

Supplementary Online Content

Thomas A, Khan SA, Chrischilles EA, Schroeder MC. Initial surgery and survival in stage IV breast cancer in the United States, 1988-2011. *JAMA Surg*. Published online December 2, 2015. doi:10.1001/jamasurg.2015.4539.

eFigure 1. Inclusion and Exclusion Criteria for Patient Population

eFigure 2. Kaplan-Meier Survival Curves by Receipt of Surgery

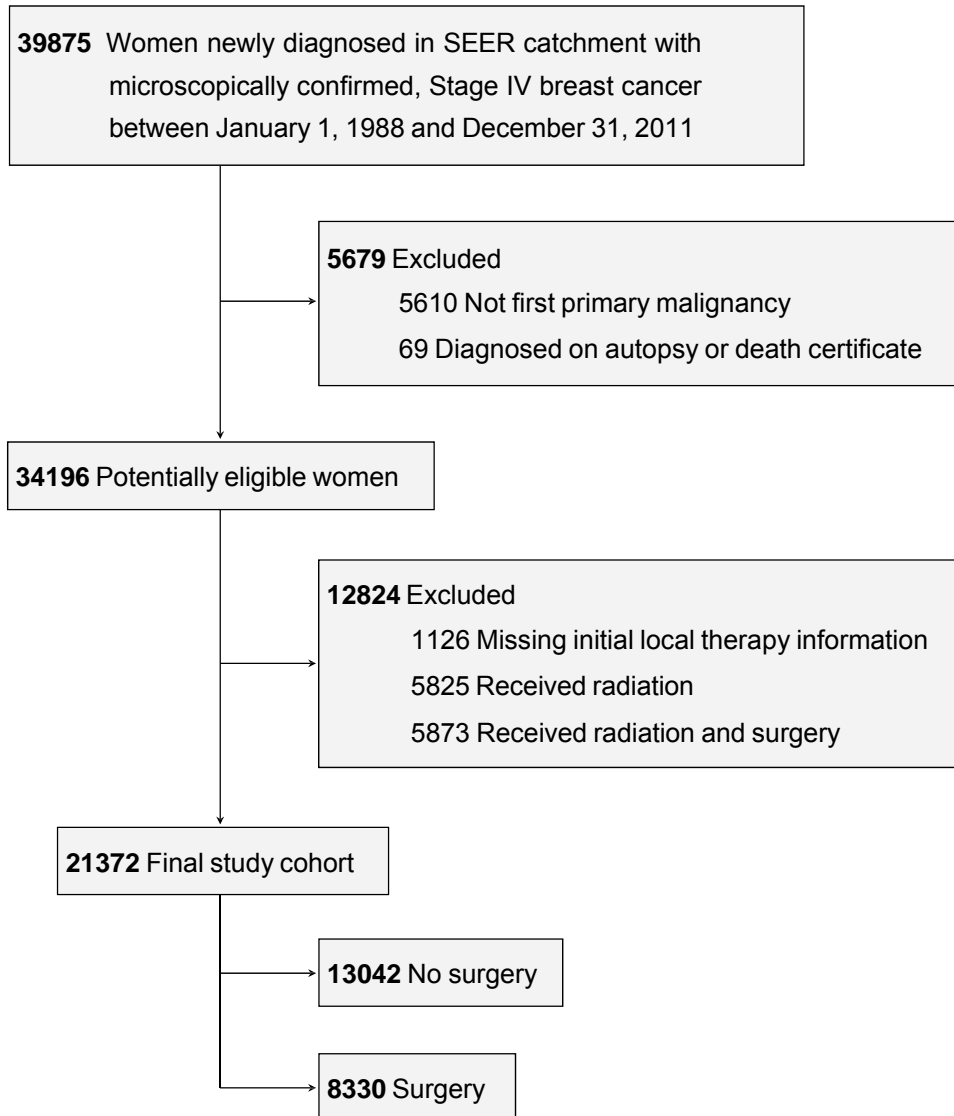
eTable 1. Estimates of the Effect of Surgery on Outcomes, Adjusting for the Propensity to Receive Surgery

