

## Management of the Axilla in 2023

From ALND to SLNBx to None?

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**Perlmutter  
Cancer Center**

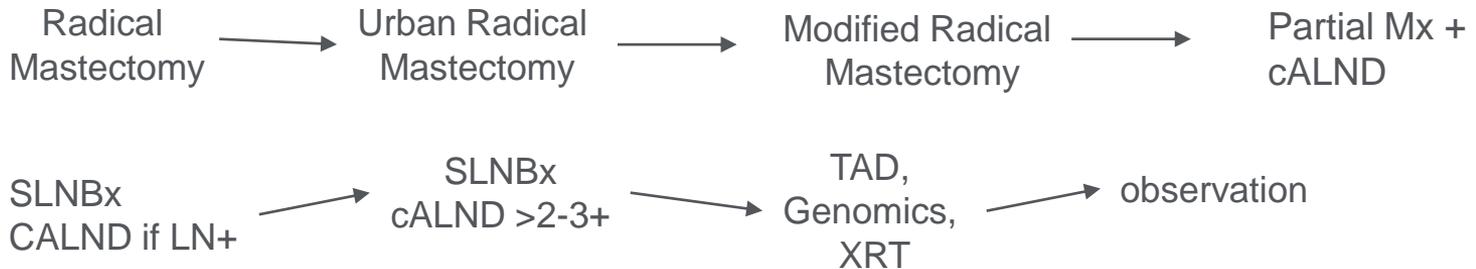
An NCI-designated  
Comprehensive Cancer Center



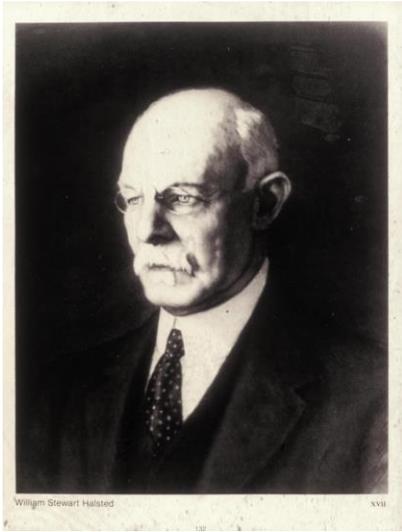
# Disclosures: Endomag

# Local-regional Treatment of Breast Cancer Has Become Progressively

Less drastic  
More focused  
More conservative  
More precise  
Less morbid



# William Halsted: The Radical Mastectomy: 1890s



Compared to breast amputation

Halsted performed a meticulous, almost bloodless operation; and reduced the operative mortality from 18% to 2%.

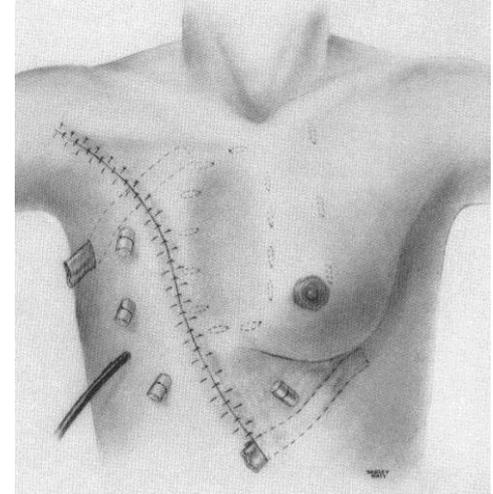
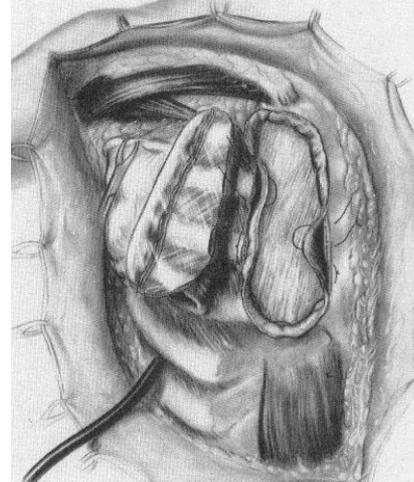
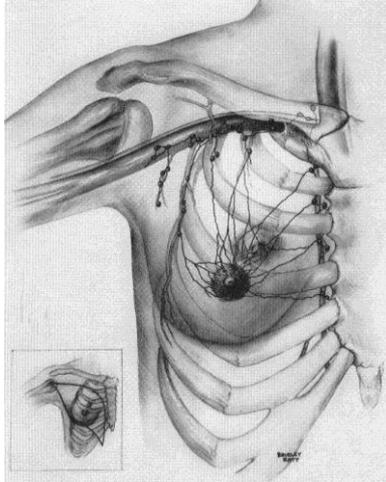
He improved 3-year disease free survival from 4.7% to 42.4%.

*The results of operations for the cure of  
cancer of the breast performed at the  
Johns Hopkins Hospital from June, 1889 to January, 1894.*

*Johns Hopkins Hospital Bulletin, 4:297, 1894-95*

By William S. Halsted, M.D.

# Jerome Urban: The Extended Radical Mastectomy



Is an even bigger operation better?

# Internal Mammary Node Resection: The Milan Trial

737 patients

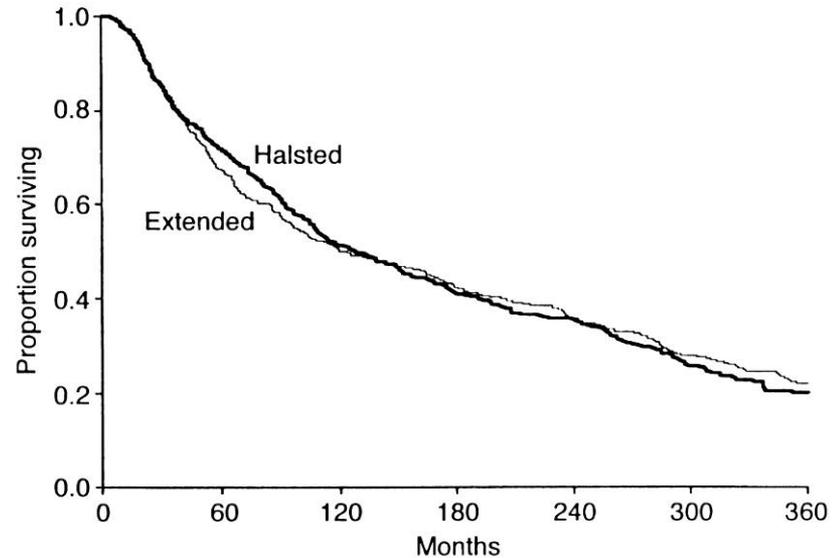
1964-68

Randomized to RM vs ERM

No systemic rx

30 yr f/u

No survival difference



# Bernard Fisher: The NASBP and the Alternative Hypotheses

## “Halstedian”

Tumor spread is orderly

Nodes are barriers

Breast cancer is a loco-regional disease

Extent/nuances of surgery dominate outcome

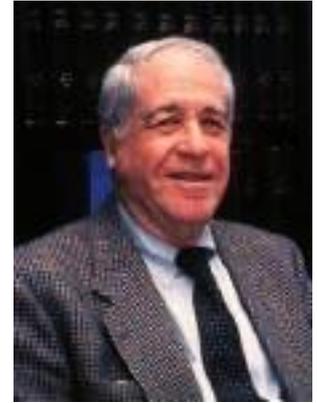
## “Alternative” (Fisher)

Tumor spread is disorderly

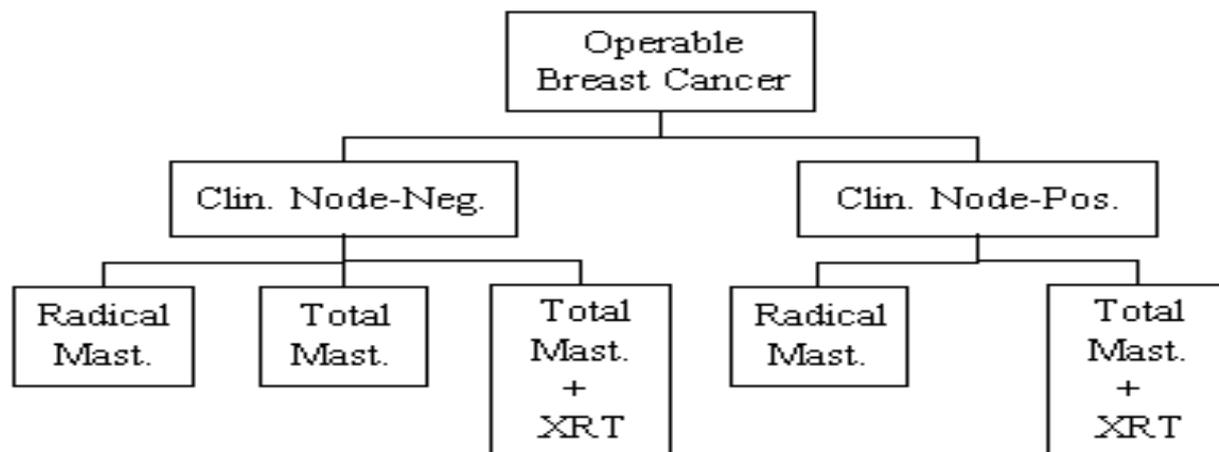
Nodes are not barriers

Breast cancer is a systemic disease

“Variations in locoregional therapy are unlikely to substantially affect survival”

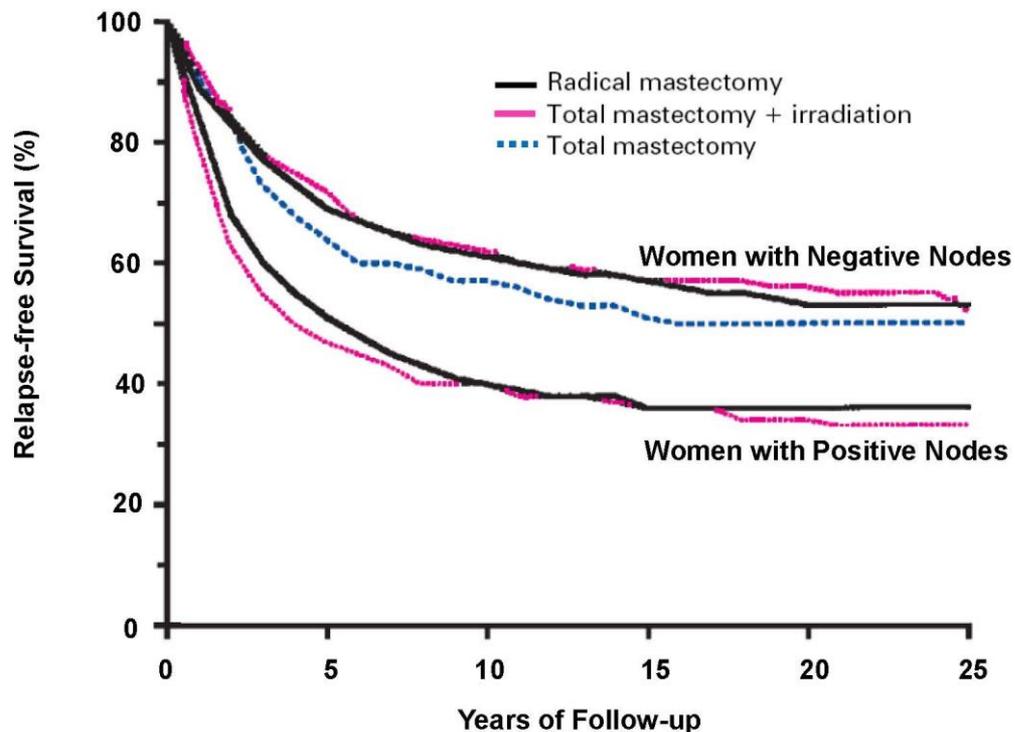


# NSABP B-04



# NSABP B-04

## Influence of Nodal Treatment on Survival



# NSABP B-04 Results

Variations in extent of surgery did not affect survival; No survival advantage for immediate ALND

