

Fullfield digital mammography (FFDM) represents an exciting new frontier in the evaluation of breast cancer. FFDM separates out the components of image acquisition, image processing and image displays compared to traditional film screen mammography, allowing a variety of potential technical advantages. In the ACRIN study FFDM had higher sensitivity for detecting breast cancer compared to SFM in premenopausal women, perimenopausal women, and women with dense breasts. Other reported advantages of digital mammography include higher contrast resolution, reduced noise, reduced need for repeat exposures and thus lower radiation dose to the patient, rapid soft-copy display image interpretation, linkage to PACS systems and advanced applications such as CAD, telemedicine and new modality imaging such as contrast-enhanced digital mammography, dual-energy subtraction mammography, stereo-mammography, and tomosynthesis.

Digital mammography has not yet received widespread clinical implementation because of several barriers. Significant costs associated with hardware purchase, additional equipment, professional retraining and development and technical support are incurred by facilities that choose digital mammography. Ongoing operational issues include comparing digital versus film screen images in the radiologist and technologist work stations. Lastly, while storage may be rapid, reliable and convenient with digital mammography, significant sizable amounts of computer memory will ultimately be required to store the amount of data required to maintain high-quality images.

Educational Objectives:

1. To review the clinically relevant functional components of digital mammography.
2. To introduce some of the advanced applications of digital mammography.
3. To discuss some barriers to widespread clinical use of digital mammography.
4. To review data from clinical trials regarding digital mammography.