Screening Mammograms Save Lives

During this tenuous era of health care reform, the value of routine screening mammograms for women under 50 has come under debate.

WellSpan Imaging Services stands firm with the American Cancer Society, and many other national organizations, in recommending yearly mammograms—starting at age 40—and continuing for as long as the woman is in good health. (Women with a family history of breast cancer should speak with their doctor about starting regular screenings before age 40.)

The debate began in November 2009, when the U.S. Preventive Services Task Force recommended raising the starting age for routine screenings to 50. Many professional and advocacy groups questioned that decision, as well as the logic behind it.

Mammography is the best available way to detect breast cancer early, when it is most curable. Timely screening can reduce breast cancer mortality in women age 40 and older by up to 30 percent, according to the CDC.

Marie Spagnoli, M.D., Gettysburg Hospital’s division chief of radiology, said she believes the advocates of a higher starting age are relying too heavily on past statistics, which can be misleading.

“It’s bizarre because they say that, with screening mammography, we’re detecting a lot of early cancers that ‘never would have expressed themselves in the woman’s lifetime.’ Well, how do they know that? Who would volunteer for that study?” Spagnoli said.

The American College of Obstetricians and Gynecologists weighed in on the debate this past July, when it too recommended mammography screenings every year beginning at age 40. (Its previous guidelines recommended mammograms every one to two years starting at 40, and then annually beginning at age 50.)

The ongoing public debate might be dissuading some women in their 40s from getting a mammogram. Unfortunately, other factors are deterring them as well.

“We have seen a drop because of the overall economic conditions,” noted Joanne Trapeni, D.O., WellSpan’s medical division director of women’s imaging. “People are not coming in to maintain good health. They aren’t coming in for screening examinations. They’re only coming in when they are sick. Unfortunately, some are coming too late.”

Trapeni said denial is another powerful deterrent. Just the thought of a mammogram turning up a potential problem is enough to keep some women away.
They often convince themselves they have nothing to worry about because they cannot feel a lump.

“A mammogram can see calcifications,” Trapeni said. “It can see small masses that you may not be able to feel. By the time you feel it, it’s advanced.”

Statistically, for every 100 women who have a screening mammography, eleven will be called back for further study. A callback is not cause for panic, however.

“The fact that you get called back doesn’t mean you have cancer,” Marie Spagnoli explained. “Many times it’s just because the breast needed to be compressed a bit more or something similar, and afterward everything looked fine.”

WellSpan Imaging Services gives priority to callbacks, ensuring that these women spend as little time as possible waiting and wondering. In some instances the wait may be just a single day, or even a few hours.

Occasionally, the subsequent exam does confirm an area of concern. When that happens, the WellSpan Women’s Center and adjacent facilities at the Apple Hill Health Campus in York offer all of the services a woman may need, including diagnostic mammography, MRI, ultrasound, biopsy, surgery, radiation therapy, and chemotherapy.

“It is a full-service, multidisciplinary program,” Joanne Trapeni said. “It’s built completely around our patients and their needs.”

Ultimately, each woman will decide for herself whether to set aside the necessary 15 to 30 minutes each year for a screening mammogram. However, Marie Spagnoli noted that one particularly trusted voice can have a great deal of influence.

“For most women, if their doctor tells them to do it, they’ll do it,” she said. “If their physician doesn’t bring it up, they may not either.”

### iDose Software Cuts Patient Radiation Dose in Half

Patients who visit WellSpan Imaging for a CT scan can rest easy with the knowledge that they are receiving only about half the radiation dose of a traditional CT scan.

This remarkable new safety innovation stems from WellSpan’s investment in the revolutionary iDose software by Philips. With iDose, a 64-slice CT scanner requires far less radiation to produce high-quality images.

Jean Gresick-Schugsta, York Hospital’s radiation safety officer and chief diagnostic physicist, said that iDose technology has its roots in astronomy, and the need to enhance fuzzy imagery from radio-telescopes.