Less than 50% of patients with positive nodes left behind at the initial surgery developed a nodal recurrence

40% in radical mastectomy group

18.5% in total mastectomy group

**Axillary recurrence**

75% within 2 years

67/68 underwent successful delayed ALND

**Paradigm shift:**

Not all residual/unresected disease becomes clinically significant

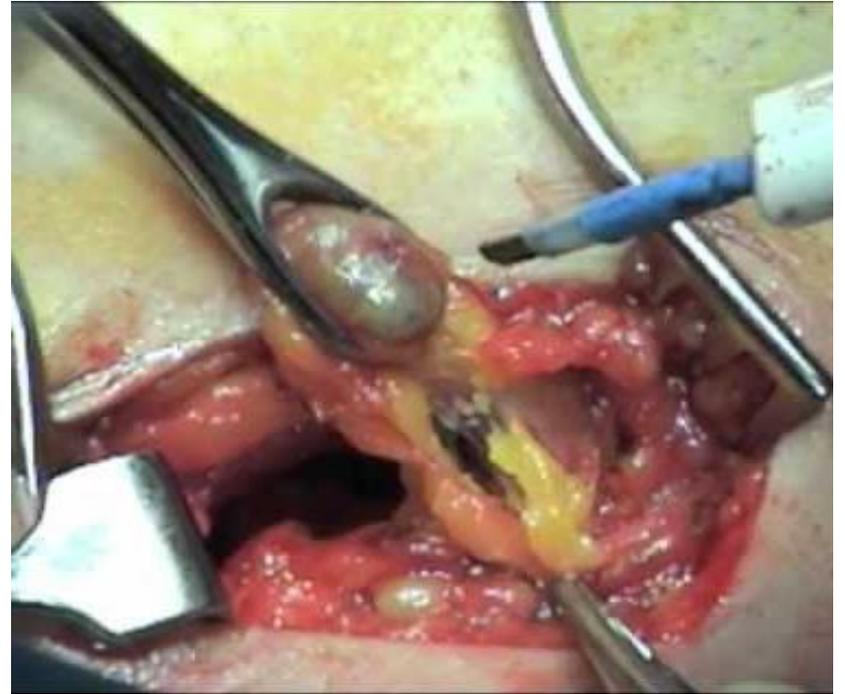
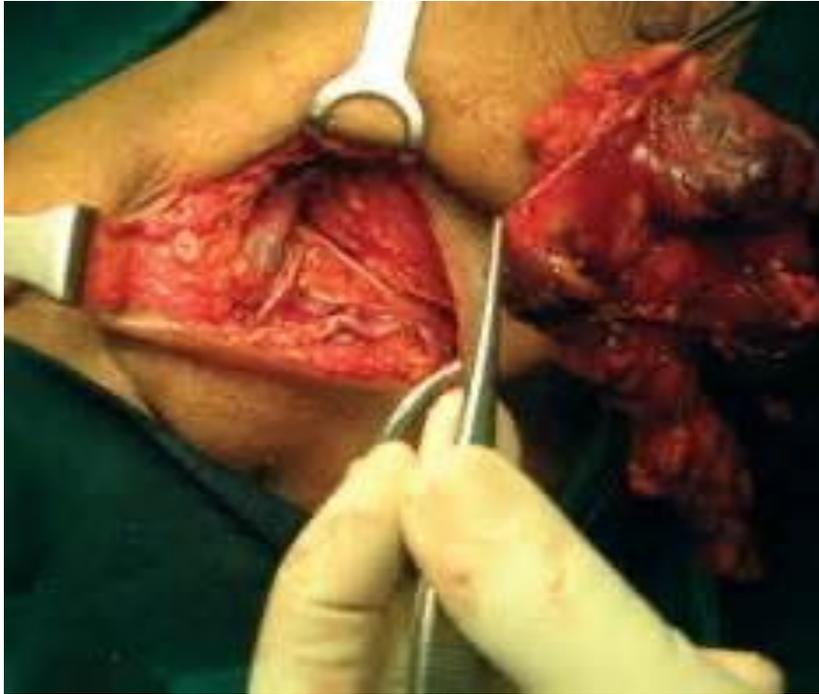
Metastatic progression not dependent on regional spread

Radical surgery may not be better

**Axillary node status was the single most important prognosticator**

**Axillary surgery was mainly for staging, perhaps for local control, and probably not for survival**

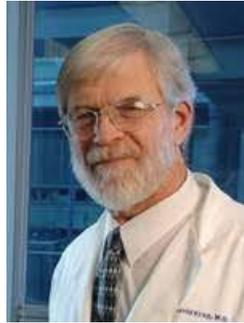
# A New Operation: Sentinel Lymph Node Biopsy



# Sentinel Lymph Node Biopsy Origins



**Morton DL et.al.**  
**Arch Surg**  
**1992;392-99**  
SLNB for  
melanoma, blue dye



**Krag DN et.al.**  
**Surg Oncol**  
**1993;2:335-40**  
SLNB for breast,  
isotope



**Giuliano AE et.al.**  
**Ann Surg**  
**1994;220:391-401**  
SLNB for breast,  
blue dye

**Albertini JJ et.al.**  
**JAMA**  
**1996;276:1818-22**  
SLNB for breast,  
blue dye + isotope

# Sentinel Node Biopsy

## Early Concerns

Can we do it?  
For whom?  
How?  
Is it accurate?  
Is the morbidity less?  
Is it safe?  
    short term?  
    long term?

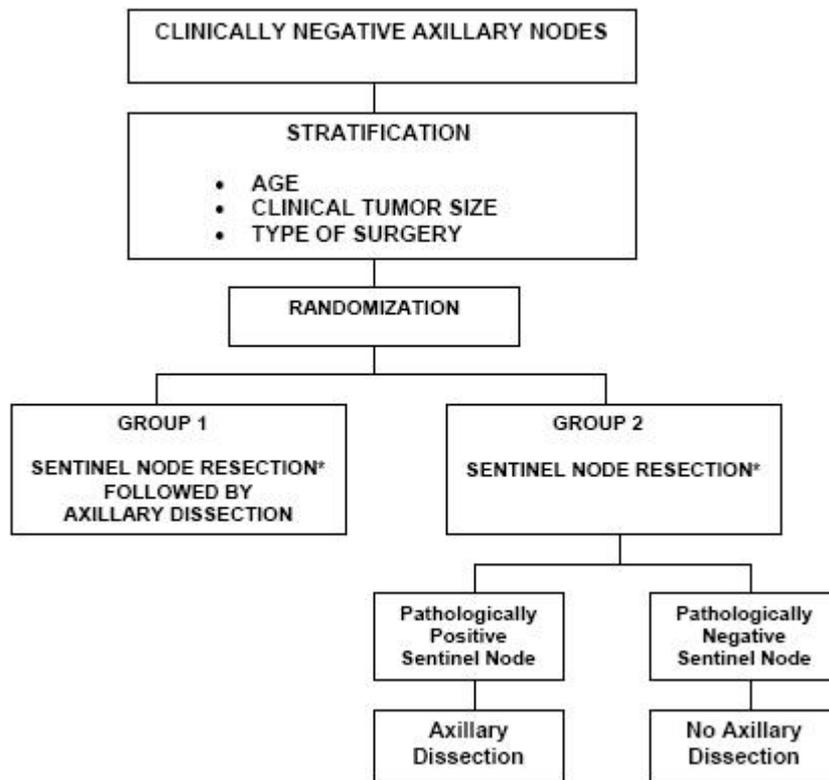


# SLNBx is Feasible

69 observational studies in 8059 patients

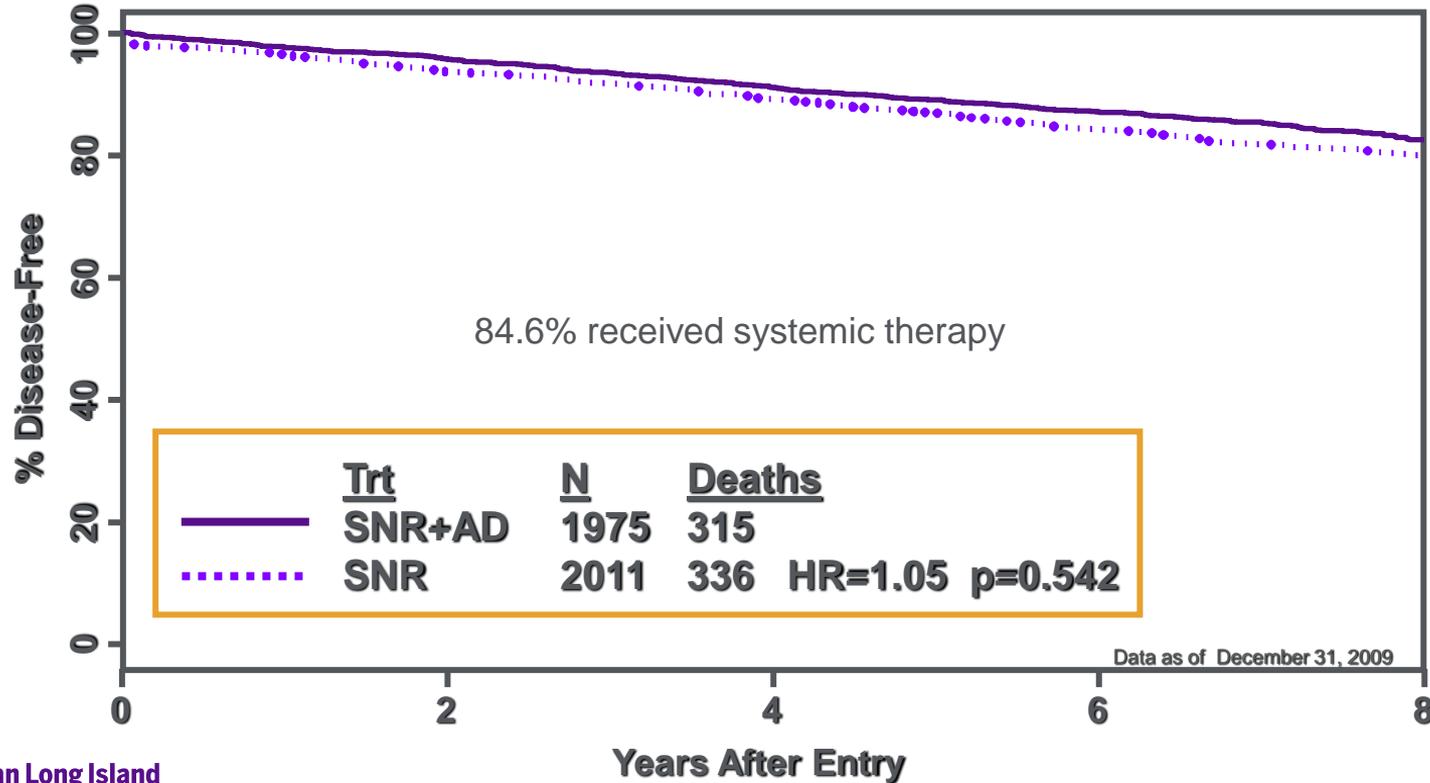
# pts	SLN found	SLN false-neg (SLN-/AX+)	Accuracy (SLN correct/total)
8059	96%	7%	97%

