



**GBECAM-LACOG**  
**CONFERÊNCIA BRASILEIRA**  
**DE CÂNCER DE MAMA 2018**

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**PARTE 1**

# ABSTRACT General Session 5

## Risk of Arm Morbidity After Local Therapy in Young Breast Cancer Survivors

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2017 San Antonio Breast Cancer Symposium  
Henry B. Gonzalez Convention Center  
San Antonio, Texas  
December 5-9, 2017

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DANA-FARBER/BRIGHAM AND WOMEN'S

CANCER CENTER



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# Background: YWS

- **The Young Womens Breast Cancer Study (YWS)**
  - Multicenter, prospective cohort study
  - 12 participating hospitals (academic and community)
  - Established to explore *biological, medical and psychosocial issues* in young breast cancer patients ( $\leq 40$  years old at diagnosis)
  - October 2006 – June 2016: 2162 women identified, **1302 consented** to participate

# Objectives

## Using the YWS, we sought to:

- Assess the **incidence** of self-reported arm swelling and decreased range of motion
- Identify **risk factors** for the development of self-reported **arm morbidity**

# Methods: questionnaires

- **YWS Measures:**

- Surveys: baseline (~4 m after diagnosis), every 6 months for 3 yrs, then annually
- BCPT (Breast Cancer Prevention Trial) Symptom Checklist:
  - *'Have you experienced arm swelling/decreased range of motion (ROM) on the side which you had surgery during the past 4 weeks'*
- 5-point response scale (0 = not at all; 4 = extremely)

