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## Breast Imaging: Pitfalls, Controversies, and Some Practical Thoughts

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This article is divided into two sections. The first section covers pitfalls and controversies in mammography, and the second is devoted to an overview of other modalities that may be used to image the breast. The section on pitfalls and controversies is subdivided into those related to technical aspects, mammographic interpretation, and needle localization. If everything were straightforward in the area of mammography and breast imaging, there would be no need for this article. Many radiologists, myself included, have found that "traditional" teachings regarding mammography have not always proved helpful in the individual patient in the actual clinical setting. Many of the approaches contained in this article have evolved over the years from both my personal experience and feedback from the many radiologists across the country who have come to Tufts-New England Medical Center for mammographic training. I am grateful for their input because they have constantly reinforced the principle that when the experience of those who perform mammography differs from rules contained in textbooks, a re-thinking of one's entire approach is necessary. I have been given permission by the editor "to editorialize whenever it is appropriate," and I have taken full advantage of this invitation. The diagnosis of breast disease by mammography depends on four factors: the equipment used, the expertise of the technologist, patient cooperation, and correct interpretation of the mammograms themselves. Although the majority of the following section will be devoted primarily to pitfalls in mammographic interpretation, without meticulous attention to the first three factors, high-quality images will never be obtained.

### MAMMOGRAPHY

#### Technical Aspects

**Equipment.** The days of the division of mammographers into those believing in the superiority of either xeroradiography or film-screen mammography are fast coming to an end. Anyone who has expertise with these two techniques knows that high-quality images can be produced by each, and similarly, both modalities, when used suboptimally, will produce inferior images. Even if a mammographer insists in believing that one imaging technique is superior, confidence in interpreting both is necessary because women may have had prior mammograms that must be compared with a current examination done by the other modality. Although it is true that in the laboratory xeroradiography demonstrates microcalcifications better and film-screen mammography demonstrates masses better, no radiologist works in a laboratory. More often than not, the technologist or the patient is more important in determining the quality of the mammogram rather than the theoretic laboratory advantages of one imaging modality over the other.

There can be little doubt that, ideally, a dedicated unit should be used for mammography. Radiologists still performing mammography on nondedicated equipment have the responsibility and obligation to document by appropriate phantom and radiation dosimetry tests that the diagnostic capability of their units is not substandard. Although the following words are strong, I believe that it is negligent to perform mammography, an examination that requires such high detail for diagnosis, if the

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