# NSABP B-32



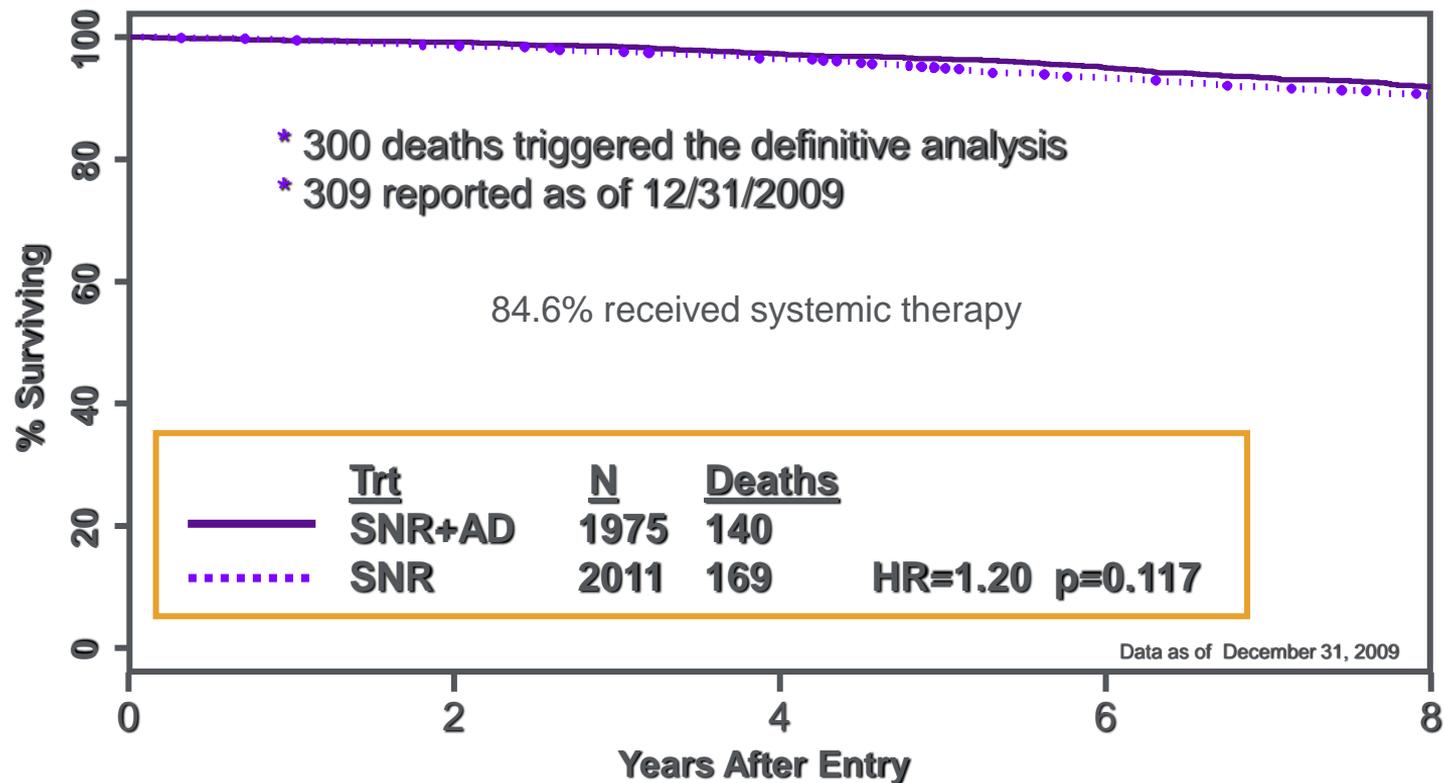
# NASBP B-32

## DFS: SLN Negative (8 yr Results)



# NSABP B-32

## OS: SLN Negative (8 yr Results)

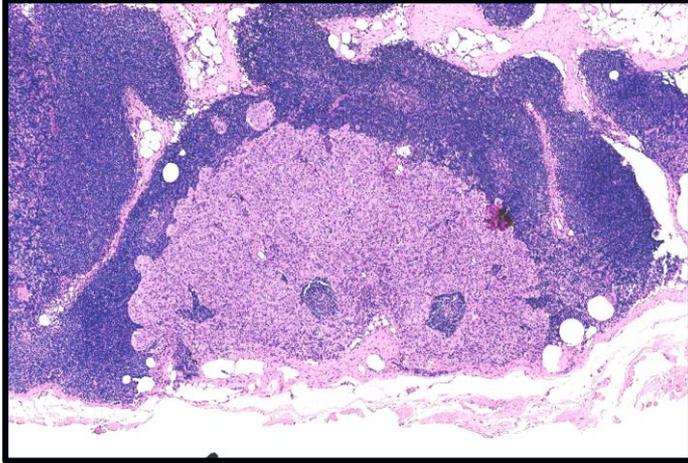


# NSABP B-32 Conclusions

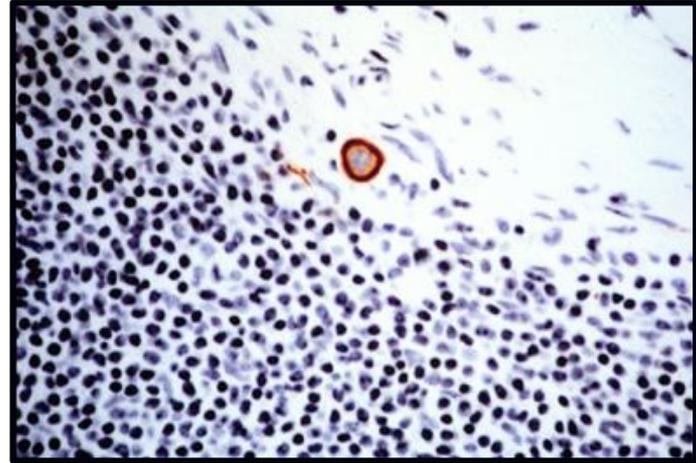
**There was NO survival benefit to complete ALND in women with negative SLNs**

**There was no benefit from the identification of occult tumor cells in H&E negative SLNs**

# Sentinel Node: Spectrum of Micrometastases



“Classic” 2 mm micromet (pN1mi)  
4,000,000 cells?



IHC-positive micromet (pN0i+)  
1 cell?

## Z0010: Survival by IHC

Method	H&E negative (3945/5184)	H&E positive (1239/5184)	IHC negative (3595)	IHC positive (350)
5 year survival (95% CI)	95.6% (95.0-96.3)	92.8% (91.3-94.3) p=0.0002	95.8% (95.0-96.5)	95.1% (92.7-97.5) p=0.53

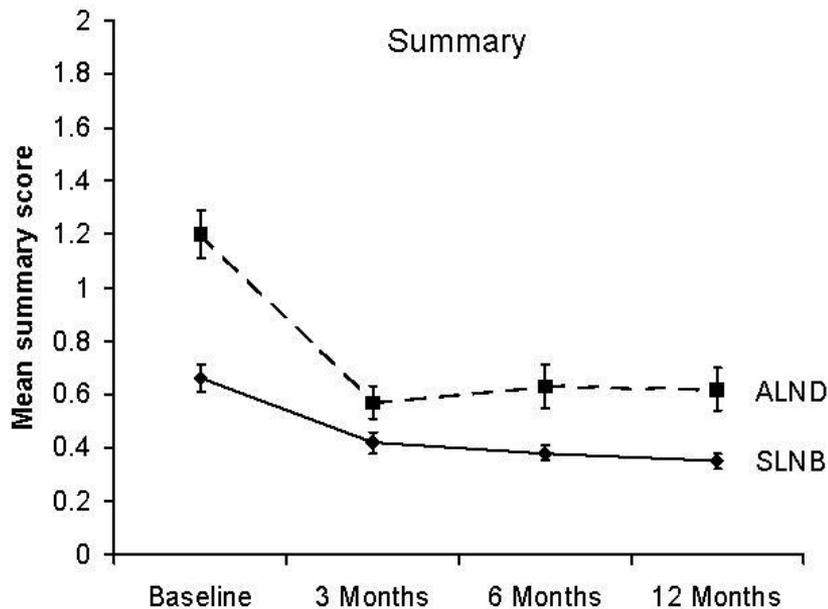
## 5 Randomized Trials of SLN Biopsy

Trial	# pts	SLN found	SLN false-negative	Accuracy
EIO	532	99%	9%	97%
B-32	5611	97%	10%	97%
ALMANAC	836	96%	7%	98%
GIVOM	749	95%	17%	95%
SNAC	1088	94%	5%	98%

61-73% had SLN-only disease

# Morbidity

# Sentinel Node Biopsy Sensory Morbidity (18 sensations)



$p < 0.001$

# Sentinel Node Biopsy Morbidity/Lymphedema

<b>Outcome 5 yr median f/u</b>	<b>SLNB n=600</b>	<b>SLNB/ALND n=336</b>
<b>Lymphedema measured</b>	5%	16%
<b>Lymphedema reported</b>	3%	27%

Lymphedema was related to

- a) Weight
- b) BMI
- c) H/o trauma
- d) H/o infection

Lymphedema present in

- a) 41% of pts who reported arm swelling
- b) 5% of patients reporting no arm swelling