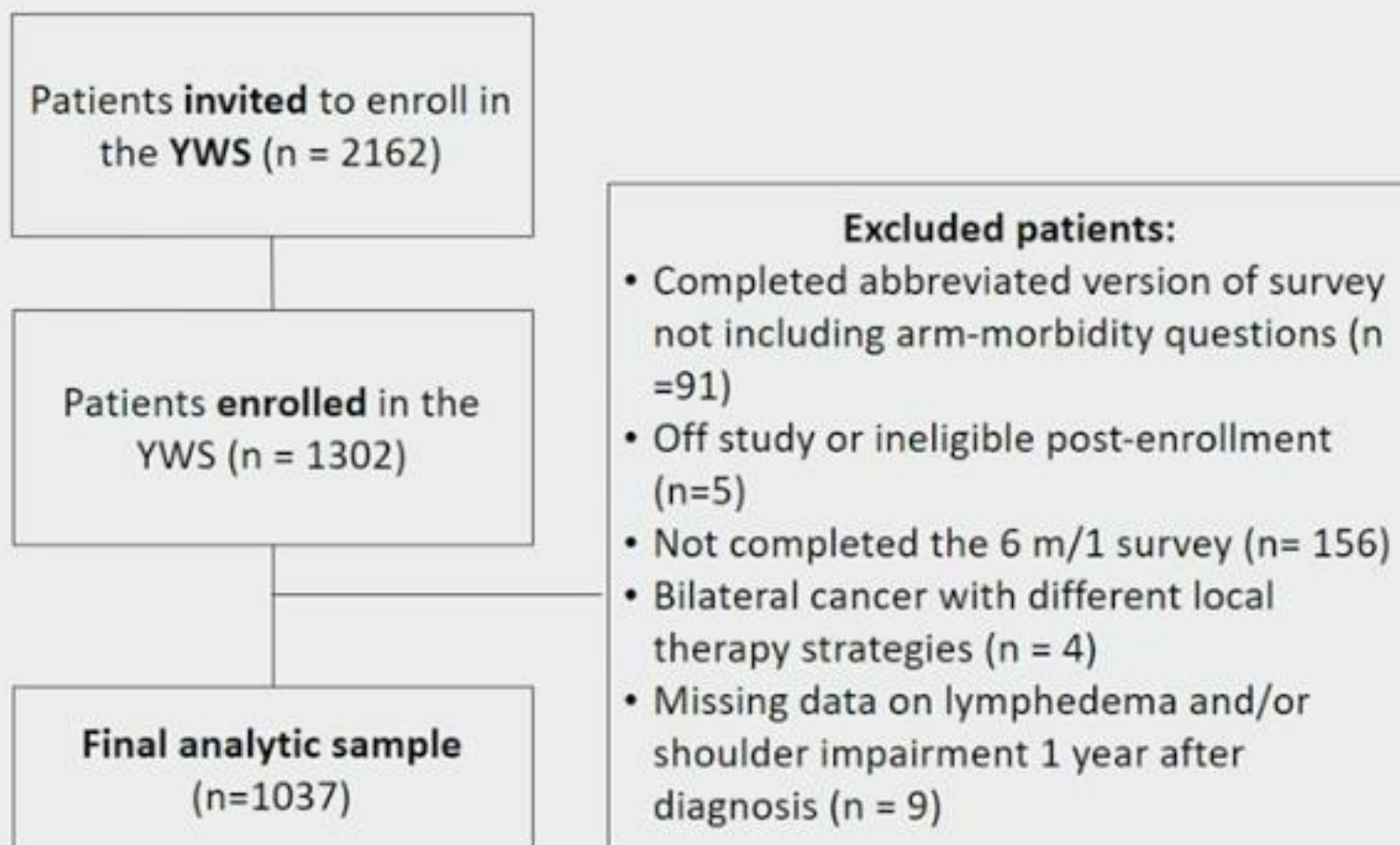
Stanton AL, et al. JNCI 2005

## Methods: statistics

- **Axillary surgery** type and **trend over time**
- **Crude risks** were calculated **by local therapy** strategy
- Univariate and multivariate **logistic regression analyses** to identify risk factors for arm swelling and decreased ROM
  - Patient factors: BMI, financial status, age, year of diagnosis, and employment
  - Tumor factors: tumor size, axillary nodal status, stage
  - Treatment factors: type of breast surgery, axillary surgery, reconstructive surgery, chemotherapy and radiotherapy



# Results: CONSORT diagram

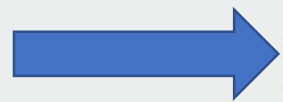


# Results: patient characteristics

	<b>Total n = 1037</b>
<b>Age (median, IQR)</b>	37 years (33, 39)
<b>Race</b>	
White	889 (86%)
Black	33 (3%)
Asian	63 (6%)
Hispanic	46 (4%)
<b>Fully employed</b>	501 (48%)
<b>Financially comfortable</b>	502 (51%)
<b>BMI</b>	
< 18.5	41 (4%)
18.5-24.9	601 (61%)
25-29.9	218 (22%)
>30	131 (13%)

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# Results: tumor characteristics

## Tumor size

pTis	86 (9%)
pT1	469 (46%)
pT2	342 (33%)
≥ pT3	118 (11%)

## Nodal involvement

pN0	562 (58%)
pN1	315 (32%)
pN2	68 (7%)
pN3	32 (3%)

## Tumor grade

Grade I	67 (6%)
Grade II	339 (34%)
Grade III	603 (60%)

## ER positive

739 (72%)

## Her2-Neu negative

664 (65%)

# Results: treatment characteristics

## Surgical treatment

Breast conserving therapy (BCT)	297 (30%)
Mastectomy	251 (25%)
Bilateral mastectomy	447 (45%)

**Reconstructive surgery** 399 (59% of MTX patients)

## Axillary surgery

SLNB	539 (55%)
SLNB + ALND	206 (21%)
ALND	201 (20%)
Missing	56 (4%)

