Disparities in Breast Cancer Therapy Outcomes

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OBJECTIVES

- Focus on racial/ethnic disparities (AA and Hispanics) in breast cancer outcomes in USA

- Recently published data

SIRE (SELF IDENTIFIED RACE AND ETHNICITY) VS GENETIC ANCESTRY

- **Race and ethnicity** is a multi dimensional ***social construct*** that reflects how the individuals perceive themselves as well as how they are perceived by others
- Race changes based on who is making the assignment
- Racial health disparities vary depending on gradients of skin color

CAUSES OF RACIAL HEALTH DISPARITIES

SOCIAL/ENVIRONMENTAL vs BIOLOGICAL/GENETICS

- Healthcare access
- Structural racism, prejudice
- Neighborhood context (area level wealth, education, professions)
- Socio-economic status and its associated stress
- Individual level lifestyles and behaviors (obesity, co-morbidities)

PLOS ONE

RESEARCH ARTICLE

Relative impact of genetic ancestry and neighborhood socioeconomic status on all-cause mortality in self-identified African Americans

Hari S. Iyer[1,2¤]*, Scarlett Lin Gomez[3], Iona Cheng[3], Timothy R. Rebbeck[1,2]

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REVIEW

The Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial and Its Associated Research Resource

Claire S. Zhu, Paul F. Pinsky, Barnett S. Kramer, Philip C. Prorok, Mark P. Purdue, Christine D. Berg, John K. Gohagan

Manuscript received May 7, 2013; revised August 2, 2013; accepted August 6, 2013.

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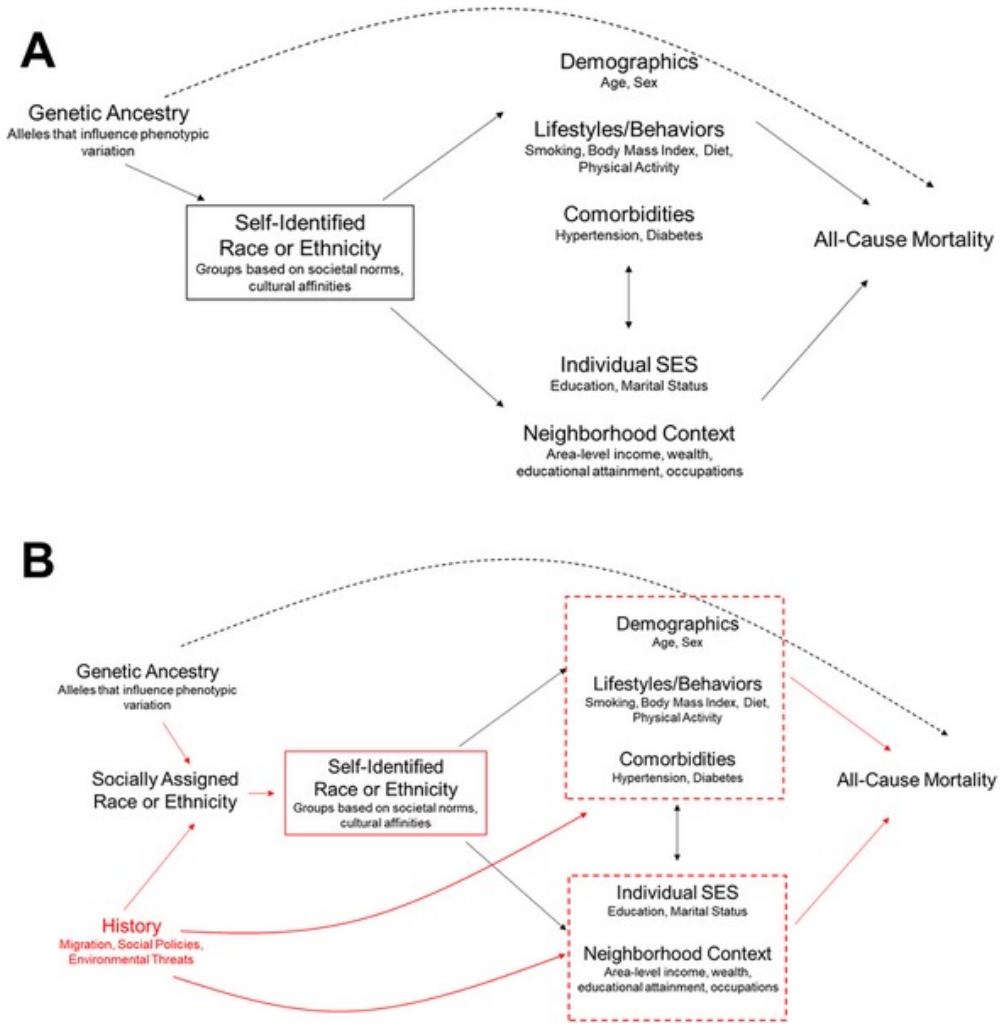
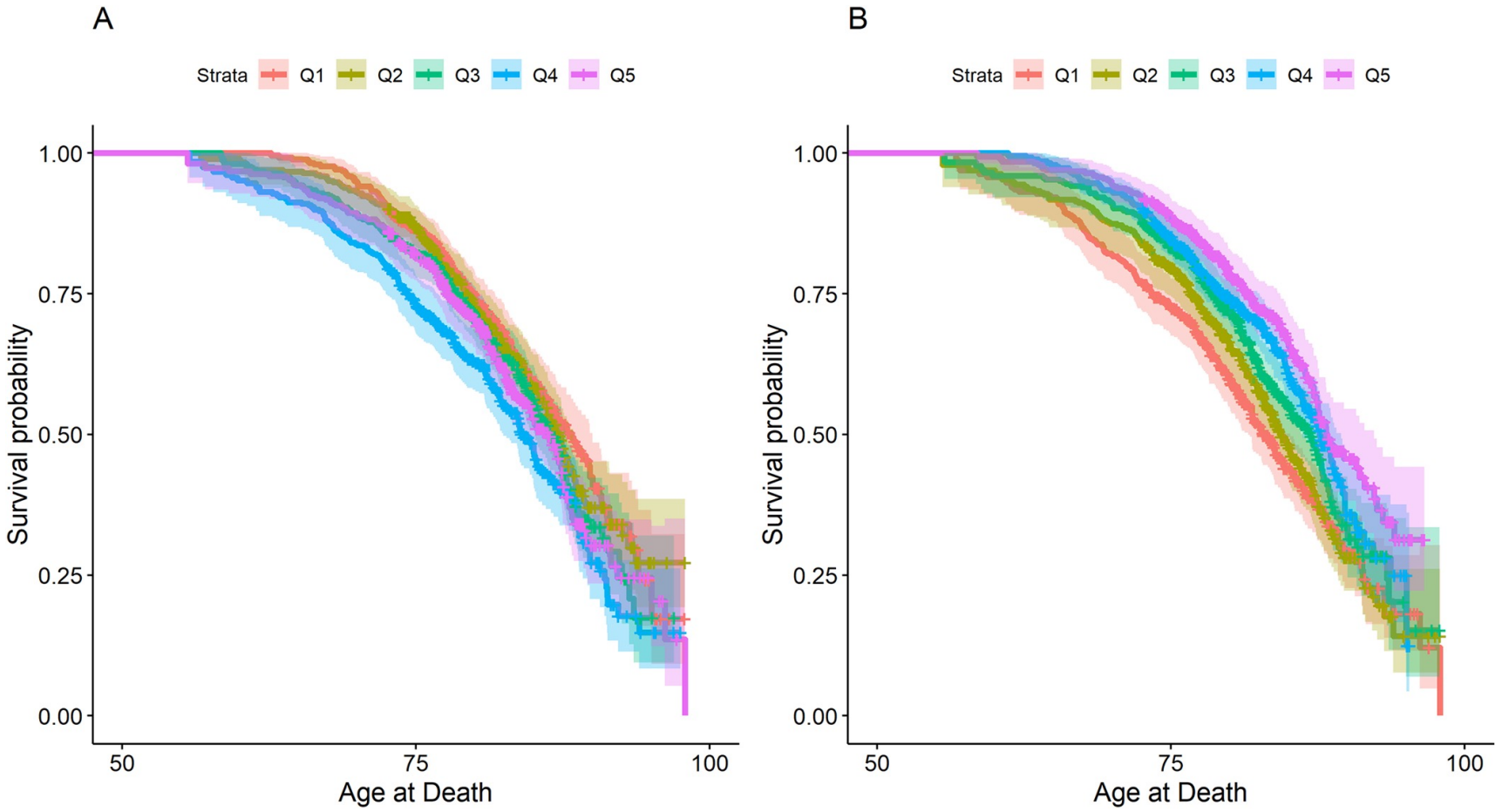
Fig 1.