The iDose iterative reconstruction software uses advanced algorithms to “smooth out the images, pull out detail, and reduce the noise in images,” she said. As a result, less radiation is needed to produce the same quality image as a regular CT scan.

The benefits became immediately apparent after the iDose installation at York Hospital in June, and at Gettysburg Hospital in July.

“Right out of the box, we were seeing a 20 to 35 percent dose savings,” Gresick-Schugsta said. “Then we began fine-tuning the protocols.”

Fine-tuning involves gradually edging down the radiation dose for each type of scan until image quality is significantly affected.

Paul McClain, R.T. (R) (CT), is an Imaging Operations team leader at York Hospital and the York Hospital Imaging Center at Apple Hill. He said the fine-tuning process has yielded even further dose savings.

“We’re now seeing a 45 to 55 percent reduction in patient dose by using this software,” McClain said. “And we are still in the process of tweaking our techniques.”

He believes an additional 10 percent savings can be coaxed out of the software without compromising image quality.

McClain said iDose is one of the most extraordinary advances he has seen in his nearly two decades of CT experience.

“I showed the radiologists a few test cases in the beginning and asked, ‘Which is iDose?’ They couldn’t tell,” he said.

Patients do not notice a difference, either, since the study’s process and duration remains exactly the same. The iDose software goes to work after the scan is completed, removing image noise and artifacts.

McClain said that even the technologists operating the equipment have had to make few adjustments. The software’s installation and corresponding computer hardware upgrades were seamless, he said.
The advanced algorithms used by iDose were developed over a decade ago, he explained. However, only recently did the high-powered computer processors necessary to run them become readily available.

Gettysburg Hospital CT Imaging Team Leader Rhonda Deardorff, R.T. (R) (CT), said the iDose installation took only 16 hours at her facility. Afterward, the 64-slice scanner was once again up and running flawlessly.

“I was a little concerned about how long we would be down, but it ended up going very smoothly,” Deardorff said.

Since Gettysburg Hospital’s scanner was the last to receive the iDose upgrade, Deardorff is still in the midst of fine-tuning its protocols. She expects to achieve the maximum dose savings shortly.

A 30-year CT veteran, Deardorff is impressed by how well iDose compensates for the radiation dose reduction.

“The radiologists have noticed no change in image quality. In the past, if you cut the dose by this much, they would be calling and grousing at you,” she said with a laugh.

Jean Gresick-Shugsta said the adoption of cutting-edge technology, such as iDose, is one of ways WellSpan Imaging Services maintains its status as a regional leader in quality care and patient safety.

“WellSpan is really being proactive about reducing patient dose,” she said.

Are you interested in receiving more information about WellSpan Imaging? Would it be helpful to have a radiologist or member of imaging administration speak at a Lunch & Learn session at your practice?

For additional information or to schedule a meeting, please contact Ann Schleig at (717) 812-5215 or aschleig@wellspan.org.
Computerized Physician Order Entry Offers Many Benefits

It’s an old and familiar scenario: a physician scrawls orders for an x-ray or other exam on the patient’s chart, and later a nurse or other staff member reads those handwritten instructions and schedules the appropriate study.

The arrangement may have been convenient for the doctor, but it also left room for delays, transcription errors, and duplicated orders, among other problems.

Computerized Physician Order Entry (CPOE) seeks to eliminate those pitfalls, as well as provide doctors with more information and support. As the name suggests, CPOE creates a direct electronic link between physicians and the people who will be carrying out their orders.

“Most health organizations in the country are making this transition, given its potential impact on patient outcomes, patient safety, and efficiency of operation,” said WellSpan informaticist Geoff Nicholson, M.D. “However, the most recent numbers suggest that only about 20 percent of organizations have complete CPOE systems in place.”