**Radiotherapy** 624 (60%)

**Chemotherapy** 759 (74%)

**Hormonal therapy** 663 (90% of ER+ patients)

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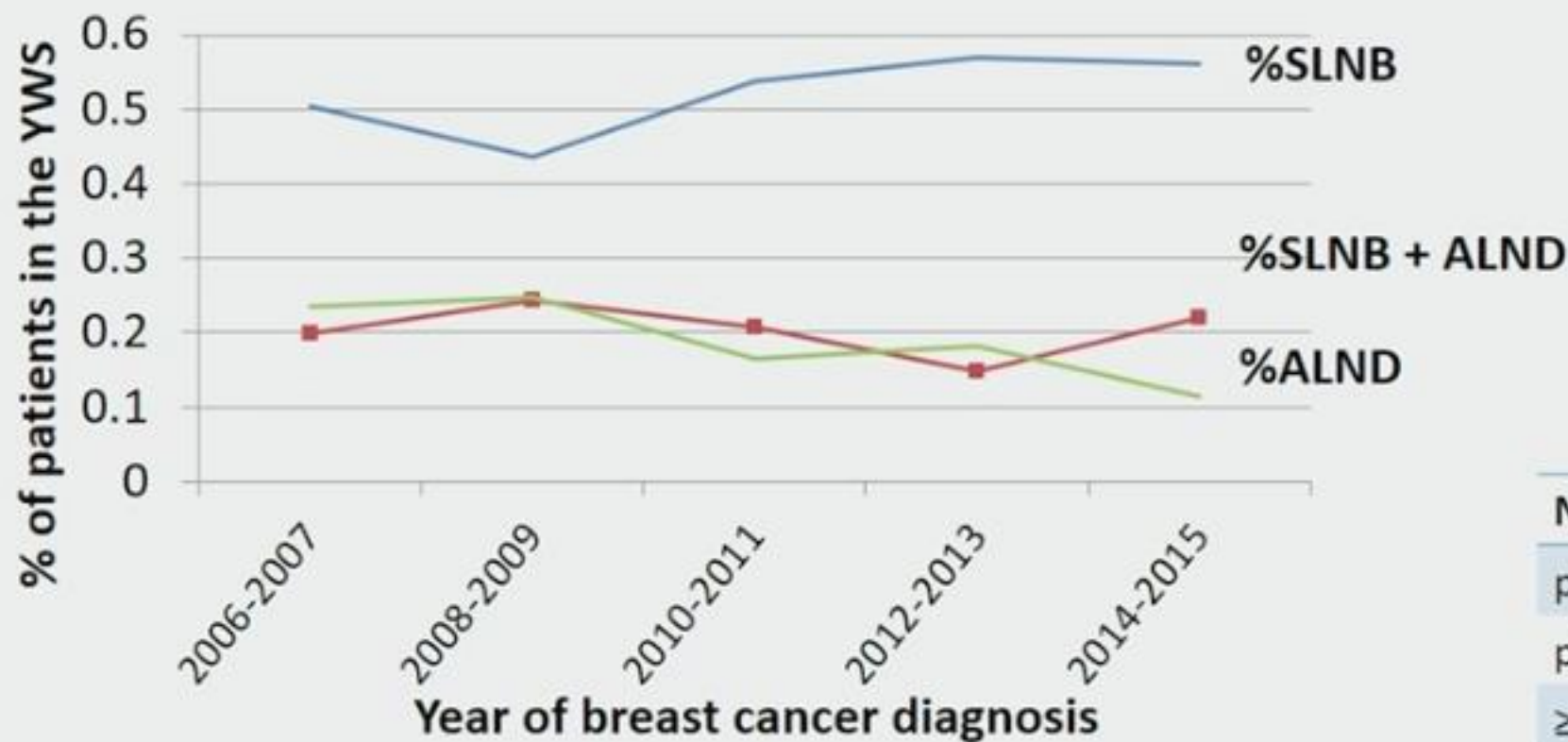
## Radiotherapy:

96% of BCT pts

50% any Mx pts

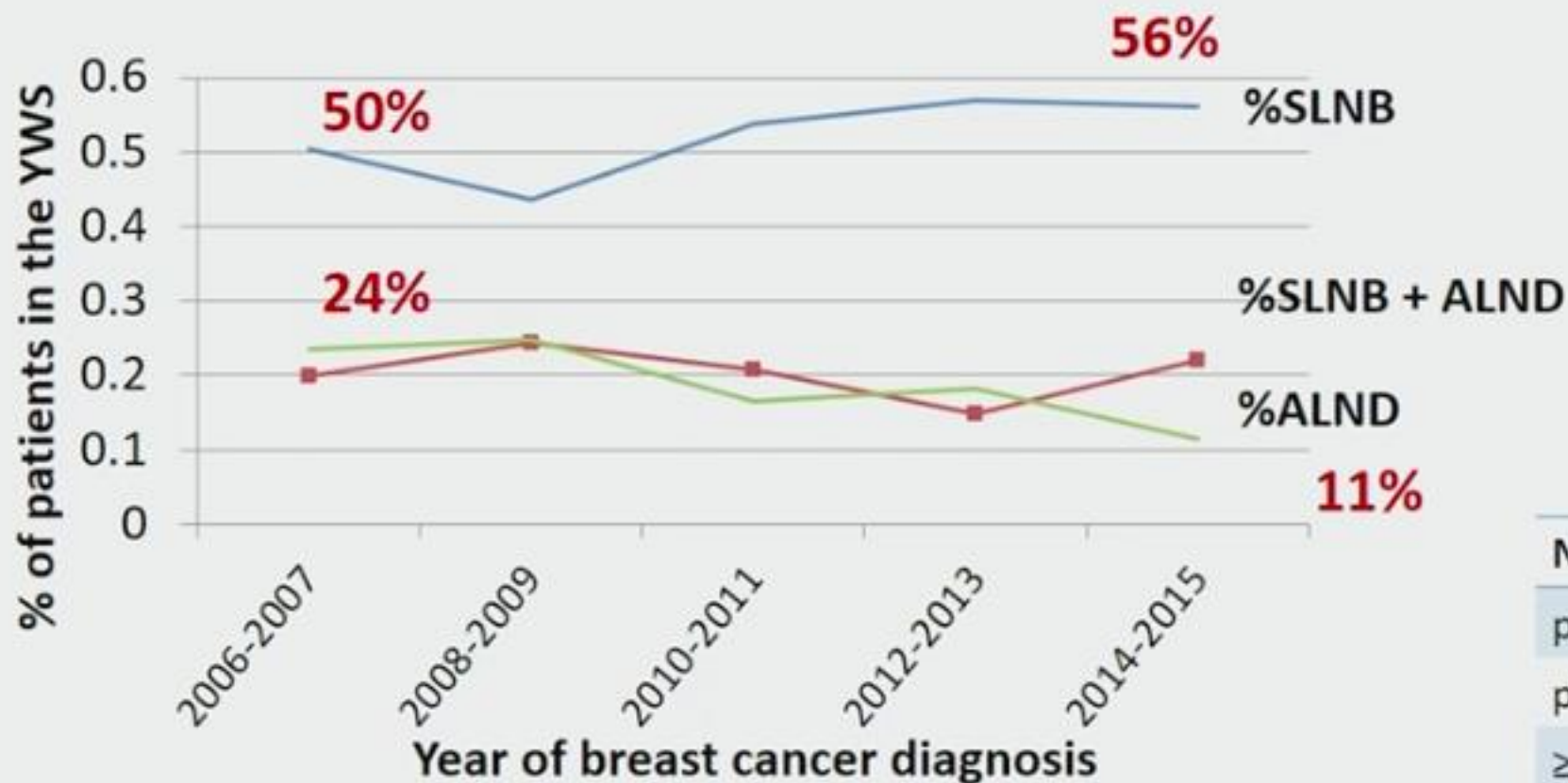


# Results: trend axillary treatment – all patients



Nodal involvement	
pN0	58%
pN1	32%
≥pN2	10%

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## Results: arm morbidity and breast surgery

- **13%** (n =136) of all patients reported arm swelling at 1 year
  - 11% of patients who underwent BCT
  - 14% of patients who underwent any mastectomy
- **33%** (n = 355) of all patients reported decreased ROM at 1 year
  - 32% of patients who underwent BCT
  - 34% of patients who underwent any mastectomy

# Results: arm morbidity and local treatment

	Arm swelling (1 y)	<i>p</i>
<b>Breast conserving therapy</b>		
SLNB (n = 191)	6%	
ALND (n = 84)	25%	<0.01
<b>Any mastectomy without RT</b>		
SLNB (n = 264)	4%	
ALND (n = 59)	19%	<0.01
<b>Any mastectomy with RT</b>		
SLNB (n = 79)	11%	
ALND (n = 261)	25%	0.06