Iyer HS, Gomez SL, Cheng I, Rebbeck TR (2022) Relative impact of genetic ancestry and neighborhood socioeconomic status on all-cause mortality in self-identified African Americans. PLOS ONE 17(8): e0273735. https://doi.org/10.1371/journal.pone.0273735
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0273735

RELATIVE IMPACT OF GENETIC ANCESTRY AND NEIGHBORHOOD SOCIOECONOMIC STATUS ON ALL-CAUSE MORTALITY IN SELF-IDENTIFIED AFRICAN AMERICANS
HARI S. IYER, SCARLETT LIN, GOMEZIONA CHENG, TIMOTHY R. REBBECK
PLOS 2022



COMMONWEALTH FUND ANALYSIS 2021

Exhibit 1. Health Care System Performance Rankings

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	**3**	**10**	**8**	**5**	**2**	**6**	**1**	**7**	**9**	**4**	**11**
Access to Care	8	9	7	3	1	5	2	6	10	4	11
Care Process	6	4	10	9	3	1	8	11	7	5	2
Administrative Efficiency	2	7	6	9	8	3	1	5	10	4	11
Equity	1	10	7	2	5	9	8	6	3	4	11
Health Care Outcomes	1	10	6	7	4	8	2	5	3	9	11

Data: Commonwealth Fund analysis.

CHARACTERISTICS OF HEALTH SYSTEMS THAT AMELIORATE HEALTH DISPARITIES

1. They provide for universal coverage and remove cost barriers so people can get care when they need it and in a manner that works for them.
2. They invest in primary care systems to ensure that high-value services are equitably available locally in all communities to all people, reducing the risk of discrimination and unequal treatment.
3. They reduce the administrative burdens on patients and clinicians that cost them time and effort and can discourage access to care, especially for marginalized groups.
4. They invest in social services that increase equitable access to nutrition, education, child care, community safety, housing, transportation, and worker benefits that lead to a healthier population and fewer avoidable demands on health care.

