

Meme Kanserinde Risk Azaltıcı Cerrahiler: Profilaktik Cerrahi

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MAGEE-WOMENS RESEARCH INSTITUTE

Modifiye edilebilir Risk factorleri

- ***Behavioral factors***

BMI

Alcohol use

Smoking

Exercise

- ***Dietary factors***

Total fat intake

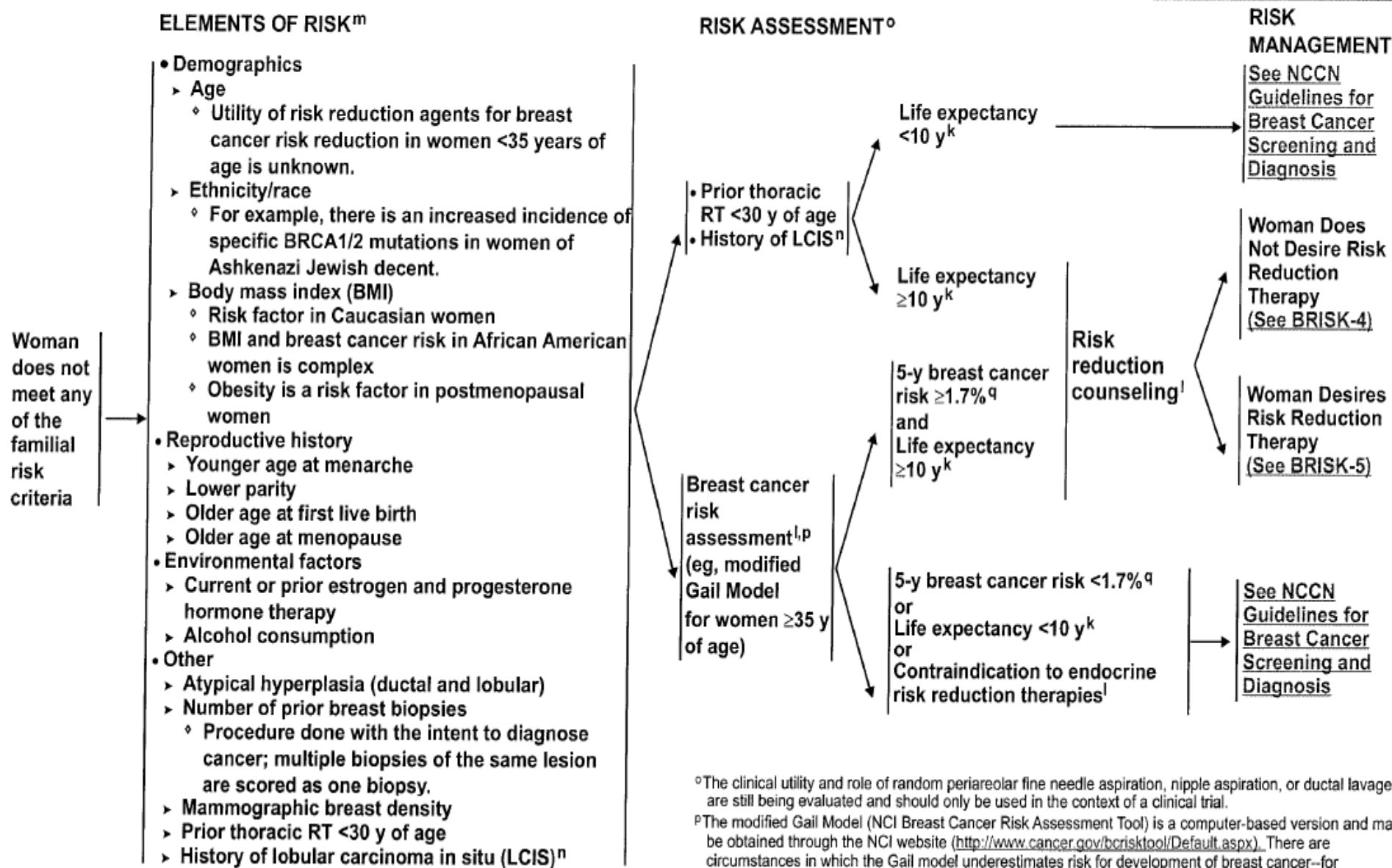
Saturated fat intake

- **Ionizing radiation**

- **Hormone replacement**

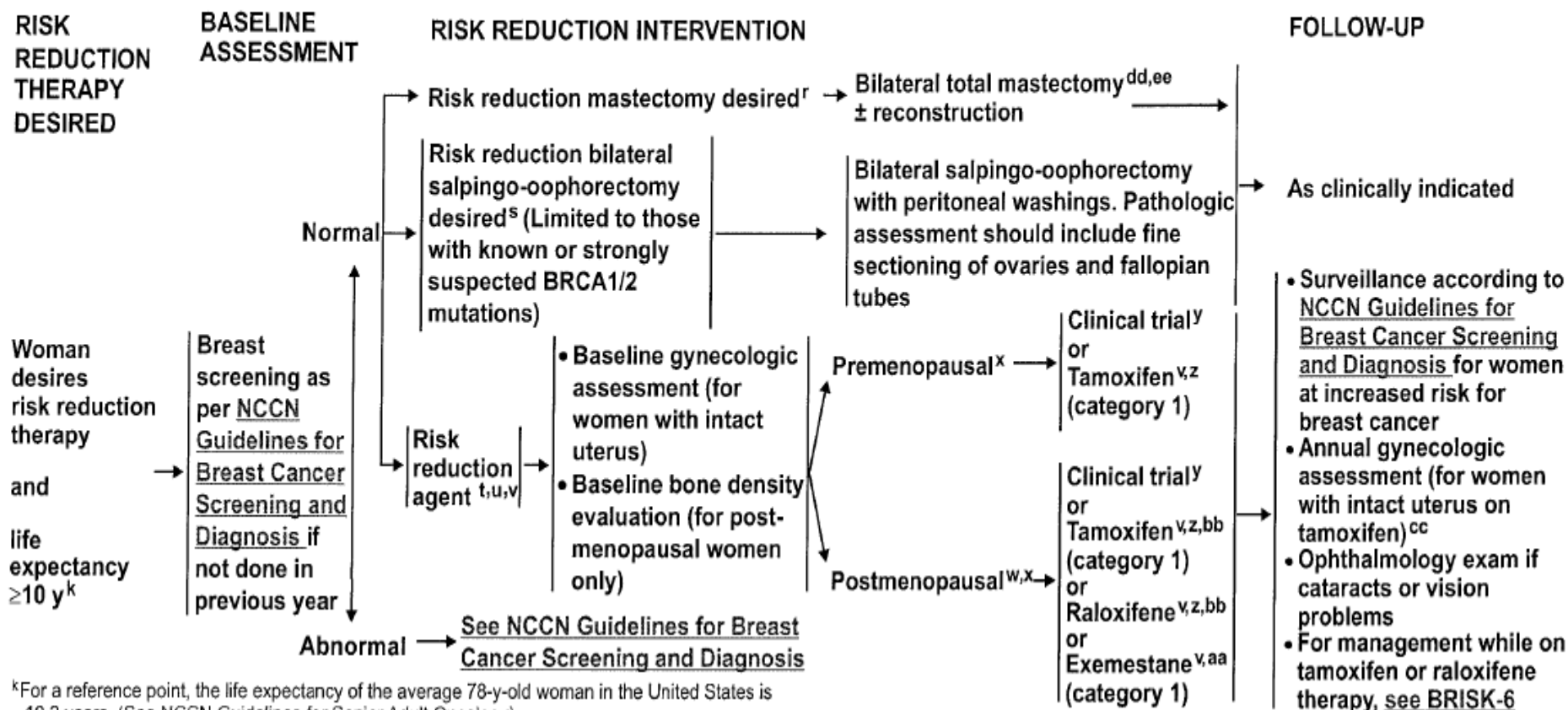
Modifiye edilemez faktorler

- Age
- Reproductive History
- Familial/genetic factors
- Breast density
- Atypical/LCIS
- History of BC
- Ethnicity/Race



^oThe clinical utility and role of random periareolar fine needle aspiration, nipple aspiration, or ductal lavage are still being evaluated and should only be used in the context of a clinical trial.

^pThe modified Gail Model (NCI Breast Cancer Risk Assessment Tool) is a computer-based version and may be obtained through the NCI website (<http://www.cancer.gov/bcrisktool/Default.aspx>). There are circumstances in which the Gail model underestimates risk for development of breast cancer—for



^kFor a reference point, the life expectancy of the average 78-y-old woman in the United States is 10.2 years. (See [NCCN Guidelines for Senior Adult Oncology](#))

**BPM
BSO**

**Bilateral
profilaksi**

**Koruyucu ilac
tedavisi**

Yakın takip

What do we know;

- Risk Reduction mastectomy
 - Reduces CBC incidence
 - Treats occult synchronous cancer
 - Prevents metachronous cancer

BUT

- irreversible/substantial
 - Complications
 - Unnecessary; absolute risk of CBC is low
 - » Survival benefit?
- Alternatives
 - Screening
 - Oophorectomy
 - Chemoprevention

Risk Azaltıcı Cerrahiler

Bilateral Profilaktik Mastektomi

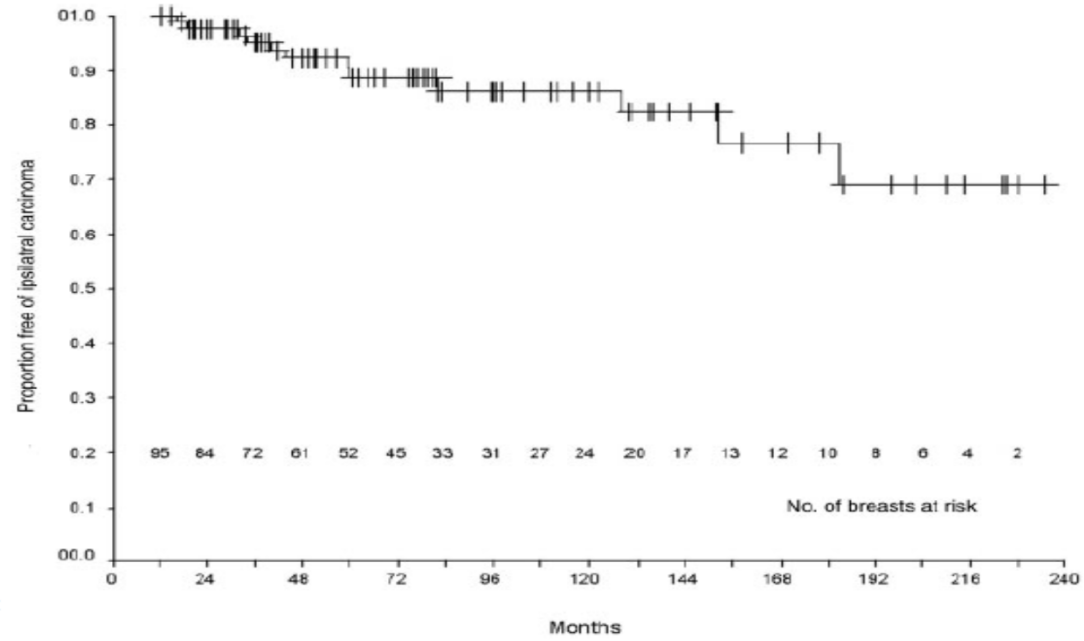


FIGURE 1. Probability of remaining free of metachronous ipsilateral breast carcinoma.

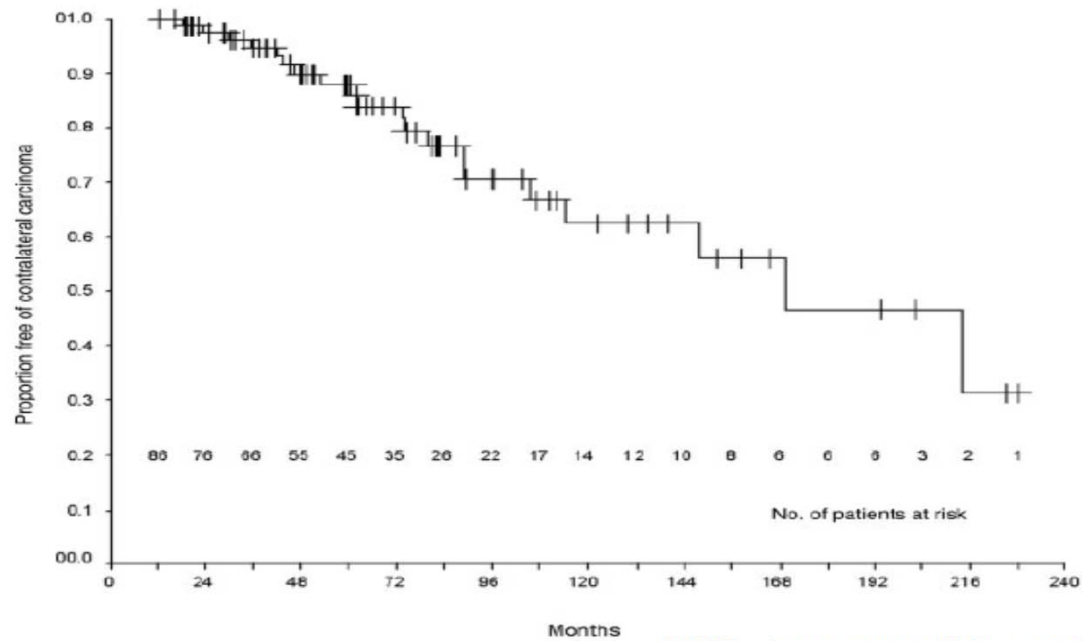


FIGURE 2. Probability of remaining free of metachronous contralateral breast carcinoma (all patients).

