

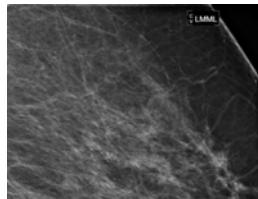
Local Therapy for Early Breast Cancer: Trends, Complications, and Patient-centered Outcomes

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Depts of Radiation Oncology and Health Services Research



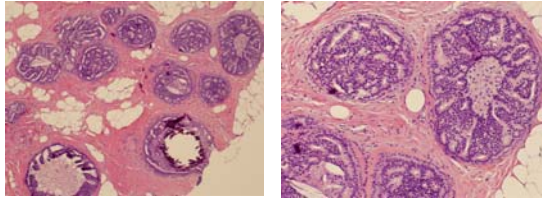
Patient Case

- 67 yo woman
- Obese, anxious
- Otherwise healthy



Smith BD, J Clin Oncol 2015

Patient Case



Smith BD, J Clin Oncol 2015

Patient Case

- How to treat this patient?
- Options
 - Lumpectomy alone
 - Lumpectomy + whole breast radiation
 - Lumpectomy + partial breast radiation
 - Mastectomy
 - Mastectomy with reconstruction

Smith BD, J Clin Oncol 2015

Theme of my research

- What is the optimal local therapy for women with early breast cancer?
 - Oncologic outcome
 - Complication profile
 - Cost
 - Burden on patients

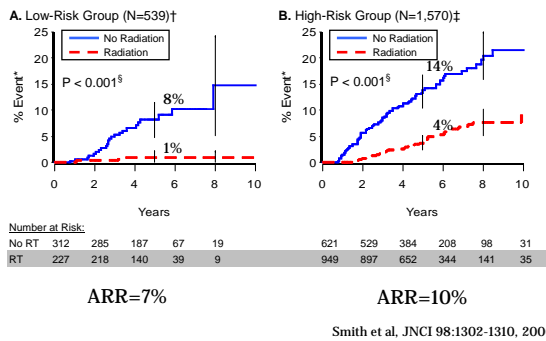
Generating evidence to help patients choose between

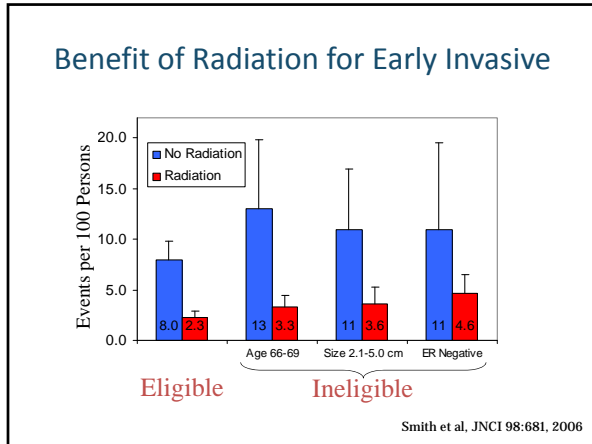
- Lumpectomy alone
- Lumpectomy + whole breast radiation
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- Mastectomy
- Mastectomy with reconstruction