CONTRIBUTIONS OF DIFFERENT FACTORS ON BREAST CANCER MORTALITY

- Socio-economic factors: low SES, lack of insurance or under-insurance, access to screening mammography
- Environmental factors: Obesity, dietary factors (exposure to estrogen-like compounds)
- Biological factors:

  Prevalence of inherited mutations in different sub-groups

  Genetics effects on environmental factors

  Explanation for higher prevalence of triple negative, HER2 positive breast and early onset breast cancers

CA CANCER J CLIN 2022;72:524–541

Breast Cancer Statistics, 2022

Angela N. Giaquinto, MSPH[1]; Hyuna Sung, PhD [1]; Kimberly D. Miller, MPH [1]; Joan L. Kramer, MD[2]; Lisa A. Newman, MD, MPH[3]; Adair Minihan, MPH[1]; Ahmedin Jemal, DVM, PhD[1]; Rebecca L. Siegel, MPH [1]

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CA Cancer J Clin 2022;72:524-541

doi: 10.3322/caac.21754. Available online at cacancerjournal.com

Abstract: This article is the American Cancer Society's update on female breast cancer statistics in the United States, including population-based data on incidence, mortality, survival, and mammography screening. Breast cancer incidence rates have risen in most of the past four decades; during the most recent data years (2010–2019), the rate increased by 0.5% annually, largely driven by localized-stage and hormone receptor-positive disease. In contrast, breast cancer mortality rates have declined steadily since their peak in 1989, albeit at a slower pace in recent years (1.3% annually from 2011 to 2020) than in the previous decade (1.9% annually from 2002 to 2011). In total, the death rate dropped by 43% during 1989–2020, translating to 460,000 fewer breast cancer deaths during that time. The death rate declined similarly for women of all racial/ethnic groups except American Indians/Alaska Natives, among whom the rates were stable. However, despite a lower incidence rate in Black versus White women (127.8 vs. 133.7 per 100,000), the racial disparity in breast cancer mortality remained unwavering, with the death rate 40% higher in Black women overall (27.6 vs. 19.7 deaths per 100,000 in 2016–2020) and two-fold higher among adult women younger than 50 years (12.1 vs. 6.5 deaths per 100,000). Black women have the lowest 5-year relative survival of any racial/ethnic group for every molecular subtype and stage of disease (except stage I), with the largest Black–White gaps in absolute terms for hormone receptor-positive/human epidermal growth factor receptor 2-negative disease (88% vs. 96%), hormone receptor-negative/human epidermal growth factor receptor 2-positive disease (78% vs. 86%), and stage III disease (64% vs. 77%). Progress against breast cancer mortality could be accelerated by mitigating racial disparities through increased access to high-quality screening and treatment via nationwide Medicaid expansion and partnerships between community stakeholders, advocacy organizations, and health systems.

Keywords: breast neoplasms, epidemiology, health disparities, incidence, molecular subtype

TABLE 1. Estimated new ductal carcinoma in situ and invasive breast cancer cases and deaths among women by age, United States, 2022

	DCIS cases		Invasive cases		Deaths	
Age, years	No.	%	No.	%	No.	%
<40	1230	2	10,850	4	1090	3
40–49	8050	16	36,710	13	2950	7
50–59	12,830	25	65,980	23	7150	17
60–69	16,030	31	84,200	29	10,270	24
70–79	10,450	20	61,470	21	10,010	23
≥80	2810	5	28,640	10	11,780	27
All ages	**51,400**		**2 87,850**		**43,250**	

Note: Estimates are rounded to the nearest 10. Percentages may not sum to 100% because of rounding.
Abbreviation: DCIS, ductal carcinoma in situ.

TABLE 3. Characteristics of invasive female breast cancers by race/ethnicity, ages 20 years and older, United States, 2015–2019[a]

Characteristic	All races, %	White, %	Black, %	Hispanic, %	API, %	AIAN, %
Age at diagnosis						
20–29	1	<0.1	1	1	1	1
30–39	4	3	6	7	6	5
40–49	13	11	15	21	22	16
50–59	22	21	25	25	25	24
60–69	29	29	28	25	26	31
70–79	21	23	17	15	14	17
≥80	11	12	8	7	6	7
SEER Summary stage						
Local	66	68	57	60	65	60
Regional	26	24	31	31	27	29
Distant	6	5	8	6	5	7
Unknown	3	3	3	4	2	4

Characteristic	All races, %	White, %	Black, %	Hispanic,%	API, %	AIAN, %
Tumor size, cm						
<2.0	55	58	46	48	51	48
2.0–4.9	31	30	34	34	34	34
≥5	8	7	12	10	9	9
Unknown	6	6	7	9	5	9
Grade[b]						
Low	21	23	13	17	18	22
Intermediate	42	43	36	40	43	40
High	29	26	41	34	31	29
Unknown	8	8	9	10	7	9

Characteristic	All races, %	White, %	Black, %	Hispanic, %	API, %	AIAN, %
ER status						
Positive	80	82	69	76	80	77
Negative	16	14	27	18	16	17
Unknown	5	4	5	6	4	5
Subtype						
HR+/HER2−	68	71	57	63	66	66
HR+/HER2+	10	9	10	11	12	10
HR−/HER2+	4	4	5	5	6	5
HR−/HER2−	10	9	19	11	9	11
Unknown	8	7	8	10	7	9

