

# Differences Between Hispanic and Non-Hispanic White Breast Cancer Patients: Molecular Subtypes and Survival

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## Introduction

- Prior studies have noted that Hispanic women were more likely than non-Hispanic white women to be diagnosed with triple negative tumors
- Some studies have suggested that Hispanic women are also more likely than non-Hispanic women to die of their breast cancer.



## Objective

The goal of this study was to assess differences in risk of the major molecular subtypes of breast cancer between Hispanic and non-Hispanic white women in California, and to assess the role of molecular subtypes and other factors on survival.

## Methods

- ▶ Non-Hispanic white (NHW) and Hispanic women diagnosed with a first primary invasive breast cancer between 2004 and 2013 were identified through the California Cancer Registry.
- ▶ Information on age, stage, payer, tumor characteristics, and first course of treatment was extracted from the CCR database.
- ▶ Nativity was imputed from age received Social Security Number (foreign birthplace assumed for women who received an SSN after age 21).

## Methods (continued)

- Neighborhood socioeconomic status based on address at diagnosis was derived from census level data.
- Tumors were classified into four categories based on hormone receptor status. Those with either estrogen receptor (ER) positive or progesterone receptor (PR) positive were classified as hormone receptor (HR) positive.
- Patients missing either HR or HER2 receptor status were excluded (approximately 15%).



## Methods (continued)

- ▶ Logistic regression was used to estimate differences in distribution of subtypes between Hispanic and non-Hispanic white patients.
- ▶ Cox proportional hazard models were used to estimate differences in survival for Hispanics compared to non-Hispanic whites. Follow-up was through December 2013.

## Results

- ▶ 20,543 Hispanic women and 69,693 NHW women diagnosed with invasive breast cancer 2004-2013 were identified through the California Cancer Registry.
- ▶ Hispanic women were younger at diagnosis: 36.8% of Hispanics versus 20.0% of NHW were diagnosed under age 50.
- ▶ Hispanic women were more likely to reside in neighborhoods classified as low SES.

## Results (continued)

	Hispanic		NH White	
Age	N	%	N	%
20-39	2,199	10.7	2,838	4.1
40-49	5,521	26.9	11,501	16.5
50-59	5,597	27.3	17,794	25.5
60-69	3,994	19.4	17,953	25.8
70-79	3,232	15.7	19,607	28.1



## Results (continued)

SES	Hispanic		NH White	
	N	%	N	%
Q1 (low)	5,560	27.1	4,699	6.7
Q2	4,794	23.3	9,398	13.5
Q3	3,879	18.9	13,271	19.0
Q4	3,096	15.1	17,059	24.5
Q5 (high)	2,097	10.2	21,074	30.2

## Results (continued)

- ▶ Hispanic women were less likely than NHW to be diagnosed at Stage I (37.0% vs 48.9%).
- ▶ Hispanic women were less likely than NHW to be diagnosed with HR+HER2- tumors (62.8% vs 72.5%) and more likely to be diagnosed with the other three subtypes.
- ▶ This was found in all age and stage subgroups.

## Results (continued)

Odds of dx with specific subtypes among Hispanics compared to NH Whites:

Subtype	OR	CI
HR+/HER2-	1.0	
HR+/HER2+	1.29	1.23-1.35
HR-/HER2+	1.54	1.45-1.64
HR-/HER2-	1.39	1.33-1.46

## Results (continued)

- ▶ Similar increased odds of the three less common subtypes, particularly HR-/HER2+, were seen in each age category and stage of diagnosis.
- ▶ Foreign-born Hispanic women were at slightly higher risk of both HER2+ subtypes than US-born Hispanic women.

## Results (continued)

- Risk of death was 20-30% higher for Hispanic women than NHW across all tumor subtypes.
- This disparity diminished but remained statistically significant after adjustment for treatment.
- However this result was no longer statistically significant after adjustment for SES and health insurance.

## Discussion

- ▶ Results of this analysis show that Hispanic women are more likely than NHW to be diagnosed with triple negative tumors and those overexpressing HER2.
- ▶ These results persisted regardless of age, stage at diagnosis, or birthplace.
- ▶ Hispanic women were more likely to die of their breast cancer regardless of subtype.

## Discussion (continued)

- ▶ This disparity persisted after adjustment for treatment but was largely explained by SES and health insurance.
- ▶ Analysis is ongoing to further define the roles of both social determinants and biologic differences in survival.
- ▶ We are also evaluating the possible impact of differential loss to follow up for Hispanic patients.

# Acknowledgements

- ▶ Elena Martinez, University of California San Diego, Moores Cancer Center
- ▶ Christopher Li, Fred Hutchinson Cancer Research Center, Seattle-Puget Sound SEER registry
- ▶ Scarlett Lin Gomez, Cancer Prevention Institute of California, Greater Bay Area Cancer Registry





Questions?