Breast Health Lecture October 2011

Type of Imaging	Method	Sensitivity (Correct positive tests)	Specificity (Correct negative tests)	Harm	Pain	Nodal detection	Breast type best used for	Price	Other
Mammography	Radiation to form image	39%- 81% alone	86% - 95%	Radiation Exposure	Breast Compression	Ø	Larger, fatty breasts	$80 to $300	Finds exact location of tumor.
Thermography	Digital infra-red Imaging. Detects changes in temperature & vascular activity	25% alone. Combination of Mammogram + Thermography has 89% sensitivity in women under 50.	Variable with machine - low to 95%	No	None	Ø	All breast types	$175 - $300	detects physiological changes (increased blood flow)
MRI	Magnetic resonance imaging with ganolidium	67%-80% alone. 94% when combined with Mammography	90%	Ganolidium exposure (metal)	None	Can show axillary nodes	Dense Breasts	Average of $3,800	Reduces frequency of breast biopsy.
Ultrasound	sound waves (highly operator dependent)	57% alone 90-100% in combination with mammography. More research is going into making this a more effective primary screening.	62%	No	None	Ø	dense breasts, implants, pregnant, under 30	Average $300	better at distinguishing cysts from solid mass. Not good at detecting masses under 1 cm in size.
Digital Mammogram	**X-ray photons - Lower radiation than standard mammogram**	Research is showing it to be slightly more senstive than conventional mammogarm	similar to mammogram	Radiation Exposure	Breast Compression	Ø	Small Dense breasts or breast implants	1.4 to 4 x the cost of conventional mammogram	Costs up to 4 x more than conventional mammogram. Less widely available. Still under research
Self Breast Exam	Hands	54%	Unknown	No	None	Can teach patients to check for nodal enlargement	All breast Types	Free	