

ENRICHING THE FLORIDA CANCER REGISTRY 1996-2007 TO EXAMINE SURVIVAL DISPARITIES IN FEMALE BREAST CANCER PATIENTS

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INTRODUCTION

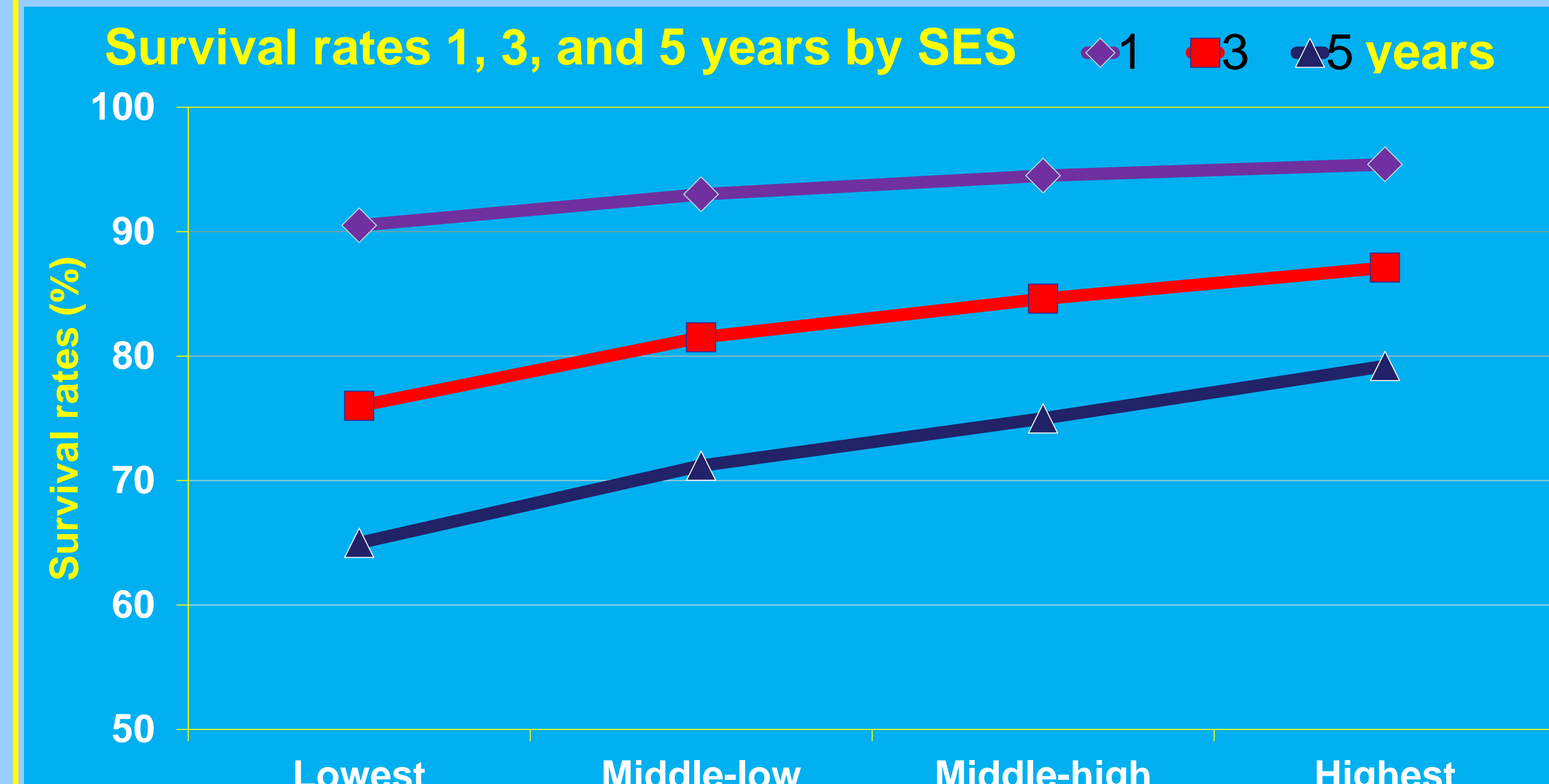
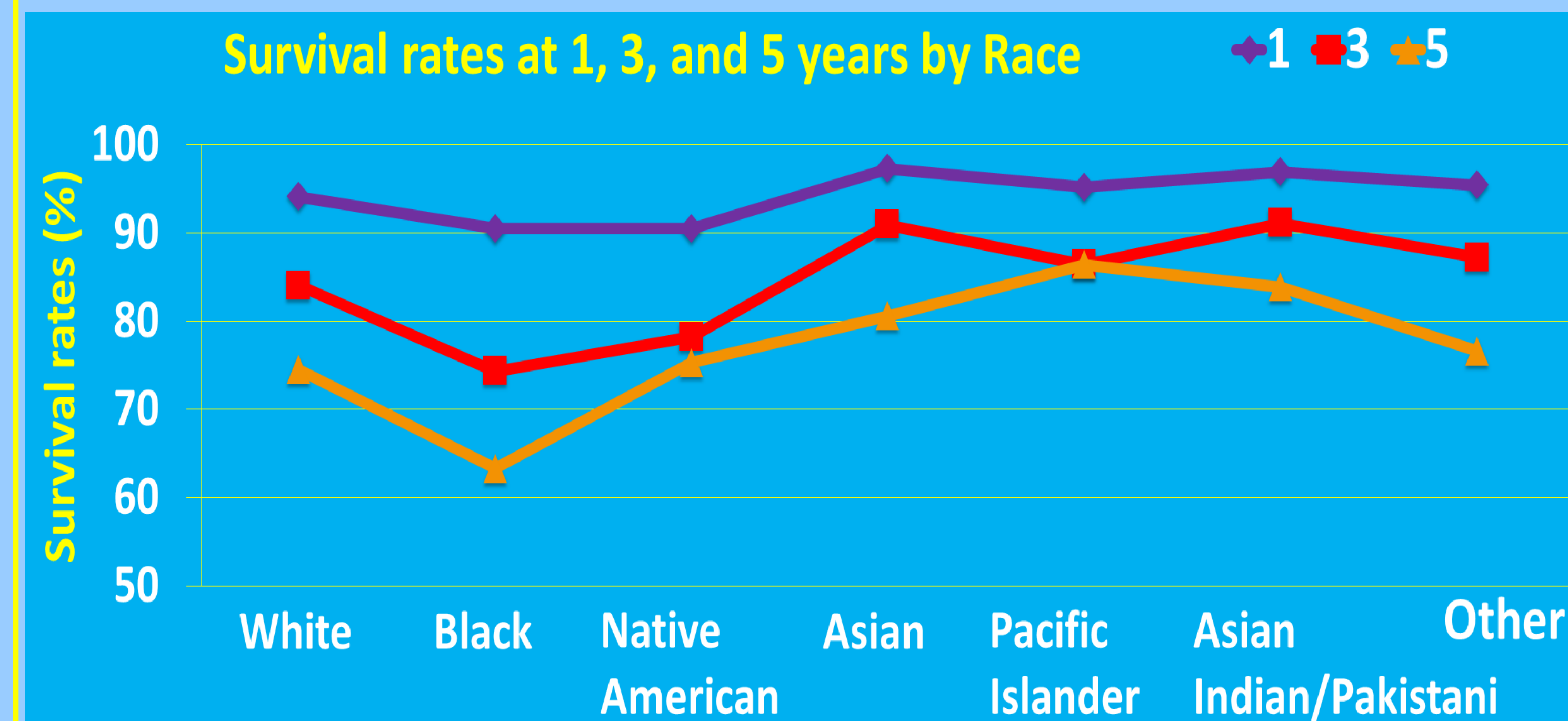
