



# The use of lumpectomy, mastectomy and contralateral prophylactic mastectomy in males with operable breast cancer

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## INTRODUCTION

Male breast cancer is relatively rare when compared to female breast cancer

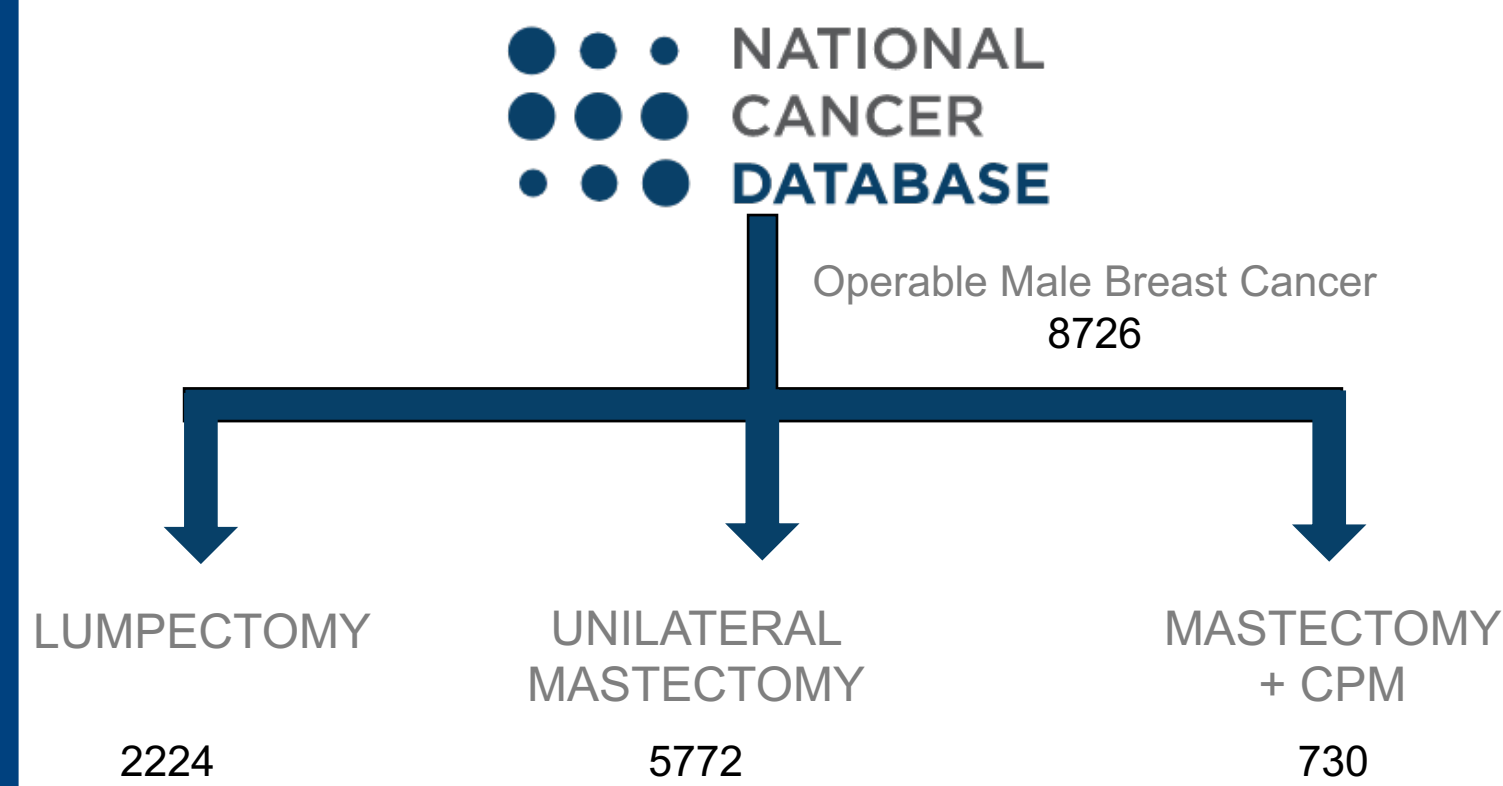
- Males typically diagnosed at a later stage due to lack of screening
- Unclear if treatment algorithms are entirely applicable to male patients