# De-escalation

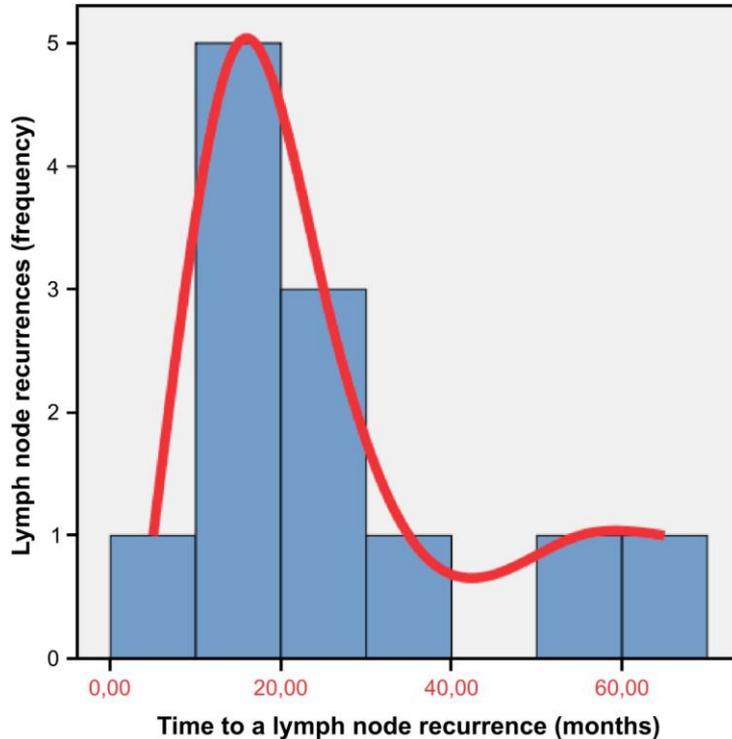
# No ALND for SLN+ Patients

# Sentinel Node Biopsy

## False-negative > Axillary LR

	# pts	# axillary LR (%)	median f/u
SLN-/no ALND 48 series*	14,959	<b>0.3%</b>	3 yr
SLN-/no ALND IEO (RCT)	167	<b>1.2%</b>	8 yr
SLN-/no ALND B-32 (RCT)	2011	<b>0.7%</b>	8 yr

# Time Course of Axillary LR



Meta-analysis of 48 studies

14,959 SLN-negative pts

Axillary LR in 67 (0.3%)

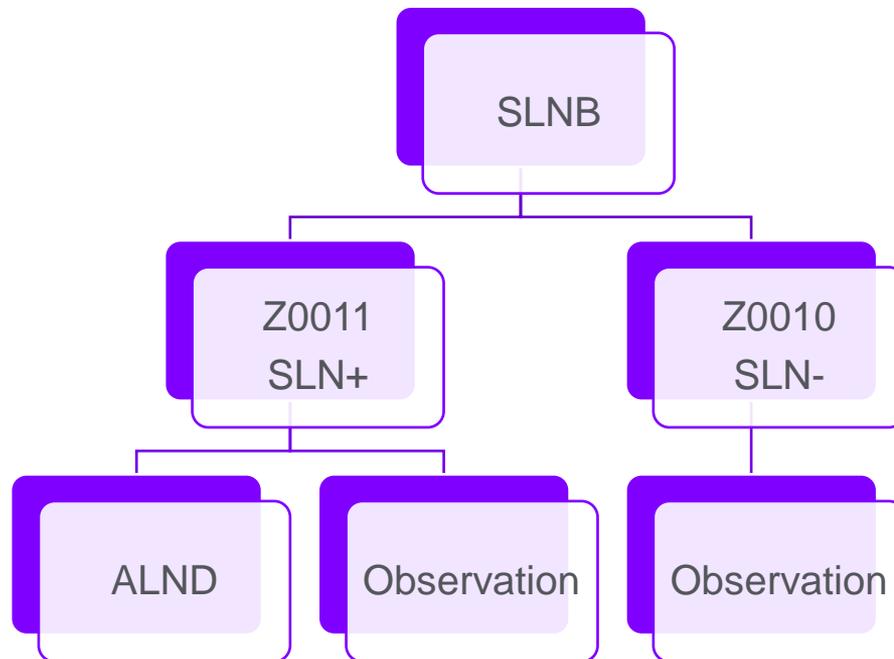
34 mo median f/u

# ACOSOG Z0011

**Do patients undergoing breast conserving therapy who have 1 or 2 positive SLNs require ALND?**

**Does omitting ALND after a positive sentinel node biopsy decrease patient survival?**

# Z0010-Z0011 Trials (ACOSOG)



suspended 12/04 at n=889 due to slow accrual and too few events

# Z0011 Eligibility

## Eligible

- Clinical T1-2N0 breast cancer
- H&E-detected SLN metastases
- Lumpectomy + whole breast RT
- Adjuvant systemic therapy by choice

## Ineligible

- Nodal RT
- IHC-detected SLN metastases
- Matted nodes
- 3 or more involved SN

## Z0011 Patient and Tumor Characteristics

	<b>SLN+/ALND (n=420)</b>	<b>SLN+/no ALND (n=436)</b>
<b>Median age</b>	56 (24-92)	54 (25-90)
<b>cT1</b>	68%	71%
<b>ER+/PR+</b>	83% / 68%	83% / 70%
<b>LVI+</b>	41%	36%

## Z0011 Patient and Tumor Characteristics

	<b>SLN+/ALND</b>	<b>SLN+/no ALND</b>
<b>Grade 1</b>	22%	26%
<b>Grade 2</b>	49%	47%
<b>Grade 3</b>	29%	28%
<b>IDC</b>	83%	84%
<b>ILC</b>	7%	9%
<b>Other Histology</b>	11%	8%

## Z0011 Systemic Therapy

<b>Systemic Therapy</b>	<b>SLN+/ALND</b>	<b>SLN+/no ALND</b>
<b>Chemotherapy</b>	58%	58%
<b>Hormonal</b>	46%	47%
<b>Chemo and/or Hormonal</b>	96%	97%

## Z0011 Locoregional Recurrence

Recurrence @ 6.3 yrs median follow- up	SLN+ ALND (n=388)	SLN+ no ALND (n=425)
<b>Local</b>	3.6%	1.9%
<b>Regional</b> (Ax, Supraclav, IM)	0.5%	0.9%
<b>Local+Regional</b>	4.1%	2.8% p=0.47

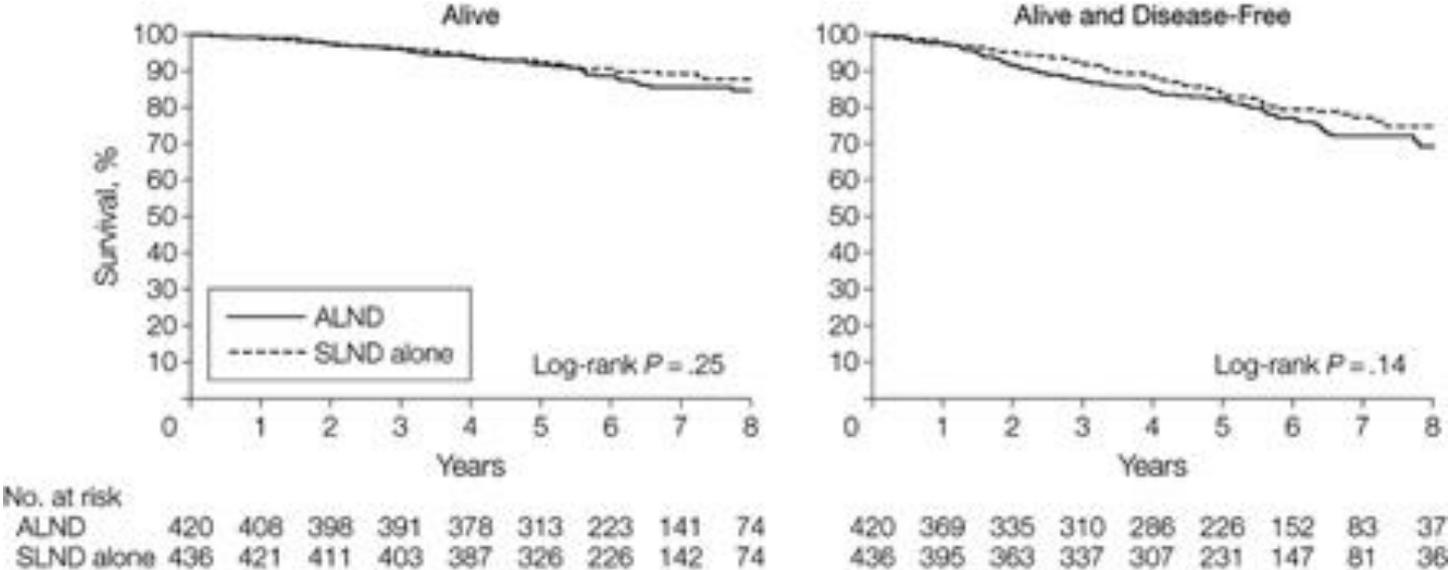
Additional positive nodes in 27% of ALND's

# Z0011 and RT

<b>Radiation field design</b>	<b>SLNB arm n=124</b>	<b>SLNB+ALND arm n=104</b>
<b>Tangents only</b>	83%	79%
<b>Proportion high tangents*</b>	53%	50%
<b>Supraclavicular field</b>	17%	21%
<b>Posterior axillary boost</b>	10%	6%

\*sufficient records to determine field height

# 2011 Overall Survival



# Z0011 at 10 years

<u>Median f/u 6.3 yrs</u>		<u>Median f/u 9.25 yrs</u>	
<u>ALND</u>	<u>SN</u>	<u>ALND</u>	<u>SN</u>
0.5%	0.9%	0.5%	1.1%
p = 0.45		p = 0.45	

## 10 yr Cumulative Nodal Recurrence

0.5% ALND	1.5% SN	p = 0.28
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**One axillary recurrence after initial 6 yrs**

## Z0011 Surgical Morbidity: Why Not Do an Axillary Dissection?

	<b>SLNBx%</b>	<b>ALND%</b>	<b>p-value</b>
<b>Wound Infection</b>	3	8	0.0016
<b>Axillary Paresthesia</b>	9	39	<0.0001
<b>Lymphedema: Patient Perceived</b>	6	19	<0.0001
<b>Lymphedema: Measured</b>	6	11	0.0786

# ACOSOG Z0011 Conclusions

**For women with cT1-2N0:**

**ALND was unnecessary (not inferior) in women with 1 or 2 positive sentinel lymph nodes**

As long as the lymph nodes were not:

- grossly positive
- matted
- with extra-capsular extension

**If they planned to be treated with lumpectomy and whole breast radiotherapy**

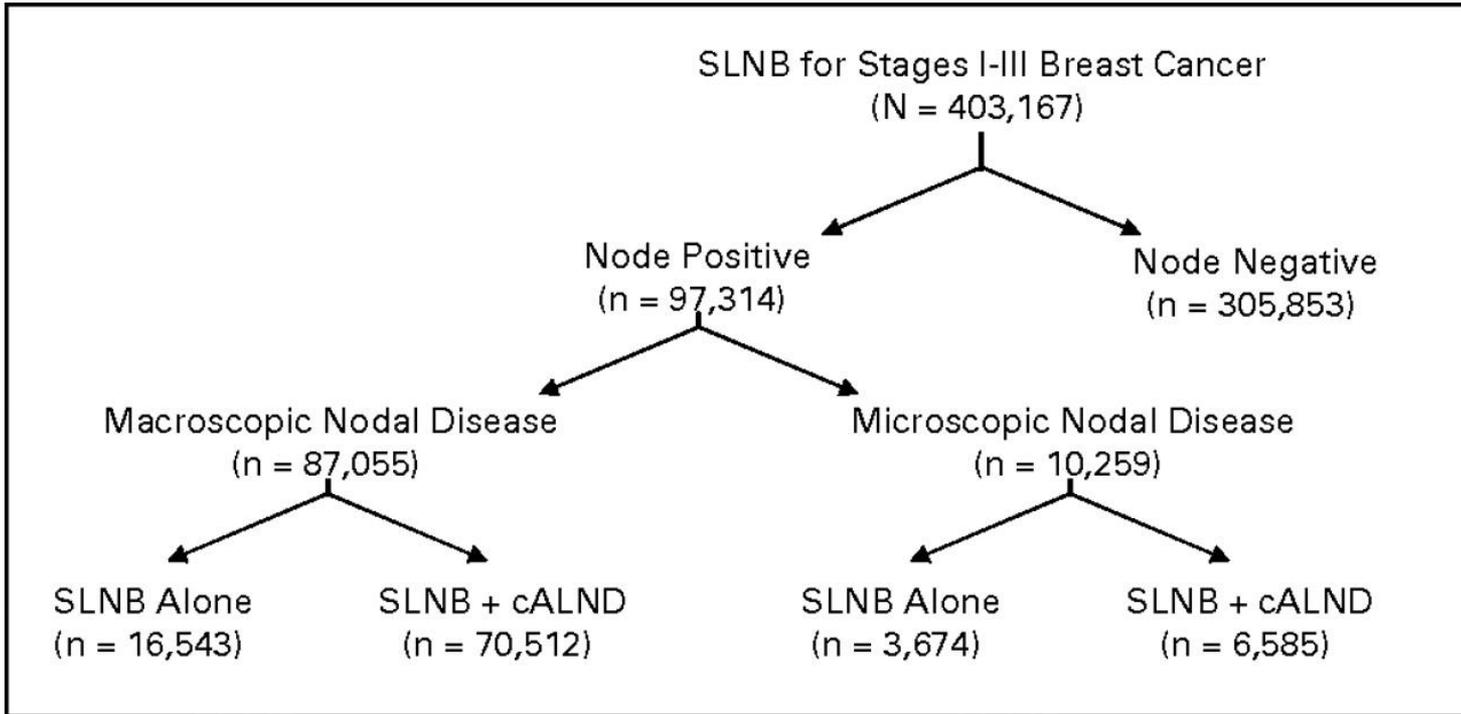
# So, Can ALND Be Safely Omitted In SLN+ Patients?

Should we change our treatment on the basis of one study?

Well ...

# Use of ALND - NCDB 1998-2005

(Note: Z-11 Results Reported in 2011)



## Outcome +/- ALND (NCDB)

	Axillary local recurrence	5 yr relative survival
<b>SLN micrometastases (<math>\leq 2</math> mm)</b>		
<b>SLN only (n=802)</b>	0.4%	99%
<b>SLN+ALND (n=2357)</b>	0.2%	98%
<b>SLN macrometastases (<math>&gt;2</math> mm)</b>		
<b>SLN only (n=5596)</b>	1.0%	90%
<b>SLN+ALND (n=22591)</b>	1.1%	89%

# IBCSG 23-01

# IBCSG trial 23-01

## SLN *micromet*/no ALND

cN0, T1-2, SLN micromets ( $\leq 2$  mm)

Randomize to ALND (n=464) vs no ALND (n=467)

95% had 1 SLN+

91% had BCT (98% with RT)

**Additional positive nodes in 13% of ALND**

# IBCSG trial 23-01

## SLN *micromet*/no ALND

Event at 10 years	ALND n=464	No ALND n=467
Local	3%	3%
Regional	1%	2%
Distant	10%	9%
Death	13%	10%

# IBCSG trial 23-01

## SLN *micromet*/no ALND

### Axillary LR at 10 yrs

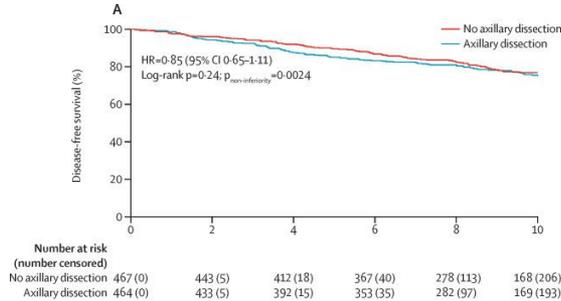
2% for mastectomy (2/86)

<1% for BCT (7/845)

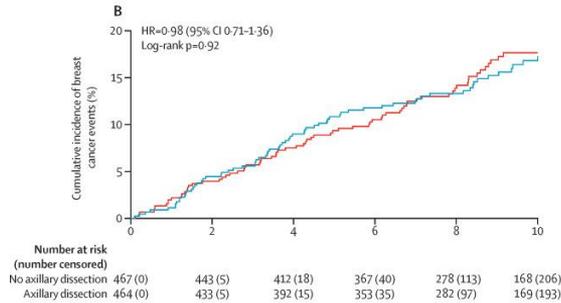
*5/7 axillary LR had partial breast RT*

### 10 year results

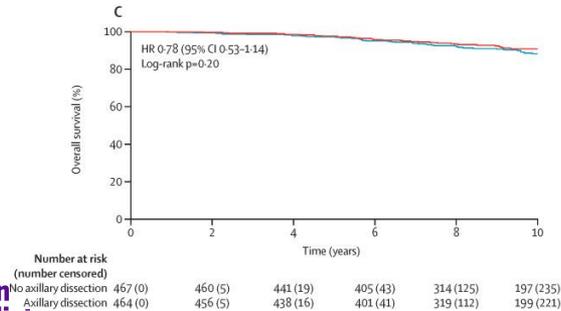
DFS



all events



OS



**Numerous Other Studies  
Have Also Replicated These  
Findings**

## SLN *micromet*/no ALND

2001-2010	# pts	BCT (%)	follow-up (mo)	axillary LR
SEER	1767	79%	50	0.1% (2)
NCDB	530	81%	64	0.6% (3)
Z0011	160	100%	76	0.9% (1)
6 series	526 (63-157)	60-84%	30-76	0.4% (2)
17 series	412 (4-50)	49-100%	14-79	0.5% (2)
<b>TOTAL</b>	<b>3395</b>	<b>44-100%</b>	<b>42</b>	<b>0.3% (10)</b>

## SLN *macromet*/no ALND

2003-2010	# pts	BCT (%)	follow-up (mo)	axillary LR
SEER	1473	79%	50	0.2% (3)
NCDB	1458	81%	79	1.2% (18)
Z0011	199	100%	76	0.9% (2)
5 series	113 (11-39)	60-100%	30-58	1% (1)
8 series	25 (1-7)	29-92%	30-47	0
<b>TOTAL</b>	<b>3268</b>	<b>29-100%</b>	<b>43</b>	<b>0.7% (24)</b>

# Axillary Management in cT1-2N0 Patients Undergoing BCT

Patients with 1-2 (?3) + SLNs (without gross extracapsular extension) should **NOT** undergo cALND

Role of axillary US + FNA/core which identifies a solitary +LN needs to be evaluated in the context of the use of neoadjuvant chemotherapy

Role of frozen section evolving but confirmation of multiple + LNs useful

## Z0011 for non-Z0011 Patients?

**Can the policy of “SLN+/no ALND” be extended to patients outside the Z0011 criteria?**

Mastectomy without RT?

Partial breast RT?

Neoadjuvant chemotherapy?

# Z0011 for Mastectomy?

# SLNB

## “Z0011 for mastectomy” trials

Trial	Mastectomy %	Status	ALND+	Axillary LR 10 yr
Z0011	0	complete	27%	1.5%
IBCSG	9%	complete	13%	2%
AMAROS	15%	complete	33%	1.8%*
SENOMAC	ns	accruing	35%	-
POSNOG	ns	accruing	-	-
BOOG 2013-07	100%	closed (slow accrual)	-	-

\*results for BCT+mastectomy+nodal RT

# Axillary Management in Patients Undergoing a Mastectomy

**For patients with the delayed recognition of SLN metastasis decision to perform ALND influenced by**

Burden of disease

Likelihood of additional involved nodes by nomogram

Plan for post-mastectomy XRT

**Consensus acceptance will be unlikely**

RCTs of “Z0011 for mastectomy” will be difficult

Prospective well-characterized cohort studies may be informative

Memorial Sloan-Kettering  
Cancer Center[www.mskcc.org/nomograms](http://www.mskcc.org/nomograms)

## Breast Cancer Prediction Tool

- Frozen Section Performed:
- Pathological size (cm):
- Tumor type and grade:
- Number of positive SLN:
- SNL cancer detection method:
- Number of negative SLN:
- Lymphovascular Invasion:
- Multifocal:
- Estrogen Receptor Positive:

**Calculate****Clear**

### Results

Predicted Probability of Spread to  
Additional Lymph Nodes:**16%**Please print your results and discuss them  
with your doctor.**Print**