%6.8 > 20 yil

TABLE 2
Studies of BCT in *BRCA* Carriers

Series	Ascertainment	Genes	<i>n</i>	MIBC (no.)	Risk of MIBC (%)
Foulkes et al., 1997 ⁴	Unselected AJ	<i>BRCA1</i>	11	2	20 (5-yr)
Robson et al., 1998 ²⁷	Early-onset AJ	<i>BRCA1/2</i>	9	1	NS
Verhoog et al., 1998 ⁶	Clinic-based	<i>BRCA1</i>	18	NS	14 (5-yr)
Gaffney et al., 1998 ⁵	Clinic-based	<i>BRCA1/2</i>	7	1	NS
Robson et al., 1999 ⁷	Unselected AJ	<i>BRCA1/2</i>	35	5	15 (5-yr) 22 (10-yr)
Haffty et al., 2002 ¹⁴	Early-onset	<i>BRCA1/2</i>	22	11	22 (5-yr) 41 (10-yr)
Pierce et al., 2003 ⁹	Clinic-based	<i>BRCA1/2</i>	170		12.5 (10-yr)
Bremer et al., 2003 ¹⁵	Hospital-based	<i>BRCA1/2</i>	9 (bilateral)	3	29 (5-yr) 9 (10-yr)
Delaloge et al., 2003 ¹⁰	Clinic-based	<i>BRCA1/2</i>	16 <i>BRCA2</i>	NS	37 (10-yr)
Seynaeve et al., 2004 ¹⁶	Clinic-based	<i>BRCA1/2</i>	26	4	NS for <i>BRCA</i>
Robson et al., 2004 ¹¹	Unselected AJ	<i>BRCA1/2</i>	61	NS	12 (10-yr)
Metcalf et al., 2004 ¹²	Clinic-based	<i>BRCA1/2</i>	188	NS	11.5 (10-yr) 11.2 (5-yr)
Current study	Clinic-based	<i>BRCA1/2</i>	95	12	13.6 (10-yr)

BCT: breast-conserving treatment; MIBC: metachronous ipsilateral breast carcinoma; AJ: Ashkenazi Jewish; NS: not stated.

Table 3. Association Between Tamoxifen Use After First BC and CBC

Variable	No.	Person-Years	CBC		HR	95% CI	P
			No.	%/Person-Year			
<i>BRCA1</i> mutation carriers							
Combined data							
Took tamoxifen for first BC							
No	1,200	9,893	338	3.4	1.00		
Yes	383	3,086	35	1.1	0.38*	0.27 to 0.55	< .001
Prospective data only							
Took tamoxifen for first BC							
No	481	1,989	54	2.7	1.00		
Yes	176	716	12	1.7	0.58†	0.29 to 1.13	.1
<i>BRCA2</i> mutation carriers							
Combined data							
Took tamoxifen for first BC							
No	427	3,762	115	3.1	1.00		
Yes	454	3,364	32	1.0	0.33*	0.22 to 0.50	< .001
Prospective data only							
Took tamoxifen for first BC							
No	191	791	21	2.7	1.00		
Yes	235	896	13	1.5	0.48†	0.22 to 1.05	.07

Abbreviations: BC, breast cancer; CBC, contralateral breast cancer; HR, hazard ratio.

*Adjusted for age at diagnosis (continuous), year of diagnosis (continuous), bilateral prophylactic oophorectomy (time varying), and country of residence (categorical, as per Table 1).

†Adjusted for age at diagnosis (continuous) and country (categorical: Australia, Canada, France, United States, United Kingdom, other).

Table 1 Life expectancy gains from cancer prevention strategies for BRCA1/2 positive women

Author and year	Mutation type	Type of prophylactic intervention vs. surveillance	Life expectancy gain (year)
Sonnenberg et al 1993	BRCA 1/2	Tamoxifen for 5 years	1.6 to 2.2
Schrag et al 1997	BRCA1/2	Bilateral Mastectomy	2.9 to 5.3
Grann et al 1998	BRCA1/2	Bilateral oophorectomy	0.3 to 1.7
		Bilateral mastectomy	0.4 to 2.6
Grann et al 2000	BRCA1/2	Bilateral mastectomy and oophorectomy	2.8 to 3.4
		Bilateral oophorectomy	3.3 to 6.0
		Bilateral mastectomy	0.9 (95% CI: 0.4-1.2)
		Bilateral oophorectomy and mastectomy	3.4 (95% CI: 2.7-3.7)
		Chemoprevention with tamoxifen	4.3 (95% CI: 3.6-4.6)
Schrag et al 2000	BRCA1/2	Chemoprevention with raloxifene	1.6 (95% CI: 1.0-2.1)
		Tamoxifen for 5 years	2.2 (95% CI: 1.3-2.8)
		Bilateral oophorectomy	0.4 to 1.3
		Contra-lateral mastectomy	0.2 to 1.8
van Roosmalen et al 2002	BRCA1/2	Bilateral mastectomy and oophorectomy	0.6 to 2.1
		Breast screening and bilateral oophorectomy	High risk: 11.7. Medium risk 6.6
Armstrong et al 2004	BRCA1/2	Bilateral mastectomy with ovarian screening	High risk: 9.5. Medium risk 5.3
		Bilateral oophorectomy	High risk: 4.9. Medium risk 4.4
		Bilateral mastectomy and prophylactic oophorectomy	3.34 to 4.65
			5.49 to 7.63

Table 1 Incidence, preventive strategy risk reduction, and mortality assumptions used in the Markov model

Variable	Value
<i>Health states per 100 persons per year ± SE, n</i>	
Breast cancer [19, 28]	
<i>BRCA 1</i> mutation carrier	3.32 ± 0.63
<i>BRCA 2</i> mutation carrier	3.79 ± 1.07
<i>BRCA 1</i> and <i>BRCA 2</i>	3.43 ± 0.556
Ovarian cancer [19, 28]	
<i>BRCA 1</i> mutation carrier	1.55 ± 0.304
<i>BRCA 2</i> mutation carrier	0.523 ± 0.031
<i>BRCA 1</i> and <i>BRCA 2</i>	1.12 ± 0.285
Endometrial cancer due to tamoxifen [33]	0.401 ± 0.019
Pulmonary embolism due to tamoxifen [33]	0.320 ± 0.180
Cataracts due to tamoxifen [33]	0.110 ± 0.050
<i>Preventive strategies ± SE, %</i>	
Breast cancer risk reduction due to	
Prophylactic bilateral mastectomy [19, 51]	90 ± 5
Mastectomy and oophorectomy [9, 51]	95 ± 5
Tamoxifen [19, 33]	49 ± 7
Oophorectomy before age 50 years [8, 9, 37, 52]	47 ± 1
Ovarian cancer risk reduction due to	

Table 2. Efficacy of bilateral risk-reducing mastectomy on breast cancer incidence and mortality

	BC incidence			Mortality			HR (95% CI) ^b	Breast cancer specific mortality rate ^a	HR (95% CI) ^b
	PYO	BC cases	Incidence rate ^a	PYO	Deaths (due to BC)	All cause mortality rate ^a			
Surveillance	2037	57	28	2253	6(4)	2.7	Ref.	1.8	Ref.
BRRM	1379	0	0	1384	1(1)	0.7	0.20 (0.02–1.68)	0.7	0.29 (0.03–2.61)

^aPer 1000 PYO.

^bUnivariate analysis; adding potential confounding variables to the model did not change the HR with >10%.

BC, breast cancer; PYO, person-years of observation; HR (95% CI), hazard ratio (95% confidence interval); BRRM, bilateral risk-reducing mastectomy.

%3 absult kazanç, %2.8 okult Ca

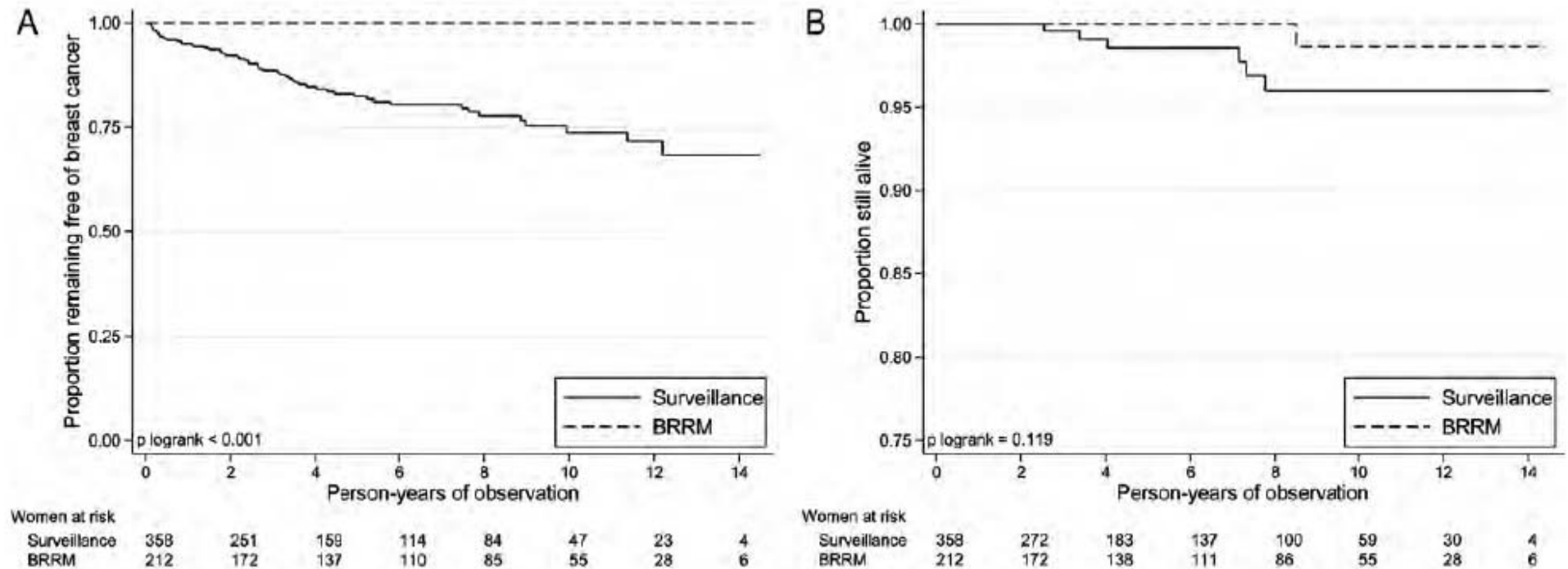
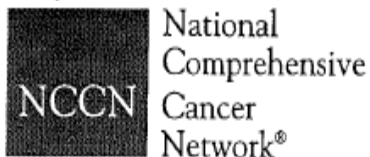


Figure 1. Kaplan–Meier estimates for time to onset of breast cancer (A) or death by all causes (B). BRRM, bilateral risk-reducing mastectomy.



NCCN Guidelines Version 2.2013 Breast Cancer Screening and Diagnosis

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SCREENING OR SYMPTOM CATEGORY

SCREENING FOLLOW-UP FOR HBOC

Increased Risk:

Pedigree suggestive
of or known genetic
predisposition^{e,f}
• Hereditary breast and
ovarian cancer (HBOC)^f



WOMEN

- Breast awareness^g
- Clinical breast exam, 6-12 mo,ⁱ starting at age 25 y
- Annual mammogram^h and breast MRI^j screening starting at age 25 y, or individualized based on earliest age of onset in family^k
- Consider risk reduction strategies ([See NCCN Guidelines for Breast Cancer Risk Reduction](#))

MEN

- Breast awareness
- Clinical breast exam, every 6-12 mo, starting at age 35 y
- Consider baseline mammogram at age 40 y; annual mammogram^h if gynecomastia or parenchymal/glandular breast density on baseline study



NCCN Guidelines Version 1.2013 Breast Cancer Risk Reduction

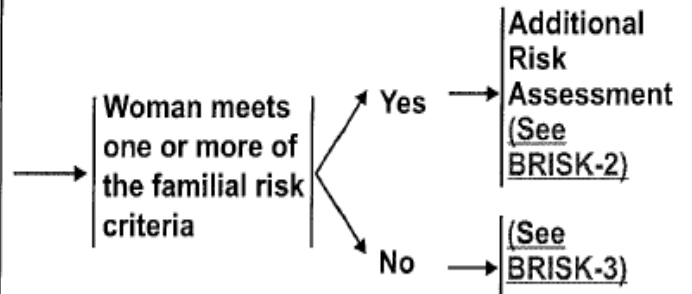
FAMILIAL RISK ASSESSMENT^a

• Familial/genetic factors^b

Criteria for further genetic risk evaluation:^c

▶ Family history

- ◊ Member of a family with a known mutation in a breast cancer susceptibility gene
- ◊ ≥ 2 breast primaries^d in single individual
- ◊ ≥ 2 individuals with breast primaries on the same side of family (maternal or paternal)
- ◊ ≥ 1 ovarian primary from the same side of family (maternal or paternal)
- ◊ First- or second-degree relative with breast cancer ≤ 45 y
- ◊ ≥ 1 family member on same side of family with a combination of breast cancer and ≥ 1 of the following (especially if early onset): pancreatic cancer, aggressive prostate cancer (Gleason score ≥ 7); sarcoma, adrenocortical carcinoma, brain tumors, endometrial cancer, leukemia/lymphoma; thyroid cancer, dermatologic manifestations^e, and/or macrocephaly, hamartomatous polyps of GI tract;^f diffuse gastric cancer^g
- ◊ From a population at increased risk^h
- ◊ Male breast cancer
- ◊ Ovarian/fallopian tube/primary peritoneal cancer