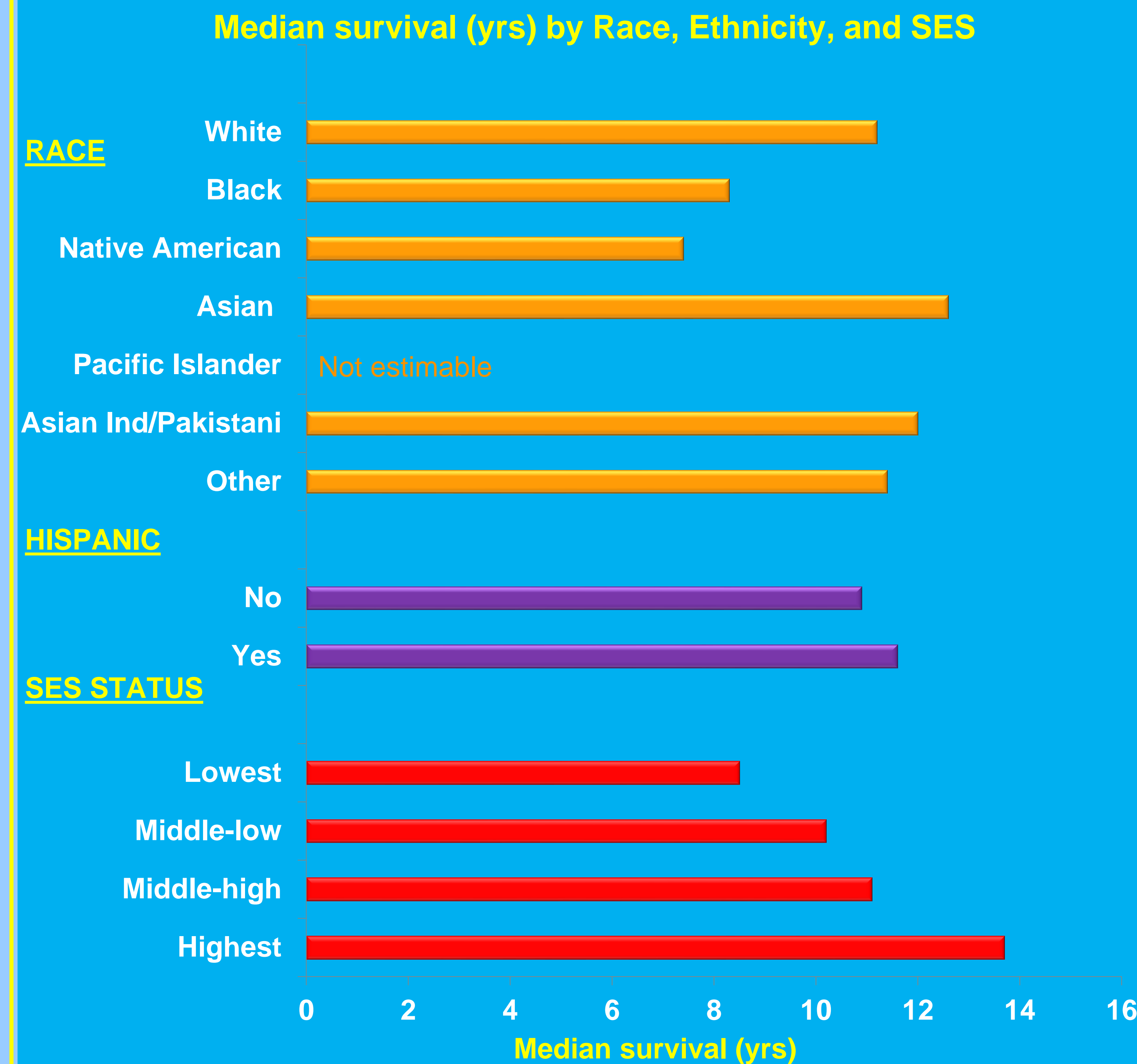
- Breast cancer is the second leading cause of cancer death among women in the U.S.
 - In 2013, an estimated 232,340 women will be diagnosed with invasive breast cancer, and 39,620 will die from breast cancer.
- An enhanced Florida Cancer Data System (FCDS) Registry allows for examination of disparities in survival of cancer patients.
- The purpose of this study was to investigate race, ethnicity, and socioeconomic (SES) disparities in breast cancer survival using an enhanced Florida Cancer Data Systems (FCDS) registry.