eTable 2. Percent of Women Surviving at Least Ten Years by Receipt of Surgery

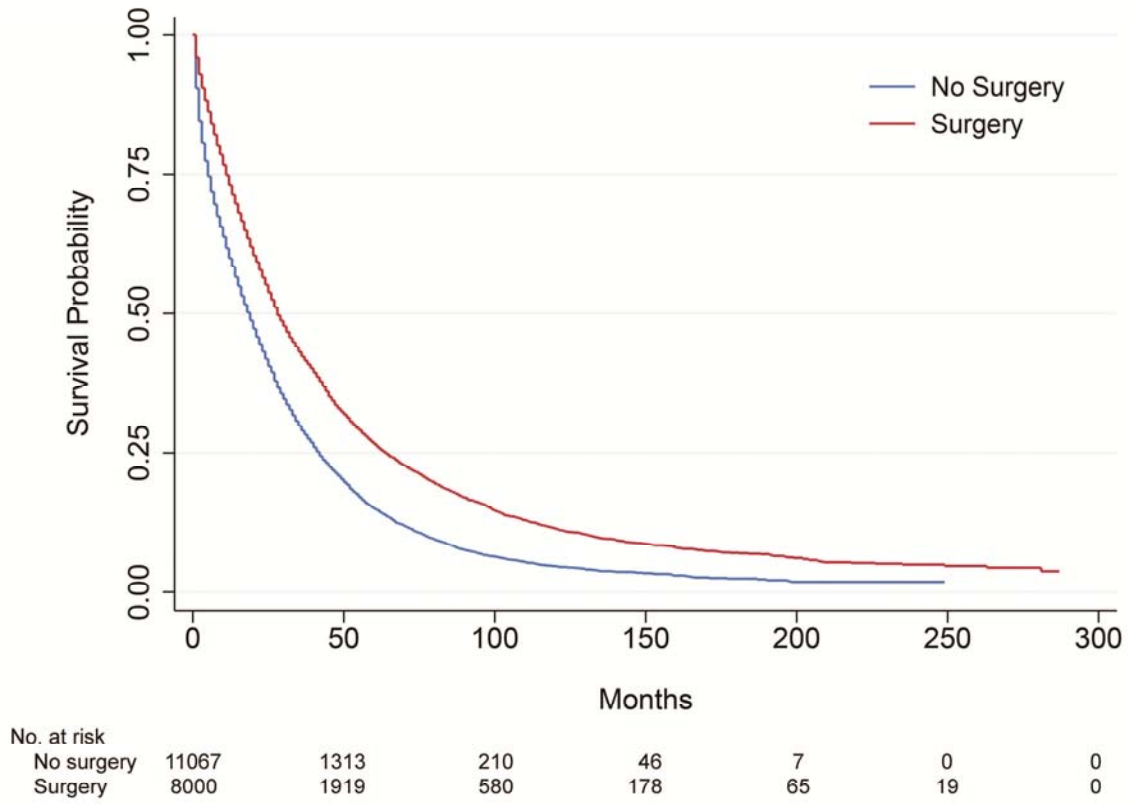
eTable 3. Characteristics of Women who Survived Ten or More Years Compared with Those who Died within the Median Survival Time (20 Months)

This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure 1. Inclusion and Exclusion Criteria for Patient Population



eFigure 2. Kaplan-Meier Survival Curves by Receipt of Surgery



eTable 1. Estimates of the Effect of Surgery on Outcomes, Adjusting for the Propensity to Receive Surgery

Panel A. Royston-Parmar flexible parametric survival model	HR	<i>P</i>	95% CI	
Without propensity adjustment	0.60	<0.001	0.57	0.63
With propensity adjustment, includes no other covariates	0.63	<0.001	0.60	0.66
With propensity adjustment, includes all other covariates	0.60	<0.001	0.57	0.63
Panel B. Logistic model of prolonged survival (10 or more years)	OR	<i>P</i>	95% CI	
Without propensity adjustment	2.80	<0.001	2.08	3.77
With propensity adjustment, includes no other covariates	2.75	<0.001	2.05	3.69
With propensity adjustment, includes all other covariates	2.76	<0.001	2.05	3.72