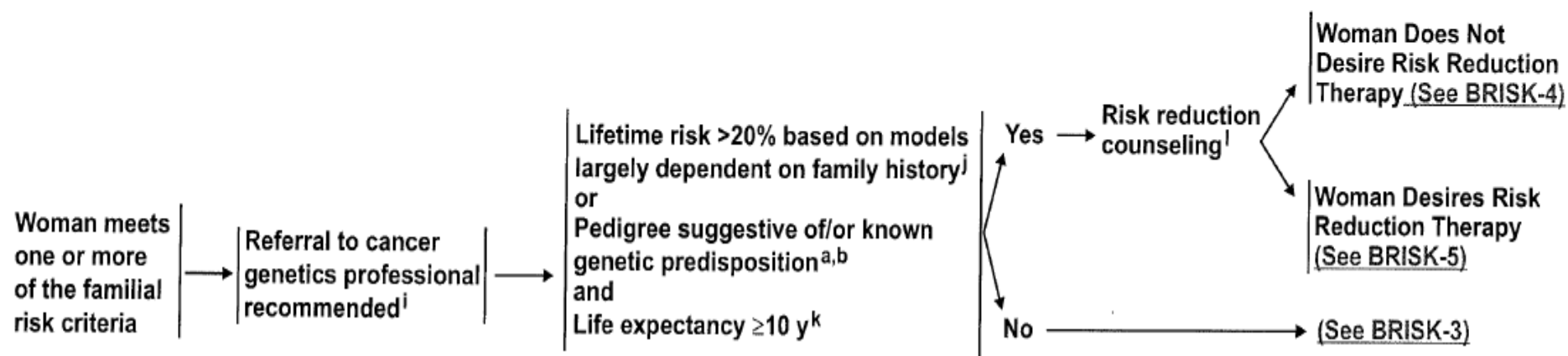


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NCCN Guidelines Version 1.2013 Breast Cancer Risk Reduction

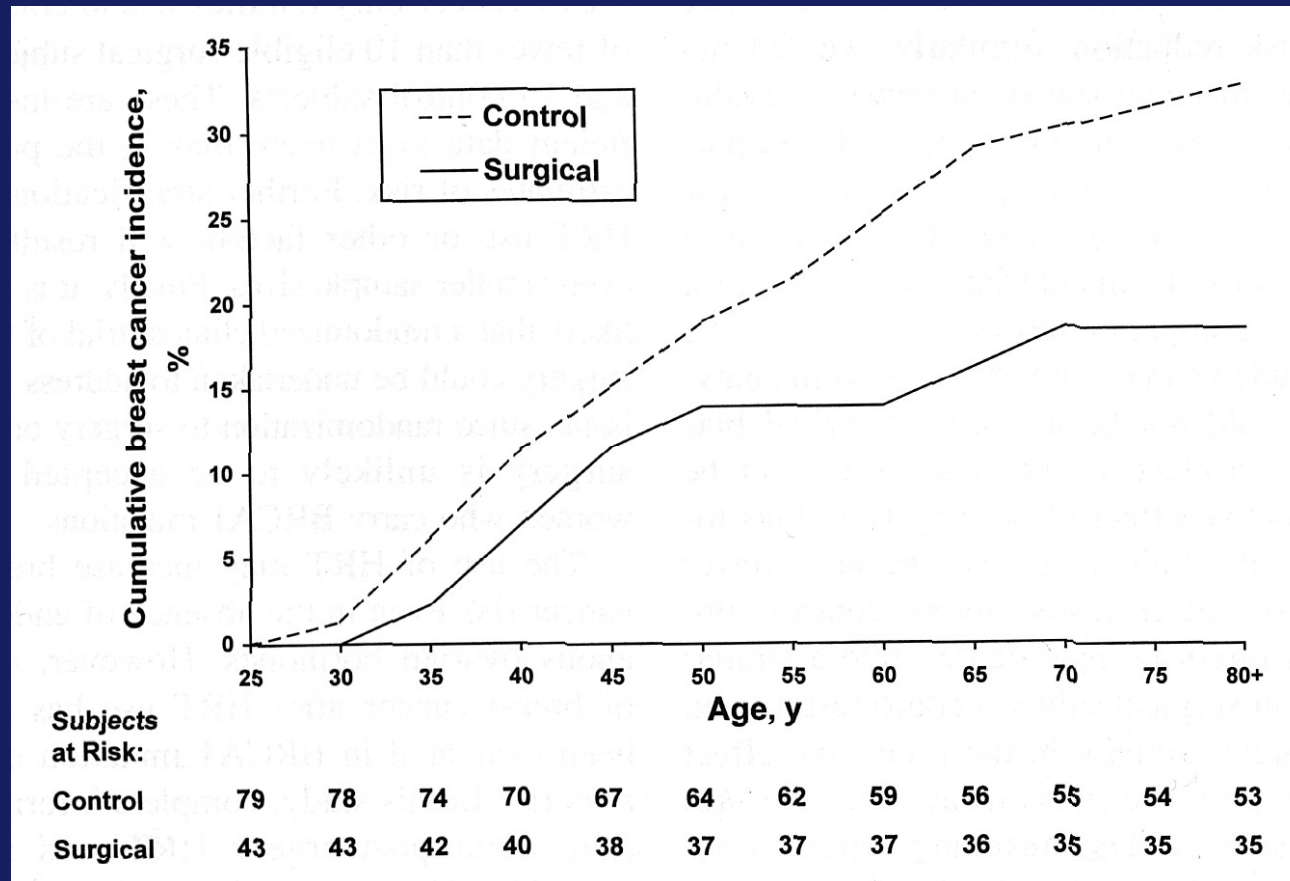
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ADDITIONAL RISK ASSESSMENT



Risk azaltıcı Cerrahiler: Prophylactic oophorectomy

Prophylactic oophorectomy in *BRCA1* mutation carriers: effect on breast cancer incidence



Rebeck TR, et al. JNCI 1999; 91:1475-1479

Estimates of the Time to Breast Cancer or *BRCA*-Related Gynecologic Cancer after Salpingo-Oophorectomy or Surveillance for Ovarian Cancer

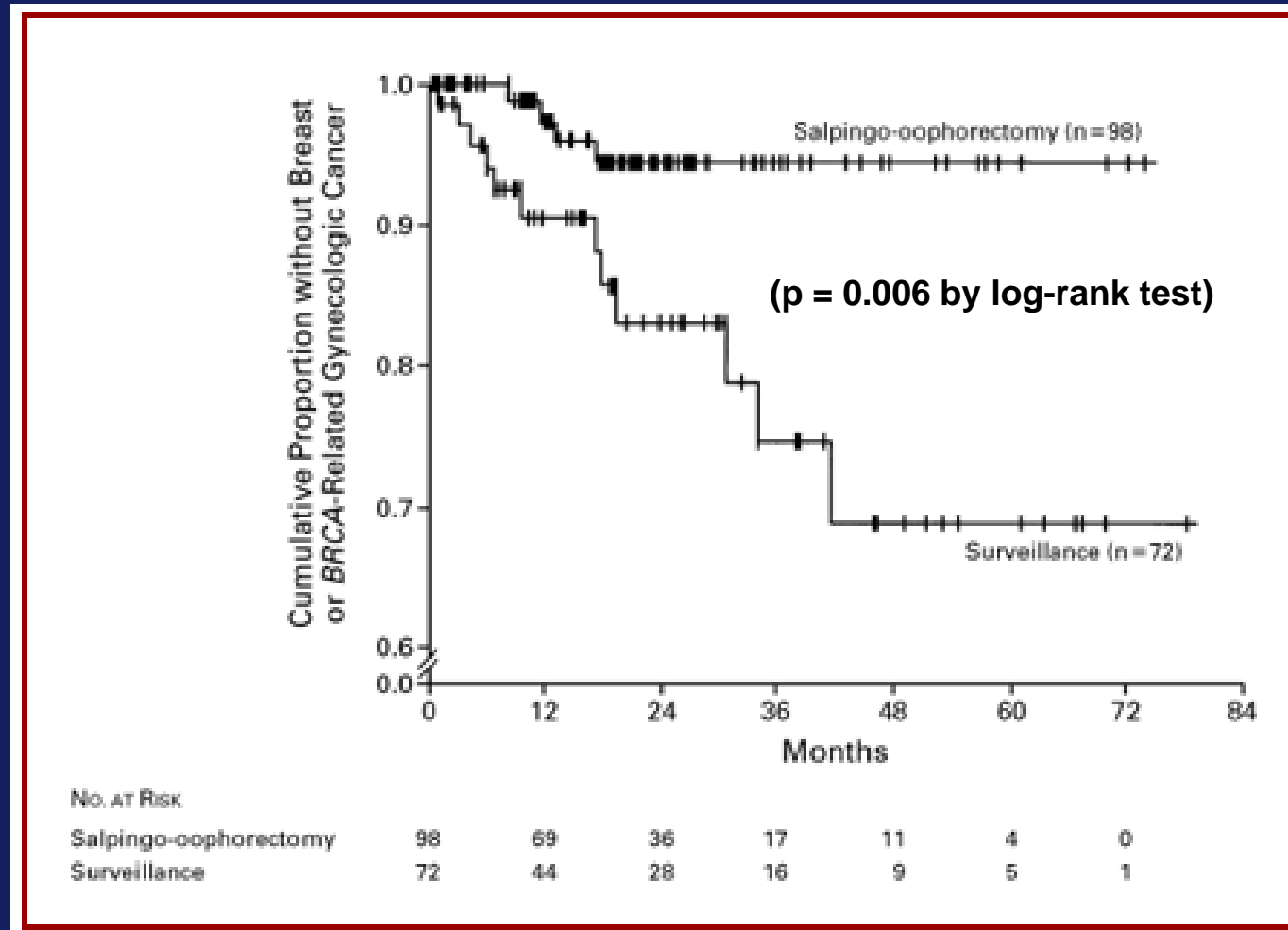




Table 1

Survival Probability According to Breast/Ovarian Cancer Risk Reduction Strategy at Age 70* for 25 Year Old *BRCA1/2* Mutation Carrier.

Variable	Survival probability (%)	Survival probability (%)
	in <i>BRCA1</i> mutation carriers	in <i>BRCA2</i> mutation carriers
No intervention	53% [BCD=41%;OCD=36%]	71% [BCD=36%;OCD=20%]
RRSO only at age 40	68% [BCD=45%;OCD=12%]	77% [BCD=30%;OCD=4%]
RRSO only at age 50	61% [BCD=51%;OCD=20%]	75% [BCD=42%;OCD=6%]
RRM only at age 25	66% [BCD=5%;OCD=58%]	79% [BCD=4%;OCD=30%]
RRM only at age 40	64% [BCD=13%;OCD=53%]	78% [BCD=9%;OCD=28%]
Breast Screening only from 25-69	59% [BCD=26%;OCD=46%]	75% [BCD=21%;OCD=25%]
RRSO at age 40 and RRM at age 25	79% [BCD=6%;OCD=21%]	83% [BCD=3%;OCD=6%]
RRSO at age 40 and Breast Screening from 25-69	74% [BCD=30%;OCD=15%]	80% [BCD=18%;OCD=5%]
RRSO at age 40, RRM at age 40; and Breast Screening from 25-39	77% [BCD=18%;OCD=18%]	82% [BCD=9%;OCD=6%]

*Survival probability for 70 year old woman from general population=84%

[Probability of death as a result of breast cancer (BCD) or ovarian cancer (OCD); RRSO- risk-reduction bilateral salpingo-oophorectomy; RRM – risk-reduction bilateral mastectomy; Breast screening – annual mammography and MRI]

Adapted from: Kurian AW, Sigal BM, Plevritis SK. Survival analysis of cancer risk reduction strategies for *BRCA1/2* mutation carriers. J Clin Oncol. 2010;28:222-231.

CPM

RANDOMIZED TRIALS SHOW

SURVIVAL MASTECTOMY = SURVIVAL BCT

Trial	Accrual Years	No. of Patients	Maximum Tumor size (cm)	Minimum Lump Margin	Median Follow-Up (years)	OS (%)		LR/IBTR (%)	
						Mastectomy	BCT	BCT	Mastectomy
NSABP B-06 ²	1976-1984	1851	4	Microscopically free at inked edge	20	47	Lump, 46 Lump + XRT, 47	39.2	10.2
Milan Cancer Institute ³	1973-1980	701	2		20	58.8	58.3	8.8	2.3
NCI ⁴	1979-1987	237	5	Grossly negative	18.4	58	54	22*	0*
EORTC ^{5,6}	1980-1986	868	5	Grossly negative	13.4	66	65	20	12
Institut Gustav Roussy ⁷	1970-1982	179	2		10	79	78	4	NR
DBCCG ⁸	1983-1989	905	5	Grossly negative	6	82	79	NR	NR
EORTC and DBCCG (pooled results) ⁹	1980-1989	1,772	5	Grossly negative	9.8	67	67	9	10

SURVIVAL

Breast Cancer Surgery Journey

1894

Halsted-RM



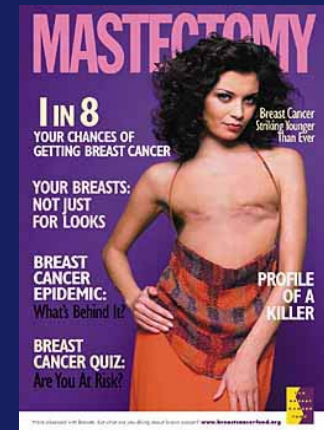
1967
Fisher
MRM



1981- Fischer
BCS



2000- BM



Are Mastectomy Rates Increasing?

