

Supplementary Material A												
Additional Patient Demographics based on Annual Inclusion												
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Age (average)</b>	57	58	59	59	60	60	60	60	59	60	60	60
<b>Race</b>												
White	1303	4423	8113	9542	11802	11594	11624	13627	16070	17191	18574	19961
Black or African American	167	548	1058	1329	1672	1667	1760	1971	2347	2627	2666	3083
American Indian or Alaskan Native	36	39	70	70	83	84	90	75	109	105	121	104
Asian/ Pacific Islander/ Native/ Hawaiian	30	141	294	411	603	684	829	1071	1224	1156	1330	1370
Not reported	266	939	1142	1153	1259	1388	1487	2051	2428	2428	3296	4699
<b>Hispanic-Ethnicity</b>												
Hispanic	84	303	441	487	708	770	844	1067	1262	1391	1533	1703
<b>Smokers</b>												
	273	854	1462	1841	2137	2009	1891	2194	2584	2841	2950	3234
<b>Diabetic</b>												
No	1625	5545	9611	11207	13729	13690	13973	16520	19488	20538	22653	25306
Insulin	51	169	345	400	452	478	549	643	772	872	961	1148
Non-Insulin	126	376	721	898	1238	1249	1301	1632	1918	2123	2373	2733
<b>Admission Status</b>												
Inpatient	884	2720	4776	6172	7211	6964	6956	77691	7877	7200	7540	7679
Outpatient	918	3370	5901	6333	8208	8453	8867	11104	14301	16333	18447	21508

Supplementary Material B					
CPT Codes use to Categorize Breast Cancer Intervention					
Group	CPT Code	Category (CG)	Group	CPT Code	Category (CG)
<b>Group 1:</b> <b>Breast Conservative Surgery</b>	19160	1	<b>Group 2:</b> <b>Oncoplastic Surgery</b>	14000	2
	19162			14001	2
	19301			14300-01	2
	19302			14302	2
<b>Group 3:</b> <b>Mastectomy</b>	19180	5	<b>(Any Group 1 CPT Code plus one of these)</b>	19366	3
	19182	5		19316	3
	19303	5		19318	3
	19304	5		Any Breast Reconstruction CPT Code	4**
	19240	6	<b>Breast Reconstruction</b>	19340, 19342	7*
	19200	6		19357, 15777	7*
	19220	6		19361	8*
	19305	6		19367	9*
	19306	6		19368	9*
	19307	6		19369	9*
<b>Group 4:</b> <b>Mastectomy + Breast Reconstruction</b>	Any Group 2 CPT code plus any Breast Reconstruction CPT Code		*Four groups		
			19364	10*	
			19366	10*	
				15734, 15740, 15757	10

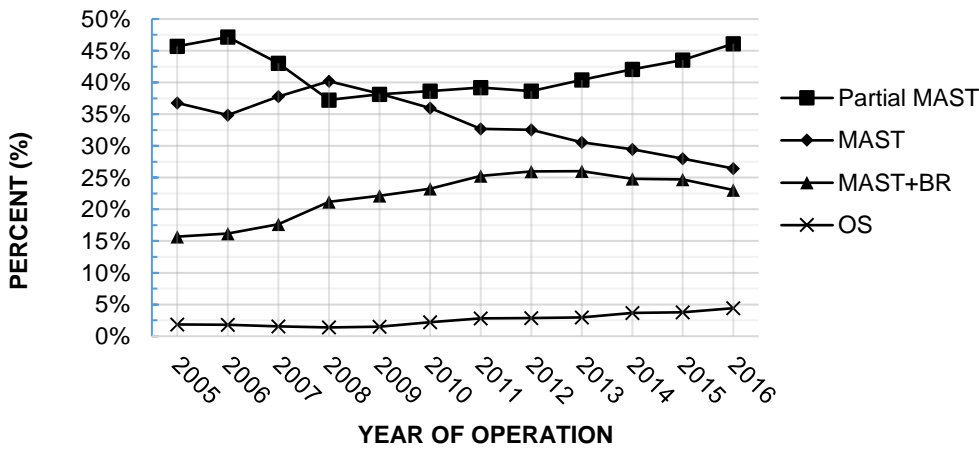
\*CG reference to any patient undergoing a Mastectomy with breast reconstruction (Group 4)