eTable 2. Percent of Women Surviving at Least Ten Years by Receipt of Surgery^a

	Full sample	No surgery	Surgery	OR ^b	95% CI
Full sample	6.2	2.8	9.6	3.61	2.89-4.50
Age at diagnosis					
<45	8.3	4.9	11.0	2.39	1.34-4.24
45-64	8.9	4.2	13.5	3.52	2.62-4.74
65+	3.6	1.5	5.9	4.21	2.78-6.39
Tumor size					
≤2cm	10.6	3.8	13.4	3.94	2.13-7.28
>2-5cm	8.0	4.0	10.0	2.64	1.73-4.04
>5cm	3.6	2.0	5.5	2.87	1.72-4.79
Diagnosis year					
1988-1991	5.5	1.9	7.7	4.36	2.22-8.55
1992-1996	6.4	3.4	9.4	2.91	2.00-4.24
1997-2001	6.3	2.8	10.7	4.18	3.09-5.66
Marital status					
Married	8.5	4.2	12.1	3.14	2.33-4.24
Single	5.5	2.8	8.8	3.31	1.92-5.70
Separated	3.9	1.4	6.8	5.17	3.20-8.36
Unknown	6.0	4.7	8.1	1.77	0.64-4.87
Race					
White	6.2	3.0	9.4	3.42	2.68-4.37
Black	5.2	2.5	8.6	3.65	2.00-6.69
Other	7.8	2.4	1.4	6.48	2.44-17.26
Hispanic					
No	6.2	2.8	9.6	3.74	2.97-4.72
Yes	6.2	4.1	8.4	2.14	1.01-4.54
Hormone receptor status					
Negative	5.0	3.2	6.4	2.03	1.13-3.68
Positive	8.1	3.7	11.1	3.31	2.40-4.57
Unknown	4.7	2.2	8.7	4.24	2.95-6.10

^a Sample included women diagnosed before 2002.

^b Odds of surviving at least ten years by receipt of surgery for a given characteristic compared to those not in this category.

eTable 3. Characteristics of Women who Survived Ten or More Years Compared with Those who Died within the Median Survival Time (20 Months)^a

	Those who died within 20 months	Those who survived 10+ years	OR ^b	95% CI
Sample Size	4,152	460		
Local Therapy				
No surgery	60.04%	23.30%	0.20	0.16-0.25
Surgery	39.96%	76.70%	4.96	3.96-6.21
Age at diagnosis				
<45	9.10%	13.90%	1.61	1.21-2.14
45-64	35.60%	57.00%	2.39	1.97-2.91
65+	55.30%	29.10%	0.33	0.27-0.41
Tumor size				
≤2cm	18.82%	32.70%	2.09	1.64-2.67
>2-5cm	37.57%	46.10%	1.42	1.14-1.78
>5cm	43.60%	21.20%	0.35	0.27-0.45
Diagnosis year				
1988-2001	18.79%	16.70%	0.87	0.67-1.12
1992-1996	31.07%	31.70%	1.03	0.84-1.27
1997-2001	50.14%	51.50%	1.06	0.87-1.28
Marital status				
Married	36.05%	57.40%	2.39	1.96-2.90
Single	16.91%	14.60%	0.84	0.64-1.10
Separated	43.23%	24.60%	0.43	0.34-0.53
Unknown	3.81%	3.50%	0.91	0.54-1.54
Race				
White	78.38%	81.00%	1.18	0.92-1.51
Black	16.38%	12.20%	0.71	0.53-0.95
Other Race	5.24%	6.80%	1.31	0.89-1.94
Hispanic				
No	93.32%	93.00%	0.96	0.65-1.40
Yes	6.68%	7.00%	1.05	0.72-1.53
Hormone receptor status				
Negative	18.86%	12.20%	0.60	0.45-0.80
Positive	33.43%	55.90%	2.52	2.07-3.06
Unknown	47.71%	32.00%	0.51	0.42-0.63

^a Sample included women diagnosed before 2002.

^b Odds of surviving at least 10 years vs dying within 20 months given this characteristic compared to those not in this category.