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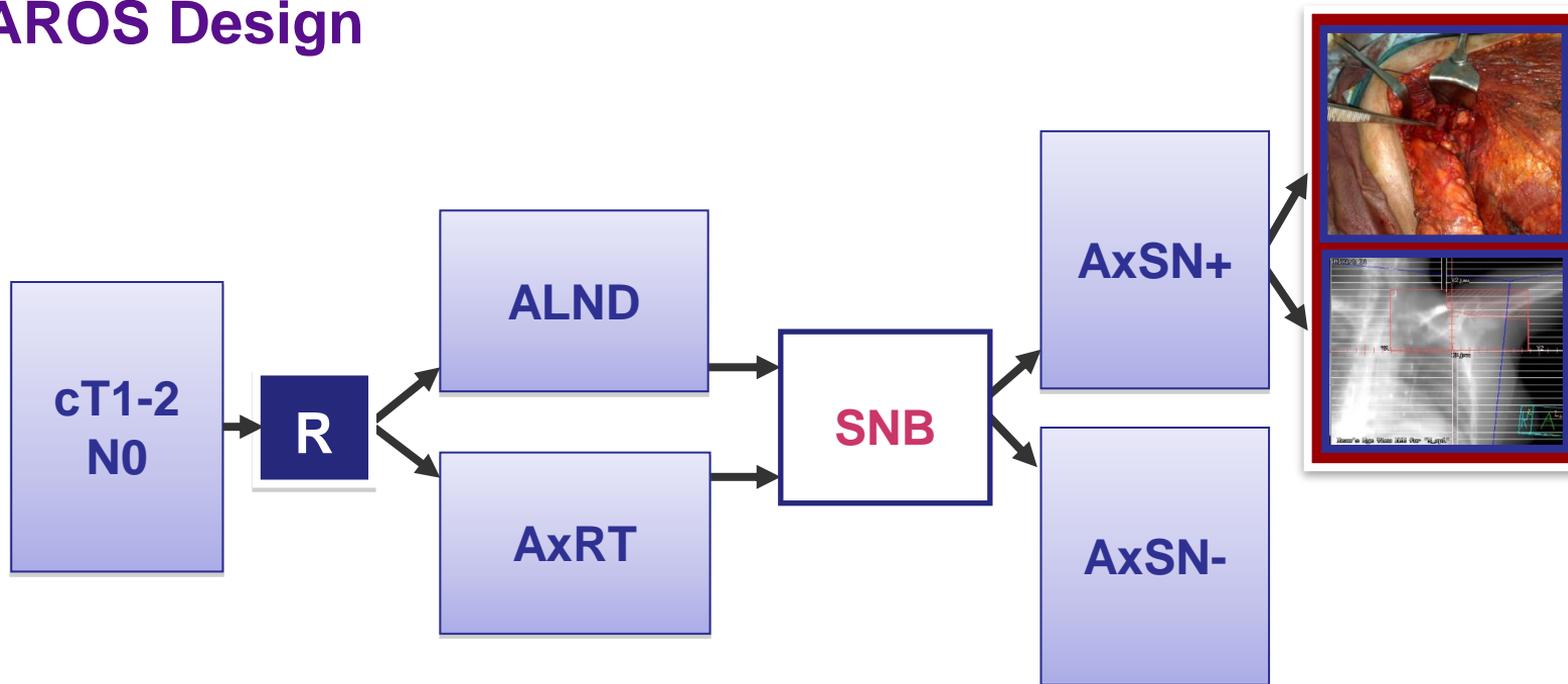
©2005 Memorial Sloan-Kettering Cancer Center

# Can Radiation Replace Surgery?

# AMAROS Trial

After Mapping of the Axilla:  
Radiotherapy Or Surgery?

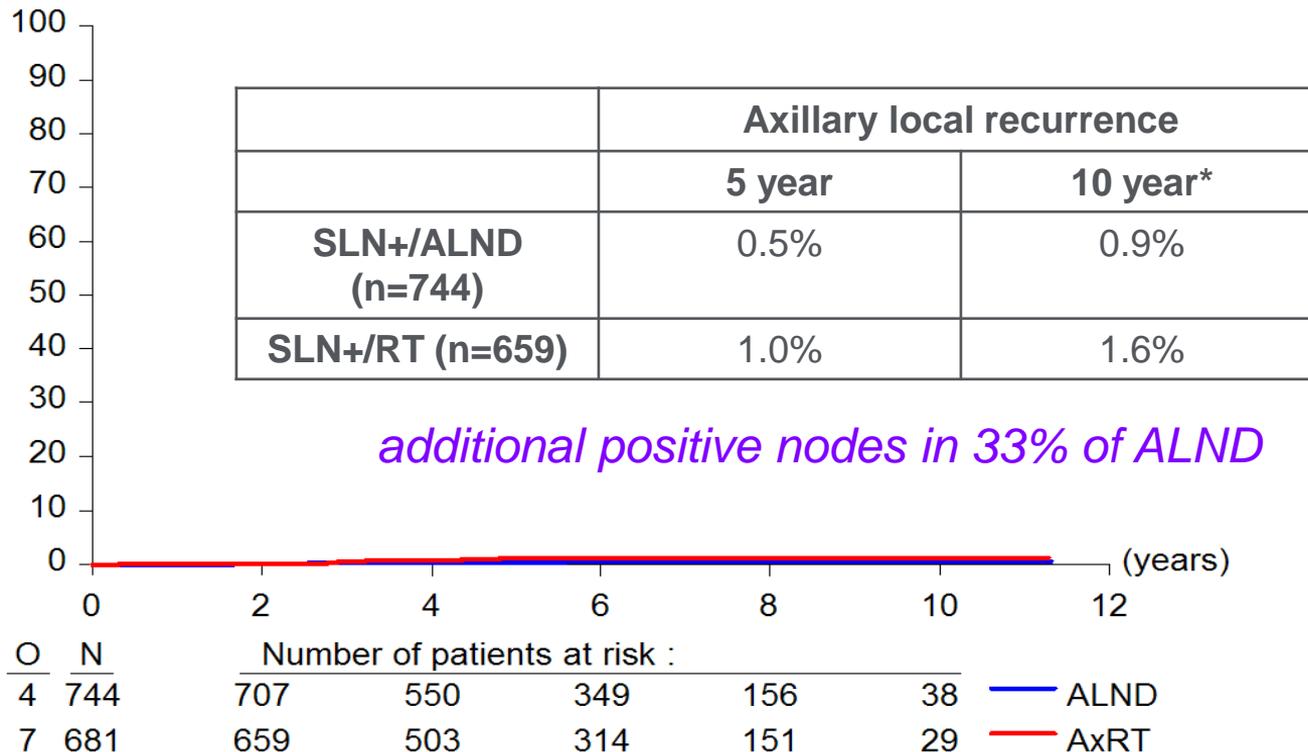
# AMAROS Design



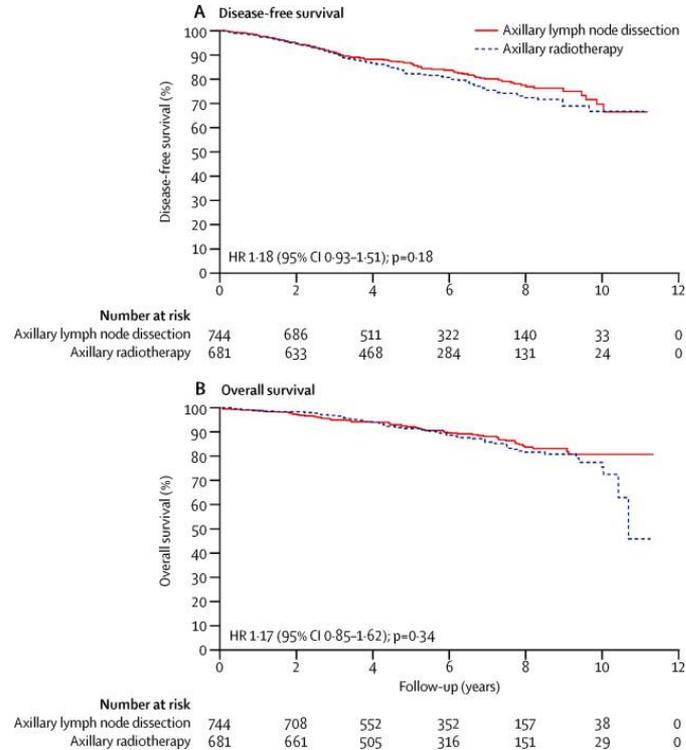
Stratification: institution

Adjuvant systemic therapy by choice

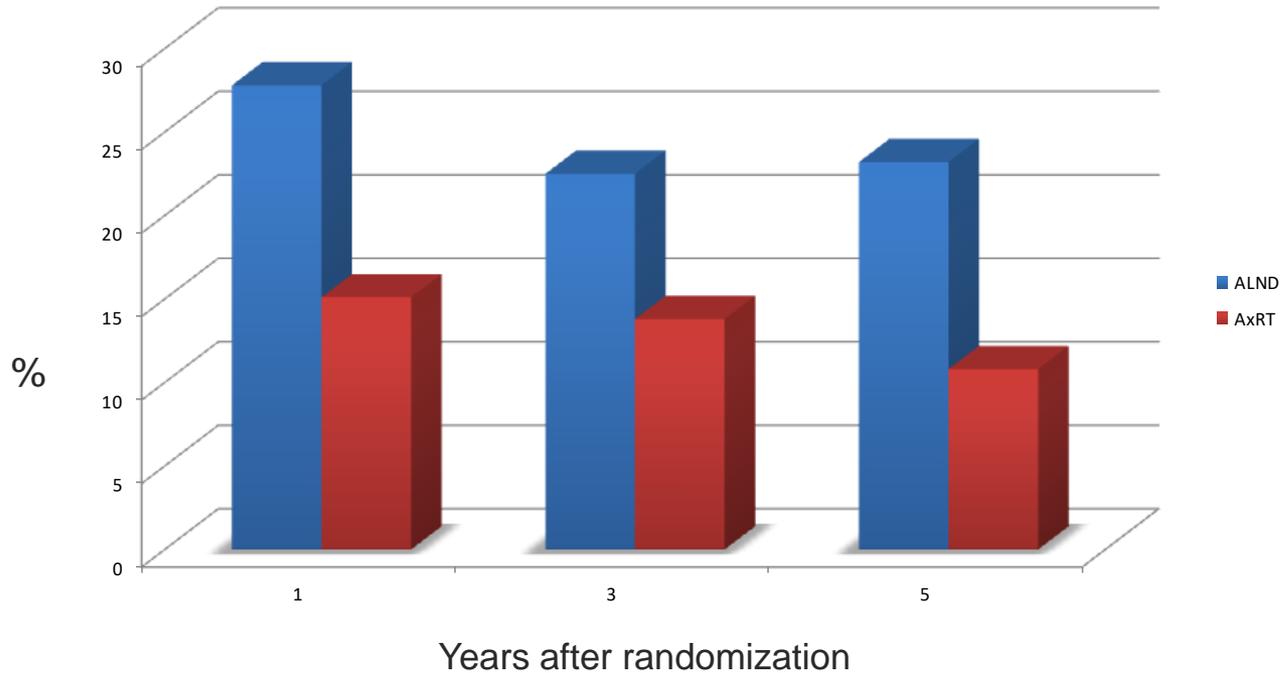
# AMAROS: Axillary Recurrence



# AMAROS: DFS and OS



# AMAROS: Lymphedema (clinical observation)



# Z0011 and AMAROS: Conclusions

**if SLN negative, SLNBx is sufficient**

for almost all cT1-3N0 patients

**if SLN positive, SLNBx is sufficient**

if Z0011 eligible: cN0 and 1-2 SLN+ and BCT/WBRT

if AMAROS eligible: cN0 and 1-3 SLN+ and BCT or mastectomy

*cN0 = normal to palpation!*

# AMAROS: Caveats

**1-3 SLN+ (pN1) were eligible BUT**

95% had 1-2 SLN+

**BCT or mastectomy were eligible BUT**

85% had BCT

# SLNB+

## 4 trials of ALND vs none

	IBCSG 23-01	ACOSOG Z0011	AMAROS	OTOASOR
experimental arm	SN only	SN only	SN + RT	SN + RT
additional N+	13%	27%	33%	39%
axillary recurrence at 10 yrs	2%	1.4%	1.8%	1.7%
△ DFS, OS	No	No	No	No

Galimberti V, Lancet Oncol 2018;19:1385  
Giuliano A, JAMA 2017;318:918  
Rutgers E, SABCS 2018  
Savolt A, Eur J Surg Oncol 2017;43:672

# Z0011 for non-Z0011?

**Can the policy of “SLN+/no ALND” be extended to patients outside the Z0011 criteria?**

Abnormal axillary imaging?