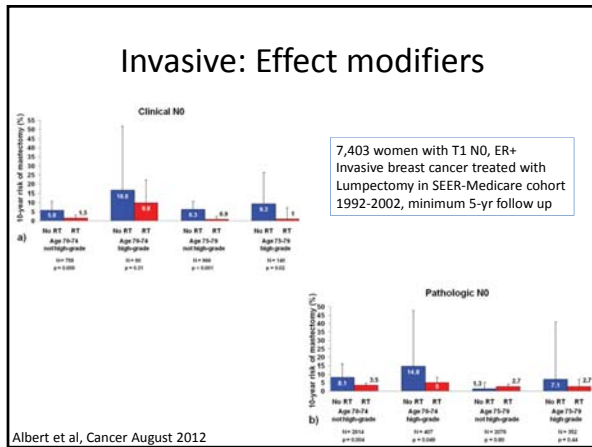
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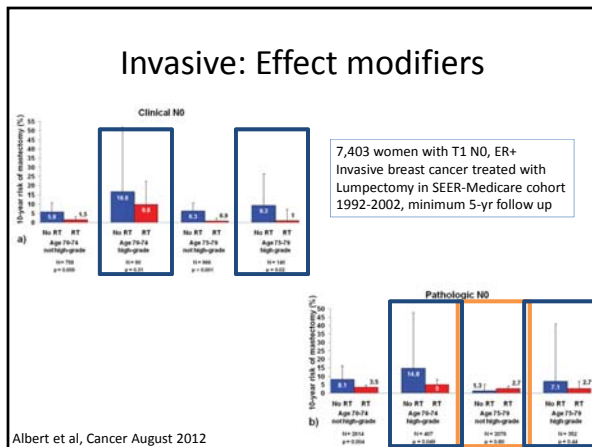
- **Lumpectomy alone**
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- Mastectomy with reconstruction

Benefit of Radiation for DCIS









Breast Cancer Nomogram to Predict Benefit of Radiation for Older Patients With Breast Cancer Treated With Conservative Surgery

	5-Year Risk of Mastectomy	15-Year Risk of Mastectomy
Without Radiation Therapy	2%	5%
With Radiation Therapy	1%	3%

This software calculates the benefit of radiation for older patients with breast cancer treated with conservative surgery. This nomogram was developed at the University of Texas MD Anderson Cancer Center and has not yet been externally validated.

Age: Select age between 65 and 79
75-79

Race: Select race
white

Tumor: Select tumor size
2.0 cm or less

Estrogen Receptor Status: Select estrogen receptor status
Positive

Node Status: Select node status.
Pathologically-confirmed node-negative refers to lymph node-negative disease that has been confirmed by axillary lymph node dissection or sentinel lymph node evaluation. Clinically-assessed node-negative refers to negative axillary nodes by physical examination and/or imaging without pathologic confirmation.
Pathologically-confirmed node-positive refers to lymph node-positive disease that has been pathologically assessed and confirmed.
Pathologically-confirmed node-positive

Albert et al, J Clin Oncol 30:2837-43, 2012

Breast Cancer Nomogram to Predict Benefit of Radiation for Older Patients With Breast Cancer Treated With Conservative Surgery

	5-Year Risk of Mastectomy	15-Year Risk of Mastectomy
Without Radiation Therapy	10%	22%
With Radiation Therapy	5%	7%

This software calculates the benefit of radiation for older patients with breast cancer treated with conservative surgery. This nomogram was developed at the University of Texas MD Anderson Cancer Center and has not yet been externally validated.

Age: Select age between 65 and 79
65-69

Race: Select race
Black

Tumor: Select tumor size
Greater than 2.0 cm

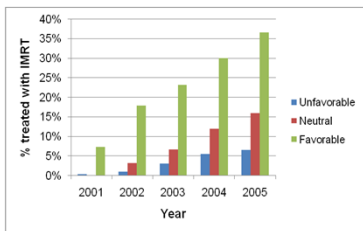
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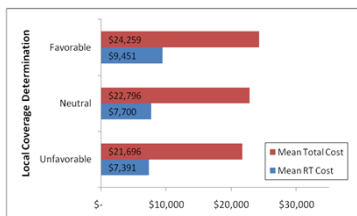
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- Lumpectomy alone
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IMRT Adoption by LCD