Since early this year, every clinical care department at York Hospital and Gettysburg Hospital has used CPOE. Nicholson described it as a sweeping change that took years of cooperation among all WellSpan departments to implement.

“One of the key advantages is that it removes a point of transcription,” Nicholson explained. “So the problem of interpreting either the physician’s penmanship or the physician’s intent is eliminated, as the physician now enters the order directly.

“This interaction at the point of entry also gives us the opportunity to make recommendations to the physician using clinical decision support,” he continued. “For example, we can tell a physician at the time of ordering a chest x-ray if another physician has already ordered a chest x-ray, so that it can then be determined if the second x-ray is even necessary.”

The patient safety benefits of CPOE have long been known. A 1998 JAMA study found that CPOE reduced serious medication errors by 55 percent. Regardless, health systems have been slow to adopt the technology because of its cost, complexity, and required training time for physicians.

“At the same time, we acknowledged that the system remains a work in progress.

“It really challenges physicians to develop some new processes and some new skills in order to leverage the computer for its benefits,” Nicholson said.

At WellSpan Imaging Services, CPOE has begun to show its true potential. Imaging Operations Team Leader John S. Miller, M.A., R.T. (R), acknowledged that the streamlined process requires doctors to learn the specifics about various types of order sets. Upon mastering those details, they find the system works quickly and efficiently, furnishing them with complete information.

“One of the underlying principles of CPOE is that everything in the patient’s electronic health record is synchronized, and it matches,” Miller said.

Patients, meanwhile, can be assured that the study being performed is the one their doctor intended.

“Our orders are going to become much more accurate because the physician is the primary input of information,” Miller said.

Currently, CPOE is only fully available for inpatient use, but work is underway to bring it to outpatient situations as well. Details about this next phase of CPOE development will appear in future issues.
WellSpan Helps Breast Tomosynthesis Device Gain FDA Approval

Last February, Hologic became the first medical imaging manufacturer to receive FDA approval for a breast tomosynthesis device. The landmark approval introduced a new dimension in digital mammography—quite literally, since tomosynthesis provides a three-dimensional view of the breast.

One fact that may have been lost in the fanfare was that WellSpan played an important role in earning the FDA approval. Women’s Imaging Services at the Apple Hill Health Campus in York served as a beta test site for the tomosynthesis trials. It performed a 30-month study of the 3-D technology, along with 11 other imaging centers spread across North America and Europe.

Women’s Imaging Team Leader Misty McClain, R.T. (R)(M), said that hundreds of local women agreed to participate in the study. The tomosynthesis scan was done in addition to their standard mammogram.

“The tomosynthesis images are just phenomenal,” McClain said. “Compared to a normal mammogram, you can see much more information with much less distortion.”

The device moves along the breast in an arc, taking a series of 15 low-dose snapshots along the way. A radiologist can then scroll through the layers of the breast in one-millimeter thick slices.

“We get these multiple, very low-dose images of the breast, as opposed to the four static 2-D images,” said Joanne Trapeni, D.O., medical division director of women’s imaging. “We actually get 3-D reconstruction of the breast.”

Trapeni served as principal investigator for WellSpan’s portion of the study. She said tomosynthesis is particularly effective for women with dense breast tissue.

“It removes the confusion of the superimposed tissue,” she explained. “Since we can look at it in three dimensions, we can literally see through the overlapping tissue to find something that could be hiding.”

She added that the 3-D images better delineate borders and margins, making it easier to determine the size and nature of a lesion.

Despite all of its benefits, tomosynthesis may not become widely used across the country for some time. Like most new technologies, the device is prohibitively expensive.

Tomosynthesis also places an unusually heavy time burden on radiologists. The sheer volume of data produced by each scan takes much longer to analyze than normal, meaning fewer cases are reviewed in the same time period. Joanne Trapeni said studying a tomosynthesis scan can take up to 5 times longer than interpreting a traditional mammogram. The time difference might be negligible for small facilities that conduct a few scans per day, but for larger imaging centers that perform hundreds daily, it would be enormous.