\*\*Patients with OS (CG4) were categorized based on any patient in Group 1 and any corresponding CPT code in the breast reconstruction section

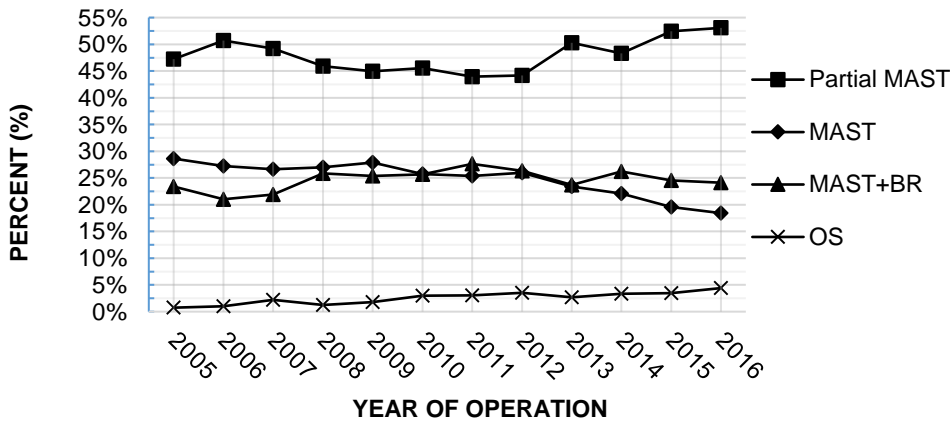
Supplementary Material C				
Data from NSQIP database				
Year	Total Participants	Breast Cancer	Exclusion	Inclusion
<b>2005</b>	33930	2366	590	1776
<b>2006</b>	118560	7789	1699	6090
<b>2007</b>	211407	13431	2754	10677
<b>2008</b>	271368	15413	2908	12505
<b>2009</b>	336190	18858	3439	15419
<b>2010</b>	363431	18792	3375	15417
<b>2011</b>	442149	19234	3411	15823
<b>2012</b>	545071	41734	22939	18795
<b>2013</b>	651490	26163	3985	22178
<b>2014</b>	750397	27828	4295	23533
<b>2015</b>	885502	30628	4641	25987
<b>2016</b>	1000393	34162	4975	29187
<b>Total</b>	5609888	256398	59011	197387

All patients in NSQIP database by year and of those patients included in our study.

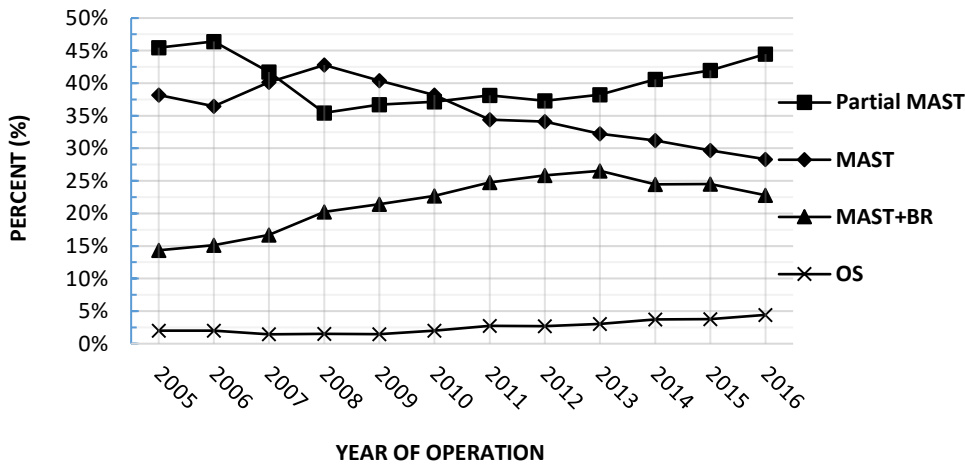
### Trend of Overall Breast Cancer Surgery