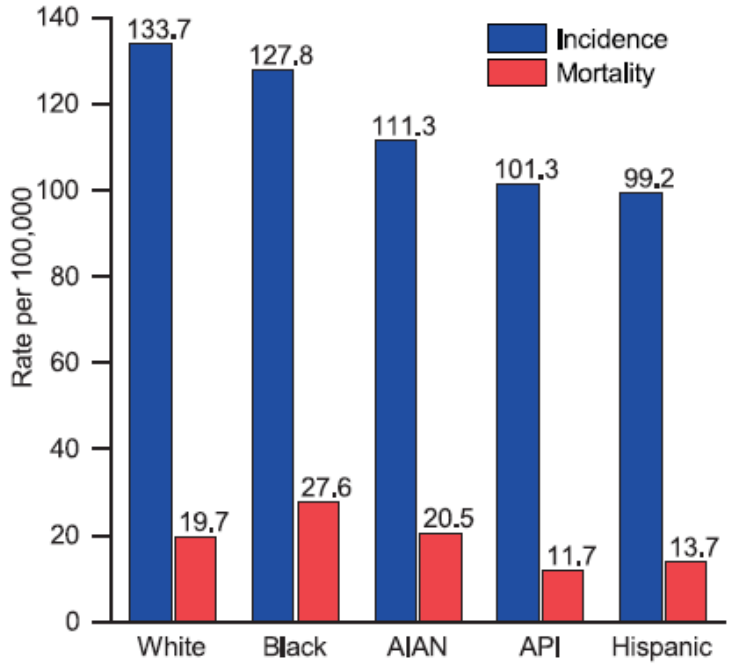

FIGURE 1. Female breast cancer incidence (2015–2019) and mortality (2016–2020) rates by race/ethnicity, United States. Note: Rates are age adjusted to the 2000 US standard population. Incidence data for American Indian/Alaska Native women are confined to PRCDA counties, whereas mortality data are for the entire United States with adjustment factors for racial misclassification. Race is exclusive of Hispanic origin. AIAN indicates American Indian/Alaska Native; API, Asian/Pacific Islander.

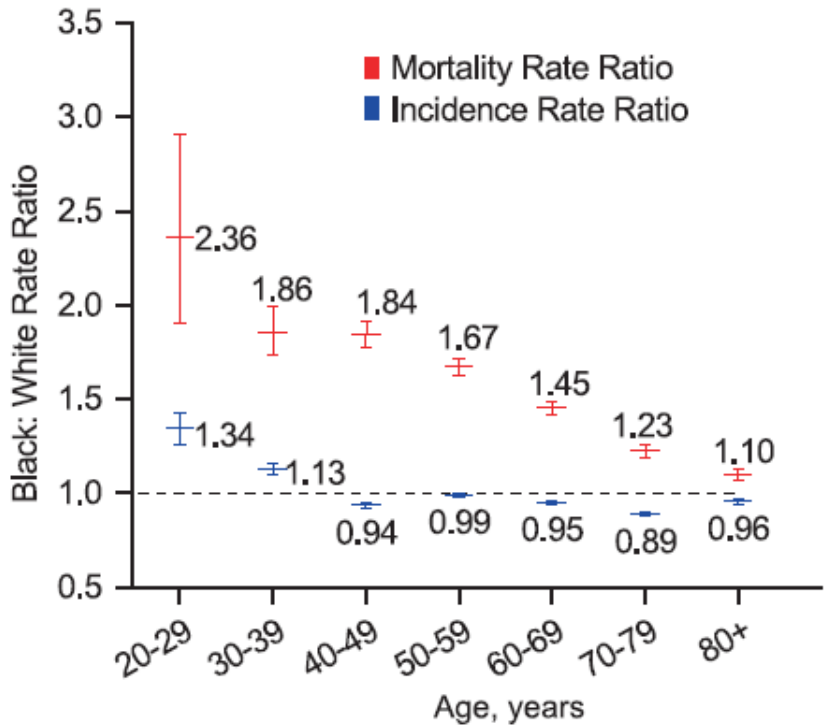

FIGURE 3. Rate ratios comparing breast cancer incidence (2015–2019) and mortality (2016–2020) rates in Black and White women by age, United States. Note: White women served as the reference group, and rate ratios are based on unrounded rates. Error bars indicate 95% confidence intervals. Race is exclusive of Hispanic ethnicity.

Breast Cancer Res Treat (2017) 166:185–193
DOI 10.1007/s10549-017-4389-z

EPIDEMIOLOGY

Contribution of clinical and socioeconomic factors to differences in breast cancer subtype and mortality between Hispanic and non-Hispanic white women

María Elena Martínez[1,2] · Scarlett L. Gomez[3,4] · Li Tao[3] · Rosemary Cress[5] · Danielle Rodriguez[5] · Jonathan Unkart[6] · Richard Schwab[7] · Jesse N. Nodora[1,2] · Linda Cook[7] · Ian Komenaka[8] · Christopher Li[9]

Received: 27 March 2017 / Accepted: 7 July 2017 / Published online: 11 July 2017

MARTINEZ ET AL: BREAST CANCER RESEARCH TREATMENT 166: 185-193, 2017

- California Cancer Registry: 29,626 Hispanics and 99,862 NHW with invasive breast cancer dx 2004-14.
- Analyzed prevalence of different breast cancer subtypes
- Triple negative breast cancer and HER2 positive breast cancers were more common in Hispanics (HR 1.29 and 1.19 respectively).
- Hispanic women had a higher Mortality Rate ratio of 1.24
- Neighborhood SES and health insurance status accounted for most of the differences in mortality

MARTINEZ ET AL: BREAST CANCER RESEARCH TREATMENT 166: 185-193,2017

Table 1 Sociodemographic and clinical characteristics of Hispanic and non-Hispanic white women with invasive breast cancer in the California Cancer Registry, 2004–2014 ($N = 129,488$)