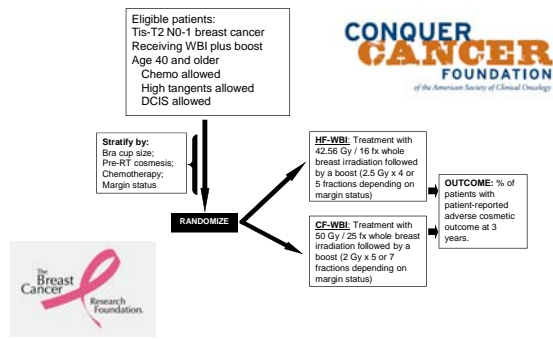
Smith et al, JNCI 2011

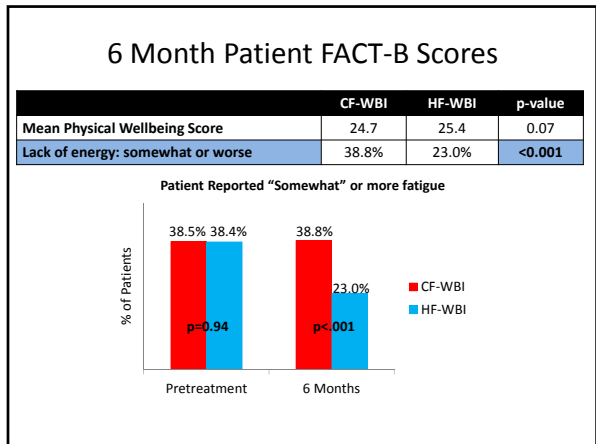
Cost by LCD



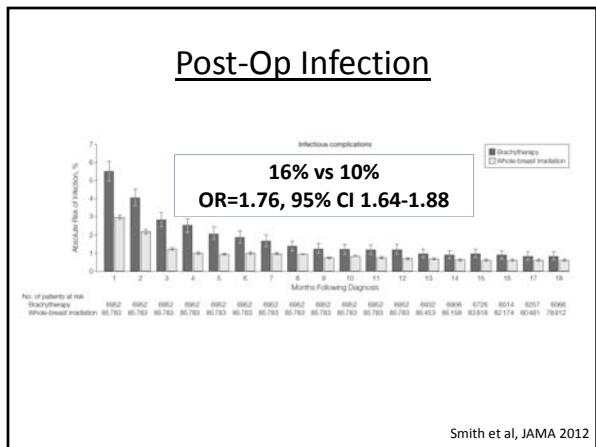
Smith et al, JNCI 2011

MD Anderson 2010-0559

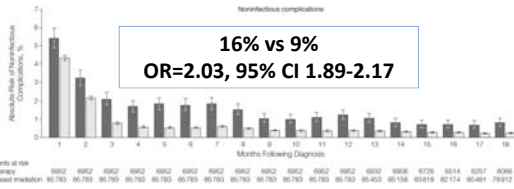




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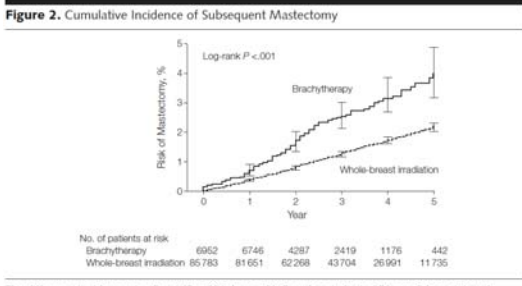


Non-infectious complication



Smith et al, JAMA 2012

Kaplan-Meier Curves

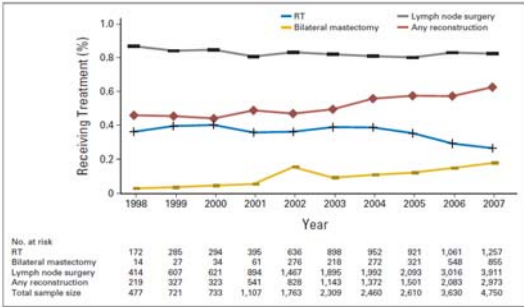


Smith et al, JAMA 2012

Generating evidence to help patients choose between

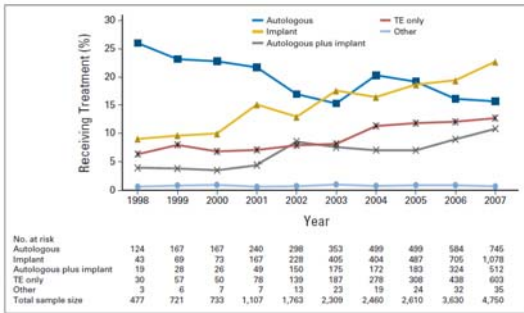
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Mastectomy and Reconstruction

