

Full-field digital mammography offers the potential for improved detection and diagnosis of breast cancer and makes possible the use of ancillary techniques which may increase accuracy or provide additional useful information from the examination. The availability of mammograms in digital format can also facilitate image storage and retrieval and remote consultation. In order for digital mammography to be successful, certain key elements must be in place. These include high performance in image acquisition, a practical and effective means of displaying the digital mammograms and an efficient and reliable archiving and retrieval system. In this presentation, the important requirements for each of these processes will be discussed. The designs of detector systems for digital mammography will be described with emphasis on factors determining spatial resolution, noise, dynamic range and image uniformity and both current and future technology will be reviewed. Challenges in image display will be reviewed and approaches to address them through image processing will be suggested. The impact of digital mammography on requirements for image storage and PACS will be discussed. Finally, some of the future applications enabled by digital mammography will be considered.

Learning Objectives:

1. to familiarize the participant with the principles and requirements of digital mammography
2. to describe the current state of the art of detector and display technology
3. to indicate key challenges to be met for digital mammography to be accepted clinically
4. to suggest future directions for this modality