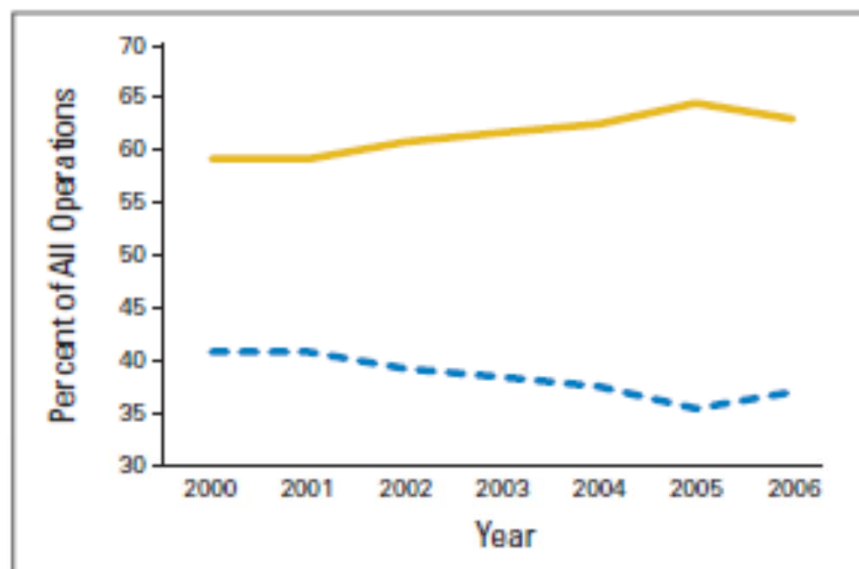


Fig 1. Trends in surgical treatment of breast cancer: mastectomy versus breast-conserving surgery. Dashed blue line, total mastectomy; solid gold line, breast-conserving surgery.

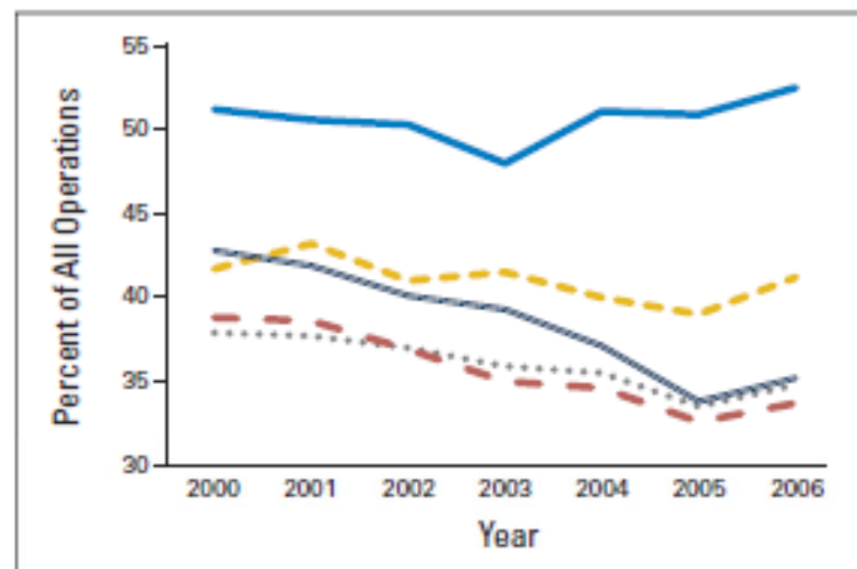


Fig 3. Trends in mastectomy, by age group. Solid blue line, 18 to 39 years; gold dashed line, 40 to 49 years; gray dotted line, 50 to 59 years; red dashed line, 60 to 69 years; dark blue open line, 70 to 79 years.

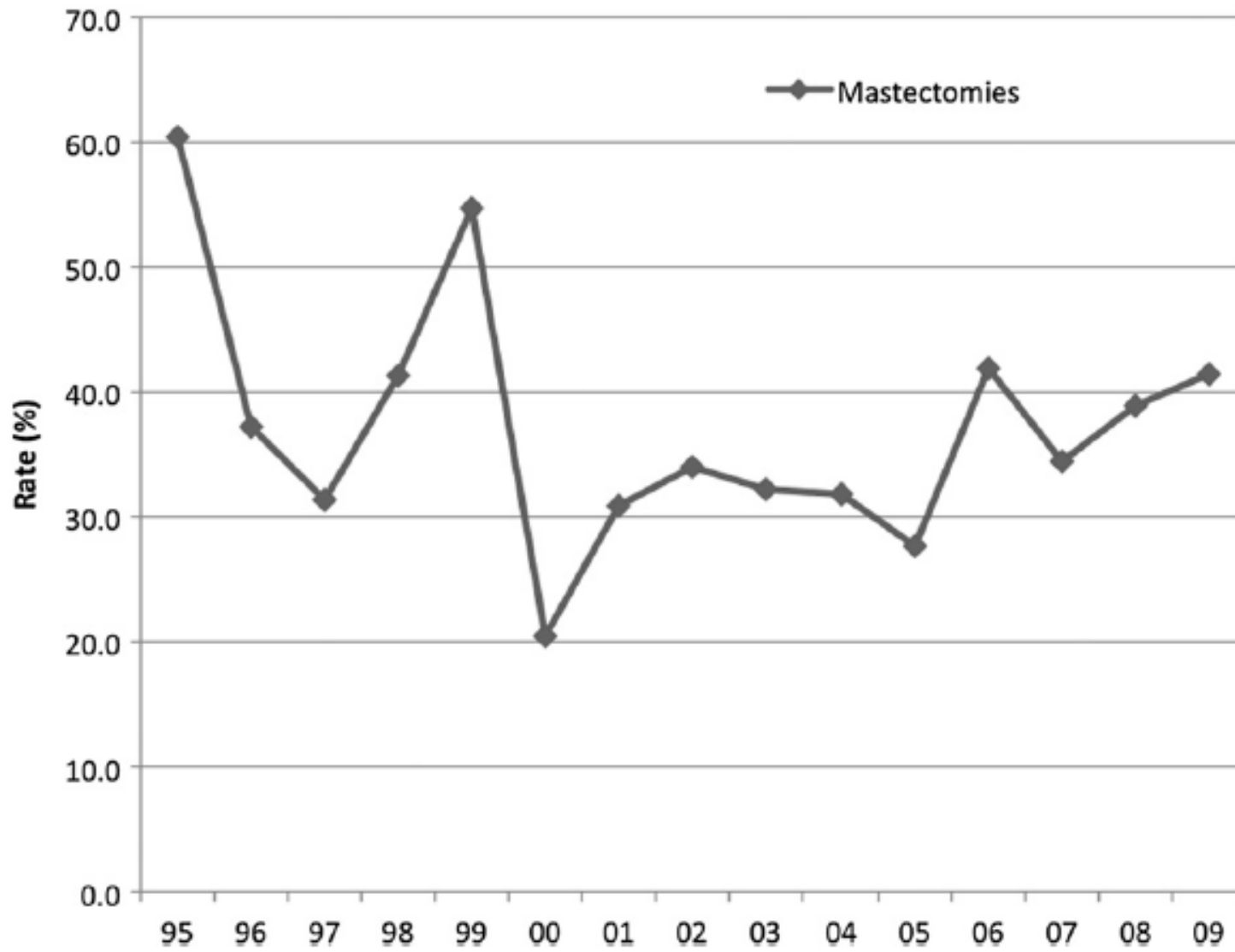
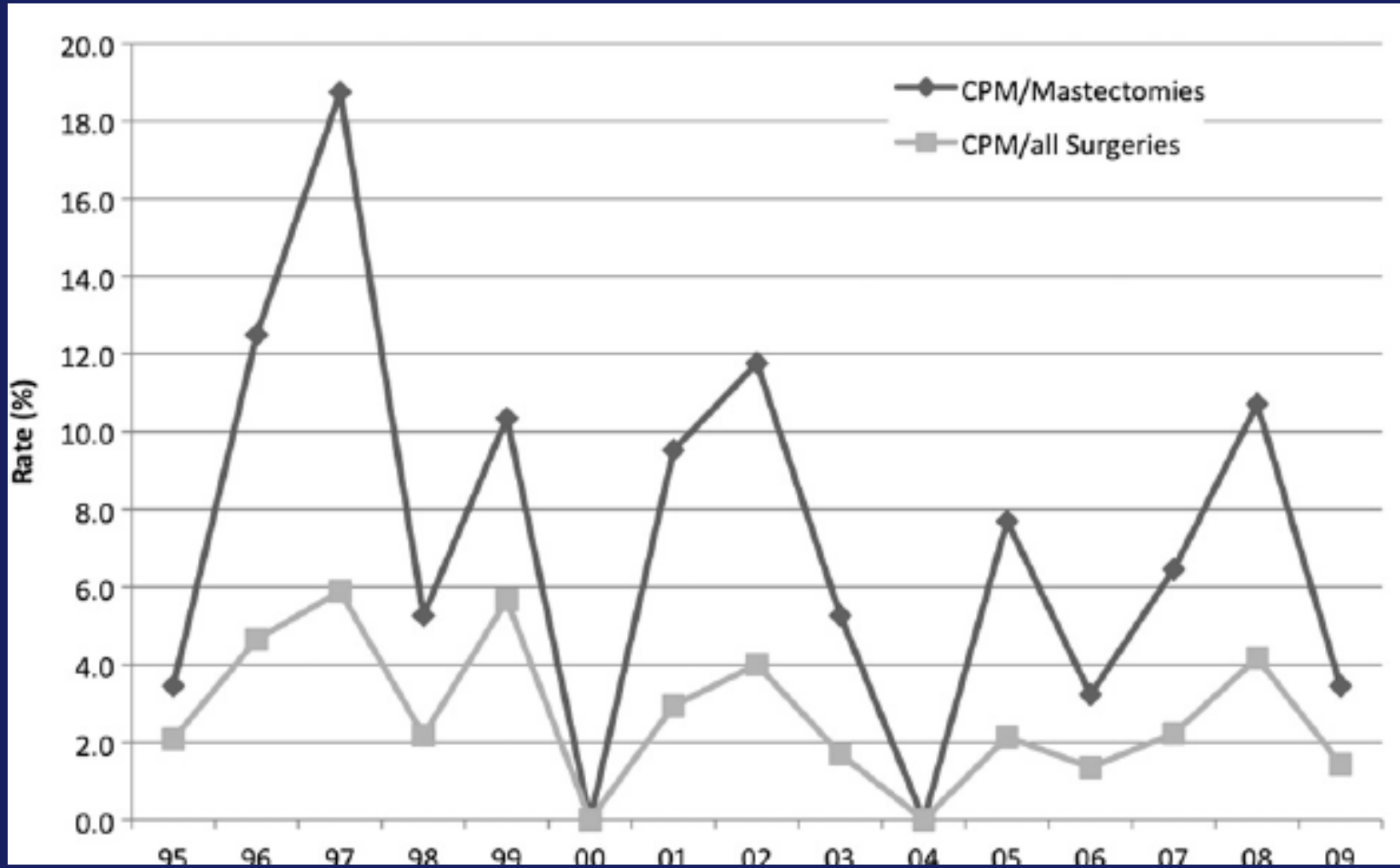


Figure 1. Rates of ipsilateral mastectomy.

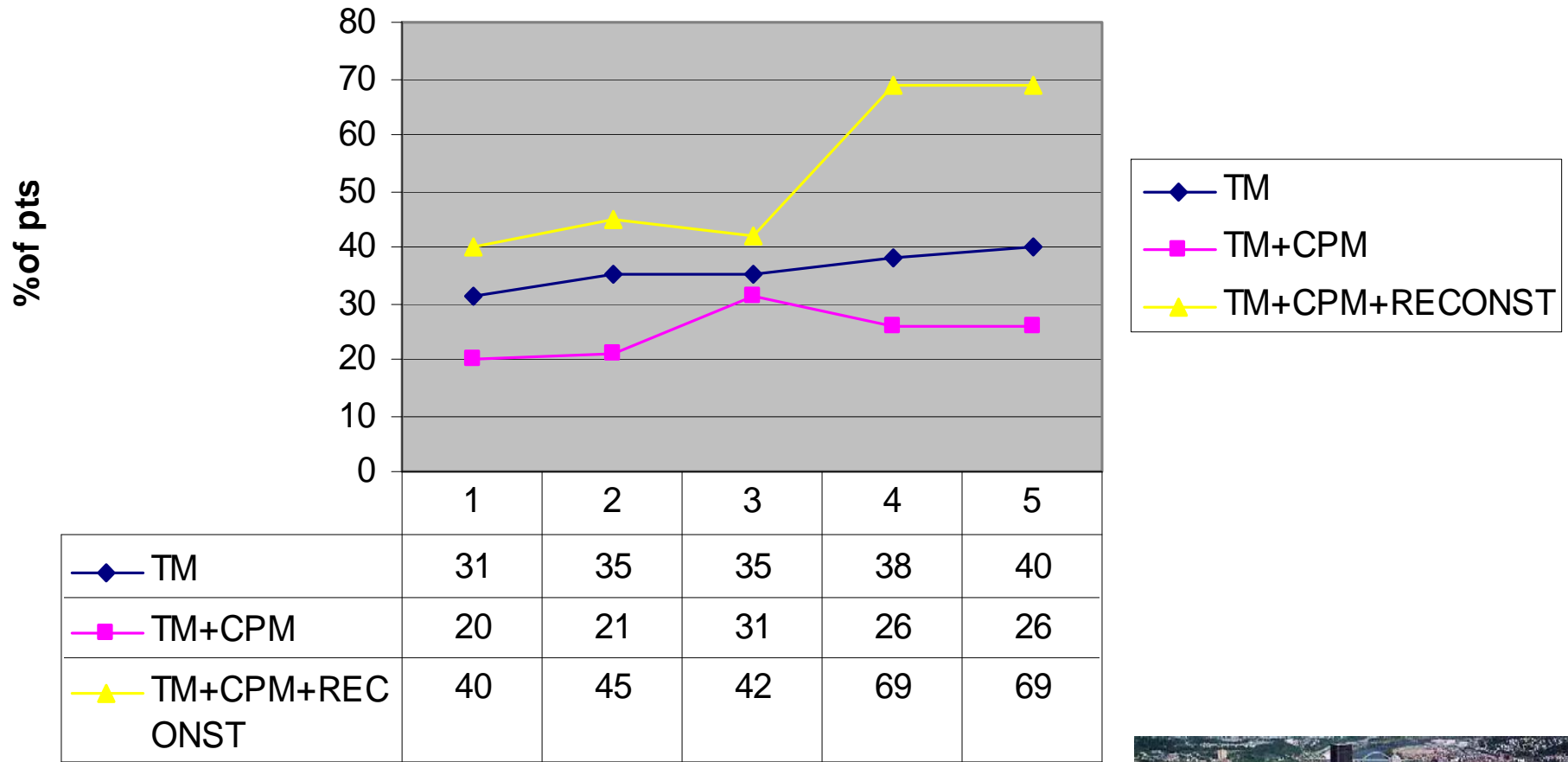


MWH data

	05	06	07	08	09
BCS	606	629	683	706	618
All Mastectomy	272 (31%)	321 (35%)	377 (35%)	435 (38%)	409 (40%)
Mast+CPM +Reconstruc.	55(20%) 22(40%)	67(21%) 30(45%)	115(31%) 48(42%)	111(26%) 77(69%)	105 (26%) 72(69%)
Total	878	905	1060	1141	1027

