

## AbstractID: 6036 Title: Recent Advances in Digital Mammography

Digital mammography was developed to address several technical limitations of screen film mammography with the goal of improving the accuracy of detecting breast cancer. The recent publication of the results of the ACRIN DMIST study has demonstrated such an improvement in a subset of women, notably , younger women and those with dense breasts. Nevertheless, the study also indicated that a significant fraction of cancers were not detected by either film or digital mammography. This is likely due to a number of reasons including the biology of the cancers, inadequate conspicuity of the lesions and variability of the skills of the radiologists. While it probably is not possible to detect all these cancers with mammography there are promising new techniques that can be developed on the platform of digital mammography to improve detection. One of these is computer-aided detection, the use of computer artificial intelligence algorithms to identify patterns in the digital images that are suspicious for the presence of cancer. These provide some of the advantages of double reading of the mammograms (interpretation by two different radiologists), a process known to improve the sensitivity of cancer detection. Another new technique is contrast-enhanced digital mammography (CEDM), which images leakage of an iodine contrast agent from microscopic vessels formed in the vicinity of a growing tumour. By imaging this tumour angiogenesis, cancers that are invisible on mammography might be seen. In addition, better information about the extent of the disease will be helpful in planning therapy. In mammography all of the anatomy in the 3-dimensional breast is superimposed in two dimensions to form the image. Tomosynthesis and breast CT provide three-dimensional images to separate the structures within the breast, possibly allowing tumors to be seen more easily and eliminating the overlap of structures from different parts of the breast that can falsely resemble a cancer. Telemammography can help improve the accessibility of high quality mammography in sparsely-populated communities. In this presentation, the current status and the potential of these exciting new techniques will be considered.

### Disclosure

Martin Yaffe's laboratory carries out research on topics related to digital mammography in collaboration with GE Healthcare. Martin Yaffe is a member of the Scientific Advisory Board of XCounter.

### Educational Objectives:

1. Become familiar with current challenges in breast cancer imaging
2. Learn about new techniques that are available or under development to address these challenges