Optimal surgical management is controversial

- Reluctance to offer breast conservation due to often-unfavorable tumor-to-breast ratio
- Contralateral prophylactic mastectomy does not demonstrate survival benefit for female patients, even those with genetic mutations, but unknown whether this applies to male patients

**Aim:** Assess the surgical modalities used for the primary treatment of operable breast cancers in male patients

## METHODS



- National Cancer Database 2004-2015
- Male patients with operable breast cancer (T1-3)
- Examine trends over time
- Comparison of treatment modalities

## RESULTS



FIGURE 1 – Surgical approach over time in men with operable breast cancer.

## RESULTS

	Overall	Lumpectomy	Mastectomy	Mastectomy + CPM	p
<b>n</b>	8726	2224	5772	730	
<b>Age</b>	64.9 ± 12.6	63.9 ± 13.1	66.4 ± 12.5	56.7 ± 12.6	<0.001
<b>Race</b>					0.03
White	7430 (85.1)	1860 (83.6)	4937 (85.5)	633 (86.7)	
Black	961 (11.0)	268 (12.1)	624 (10.8)	69 (9.5)	
Other	63 (0.7)	18 (0.8)	39 (0.7)	6 (0.8)	
Unknown	272 (3.1)	78 (3.5)	172 (3.0)	22 (3.0)	
<b>Comorbidity score</b>					<0.001
0	6937 (79.5)	1844 (82.9)	4476 (77.5)	617 (84.5)	
1	1372 (15.7)	301 (13.5)	989 (17.1)	82 (11.2)	
2	309 (3.5)	58 (2.6)	227 (3.9)	24 (3.3)	
3+	108 (1.2)	21 (0.9)	80 (1.4)	7 (1.0)	
<b>Insurance status</b>					<0.001
Not insured	155 (1.8)	37 (1.7)	103 (1.8)	15 (2.1)	
Private insurance	3852 (44.1)	1038 (46.7)	2356 (40.8)	458 (62.7)	
Medicaid	347 (4.0)	99 (4.5)	210 (3.6)	38 (5.2)	
Medicare	4143 (47.5)	981 (44.1)	2962 (51.3)	200 (27.4)	
Other Government	83 (1.0)	18 (0.8)	54 (0.9)	11 (1.5)	
Unknown	146 (1.7)	51 (2.3)	87 (1.5)	8 (1.1)	
<b>Median income</b>					0.09
<\$38,000	1223 (14.0)	327 (14.7)	803 (13.9)	93 (12.7)	
\$38,000 - \$47,999	1845 (21.1)	512 (23.0)	1177 (20.4)	156 (21.4)	
\$48,000 - \$62,999	2324 (26.6)	590 (26.5)	1536 (26.6)	198 (27.1)	
\$63,000+	3280 (37.6)	786 (35.3)	2215 (38.4)	279 (38.2)	
Other/unknown	54 (0.6)	9 (0.4)	41 (0.7)	4 (0.5)	
<b>Percentage with no high school diploma</b>					0.08
>=21%	1104 (12.7)	288 (12.9)	719 (12.5)	97 (13.3)	
13%-20.9%	2031 (23.3)	558 (25.1)	1300 (22.5)	173 (23.7)	
7-12.9%	2957 (33.9)	763 (34.3)	1958 (33.9)	236 (32.3)	
<7%	2583 (29.6)	606 (27.2)	1757 (30.4)	220 (30.1)	
Other/unknown	51 (0.6)	9 (0.4)	38 (0.7)	4 (0.5)	
<b>Hospital category</b>					0.005
Community	1070 (12.3)	310 (13.9)	686 (11.9)	74 (10.1)	
Comprehensive community	3972 (45.5)	1015 (45.6)	2644 (45.8)	313 (42.9)	
Academic	2532 (29.0)	595 (26.8)	1745 (30.2)	192 (26.3)	
NCI	918 (10.5)	250 (11.2)	582 (10.1)	86 (11.8)	
<b>Tumor stage</b>					<0.001
T1	5204 (59.6)	1612 (72.5)	3216 (55.7)	376 (51.5)	