# Results: arm morbidity and local treatment

	Arm swelling (1 y)	<i>p</i>	Decreased ROM (1 y)	<i>p</i>
<b>Breast conserving therapy</b>				
SLNB (n = 191)	6%		31%	
ALND (n = 84)	25%	<0.01	37%	0.58
<b>Any mastectomy without RT</b>				
SLNB (n = 264)	4%		20%	
ALND (n = 59)	19%	<0.01	34%	0.12
<b>Any mastectomy with RT</b>				
SLNB (n = 79)	11%		41%	
ALND (n = 261)	25%	0.06	46%	0.68

# Logistic regression arm swelling

		OR (95% CI)	P-value
<b>Patient factors:</b>			
BMI:	Overweight vs. normal weight	1.7 (1.1-2.7)	0.03
Financial status:	Comfortable vs. uncomfortable	0.6 (0.4-0.9)	0.01
<b>Tumor factors:</b>			
pT stage:	pT4 vs. pT1	4.2 (1.1-15.8)	0.03
pN stage:	pN1 vs. pN0	1.1 (0.5-2.2)	0.87
<b>Treatment factors:</b>			
Type of surgery:	Mastectomy + RT vs. BCT	1.1 (0.6-2.0)	0.70
	Mastectomy - RT vs. BCT	0.7 (0.4-1.4)	0.30
Axillary surgery:	ALND vs. SLNB	3.4 (1.8-6.4)	<0.01

Age, year of diagnosis, employment status, stage, breast reconstruction, chemotherapy and radiation were not associated with arm swelling

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# Logistic regression decreased ROM

		OR (95% CI)	P-value
<b>Patient factors:</b>			
BMI:	Overweight vs. normal weight	1.4 (1.0-2.1)	0.05
<b>Tumor factors:</b>			
pT stage:	pT4 vs. pT1	2.3 (0.5-10.4)	0.27
pN stage:	pN1 vs. pN0	1.6 (0.9- 2.9)	0.09
<b>Treatment factors:</b>			
Type of surgery:	Mastectomy + RT vs. BCT	2.1 (1.3-3.3)	<0.01
	Mastectomy - RT vs. BCT	0.78 (0.50-1.2)	0.30
Axillary surgery:	ALND vs. SLNB	1.1 (0.70-1.8)	0.65

Age, year of diagnosis, employment status, financial status, stage, breast reconstruction, chemotherapy and radiation were not associated with decreased ROM

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<b>Tumor factors:</b>			
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pN stage:	pN1 vs. pN0	1.6 (0.9- 2.9)	0.09
<b>Treatment factors:</b>			
Type of surgery:	Mastectomy + RT vs. BCT	2.1 (1.3-3.3)	<0.01
	Mastectomy - RT vs. BCT	0.78 (0.50-1.2)	0.30
Axillary surgery:	ALND vs. SLNB	1.1 (0.70-1.8)	0.65

Age, year of diagnosis, employment status, financial status, stage, breast reconstruction, chemotherapy and radiation were not associated with decreased ROM

# Conclusions

- Young breast cancer survivors report high rates of arm morbidity in the first year of follow up

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- ALND, increased BMI and less comfortable financial status were all independently associated with increased risk of self-reported arm swelling
- Patients receiving mastectomy with radiation therapy were twice as likely to experience decreased ROM at 1 year when compared to patients treated with BCT

# Conclusions

- Young breast cancer survivors report high rates of arm morbidity in the first year of follow up
- ALND, increased BMI and less comfortable financial status were all independently associated with increased risk of self-reported arm swelling
- Patients receiving mastectomy with radiation therapy were twice as likely to experience decreased ROM at 1 year when compared to patients treated with BCT

- These findings highlight opportunities for pre-operative counseling, early referral to physical therapy and identification of resources for ongoing support for those at increased risk

- Attention to the risks and benefits of local therapy strategies, specifically BCT vs mastectomy, in this population is also warranted



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