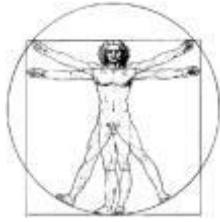


DIAGNOSTIC OUTPATIENT IMAGING



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Re: Molecular Breast Imaging

Fellow Informed Physicians:

Some in our community have proposed Molecular Breast Imaging (MBI), a Sestamibi Nuclear Medicine Scan, in addition to mammography (MMG) for breast cancer screening in patients with dense breasts.

The American College of Radiology Appropriateness Criteria® states that MBI and PET “are not indicated for [breast cancer] screening in their present form.”

- <https://acsearch.acr.org/docs/70910/Narrative/>

“Low dose” MBI has six times the radiation dose (2.4 mSv) of digital mammography (0.4 mSv). Mammography and MBI have a combined cancer detection rate of 12.0 per 1000. MMG and Ultrasound have a combined cancer detection rate of 11.4 per 1000, with no added radiation. This is a very high price to pay in terms of radiation for no or questionable benefit over adding ultrasound instead. MBI is also much more expensive (\$285 vs \$100) and time consuming for patients (1 ½ hours vs 20 minutes) than US.

MRI has the highest sensitivity and specificity for breast cancer of all imaging modalities.

My recommendation is to continue using mammography for breast cancer screening and to add ultrasound for patients with dense breasts. MRI is recommended for high risk or problematic cases.

Table 1: Detection rate of breast cancers amongst various imaging studies

Detection Rate of Breast Cancers*	
Imaging Studies	Detection Rate (per 1000)
Mammogram	8.1
Mammogram + Ultrasound	11.4
Mammogram + MBI**	12.0
Mammogram + MRI	26.1

*Values obtained from “Detection of Breast Cancer with Addition of Annual Screening Ultrasound or a Single Screening MRI to Mammography in Women with Elevated Breast Cancer Risk.” Wendie A. Berg, MD, PhD, et al. *Journal of the American Medical Association*. 2012 Apr 4; 307(13): 1394-1404.

** Value obtained from “JOURNAL CLUB: Molecular Breast Imaging at Reduced Radiation Dose for Supplemental Screening in Mammographically Dense Breasts.” Deborah J. Rhodes, et al. *American Journal of Roentgenology* 2015 204:2, 241-251.

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