(2009) All Uni. Mastectomy + reconst: 25%

MWH

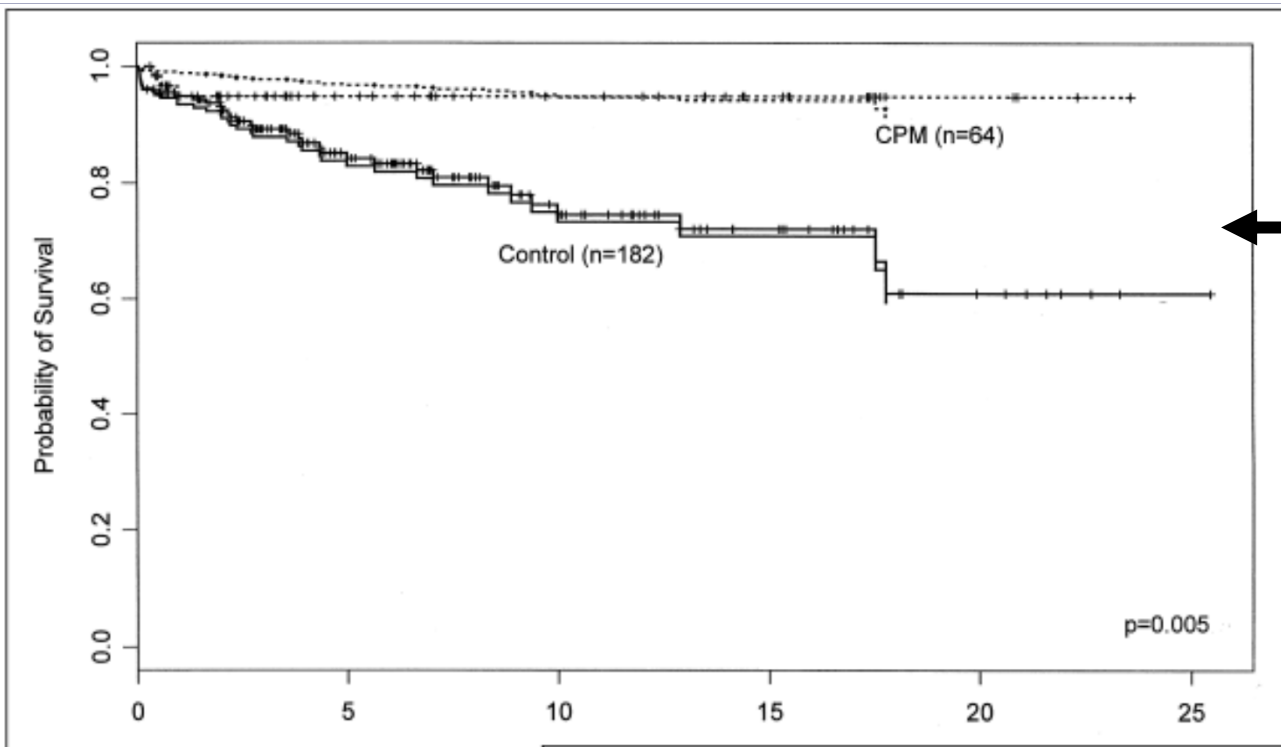


Year 2005-2009



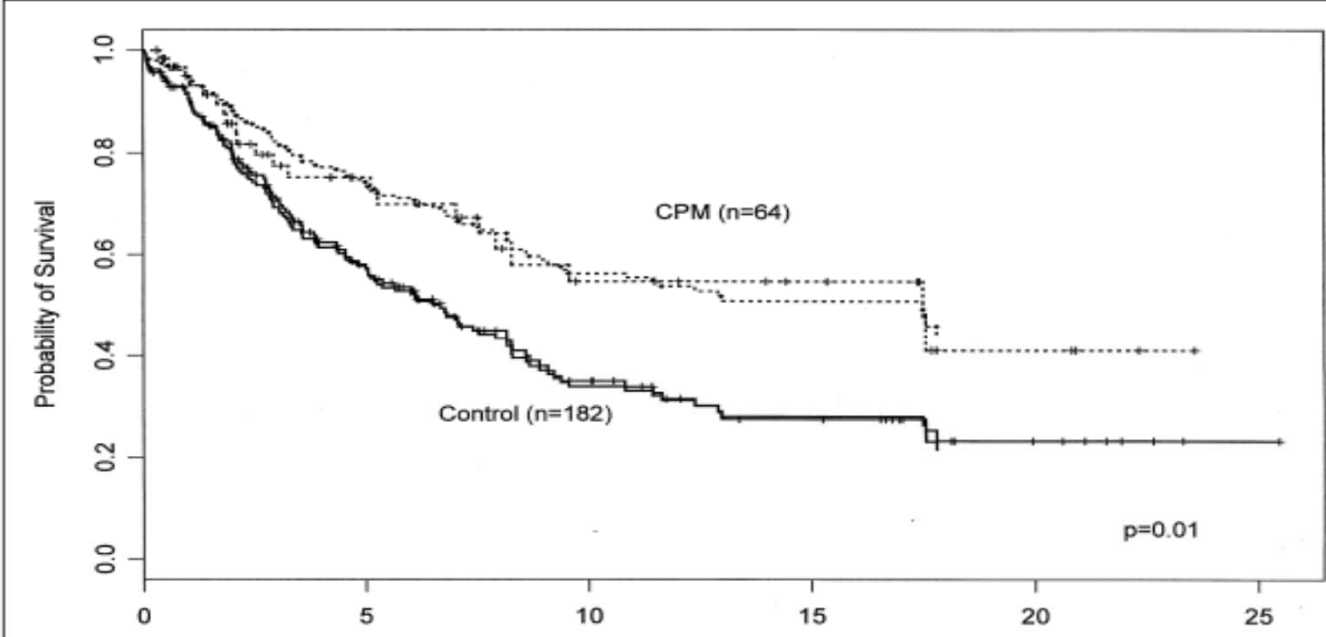
Tahmin edilebilir yıllık riskler (%)

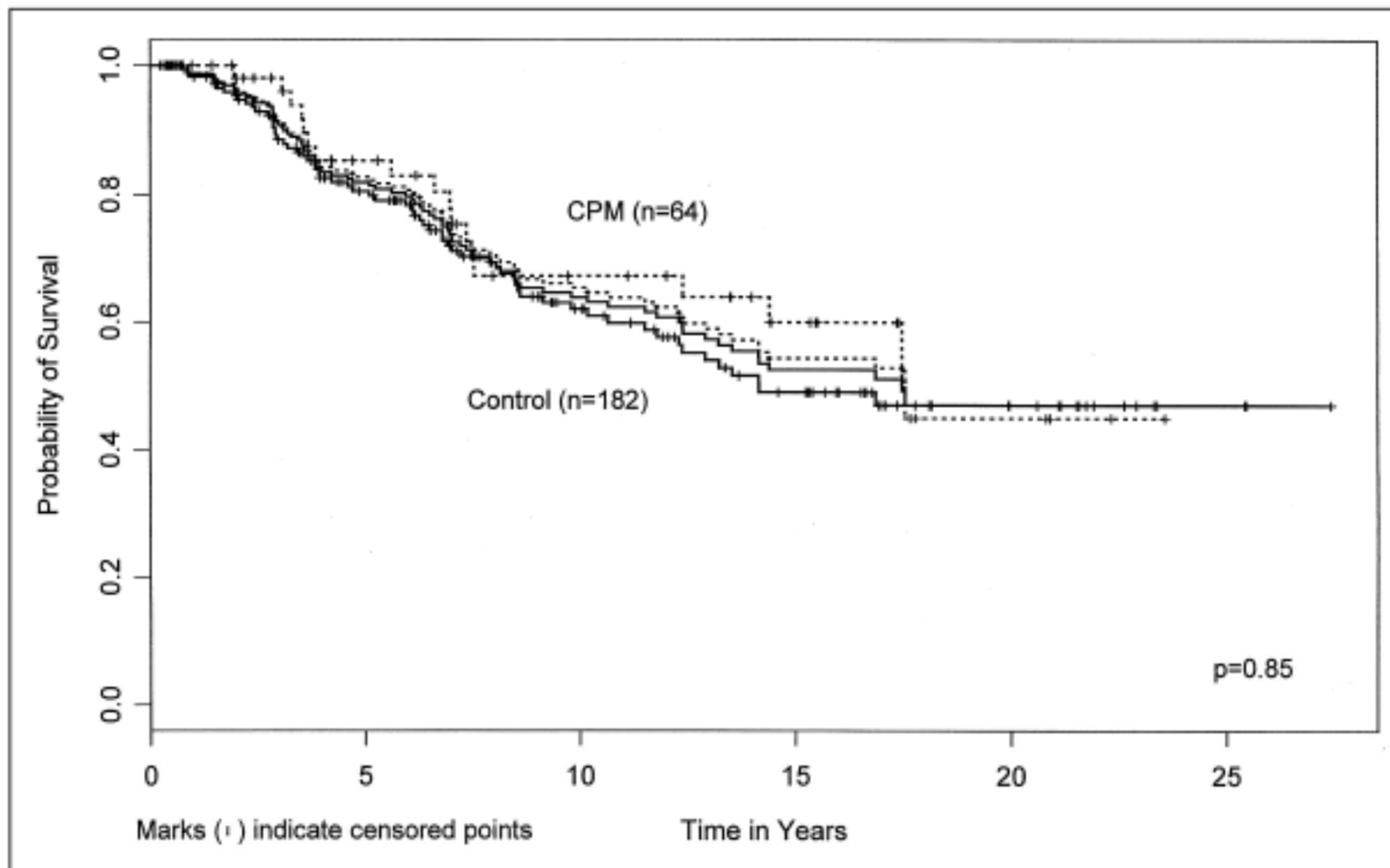
•Yaş<30	.4-1.3
•Yaş>50	.2-.4
•HR negatif	.2-.6
•HR (+)	.1-.4
•2.-3. derece akraba	minimal
•1.derece akraba	.2-.8
•Çoklu akraba 1.-2.	.4-1.3
•BRCA mutasyon	.9-3