METHODS

- Data from 1996-2007 FCDS was enhanced by linkage with Florida's Agency for Health Care Administration (AHCA) and information from the U.S. Census.
- AHCA contains diagnosis and procedure codes for all in- and out-patient encounters at hospitals and free standing surgical and radiological treatment centers.
- Outcome of interest: survival time (date of diagnosis to date of death).
- Predictors of interest:
 - Race: White, Black, Native American, Asian, Pacific Islander, Asian Indian or Pakistani (AIP), or Other.
 - Ethnicity: non-Hispanic, or Hispanic.
 - SES by % of neighborhood living in poverty: Lowest SES ($\geq 20\%$); middle-low ($\geq 10\%$ and $< 20\%$); middle-high ($\geq 5\%$ and $< 10\%$); highest ($< 5\%$).
- Final sample size, N=127,754.
- Statistical analysis:
 - Descriptive; median survival in years; 1-, 3-, and 5-year survival rates.
 - Univariate and multivariate Cox proportional hazard regression models- used to obtain unadjusted and adjusted hazard ratios (HR) and 95% confidence intervals (95%CI).

Demographic Characteristics

	All patients N	Socioeconomic status % in each category			
		Low	Middle-L	Middle-H	High
All patients	127,745	14381	37,382	48,356	27,635
Race					
White	115,506	8	29	40	23
Black	10,820	46	31	16	7
Native American	60	22	35	25	18
Asian	656	9	28	39	24
Pacific Islander	50	8	28	36	28
Asian Ind/Pakistani	212	7	25	35	32
Other	450	8	29	41	23
Hispanic origin					
No	115,514	10	28	39	23
Yes	12,240	22	38	28	11



Univariate and Multivariate Cox Proportional Hazard Models

	Univariate		Multivariate	
	HR (95% CI)	P-value	HR (95% CI)	P-value
Race				
White	1		1	
Black	1.44 (1.40, 1.49)	<0.001	1.28 (1.21, 1.36)	<0.001
Native American	1.50 (0.98, 2.29)	0.065	1.19 (0.81, 1.73)	0.373
Asian	0.71 (0.59, 0.85)	<0.001	0.84 (0.68, 1.03)	0.100
Pacific Islander	0.76 (0.40, 1.46)	0.415	1.09 (0.67, 1.78)	0.719
Asian Indian/Pakistani	0.65 (0.47, 0.91)	0.013	0.87 (0.64, 1.19)	0.380
Other	0.90 (0.74, 1.10)	0.324	1.03 (0.85, 1.25)	0.741
Hispanic Origin				
No	1		1	
Yes	0.92 (0.89, 0.95)	<0.001	0.90 (0.84, 0.96)	0.001
SES				
Lowest	1		1	
Middle-low	0.81 (0.78, 0.84)	<0.001	0.93 (0.89, 0.97)	<0.001
Middle-high	0.71 (0.68, 0.73)	<0.001	0.88 (0.84, 0.93)	<0.001
Highest	0.57 (0.55, 0.59)	<0.001	0.80 (0.77, 0.84)	<0.001

Multivariate model includes additional demographic, clinical predictors as well as comorbidities.

RESULTS

- The majority of the population was White (90.4%), non-Hispanic (90.4%), and in the middle-high or highest SES category (59.5%).
- Overall median survival time was 11.8 years – with Asians longest (12.6) and Native Americans shortest (7.4).
 - In the unadjusted models:**
 - Blacks had significantly worse survival compared to Whites ($P < 0.001$).
 - Asians ($P < 0.001$) and AIP ($P = 0.013$) has significantly better survival
 - Hispanics had a survival advantage compared to non-Hispanics ($P < 0.001$).
 - In the multivariate model adjusted for all covariates:**
 - Blacks ($P < 0.001$) and Hispanics ($P = 0.001$) remained significant predictors of worse survival.
 - Asians and AIP lost their survival advantage over Whites.
 - In all both unadjusted and adjusted models,** there was an incremental improvement in survival for each higher SES category ($P < 0.001$).

CONCLUSION

- Using an enhanced FCDS registry for female breast cancer patients provided the strengthened ability to identify racial, ethnic, and SES disparities in survival outcome, therefore:
 - Further exploration is needed to clarify reasons for the survival disparities and tailor programs to ensure earlier diagnosis and access to treatment options, particularly for Blacks and those living in poorer neighborhoods.

Funding was provided through the James and Esther King Florida Biomedical Research program (#10KG-06). We would like to acknowledge Claudia Davidson for her help with this project.