	NHW		Hispanic	
	n	%	*n*	%
	99,862		29,626	
Age, years				
20–39	3808	3.8	3018	10.2
40–49	15,403	15.4	7641	25.8
50–59	24,600	24.6	7965	26.9
60–69	26,926	27.0	6078	20.5
70+	29,125	29.2	4924	16.6
Mean (SD)	61.9 (13.3)		55.7 (13.4)	

MARTINEZ ET AL: BREAST CANCER RESEARCH TREATMENT 166: 185-193,2017

- Hispanics had higher percentage of patients living in low SES neighborhoods: 52.7 vs 21.1%
- Hispanics had higher percentage of patients with Medicaid insurance: 30.8 vs 17%
- Hispanics had more advanced disease: less Stage 1: 39.8 vs 51.1%; more likely with positive nodes: 41.1% vs 31.5%; Stage 3-4: 39.2 vs 28.4%

MARTINEZ ET AL: BREAST CANCER RESEARCH TREATMENT 166: 185-193,2017

- Hispanics had higher TN and HER2 positive subtypes: TN: ORR 1.29; ER neg HER2 +: O.R 1.31; ER pos HER2 pos OR 1.19.
- In a model that included all variables, mortality among Hispanics was significantly lower than among NHW (MRR 0.90, C.I. 0.87-0.94).

MARTINEZ ET AL: BREAST CANCER RESEARCH TREATMENT 166: 185-193,2017

- Younger women had a higher risk of dying than older women ($p<0.001$)
- Mortality differences between Hispanics and White were greatest in the younger group (MRR 1.42 vs 1.13)

FEJERMAN L: EFFECTS OF GENETIC ANCESTRY ON BREAST CANCER IN HISPANICS

- European ancestry is associated with increased risk of breast cancer among Hispanics in San Francisco area (OR 1.79, C.I. 1.28- 2.79) (Cancer Res. 2008)
- OR 1.20 among Mexican women with every 25% increase in European ancestry (C.I. 1.03- 1.41) (Cancer Epidemiol Biomarkers Prev. 2010)
- 50% or more Native American ancestry in Hispanics is associated with 2 times mortality (Cancer Research 2013)

Null Results in Brief

Cancer Epidemiology, Biomarkers & Prevention

Genetic Ancestry Is not Associated with Breast Cancer Recurrence or Survival in U.S. Latina Women Enrolled in the Kaiser Permanente Pathways Study

Natalie J. Engmann[1], Isaac J. Ergas[2], Song Yao[3], Marilyn L. Kwan[2], Janise M. Roh[2], Christine B. Ambrosone[3], Lawrence H. Kushi[2], and Laura Fejerman[4]

Cancer Epidemiol Biomarkers Prev; 26(9) September 2017

ENGMANN NJ ET AL: CANCER EPIDEMIOL BIOMARKERS PREV ; 26(9): SEPTEMBER 2017

- Pathways Study: Prospective study of women with breast cancer in Kaiser Permanente Health System
- Analyze the effects of genetic ancestry on 506 Latina women with invasive breast cancer on outcome
- Proportional hazard models: No impact of Indigenous American ancestry on breast cancer recurrence, breast cancer mortality and all cancer mortality
- Improving health care quality and access eliminates the association between genetic ancestry and breast cancer outcomes in Latinas

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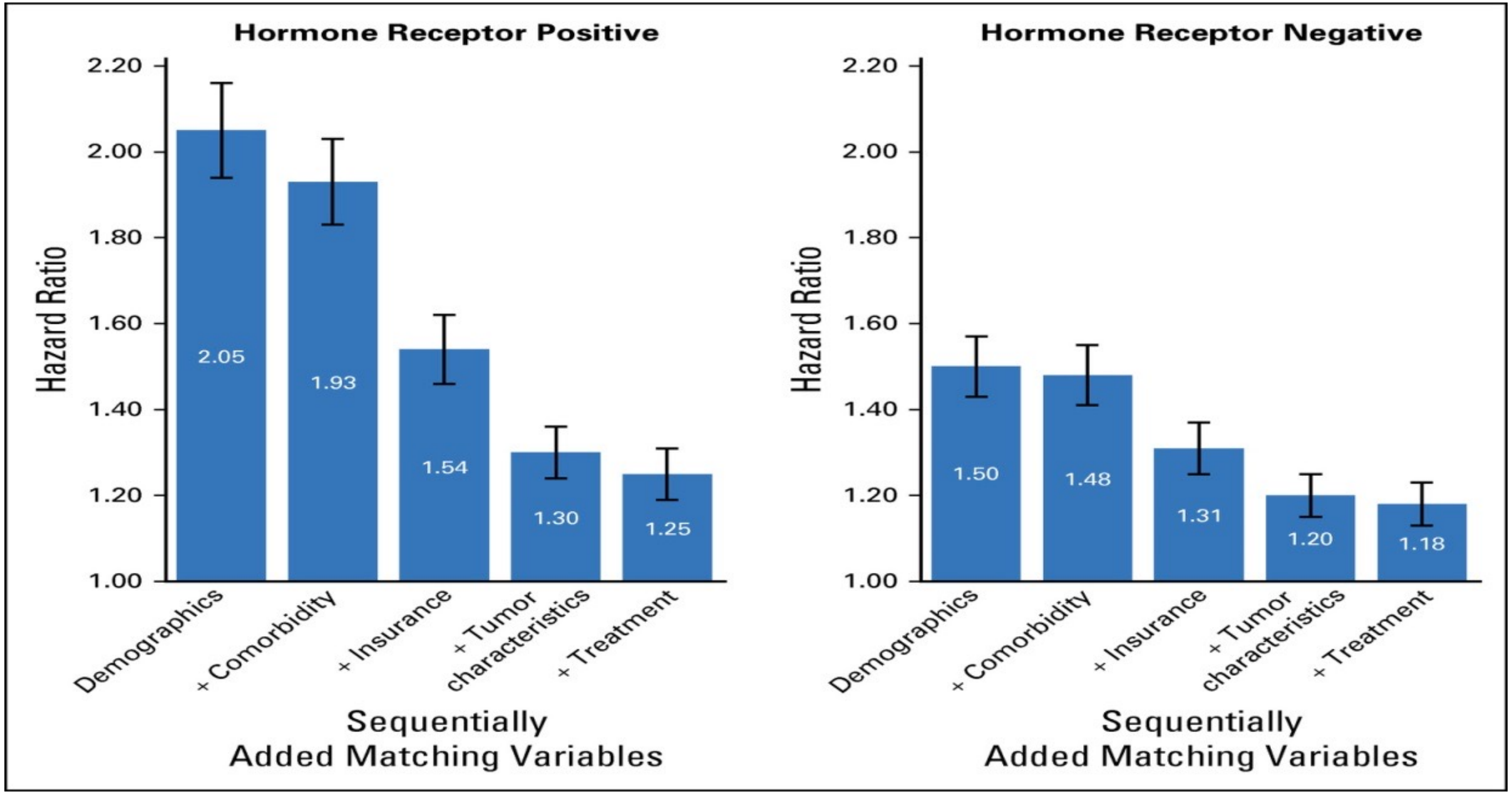
JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Factors That Contributed to Black-White Disparities in Survival Among Nonelderly Women With Breast Cancer Between 2004 and 2013