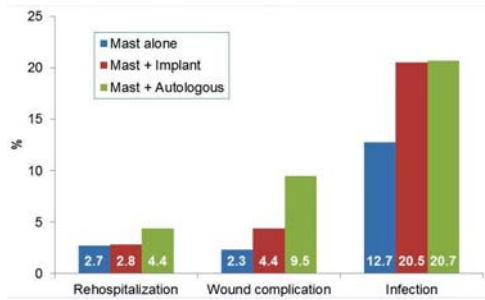


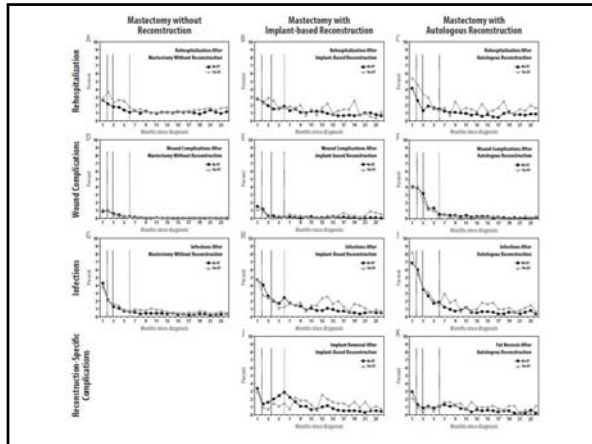
Jagsi et al, J Clin Oncol 2014

Mastectomy and Reconstruction



Complications of Reconstruction





How do we help patients choose?

- Lumpectomy alone
- Lumpectomy + whole breast radiation
- Lumpectomy + partial breast radiation
- Mastectomy
- Mastectomy with reconstruction

Objective

1. Characterize trends in local therapy for older women with early breast cancer
2. Determine predictors of choice of local therapy
3. Compare cost of different options
4. Compare complication profile of different options

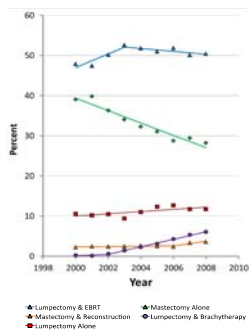
Cohort

- 55,327 women
 - Age 66 and older
 - T1-2 N0 breast cancer
 - Diagnosed 2000 to 2008
 - Two years of subsequent claims to assess reconstruction

Methods

1. Evaluate time trends using Joinpoint
2. Identify predictors of local therapy choice using polychotomous logistic regression
3. Compare costs within first two years of diagnosis, adjusted for inflation
4. Use diagnosis codes to characterize complications within first two years of diagnosis

