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Title: What Is Differences between Medical Imaging Modalities for Assessment of the Breast?

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Breast cancer is the most common female cancer with more than 45,000 cases diagnosed per annum in the UK. Early detection of breast cancer is associated with improved survival. There are several imaging modalities for assessment of the breast. Ability of these modalities for detection mass of breast is different. Some mass will not be detected by any modality for various reasons, but some will be discovered by others. Although mammography is currently considered to be the “gold standard” technology for the diagnosis of breast cancer the performance of this procedure is less in younger women and relates to the difficulty of imaging dense breast tissue and film interpretation. For this reason, continual attempts are being made to develop new imaging techniques to replace or complement mammography. Focussed ultrasound can be very useful in determining the nature of an equivocal area, it is not recommended for routine surveillance on its own in asymptomatic women. Magnetic resonance imaging (MRI) of the breast has been shown to be highly effective in detecting early breast cancer and is now recommended for routine use in screening specific high-risk groups and for pre-treatment assessment of the breast in some patients with known breast cancer to assess tumour size and extent. However, as MRI is relatively expensive, requires injection of intravenous contrast medium, and is often not widely available, there remains the quest to find alternative non-invasive breast imaging techniques to use as an alternative to conventional techniques. Recent technological advances in infrared radiation detection together with improved computer software have led to the development of the digital infrared thermal imaging (DITI) system. Preliminary reports from rodent models suggest that the increased vascularization associated with early tumour development may be detected before there is mammographic evidence of an abnormality. In this review we explain special characteristic for any modalities and differences between these imaging modalities.