Ahmedin Jemal, Anthony S. Robbins, Chun Chieh Lin, W. Dana Flanders, Carol E. DeSantis, Elizabeth M. Ward, and Rachel A. Freedman



Jemal A;, et al , JCO.73.7932, 2017

America: Equity and Equality in Health 1

Inequality and the health-care system in the USA

Samuel L Dickman, David U Himmelstein, Steffie Woolhandler

Widening economic inequality in the USA has been accompanied by increasing disparities in health outcomes. The life expectancy of the wealthiest Americans now exceeds that of the poorest by 10–15 years. This report, part of a Series on health and inequality in the USA, focuses on how the health-care system, which could reduce income-based disparities in health, instead often exacerbates them. Other articles in this Series address population health inequalities, and the health effects of racism, mass incarceration, and the Affordable Care Act (ACA). Poor Americans have worse access to care than do wealthy Americans, partly because many remain uninsured despite coverage expansions since 2010 due to the ACA. For individuals with private insurance, rising premiums and cost sharing have undermined wage gains and driven many households into debt and even bankruptcy. Meanwhile, the share of health-care resources devoted to care of the wealthy has risen. Additional reforms that move forward, rather than backward, from the ACA are sorely needed to mitigate health and health-care inequalities and reduce the financial burdens of medical care borne by non-wealthy Americans.