Mastectomy (without RT)?

cN+ axilla?

Neoadjuvant chemotherapy?

# Z0011 for Partial Breast Irradiation?

# PBI: Some Caveats

**PBI is usually limited to node-negative cancers**

Axillae staged by SLNB and/or ALND

**“First event” reporting underestimates event rates  
But, event rates to date are very low**

SLN negative/no ALND: axillary LR  $\ll 1\%$

SLN positive/no ALND: axillary LR  $< 1\%$

# PBI Trials

	<b>Follow Up</b>	<b>Node Neg.</b>	<b>Ax LR #</b>	<b>Ax LR %</b>
<b>Mammosite Registry n=1449</b>	59 mo	97%	10	0.79%
<b>TARGET RCT n=1113</b>	60 mo	83%	4	0.35%

# PBI: The Issues

## Were the good results in Z0011 due to WBRT?

89% received WBRT (11% no RT)

18.9% received RT using  $\geq 3$  fields

15% received supraclavicular RT

50% had high tangents used

Distribution for all techniques equivalent in both arms

## If so, is PBI really safe?

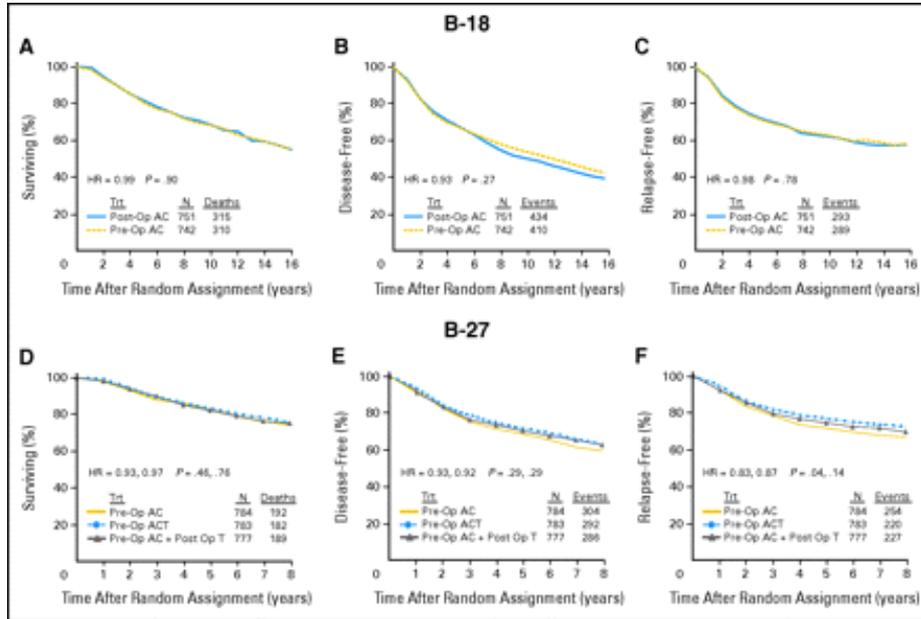
Unlikely to be evaluated in RCTs

Prospective well-characterized cohort studies may be informative

# Z0011 for Patients Receiving Neoadjuvant Chemotherapy?

no ALND for N+ → pN0 post neo?

# B-18 and B-27 Update: Survival, DFS, RFS

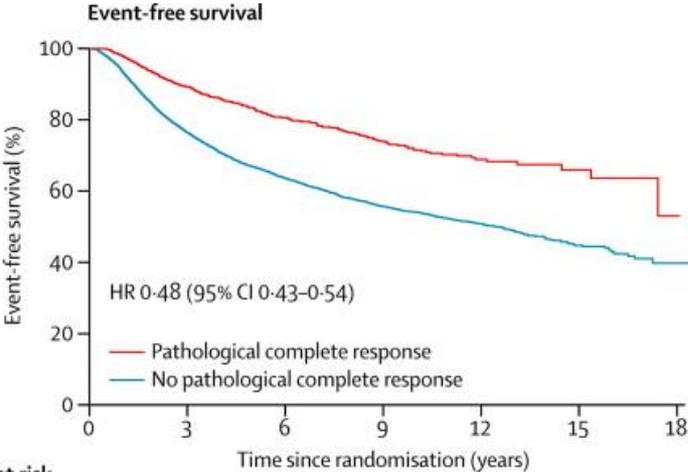


No difference between pre- and post-op chemo

# Neoadjuvant Meta-analysis Survival +/- pCR

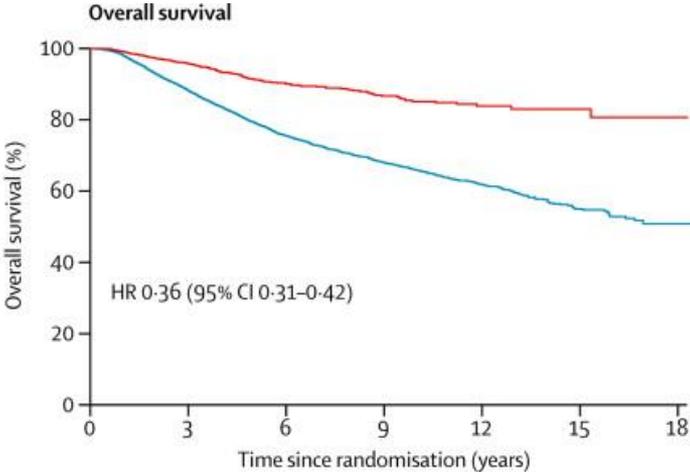
12 trials, 11955 patients

event free survival



Number at risk	0	3	6	9	12	15	18
Pathological complete response	2131	1513	583	337	124	35	2
No pathological complete response	9824	6169	2674	1523	525	165	1

overall survival



Number at risk	0	3	6	9	12	15	18
Pathological complete response	2131	1618	640	383	145	43	3
No pathological complete response	9824	7119	3173	1859	659	209	3

# NSABP B-18

## Rate of Breast Conservation

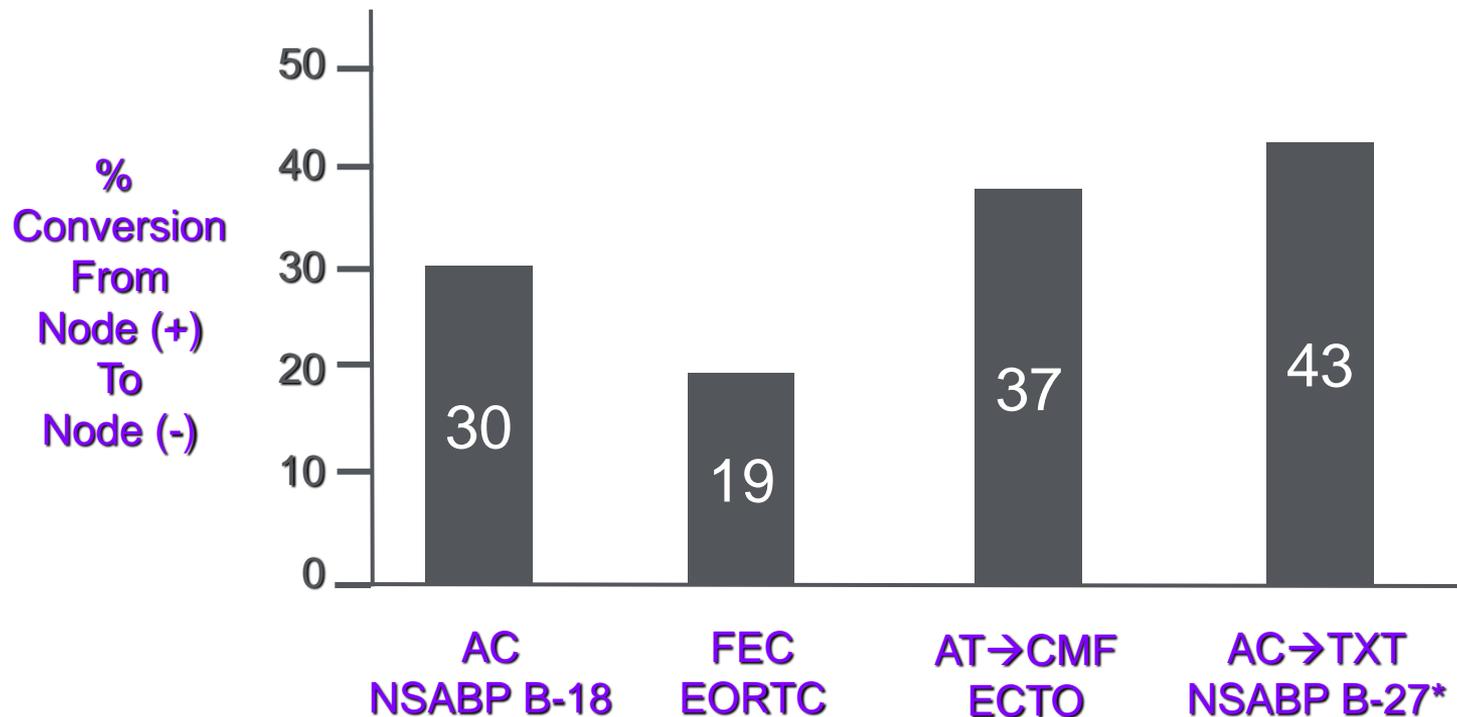
<b>Tumor Size</b>	<b>Surgery First % BCT</b>	<b>Chemo First % BCT</b>
<b>T1 (<math>\leq 2.0</math> cm)</b>	79%	81%
<b>T2 (2.1-5.0 cm)</b>	63%	71%
<b>T3 (<math>&gt; 5</math> cm)</b>	8%	22%
<b>All patients</b>	60%	67% p=0.002

# NSABP B-18

## Axillary Node Downstaging

	<b>Surgery First (n=743)</b>	<b>Chemo First (n=735)</b>
<b>1-3 Nodes+</b>	30%	24%
<b>4-9 Nodes+</b>	17%	12%
<b>&gt;10 Nodes+</b>	10%	4%
<b>Overall Node+</b>	<b>57%</b>	<b>41%</b> p<0.001

# Axillary Downstaging: Results of 4 Trials



# SLN Biopsy

## After Neoadjuvant Chemotherapy

<b>Review of 27 studies 2148 patients* 2000-2009</b>	<b>SLN Found</b>	<b>SLN False Negative (SLN-/axilla+)</b>
	90.5% (88-92)	10.5% (8-14)

