Introducing and Evaluating 3D Digital Breast Tomosynthesis

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Introducing and Evaluating 3D Digital Breast Tomosynthesis

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Objectives:

Introduce 3D Digital Breast Tomosynthesis (DBT) into practice while maintaining efficient patient flow in the department. Evaluate callback rates compared to 2D digital mammography; statistics on department callback rates would be compared to national averages.

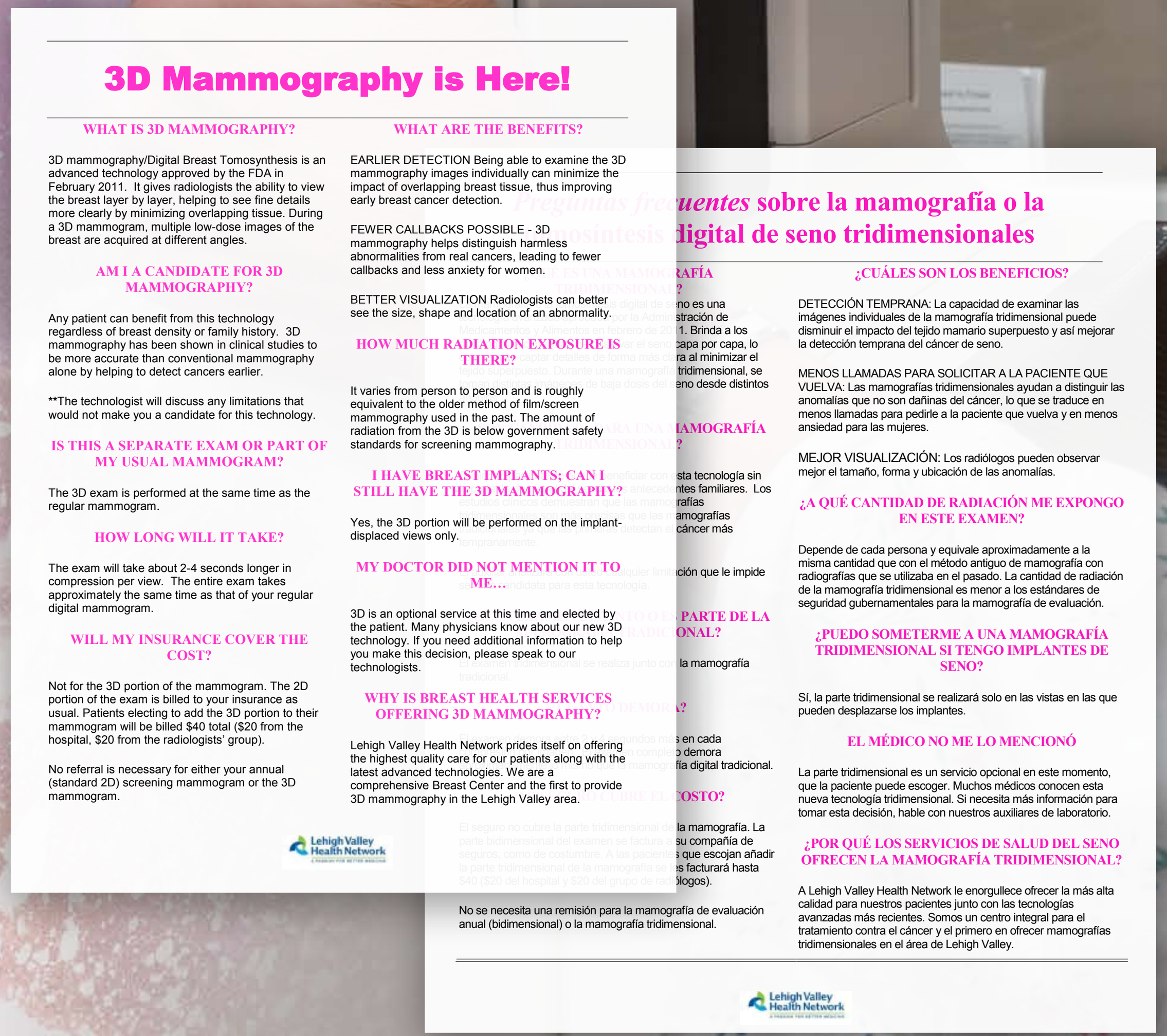
Methods:

Room preparation involved minor renovations in August 2012; in September 2012, 3D DBT was implemented. Breast Health Services-LVHN was the first in the region to offer this advanced diagnostic tool. Patient flow processes for digital mammography and the new 3D Digital Breast Tomosynthesis (DBT) were developed.