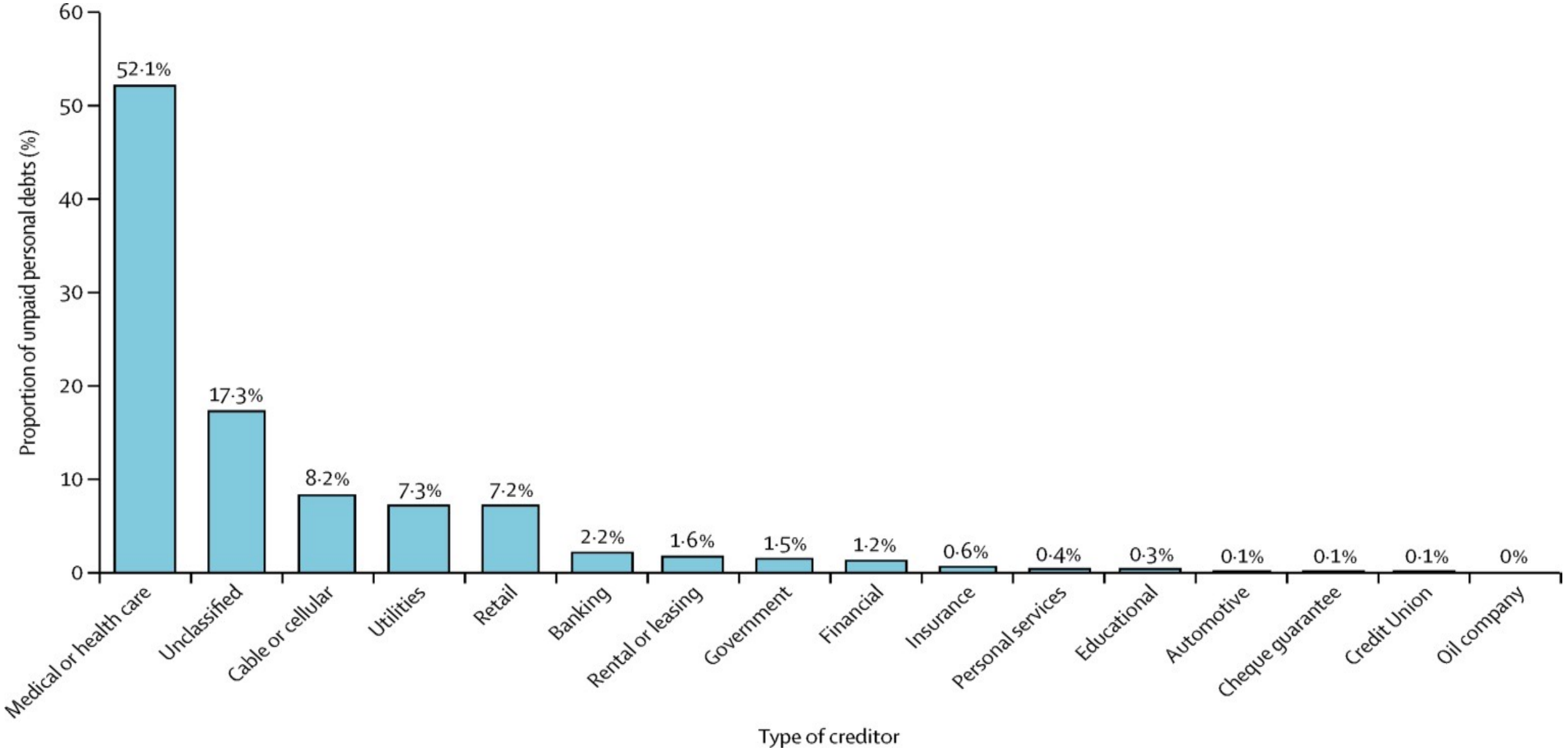
Lancet 2017; 389: 1431–41

See **Editorial** page 1369

See **Comment** pages 1376 and 1378

This is the first in a **Series** of five papers about equity and equality in health in the USA

Department of Medicine, University of California, San Francisco, CA, USA (S L Dickman MD); **City University of New York School of Urban Public Health at Hunter College, New York, NY,**



Lancet 389, 2017

Medical News & Perspectives

New Federal Plan to Reduce Homelessness by 25% by 2025 Includes Health Care as Part of the Solution

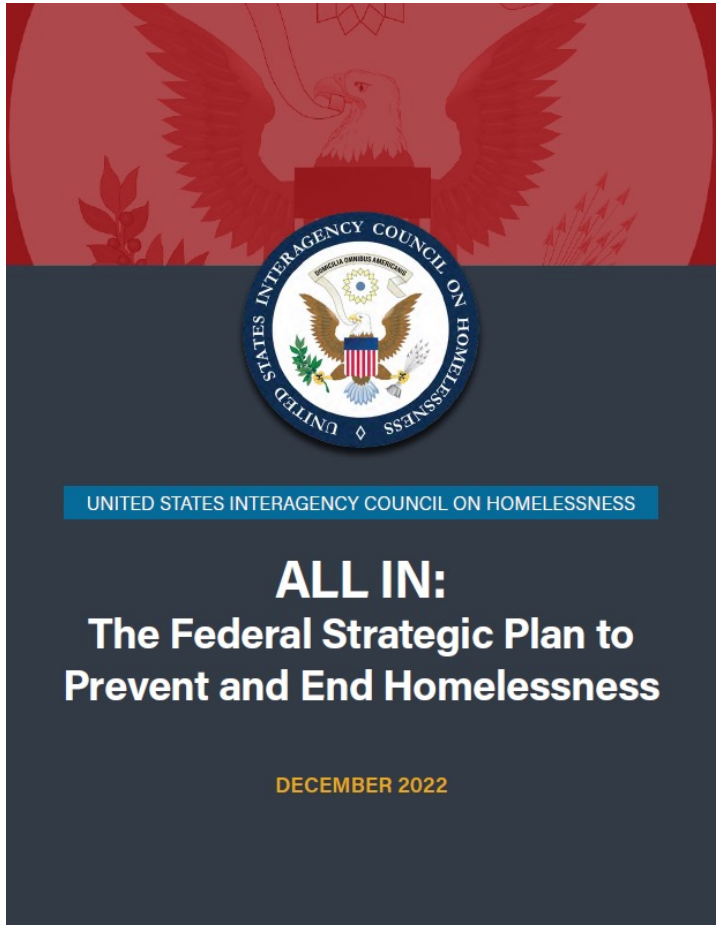
Rita Rubin, MA

The statement "Housing is health care" appears in *All In: The Federal Strategic Plan to Prevent and End Homelessness*, recently released by the US Interagency Council on Homelessness (USICH), which offers a blueprint to reduce the number of people experiencing homelessness in the US by 25% by January 2025.

"I wanted us to reframe homelessness as a public health issue" that should be tackled in the same way as other public health issues, such as COVID-19, smoking, and obesity, USICH Executive Director Jeff Olivet, MA, said in an interview. Currently, many individuals, including elected officials, don't see homelessness as an "urgent life-and-death situation," Olivet explained.