Time trends

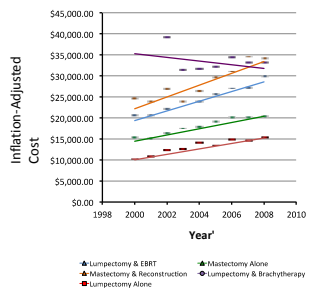


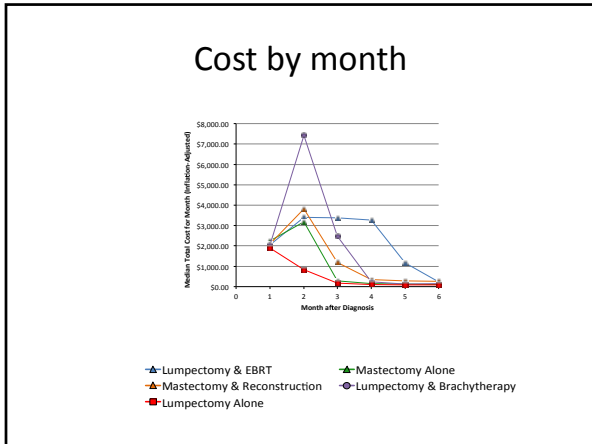
Predictive model

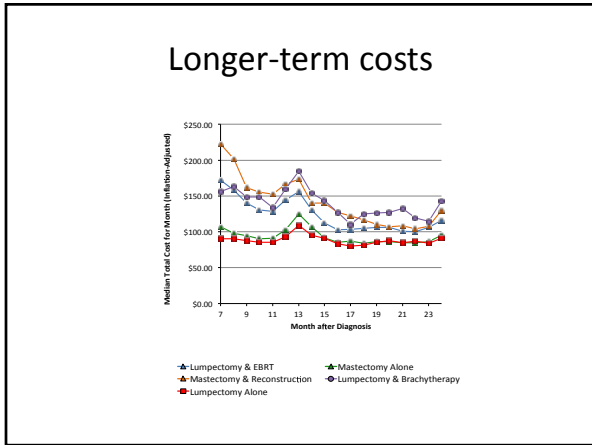
Patient Factors	Mastectomy Alone			Mastectomy & Reconstruction			Lumpectomy & Brachytherapy			Lumpectomy Alone		
	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value
Age												
66-69	1			1			1			1		
70-74	1.23	1.17-1.31	<.0001	0.65	0.57-0.73	<.0001	1.02	0.89-1.18	0.7611	1.28	1.14-1.44	<.0001
75-79	1.57	1.49-1.67	<.0001	0.4	0.34-0.46	<.0001	1.07	0.92-1.25	0.3754	2.05	1.83-2.29	<.0001
80-84	2.22	2.06-2.37	<.0001	0.19	0.15-0.25	<.0001	1.14	0.96-1.36	0.1338	4.21	3.77-4.70	<.0001
85+	4.4	4.04-4.81	<.0001	0.31	0.21-0.45	<.0001	1.56	1.22-2.00	0.0003	12.6	11.3-14.3	<.0001
Race												
White	1			1			1			1		
Black	1.18	1.09-1.29	<.0001	0.85	0.66-1.1	0.22	1.12	0.87-1.44	0.38	1.12	0.98-1.29	0.089
Other/Unknown	1.57	1.44-1.72	<.0001	0.6	0.44-0.81	0.0009	0.67	0.5-0.9	0.0069	0.99	0.85-1.15	0.86

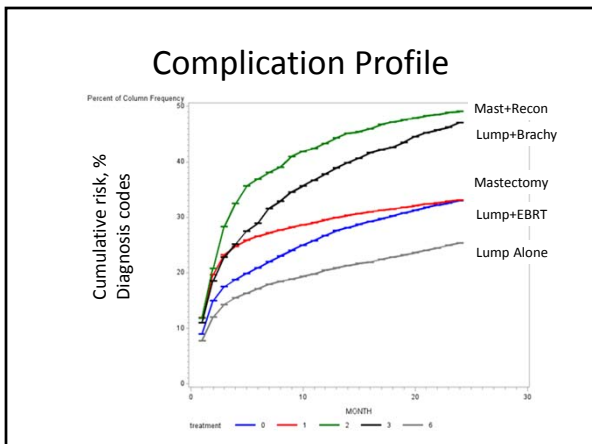
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	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value	HR	95% CI	p-value
Histology												
Ductal, tubular, mucinous	1			1			1			1		
Lobular	1.27	1.18-1.36	<.0001	1.79	1.5-2.13	<.0001	0.54	0.42-0.69	<.0001	0.83	0.74-0.94	0.003
Other invasive	1.17	1.11-1.24	<.0001	1.53	1.32-1.77	<.0001	0.9	0.76-1.05	0.184	1.02	0.94-1.12	0.62
DCIS	2.27	2.04-2.53	<.0001	4.06	3.33-4.96	<.0001	0.9	0.65-1.23	0.504	2.47	2.08-2.92	<.0001
Grade												
Low-intermediate	1			1			1			1		
High	1.16	1.10-1.22	<.0001	1.16	1.02-1.33	0.027	0.75	0.64-0.88	0.000	0.79	0.72-0.86	<.0001
Other/unknown	1.23	1.13-1.33	<.0001	1.29	1.06-1.58	0.012	0.82	0.62-1.09	0.167	1.14	1.01-1.28	0.039
Estrogen Receptor Status												
ER+	1			1			1			1		
ER-	1.19	1.12-1.27	<.0001	1.2	1.02-1.41	0.032	0.65	0.52-0.8	<.0001	0.77	0.69-0.87	<.0001
Unspecified	1.82	1.71-1.94	<.0001	1.26	1.06-1.51	0.011	1.34	1.08-1.66	0.007	1.64	1.49-1.8	<.0001