T2	3094 (35.5)	562 (25.3)	2237 (38.8)	295 (40.4)	
T3	296 (3.4)	42 (1.9)	205 (3.6)	49 (6.7)	
<b>Tumor grade</b>					<0.001
Well-differentiated	1426 (16.3)	531 (23.9)	816 (14.1)	79 (10.8)	
Moderately-differentiated	4179 (47.9)	904 (40.6)	2972 (51.5)	303 (41.5)	
Poorly differentiated	2627 (30.1)	617 (27.7)	1710 (29.6)	300 (41.1)	
<b>Tumor subtype</b>					<0.001
HR+ HER2-	4600 (52.7)	1053 (47.3)	3163 (54.8)	384 (52.6)	
HR+ HER2+	582 (6.7)	120 (5.4)	388 (6.7)	74 (10.1)	
HR- HER2+	89 (1.0)	36 (1.6)	31 (0.5)	22 (3.0)	
HR- HER2-	272 (3.1)	145 (6.5)	86 (1.5)	41 (5.6)	
Unknown	3183 (36.5)	870 (39.1)	2104 (36.5)	209 (28.6)	
<b>Treatment - chemotherapy</b>					<0.001
Yes	3293 (37.7)	750 (33.7)	2094 (36.3)	449 (61.5)	
No	5145 (59.0)	1404 (63.1)	3478 (60.3)	263 (36.0)	
Unknown	288 (3.3)	70 (3.1)	200 (3.5)	18 (2.5)	
<b>Treatment - hormone therapy</b>					<0.001
Yes	5279 (60.5)	1199 (53.9)	3655 (63.3)	425 (58.2)	
No	2926 (33.5)	906 (40.7)	1773 (30.7)	247 (33.8)	
Unknown	521 (6.0)	119 (5.4)	344 (6.0)	58 (7.9)	
<b>Treatment - radiation</b>					<0.001
None	5451 (62.5)	687 (30.9)	4253 (73.7)	511 (70.0)	
Beam radiation	2998 (34.4)	1360 (61.2)	1429 (24.8)	209 (28.6)	
Other modality	184 (2.1)	152 (6.8)	32 (0.6)	0 (0.0)	
Unknown	93 (1.1)	25 (1.1)	58 (1.0)	10 (1.4)	

TABLE 1 – Demographics and cancer characteristics stratified by surgical approach.

## DISCUSSION

Over the study period, the use of lumpectomy has decreased, and the use of contralateral prophylactic mastectomy has increased.

The majority of male patients with operable breast cancer undergo mastectomy (75%) while only 8% undergo contralateral prophylactic mastectomy and 25% undergo lumpectomy.

- Younger age, White race, fewer medical comorbidities, private insurance, treatment at an NCI center were associated with undergoing CPM
- Socioeconomic variables (education and income) were not associated with surgery modality
- Related to tumor characteristics, those with T2/3, poorly differentiated, and HR- or HER2+ cancer were more likely to undergo CPM
- Patients who had CPM were more likely to have chemotherapy and radiation when compared to unilateral mastectomy.

## QUESTIONS & FUTURE WORK

- Are there associations of family history and germline mutations with the choice to proceed with contralateral prophylactic mastectomy?
- Does BMI have an impact on the surgery type that is chosen?
- Are there differences in complication rates between the surgery modalities?
- What is the breast-specific and overall survival for each group and, taking into account other tumor characteristics, is there an impact on survival?

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