CBC

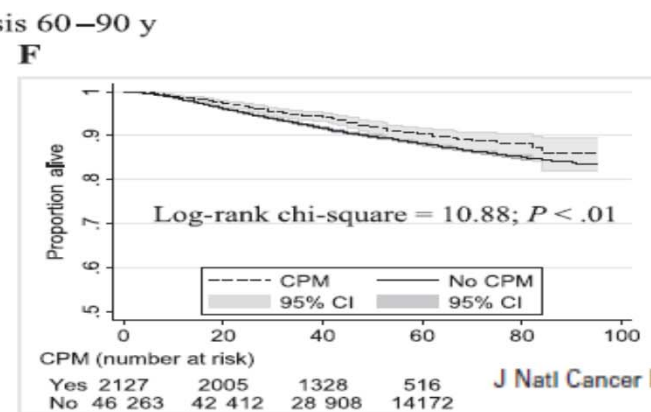
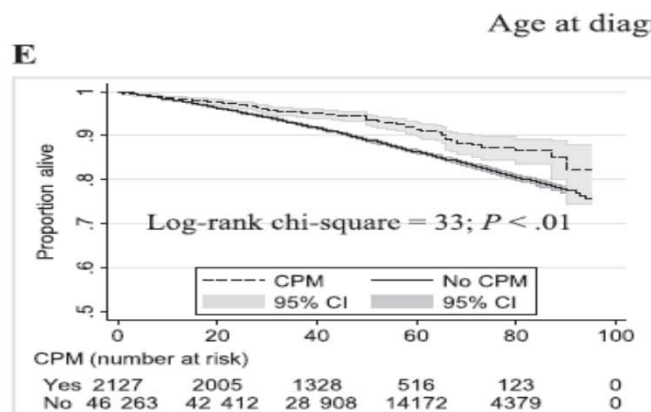
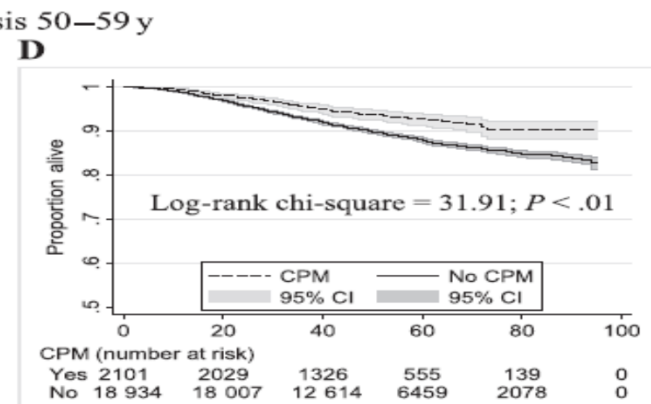
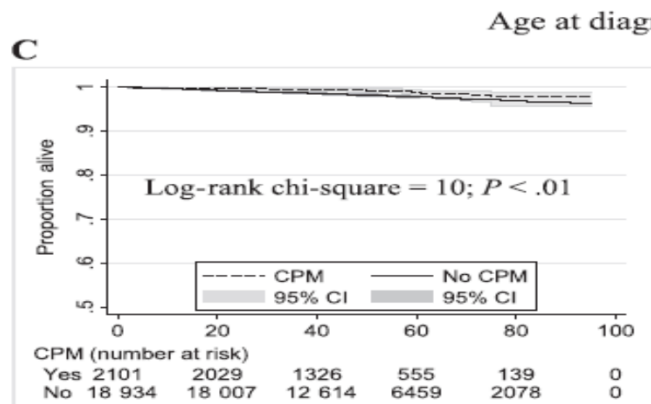
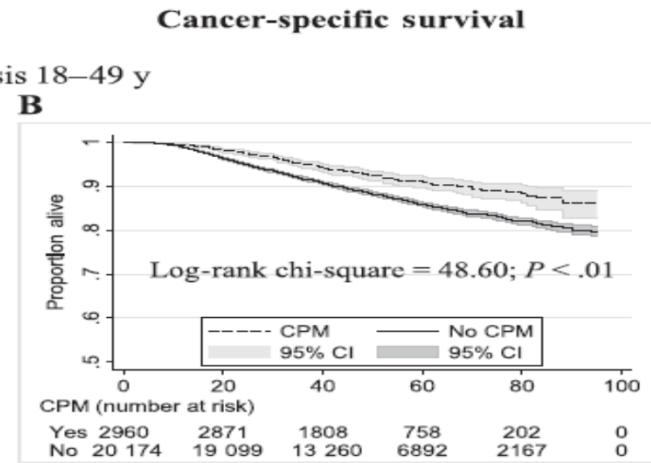
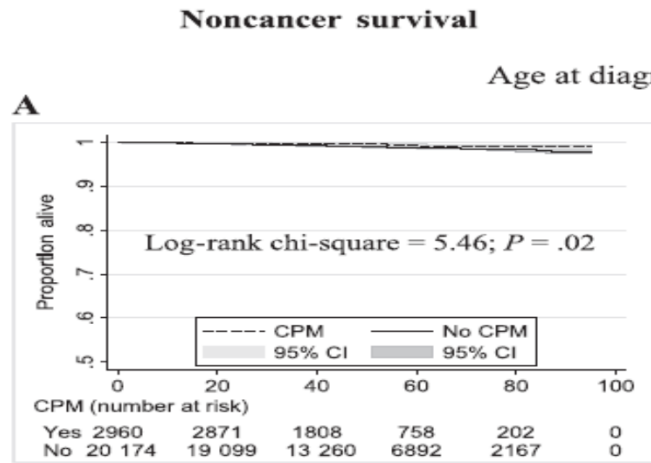
DFS





Overall survival. The third quintile of the propensity score is shown for both the contralateral prophylactic mastectomy

Do patients with unilateral breast cancer benefit from more aggressive surgery ?



%4.3 BC survi de artma

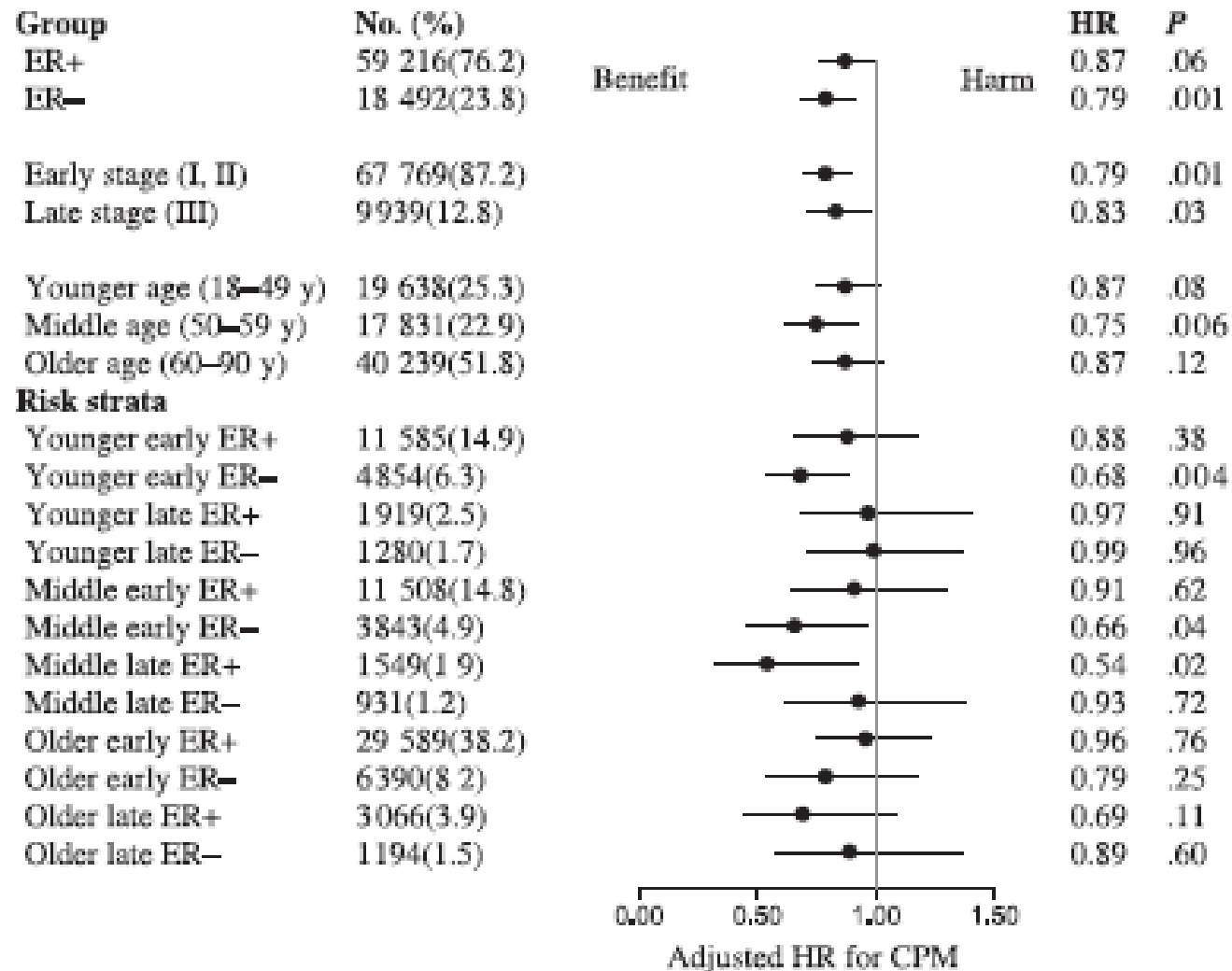


Table 3 – Contralateral prophylactic mastectomy outcomes.

Study	Year of publication	Type	Total N	CPM N	Median follow up – CPM (months)	Median follow up – nCPM (months)	DFS CPM	DFS nCPM	OOS CPM	OOS nCPM
Leis et al.	1981	Case Series	1147	127	64	n/a	93.1% (10 yrs)	n/a		
Babiera et al.	1997	Retrospective Cohort	133	18	52	70	89% (5yrs)	90% (5yrs)		
Peralta et al.	2000	Retrospective Cohort	182	64	74	82	55% (15 yrs)	28% (15 yrs)		
McDonnell et al.	2001	Case Series	1643	745	120	n/a	98.5% ^a (10yrs)	72.6% ^a (10yrs)		
Brewster	2012	Retrospective Cohort	3889	532	53	55	HR 0.75 ^b	ref		
Evans et al.	2013	Retrospective control	698	105	9.7 years	8.6 years			%89	%71

CPM: Contralateral Prophylactic Mastectomy.

nCPM: No Contralateral Prophylactic Mastectomy.

OOS: Overall survival.

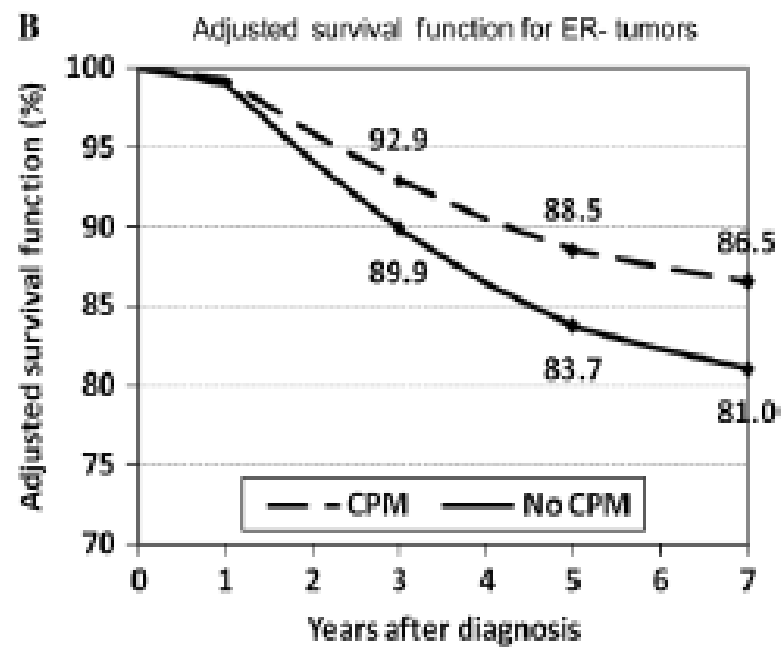
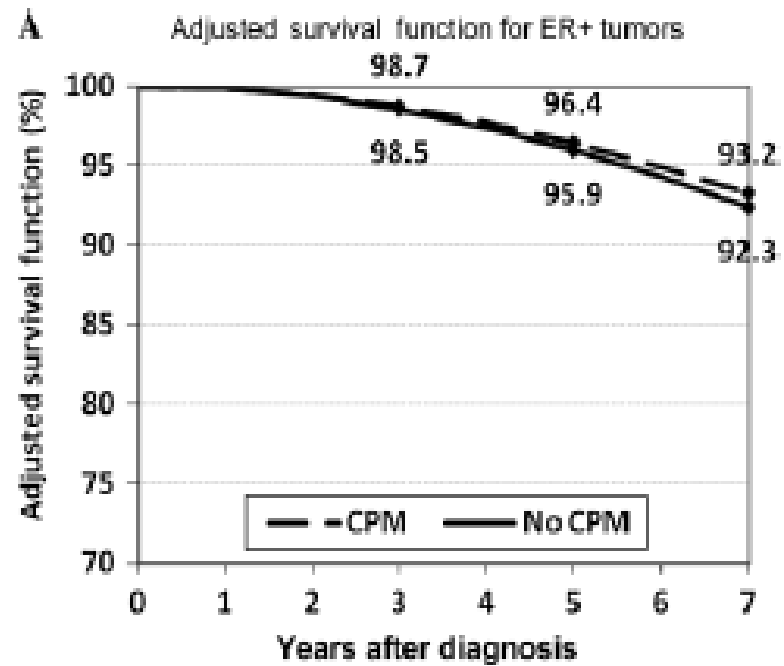
DFS: Disease free survival.

^a Premenopausal Patients.

^b 95% confidence interval [CI], 0.59–0.97.

Atilla Soran*, Ayfer Kamali Polat, Ronald Johnson, Kandace P. McGuire

Increasing trend of contralateral prophylactic mastectomy: What are the factors behind this phenomenon?, *The Surgeon* (2014), <http://dx.doi.org/10.1016/j.surge.2014.02.005>



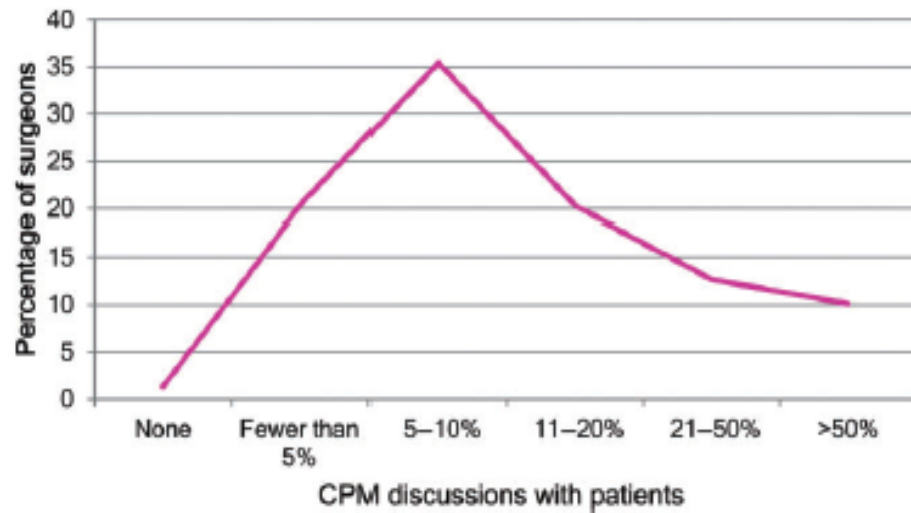


Fig. 2. Rates of contralateral prophylactic mastectomies (CPMs) discussions with patients.

