out the next day and play in golf tournaments. There is minimal, if any, scarring. The benefit of knowing what's going on is so great, and the risks are so minimal. If you do a biopsy and the biopsy is benign, which the majority are, the woman and her whole family are at ease.

DR. SHAVER: What resources are there for our patients to get more information?

DR. LANZKOWSKY: They can contact the Eisenhower Lucy Curci Cancer Center at 760-674-3602 or online at emc.org.

DR. RUBIN: The American Cancer Society also has a lot of information on their Web site at cancer.org. BREAST-SPECIFIC GAMMA IMAGING Early detection is the key to effectively treating breast cancer. Breast-Specific Gamma Imaging (BSGI), a new screening option, has been proven an effective tool to aid in early detection, particularly for women with dense breast tissue. At least 25 percent of mammograms have some degree of breast density, which can obscure cancer. BSGI offers a new follow-up option that complements mammography, to help resolve any suspicions of breast cancer unresolved by mammogram and ultrasound. Eisenhower Lucy Curci Cancer Center will be the first hospital to offer BSGI in the Coachella Valley, beginning in January 2007. The new screening technique is currently offered at 33 of the more than 6,000 hospitals in the United States. What is Breast-Specific Gamma Imaging? BSGI offers high-resolution imaging, created to work specifically with the anatomy of the breast, to create a direct correlation with images from mammograms. How does it work? The patient is injected with a radioactive tracer, which offers the physician an opportunity to look for cancer cells using a nuclear camera, which captures the metabolic activity of cells. Cancer cells are more active metabolically than normal cells, allowing differentiation between benign and malignant masses. If cancer exists, a visible black spot forms on the screen. Why is it beneficial? Areas of the breast that have been previously difficult to capture with imaging can be studied more closely using BSGI, and the high resolution improves the ability to detect earlier stage cancers, as small as 3 millimeters. Earlier detection and more accurate detection save lives. Who will benefit? Women with dense breast tissue, multiple suspicious lesions or implants, or a previously diagnosed mass, or those using Hormone Replacement Therapy will typically benefit most. The new BSGI at Eisenhower Lucy Curci Cancer Center has been made available through the generosity of the Robert S. Bremson Estate, in memory of Robert Bremson's wife Anita R. Bremson.