### Trend of DCIS intervention



### Trend of Invasive Cancer Intervention



**Supplementary Material D: Graph 1**

PM: Partial Mastectomy; M: including either Simple, Subcutaneous, Radical or Modified Radical Mastectomy; M+R: Mastectomy including Breast reconstruction; OS: Oncoplastic Surgery

Supplementary Material E											
Categorical Analysis of Interventions in each Group											
Groups→	Total no.	1. PM	2. OS			3. M		4. M+R			
Surgical Categories**→		1	2	3	4	5	6	7	8	9	10
<b>2005</b>	1776										
DCIS	269	127	0	2	0	61	16	43	5	11	4
INV	1507	696	24	3	4	280	280	143	18	46	13
<b>2006</b>	6090										
DCIS	1072	545	5	3	3	205	85	152	29	33	12
INV	5018	2328	52	25	23	839	992	515	81	128	35
<b>2007</b>	10677										
DCIS	1876	925	5	24	12	389	109	314	18	59	21
INV	8801	3680	41	52	34	1672	1854	1122	80	210	56
<b>2008</b>	12505										
DCIS	2099	967	2	18	4	467	99	430	24	61	27
INV	10406	3702	47	64	35	2196	2259	1617	152	221	113
<b>2009</b>	15419										
DCIS	2655	1194	12	27	8	567	174	526	47	60	40
INV	12764	4688	56	97	32	2543	2611	2155	184	214	184
<b>2010</b>	15417										
DCIS	2745	1251	27	41	14	579	128	584	30	56	35
INV	12672	4705	93	119	43	2366	2470	2365	136	195	180
<b>2011</b>	15823										
DCIS	2976	1298	44	29	17	597	152	636	58	60	85
INV	12847	4897	160	140	54	2293	2123	2586	135	182	277
<b>2012</b>	18795										
DCIS	3635	1605	44	54	29	729	216	731	45	41	141
INV	15160	5661	173	185	50	2833	2336	3192	173	152	405
<b>2013</b>	22178										
DCIS	4318	2032	40	57	11	717	210	1035	46	40	130
INV	17860	6824	190	275	76	3182	2572	3917	186	139	499
<b>2014</b>	23533										
DCIS	4547	2198	65	69	19	811	194	1007	42	36	106
INV	18986	7707	345	281	80	3319	2615	3900	155	130	454
<b>2015</b>	25987										
DCIS	4887	2567	76	79	14	788	166	1000	37	25	135
INV	21100	8860	316	400	81	3678	2589	4377	198	114	487
<b>2016</b>	29187										
DCIS	5562	2952	127	97	21	829	194	1112	44	29	157
INV	23625	10506	464	454	127	3989	2703	4644	172	96	470
<b>Overall P-Value (R<sup>2</sup>)</b>		0.001 (0.90)	0.001 (0.90)			0.047 (0.46)	<0.0001 (0.96)	<0.0001 (0.93)			
<b>DCIS P-Value (R<sup>2</sup>)</b>		0.001 (0.74)	0.001 (0.74)			0.005 (0.61)	0.034 (0.44)	0.0002 (0.88)			
<b>INV P-Value (R<sup>2</sup>)</b>		0.001 (0.88)	0.001 (0.88)			0.63 (0.10)	(0.95)	<0.0001 (0.92)			

Supplementary E Legend:

PM: *Partial Mastectomy*; M: *including either Simple, Subcutaneous, Radical or Modified Radical Mastectomy*; M +R: *Mastectomy including Breast reconstruction*; OS: *Oncoplastic Surgery*

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1. *PM: Partial Mastectomy*
2. *Level 1 Oncoplastic Surgery*
3. *Level Oncoplastic Surgery*
4. *Volume Replacement Oncoplastic Surgery (breast prosthesis, muscular flap, breast reconstruction)*
5. *Simple Mastectomy, Subcutaneous Mastectomy*
6. *Radical mastectomy*
7. *Mastectomy with breast prosthesis, delayed insertion or tissue expander following mastopexy*
8. *Mastectomy with Latissimus dorsi flap*
9. *Mastectomy with transverse rectus abdominis myocutaneous (TRAM) flap*
10. *Mastectomy with other type of breast reconstruction*