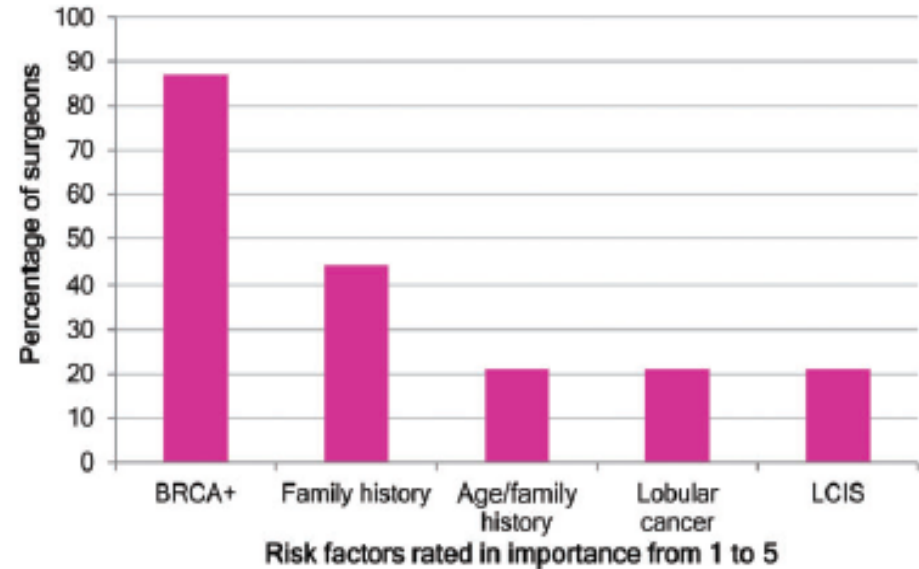


Fig. 4. Surgeon rated top five risk factors for developing a contralateral breast cancer. LCIS, lobular carcinoma in situ.

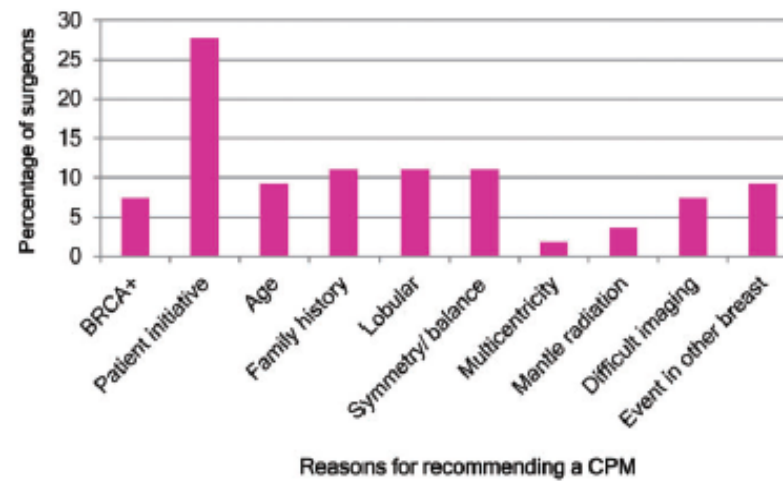


Fig. 5. Other variables surgeons report taking into consideration when recommending a contralateral prophylactic mastectomies (CPMs).

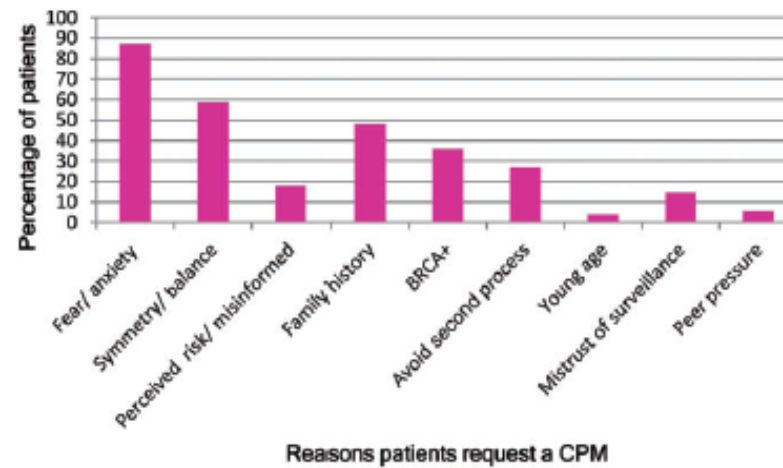


Fig. 6. The most commonly reported reasons women request a contralateral prophylactic mastectomies (CPMs).

TABLE 1. Patient Characteristics

Characteristics	No. Patients (n = 206), n (%)
Age at diagnosis (y)	
18-30	10 (4.9)
31-40	55 (26.7)
41-50	82 (39.8)
51-60	44 (21.4)
61-70	14 (6.8)
71 or older	1 (0.5)

Breast disease	
Unknown	14 (6.8)
Ductal carcinoma in situ	78 (37.9)
Lobular carcinoma in situ	9 (4.4)
Invasive carcinoma	104 (50.5)
Additional risks	1 (0.5)
Counseling for genetic testing	
Unknown	4 (1.9)
Yes	137 (66.5)
No	65 (31.6)
Genetic mutation testing	
Unknown	5 (2.4)
Yes	123 (59.7)
No	78 (37.9)
Genetic mutation test results of women tested (n = 123)	
Positive	36 (29)
Negative	87 (71)
Family history of breast cancer	
Unknown	4 (1.9)
None	47 (22.8)
First degree	58 (28.2)
Second degree	61 (29.6)
Combination	36 (17.5)

Plastic surgery	
Unknown	36 (17.5)
Yes	160 (77.7)
No	10 (4.9)
Previous breast surgery	
Unknown	1 (0.5)
Breast conservation/biopsy	79 (38.3)
Mastectomy	7 (3.4)
None	119 (57.8)
Received chemotherapy	
Before surgery	42 (20.4)
After surgery	80 (38.8)
No	84 (40.8)
Received radiotherapy	
Yes	57 (27.7)
No	149 (72.3)

TABLE 2. Factors Influencing a Patient's Decision to Undergo Contralateral Prophylactic Mastectomy

Reasons	No. Patients (n = 206), n (%)
Fear of recurrence	196 (95.2)
Consider surgery if covered by insurance	160 (77.7)
Spouse/partner's opinion positive for surgery	140 (68)
In situ diagnosis affect decision (n = 87)	59 (67.8)
Friends' and relatives' opinions positive for surgery	132 (64.1)
Availability of reconstructive/plastic surgery	122 (59.2)
Having a spouse	106 (51.5)
Spouse/partner's opinion influenced patient's final decision	101 (49.1)
Encouraged by doctor	87 (42.4)
Radiation/chemotherapy	77 (37.4)
Having children	72 (35)
Genetic testing/counselling (n = 137)	46 (34)
Friends' and relatives' opinions influenced patient's final decision	62 (30.1)
Influence from their mother	52 (25.2)
Job	18 (8.8)
Religion/belief	14 (6.8)
Change decision if marital status differed	6 (2.9)

TABLE 3. Measures of Satisfaction

Factors	No. Patients (n = 206), n (%)
"Satisfied" happy with surgery	200 (97.1)
Would change surgery decision	7 (3.4)
Would recommend surgery	191 (92.7)

CPM-MRI

MRI at diagnosis increased from 1.3% to 36.3% (1997-2005)

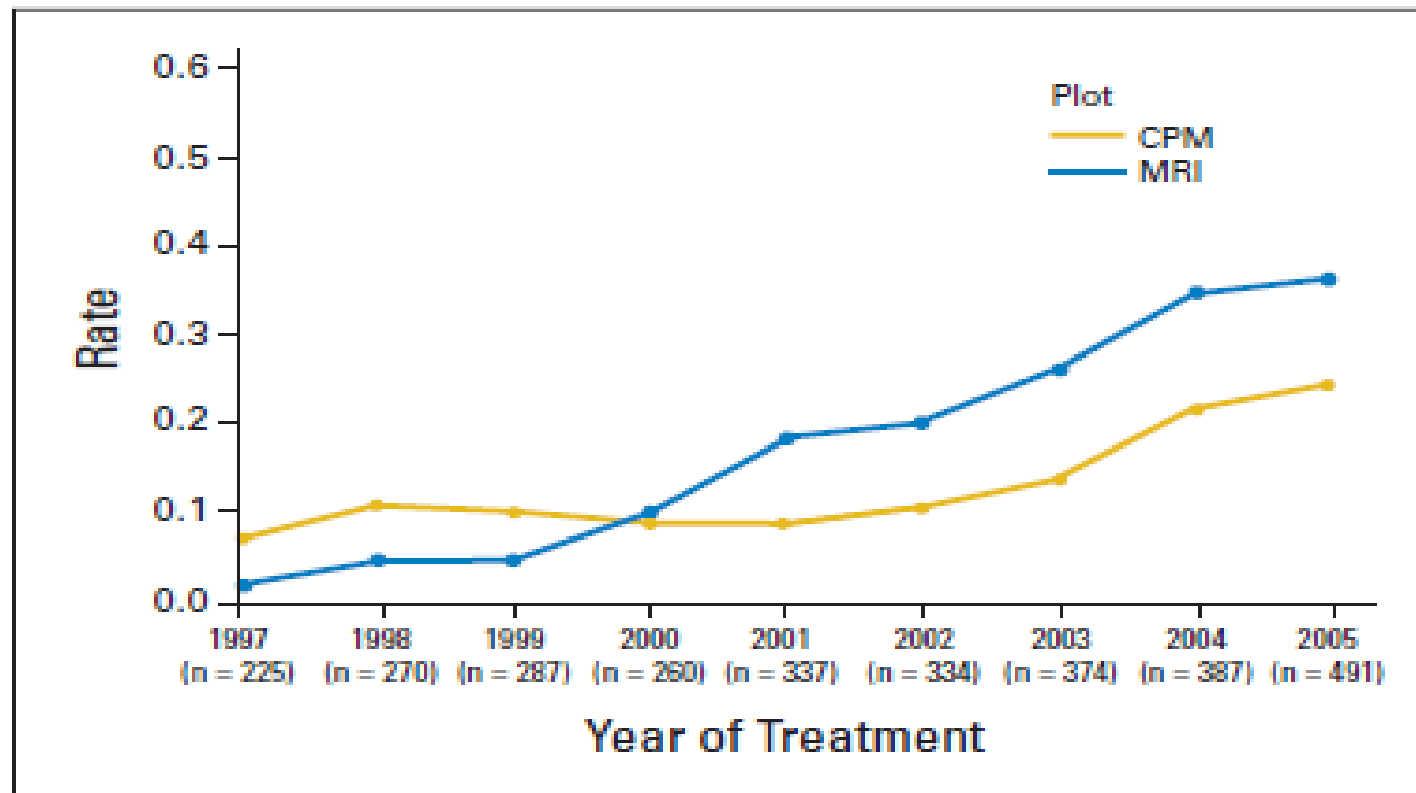
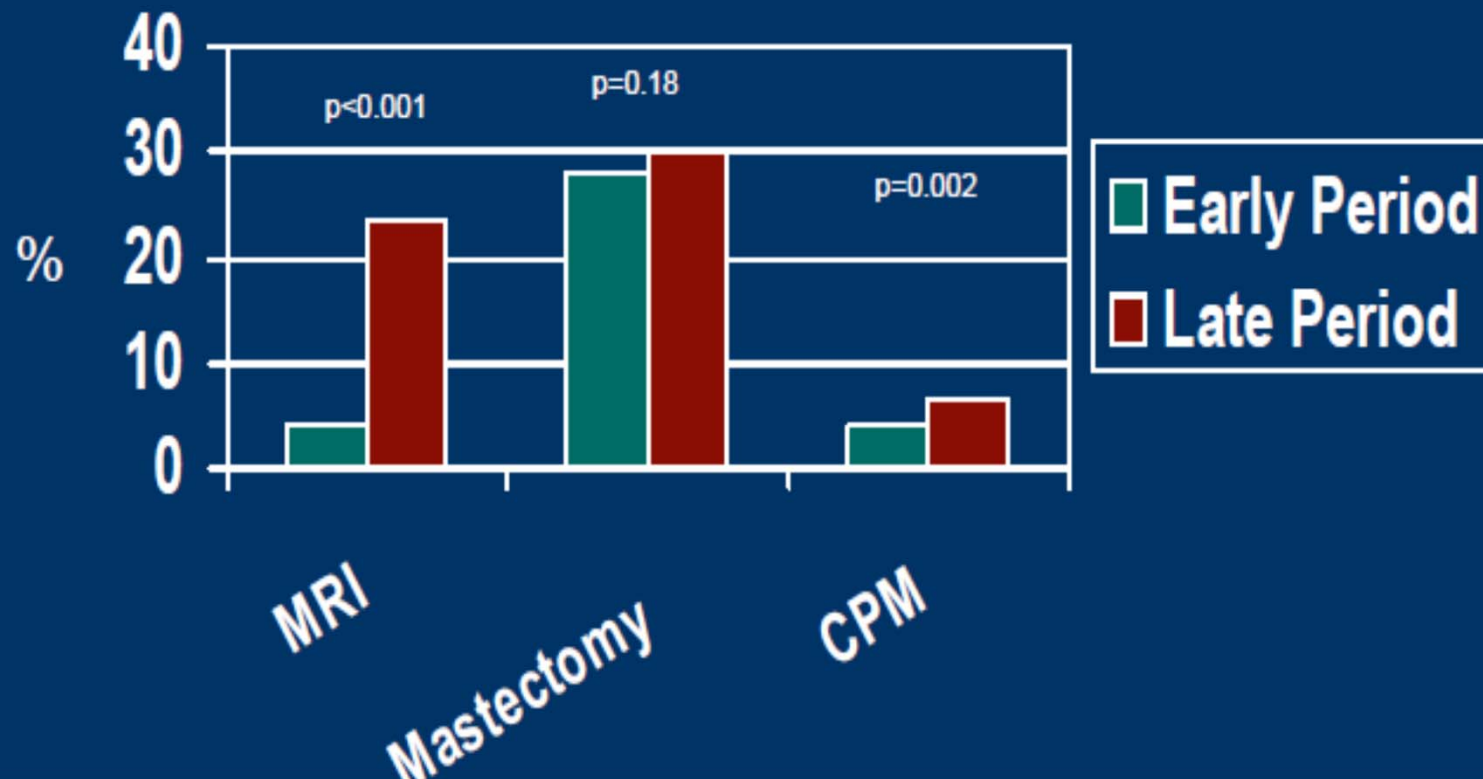


Fig 1. Rates of contralateral prophylactic mastectomy (CPM) and use of magnetic resonance imaging (MRI) at diagnosis by year of surgery.