<b>Review of 8 studies 1395 pts 2007-2015</b>	<b>SLN found</b>	<b>SLN false-neg</b>	<b>Pathologic CR (axilla)</b>
	92% (91-94)	15% (13-18)	37% (34-40)

# SLN Biopsy

## NSABP B-27 vs B-32

	# pts	SLN Found	SLN False-Neg
<b>B-27*</b> SLN biopsy <i>after</i> chemo	428	89%	10.7%
<b>B-32**</b> SLN biopsy upfront	720	97%	9.7%

**ACOSOG Z1071**

**SENTINA**

**SN FNAC**

**GANEA 2**

# Neo trials

## N+ upfront, SLNBx/ALND post-NAC

	ACOSOG 1071 n=663	SENTINA n=360	SN FNAC n=153	GANEA 2 n=307
# SLN examined	False negative rate (SLN-/Axilla+)			
1	31%	24%	18%	19%
2	21%	19%	5%	8%
≥3	9%	5%		
Mapping				
Single agent	20%	16%	16%	ns
Dual agent	11%	9%	5%	ns

# Neo trials

## Axillary US post-NAC Instead of SLNBx? No!

post neoadjuvant axillary US vs path	ACOSOG 1071 (pN+ on entry)	SENTINA (cN+ on entry)	SN FNAC (pN+ on entry)
US false negative (US-/axilla+)	56% (243/430)	50% (296/595)	47% (39/83)
US false positive (US+/axilla-)	28% (57/181)	23% (27/120)	19% (10/54)

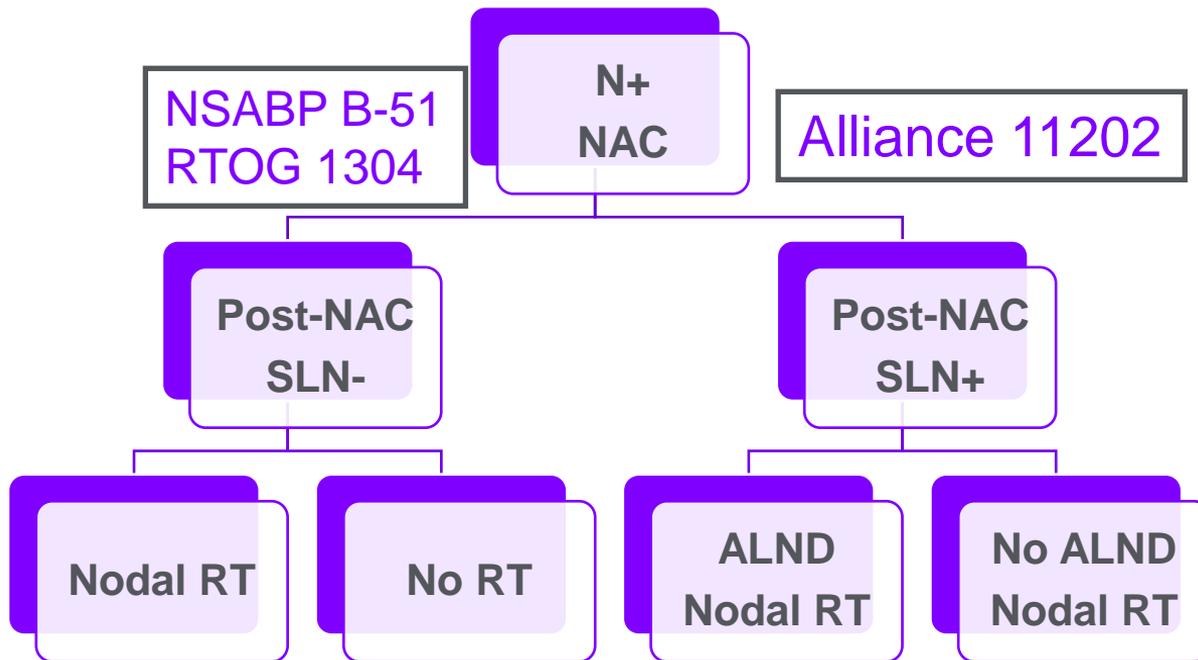
“the diagnostic accuracy of US... following neoadjuvant systemic therapy is unacceptably low”\*

# SLN biopsy *alone*

## N+ upfront, neo, SLN-/no ALND

Center	SLN neg/no ALND #	median follow up months	axillary local recurrence
Mayo	139	34	0.7% (1/139)
IEO/Milan	123	110	1.6% (2/123)
MSKCC	234	40	0.4% (1/234)*
NCI/Milan	81	87	0% (0/81)

# Two Neoadjuvant RCTs: Results Still Unavailable



# cN+ axilla: a Prospective Study at MSKCC

**Z0011 extended to cN+**

cT1-2N1, upfront BCT

ER+/her2-

$\leq 2$  susp nodes on US

ALND only for  $>2$  SLN+

**Primary: what proportion avoided ALND?**

**Secondary: LRR, DFS**

# Sequencing of Treatment - BCT

## Upfront Surgery vs Neoadjuvant?

### Rate of cALND

subtype	upfront BCT MSKCC 2010-2015 n=669	neoadjuvant MSKCC 2009-2016 n=271
ER/PR+/her2-	15%	34% (p<0.001)
her2+	13%	8%
triple negative	14%	7%

*for patients who can have BCT and are ER/PR+/her2- ,  
a Z0011 strategy of upfront surgery minimizes the rate of ALND*

# Z0011 for Patients Receiving Neoadjuvant Chemotherapy?

## Present evidence for SLNBx post-NAC is sufficient

Success rate *somewhat lower* than SLNB in general

False negative rate *comparable* to SLNB in general

- Technique matters!
  - Remove >1 SLN
  - Map with dye + isotope
  - TAD
- But +SLN after NAC should proceed to cALND

# SLNBx should NOT be used in Inflammatory Breast Cancer

Limited data bec not expected to work base on disease

Small MDACC trial, SLNBx only successful in 25% of pts  
dual tracer used  
preop imaging could not predict success

# Moving on Can We Omit SLNBx Entirely?

# Sentinel Node Bx

## Is FNR (SLN-/axilla+) meaningful?

positive nodes left behind

if	FNR 5%	FNR 10%
N+ = 10%	0.5% (5% of 10%)	1%
N+ = 20%	1%	2%
N+ = 40%	2%	4%
N+ = 80%	4%	8%

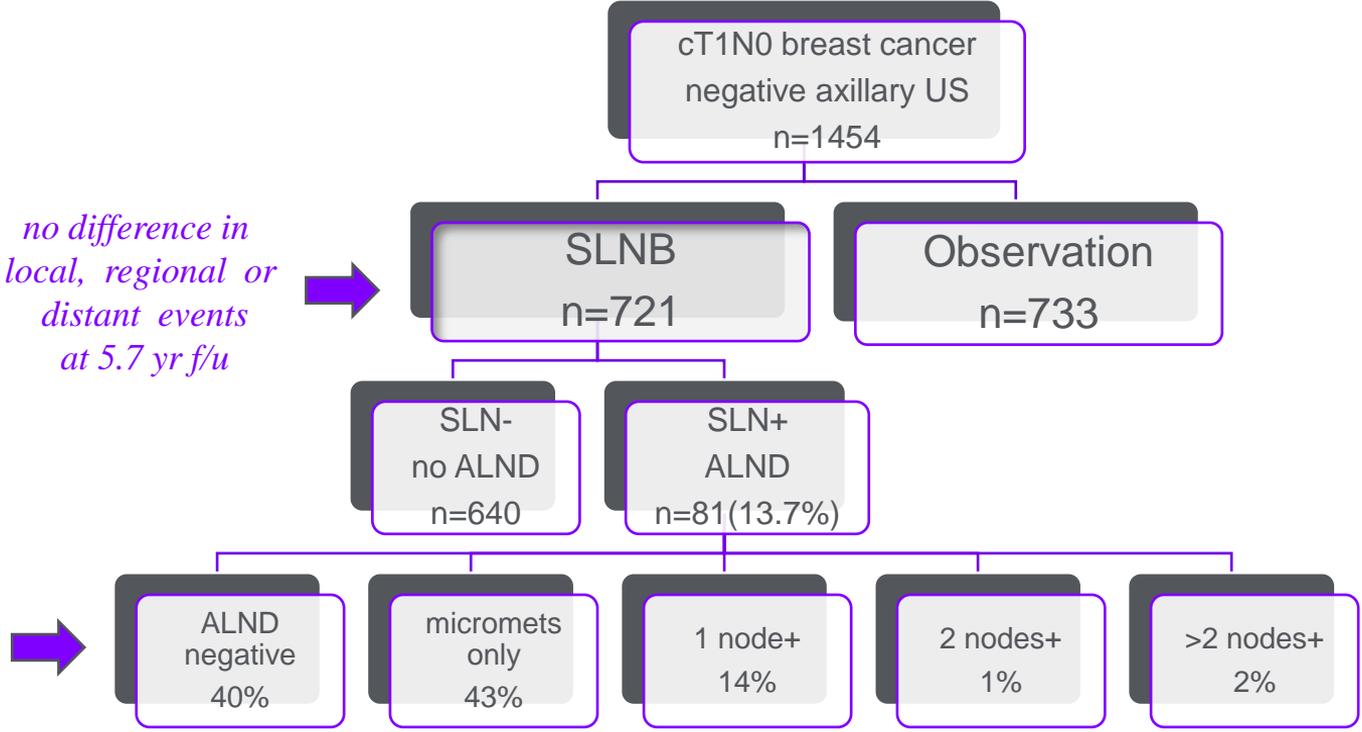
### B-04 trial (1980' s)

*N+* left behind in 40%  
axillary LR in 20%  
25 yr survival unaffected

### Z0011 trial (2000' s)

*N+* left behind in 27%  
axillary LR in 1%  
10 yr survival unaffected

# SOUND Trial (2102-2017) No Therapeutic Benefit to SLNBx



# Role of Genomics

## Based on the results of the RxPONDER Trial

For postmenopausal women with ER+/Her2 – breast cancer

RS is the primary determinant in the recommendation for chemotherapy

Since cN0 women have a low incidence of LN+, maybe slnbx can be omitted

# Delayed SLNBx: Magtrace

## The SentiNot Study

**Intraoperative injection of SPIO during breast surgery**

**In women with DCIS:**

**undergoing a mastectomy**

**or G2 and > 2 cm**

**or G3 any size**

**or associated with a mass**

**If invasion was identified delayed SLNBx was performed (9-46 days)**

**78.7% avoided SLNBx**

**SPIO had a higher SLN detection rate vs Tc<sup>99</sup> (with BD 93.9% vs 41.4%, p<0.001)**

**Only 27.9% of SPIO detected and Tc<sup>99</sup> detected LNs were the same**

# We Can't De-escalate Everything Who Still Needs ALND?

failed SLNB (and node status necessary)

Z0011 *and* AMAROS ineligible

node + *and* ineligible for neoadjuvant

node + after neoadjuvant

regional node recurrence

Inflammatory breast cancer

# Questions?

Thank You!