Initially, DBT was offered to women coming for their annual mammogram, who fit the following categories:

- Heterogeneously dense or extremely dense breast tissue determined by a prior mammography report
- First-degree relative with a history of breast cancer
- Prior personal history of breast cancer
- Patient request for DBT

Ongoing analysis of workflow was completed. Processes were streamlined and 3D DBT was able to be offered to all patients, with the exception of callbacks. A "Frequently Asked Questions" document was formulated in both English and Spanish; further questions concerning this new technology were addressed before the patient was imaged.



Results:

From 9/2012 to 11/2013, a total 10,822 screening mammograms were performed at LVHN-Muhlenberg. Screening 3D DBT mammograms totaled 4,258, representing 39% of the total amount of screenings done at this site. DBT reduced these call back rates from 9% (data from calendar year 2011) to 5.76%. Thirty-five percent of the call backs needed U/S only, reducing the woman's exposure to additional radiation. There were 21 cancers found.

									Birads 4&5				Birads 4&5 OUTCOMES					
Month	Total 3D Screenings		Total Birad 0	Recall Rate	Recall US Only	%US-only Recall	Birads 1&2	Birads3	Birads 4&5	4A	4B	4C	5	Benign	DCIS	IDC	Mucinous Colloid	Other
9/26/12-2/28/13	1163		75	6.45%	33	44%	31	24	19	1*	7	2	2	11	1	4	1	2*

* 1 unresolved-pt has other site cancer-refused bx; 1 pt followed elsewhere

Month	Total 3D Screenings	Total Birads 1&2	Total Birad 0	Recall Rate	Recall US Only	%US-only Recall	Total Birads 1&2 after addl Eval	Birads3 after Recall	Birads 4&5 after Recall	4A	4B	4C	5	Benign	DCIS	IDC	Unresolved
Mar 2013	336	309	25	7.44%	8	32%	14	5	6	2*	1*	2	1	4*		3	
														*2 - cyst asp done			
Apr 2013	383	368	15	3.92%	6	40%	8	3	4	1	2	1		3*		1	
														*1 focal atypia			
May 2013	347	328	19	5.48%	5	26%	10	6	3		2	1		2	1		
Jun 2013	284	267	17	5.99%	14	82%	9	4	4	1*	1	1	1	1*	2	1	
														* cyst asp done			
Jul 2013	385	372	13	3.38%	2	15%	2	6	5	2	0	3	0	3*		2	
														*1 focal atypia			
Aug 2013	323	299	24	7.43%	9	38%	14	6	4		2	2		1	2	1	
Sep 2013	294	273	19	6.46%	3	16%	2	14	3	2*	1			2			*1 pt refused bx
		*1 pt bilat callback															
Oct 2013	376	356	20	5.32%	5	25%	11	2	7	3	2*	1	1	4**	2*	1	
														**1 cyst asp done	*1 pt sm focus IDC		
Nov 2013	367	346	21	5.72%	7	33%	8	8	5	1*	4			4*			1 pt no bx done yet
														*1 cyst asp, 1 papilloma			
TOTALS	4258	2918	248		92		109	78	60	6	19	13	10	16	6	13	
	Overall 3D Average to date:			5.76%		35.37%											

Conclusions:

Our analysis of DBT has proven to fall in line with the national trend: the callback rates are reduced for those women who elect to have DBT. The national benchmark for callbacks is 8-10%. Based on these outcomes, two additional tomosynthesis units have been purchased.