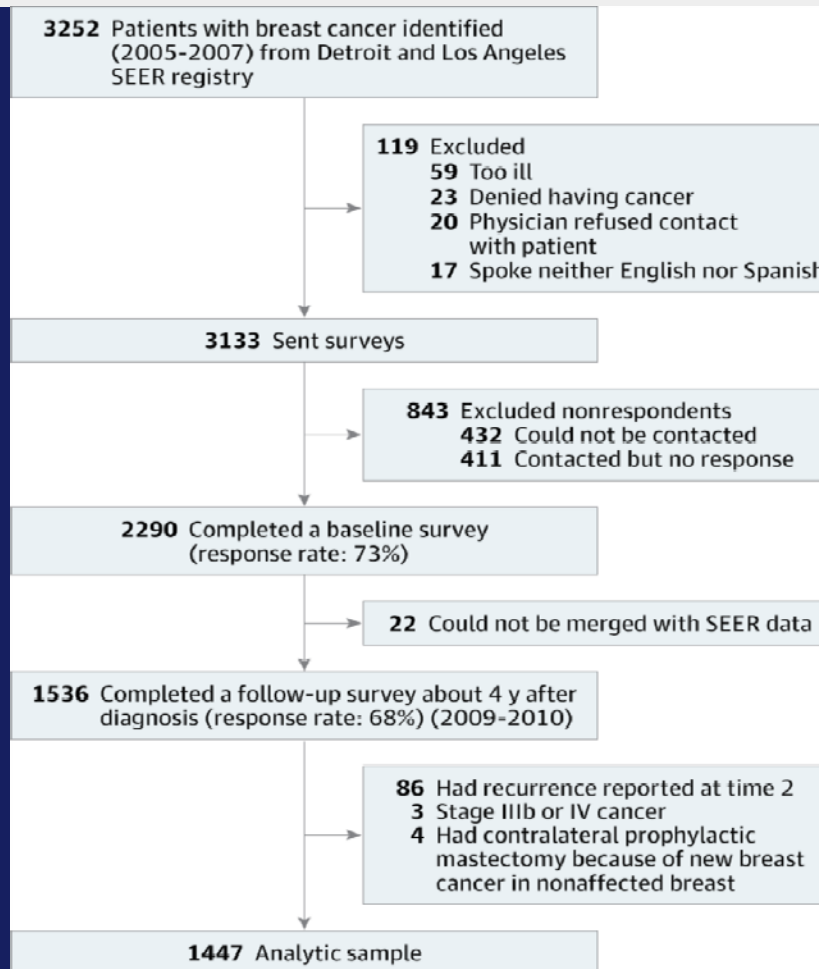
Sample Characteristics



Sorbero ME, Dick AW, Beckjord E, Ahrendt G. "Diagnostic Breast MRI and Contralateral Prophylactic Mastectomy." *Annals of Surgical Oncology* 2009; 16(6):1597-1605.

From: **Social and Clinical Determinants of Contralateral Prophylactic Mastectomy**

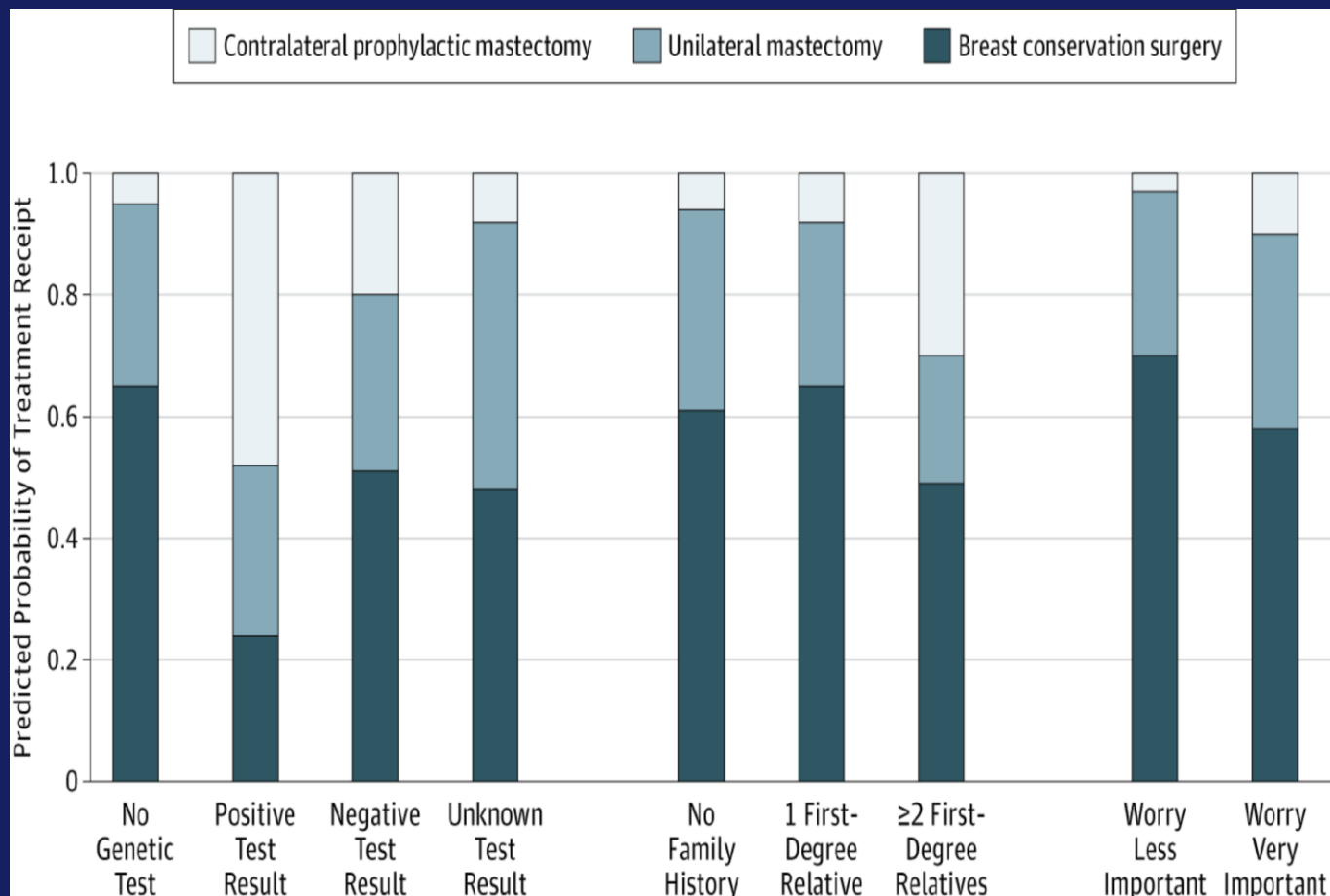
JAMA Surg. 2014;():. doi:10.1001/jamasurg.2013.5689



Study Flow Diagram
SEER indicates
Surveillance, Epidemiology, and End Results.

From: **Social and Clinical Determinants of Contralateral Prophylactic Mastectomy**

JAMA Surg. 2014;():. doi:10.1001/jamasurg.2013.5689



Predicted Probabilities of Receipt of Treatments by Clinical Indications and Worry About Recurrence Adjusted for age, race/ethnicity, education, income, stage, and study site.

Table 1 – Predictors of contralateral prophylactic mastectomy.

	Tuttle n = 51, 030	Yao n = 1,166,456	Yi n = 2, 504	Bedrosian n = 107,106	Sorbero n = 3,606	Brewster n = 3889	Arrington n = 571
CPM Rate ^b	7.7%	1.99%	11.3%	8.3%	5.3%	13.7%	28.9%
Predictors (OR)							
Young ^a Age	2.15–8.06*		1.84		10.88*	* 57.9%	
White Race	0.39–0.45*	0.452–0.636	2.63*	1.01–1.44*			
Positive Family History			1.58*		1.19*		1.37
BRCA Testing			5.16*				
Invasive Ca ^c	0.48–0.91*	0.536–0.703*	1.82*	8.97–74.49*	0.6–1.52		
Invasive Lobular Histology	1.38*	5.6*	1.58*	0.86			3.53*
MRI performed					2.04*		1.23
ER/PR Negative	1.02			2.36		*0.6	
cN0		0.610–0.946					0.53

*p value considered significant when <0.05.

CPM: Contralateral prophylactic mastectomy.

ER: Estrogen receptor.

PR: Progesterone receptor.

MRI: Magnetic resonance Imaging, cN0: Clinically node negative.

^a Young definition varies of ages from 30 to 70 in different studies.

^b CPM/Total breast cancer surgeries in study period.

^c vs. in situ carcinoma OR: Odds ratio.

Atilla Soran*, Ayfer Kamali Polat, Ronald Johnson, Kandace P. McGuire

, Increasing trend of contralateral prophylactic mastectomy: What are the factors behind this phenomenon?, *The Surgeon* (2014), <http://dx.doi.org/10.1016/j.surge.2014.02.005>

Table 4. Summary of Postoperative Complications in Study Cohort

Complication	n	%
Total	15,937	100.0
Wound complication	561	3.5
Any infection	604	3.8
Venous thromboembolic event	81	0.5
Medical complication	254	1.6
Major surgical complication	1,347	8.5
Superficial wound infection	296	1.9
Deep wound infection	196	1.2
Organ space infection	122	0.8
Wound dehiscence	104	0.7
Pneumonia	23	0.1
Reintubation	11	0.1
Pulmonary embolism	39	0.2
Urinary tract infection	57	0.4
Postoperative bleed/transfusion	127	0.8
Graft or flap loss	220	1.4
Deep venous thrombosis	51	0.3
Sepsis	11	0.1
Return to operating room	1,147	7.2

TABLE 4 Multivariable model of factors associated with overall 30-day postoperative complications

Factor	OR (95 % CI)	<i>P</i>
Bilateral versus unilateral mastectomy with sentinel lymph node biopsy	1.9 (1.3–2.8)	<0.01
Age	1.01 (1.00–1.02)	0.13
Diabetes	1.3 (0.9–1.9)	0.21
Smoker	2.2 (1.5–3.2)	<0.01
Body mass index	1.05 (1.03–1.07)	<0.01
Chronic obstructive pulmonary disease	1.3 (0.7–2.4)	0.50
Coronary artery disease	1.4 (0.8–2.5)	0.25
Hypertension	1.0 (0.7–1.4)	0.90
ASA 3 and 4 ^a	1.1 (0.8–1.5)	0.72
Chemotherapy	0.9 (0.2–3.8)	0.88

OR odds ratio, *CI* confidence interval, *ASA* American Society of Anesthesiologists

^aASA 3 and 4 were not included in the model.

TABLE 3 Frequency of 30-day postoperative complications in patients with unilateral mastectomy and SLNB versus bilateral mastectomy and SLNB

Complication	Unilateral mastectomy and SLNB <i>n</i> (%)	Bilateral mastectomy and SLNB <i>n</i> (%)	OR (95 % CI)
Overall	164 (4.2)	39 (7.6)	1.9 (1.3–2.7)*
Wound ^a	106 (2.9)	29 (5.8)	2.1 (1.3–3.3)*
Infectious ^b	29 (0.8)	11 (2.2)	2.9 (1.3–6.0)*
Respiratory ^c	5 (0.1)	0 (0.0)	(0–5.8)**
Thromboembolic ^d	10 (0.3)	1 (0.2)	0.7 (0–5.3)
Renal ^e	1 (0.03)	0 (0.0)	NA
Neurologic ^f	3 (0.1)	1 (0.2)	2.5 (0.04–31.2)
Cardiac ^g	2 (0.1)	0 (0.0)	(0–14.4)**
Bleeding ^h	15 (0.4)	0 (0.0)	(0–1.9)**

- Age
- Family history of BC
- BRCA1/2 genetic testing
- Invasive lobular histology
- DCIS
- Hormone replacement therapy

- Fear a 2nd BC
- Changing perception BCS /RT
- Fear of CT/RT/HT
- Martial status
- Difficult/long surveillance
- Experience of Chemoprevention
- Socioeconomic status
- Body image
- **Media reports**
- Public awareness

Potential contributing factors

- Preoperative MRI w/ additional biopsy
- Diagnostic difficulties for CBC
- Failed attempt at BCT
- Improved mastectomy
- Reconstruction

Kathy Bates: The actress, who beat ovarian cancer close to a decade ago, shared last month that she had been diagnosed with breast cancer and underwent a double mastectomy.

Double Mastectomy
Sharon Osbourne
Undergoes Breast-Removal Surgery



CHRISTINA APPLGATE: WHY SHE HAD A DOUBLE MASTECTOMY

Michelle Heaton speaks about her double mastectomy and says: "It's the hardest thing in the world not being able to hold your child"

Allyn Rose, Miss America Contestant, To Undergo Double Mastectomy To Prevent Breast Cancer

"My chances of developing breast cancer have dropped from 87 percent to under 5 percent," Jolie wrote in a surprise op-ed published in ...that applauded partner Brad Pitt's support. "I can tell my children that they don't need to fear they will lose me to breast cancer."



Conclusion

- Overall survival
 - Selected pts most likely to benefit
- Risk reduction
 - Disease free survival
- Satisfaction w/cosmetic outcome
- RR w Chemoprevention works in some pts and has side effects,
- Long term follow up is not always acceptable
- It must be pt's decision: CPM vs. alternative risk reduction procedures



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