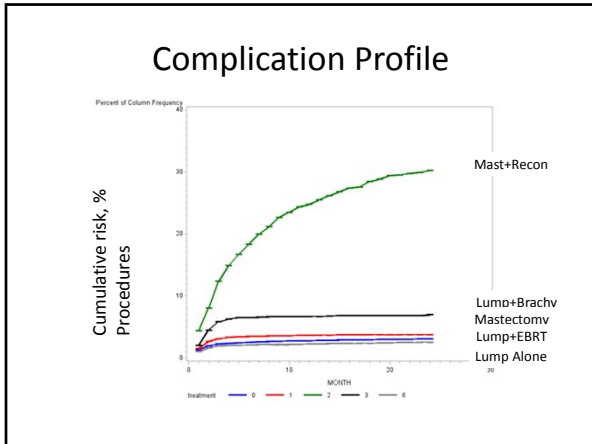
Comparative Cost

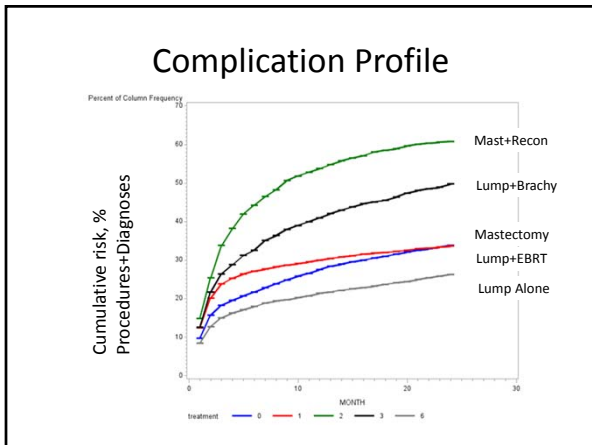












- ### Conclusions
- Brachytherapy and Mastectomy plus reconstruction are the options increasing at the fastest rate
 - They are also the most costly
 - They also carry the highest complication burden
 - Their value is suspect

Next Steps

- Patient perspective and outcomes important yet missing
- Funding from ASTRO and Survivorship IRG
- Survey 1650 Medicare beneficiaries
- Diagnosed with breast cancer in 2009
- Population-based sample
- We have their claims

Sample equal numbers of patients

- Lump alone
- Lump + external beam radiation
- Lump + brachytherapy
- Mastectomy alone
- Mastectomy plus radiation

Outcomes

- Cosmetic outcome
 - Composite
 - Breast-Q
- EQ-5D
- Impact of Cancer
- Body Image
- Functional status
- Decisional regret
- Endocrine symptoms

Goals

- Compare QoL outcomes across local therapy options
- Determine patient and healthcare system/physician factors that influence QoL outcomes
- Develop web-based predictive calculator for key QoL outcomes by chosen local treatment strategy

Status

1. Launch survey pilot at MD Anderson in March
2. Medicare cohort nearly defined
3. Send out survey in July or August

Future directions

- Could we design a similar study with younger women in Texas?



Thank you Elise!
