Full-Field Digital Mammography

Most FFDM devices are very similar to traditional screen film units and, from the patient’s perspective, the experience of the test is essentially the same regarding technique and breast compression. In FFDM, a digital detector replaces the film cassette and the images are visualized on a monitor where a radiologist interprets them. The signs of breast cancer are the same with digital mammography as with screen film mammography. The U.S. Food and Drug Administration approved the first digital mammography device in 2000 (Lewin, D’Orsini, & Hendrick, 2004).

To date, no studies have shown a significant advantage of digital mammography over screen film mammography in detecting breast cancer. However, digital mammography does have other advantages, including the following:

- Digital mammography images have higher contrast than film, and the contrast can be changed on the monitor to improve visualization of suspicious areas.
- Using a monitor allows radiologists to magnify suspicious areas, which is ideal for visualizing small abnormalities such as microcalcifications.
- Digital images are not subject to artifacts and the variability that can occur with traditional film processing.
- Using digital mammography will eliminate the need for film libraries and allows images to be transmitted electronically among institutions for patient transfers or consultation with other radiologists.
- Examination time is shorter because no time is lost in developing films.

One of the most significant advantages of digital mammography is the ability to add computer-aided detection (CAD) to the system. Research has well established that if two radiologists interpret traditional screen film mammograms, the rate of cancer detection is improved. Unfortunately, such “double reading” is not practiced in many institutions because of increased costs and constraints on radiologists’ time. When CAD is used with digital mammography, the radiologist first reads and interprets the digital images. CAD then is activated and marks any areas of suspicion, which the radiologist reviews and interprets.

Studies continue to explore the advantages of digital mammography, especially regarding breast cancer detection. A large study by the American College of Radiology Imaging Network (ACRIN, 6652) was activated in October 2001 and reached its accrual goal of 49,500 women in November 2003. Results of this trial are pending.

Deborah Davison, MSN, NP-C, CRNP, is a nurse practitioner and protocol specialist for the National Surgical Adjuvant Breast and Bowel Project and an adjunct faculty member in the School of Nursing at LaRoche College in Pittsburgh, PA.