Trapeni and McClain believe tomosynthesis will not supplant the traditional screening mammography, but rather supplement it. They envision a system through which mammographers carefully triage screening patients, identifying those who would most benefit from tomosynthesis, such as women with dense breast tissue. Women’s Imaging Services tested a triage approach before the study ended, and found it worked effectively.

Regardless of precisely how tomosynthesis is used in the future, it promises to become an essential tool for identifying breast cancer in its earliest, most curable stages. The staff and patients of Women’s Imaging Services were pleased to help research this revolutionary new technology.
Joanne Trapeni, D.O., has always had a sharp eye for detail. Keen visual awareness serves her well not only as a radiologist, but also in a variety of artistic endeavors, from medical illustrations to cupcake decorating.

Trapeni grew up in New York’s Catskill Mountains, the adopted daughter of a pharmacist and a pastry chef. It was in this small-town environment that she learned the elementary lessons of patient care.

“My father owned his own pharmacy,” Trapeni remembered. “He would go in and open up that pharmacy on every holiday. And when Mrs. Smith’s kid wouldn’t take his medicine, my dad would flavor it and give it to the child himself.”

Trapeni graduated from her father’s alma mater, Albany College of Pharmacy and Health Sciences, but her goal all along was to become an osteopathic physician.

“Growing up, I had the quintessential pediatrician,” Trapeni said. “She was this small woman who just loved her patients and was definitely centered on the philosophy of osteopathic medicine, as far as treating the whole body and mind. I knew I wanted to be like her.”

While attending the University of New England College of Osteopathic Medicine in the early 1990s, Trapeni’s artistic talent began to bloom in the form of anatomy illustrations. She discovered that medical journals and textbook publishers were eager to pay for her high-quality sketches.

“This was back before we had the unbelievable photography for medical books that we have today,” she explained. A particularly successful series of illustrations on cranial fractures helped pay her tuition.

Trapeni initially planned on becoming a surgeon, but soon began seeking a career path that would permit her time to raise a family.

“I wanted to have children, but I also wanted to adopt, because I felt very fortunate to have such an unbelievable family growing up,” she said. “I always wanted to give back and adopt a child of my own.”

Radiology was the perfect fit—it appealed to her interest in anatomy, and afforded her an opportunity to perform interventional procedures like surgical biopsies. Most importantly, it allowed adequate time for a family.

Trapeni came to south central Pennsylvania in 1998, following an internship and residency at Maine Medical Center in Portland. She had already gained extensive experience in breast care, and WellSpan recruited her to help build a Breast Imaging Center of Excellence, as defined by the American College of Radiology. (York Hospital and Gettysburg Hospital both currently hold that designation.)

Trapeni has been WellSpan’s medical division director of women’s imaging for the past 12 years. During that time, she has also served on the radiation safety committee, and chaired the Imaging Services department. In 2000, Central Penn Business Journal identified her as one of the area’s most influential young professionals with its “Forty under 40” award.

She has two sons, Teddy and Sam, and in 2007 she made good on her promise to adopt a child, welcoming baby Catherine into the family.

Despite the demands of work and home, Trapeni still devotes time to medical illustration, as well as her other interests. Two years ago, drawing on childhood memories of working for her mother, she opened a part-time pastry business called Just What the Doctor Ordered…Cupcakes!

“My heart is in the arts, and the art of pastry work is much like illustration for me,” she said. “That’s what I do in my downtime and it’s something that my children and I can all do together.”

Trapeni was quick to add that she loves her work, and has no regrets about her career choice.

“Most people would think it’s sad what I do, because I diagnose breast cancer,” she said. “But we’re in the business of saving lives, and the best joy I get is seeing my patients come back year after year. To know that we got in there early and made a diagnosis that was curable and manageable, that’s enough for me.”