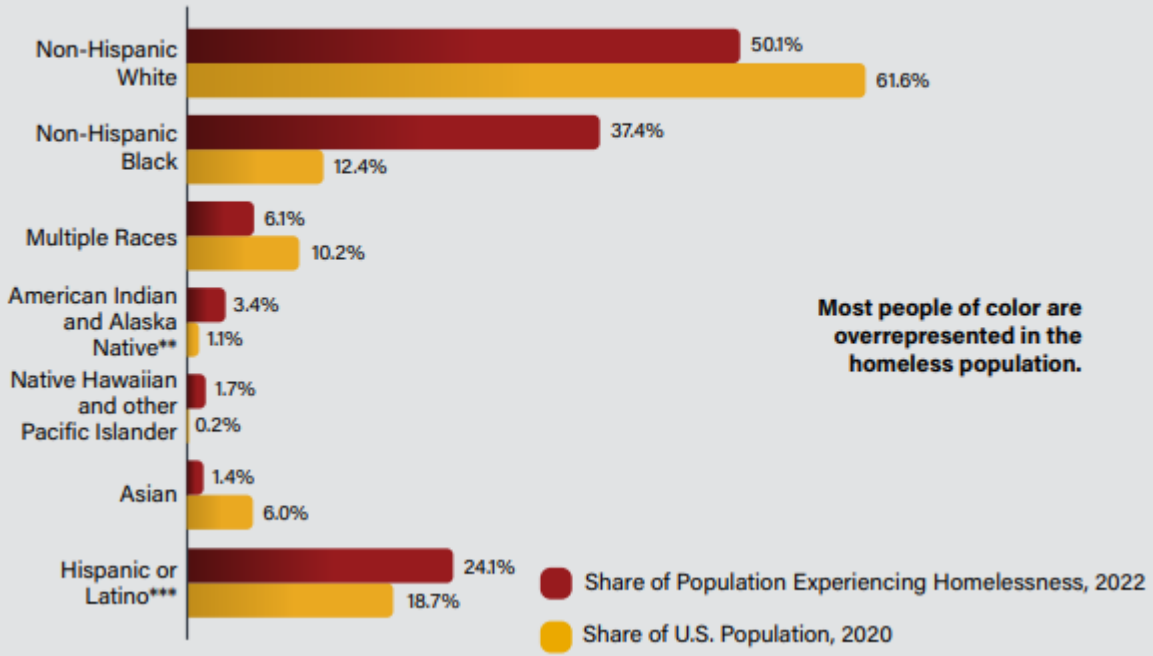
Medical News website

iStock.com/Skyhobo

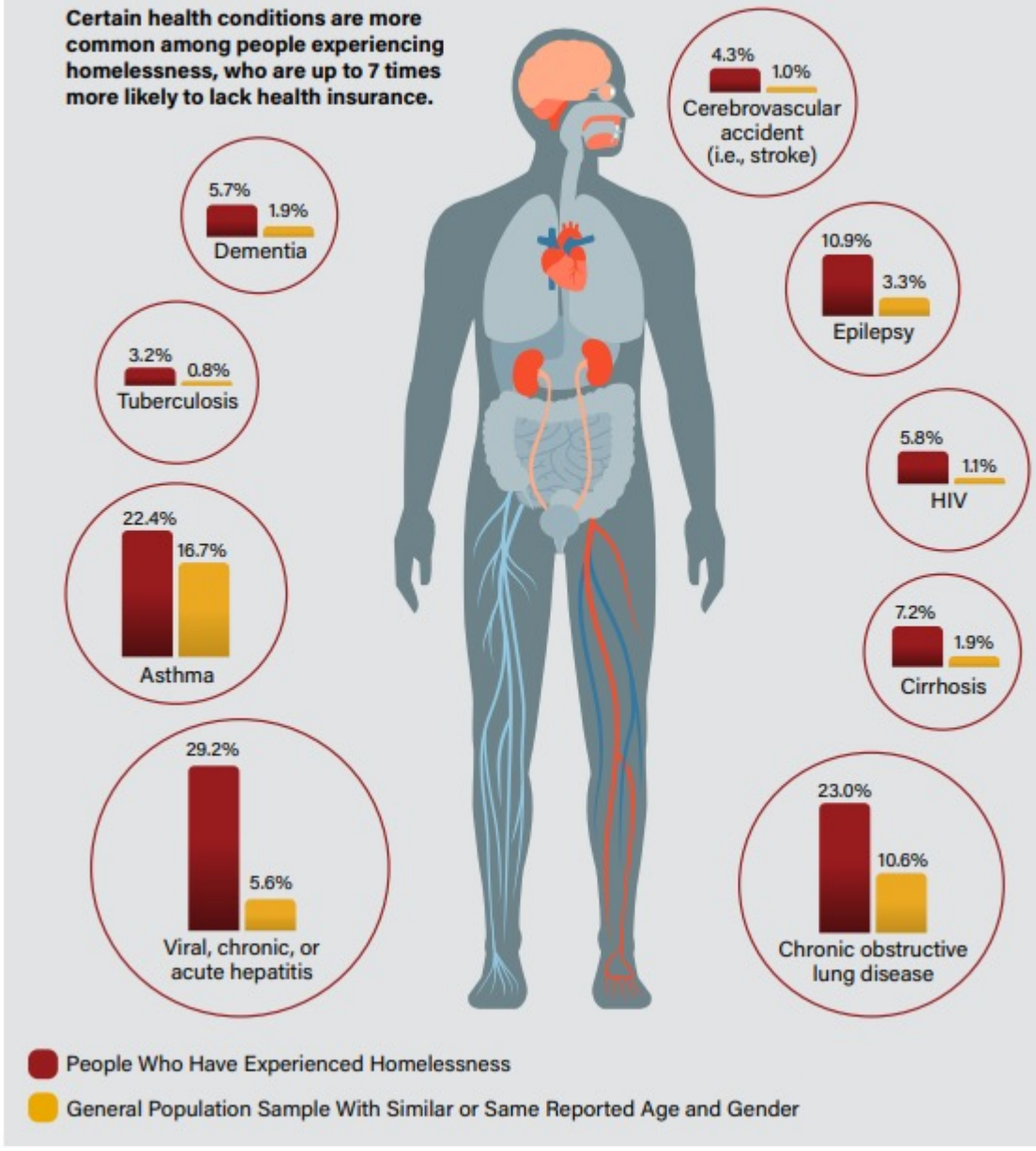


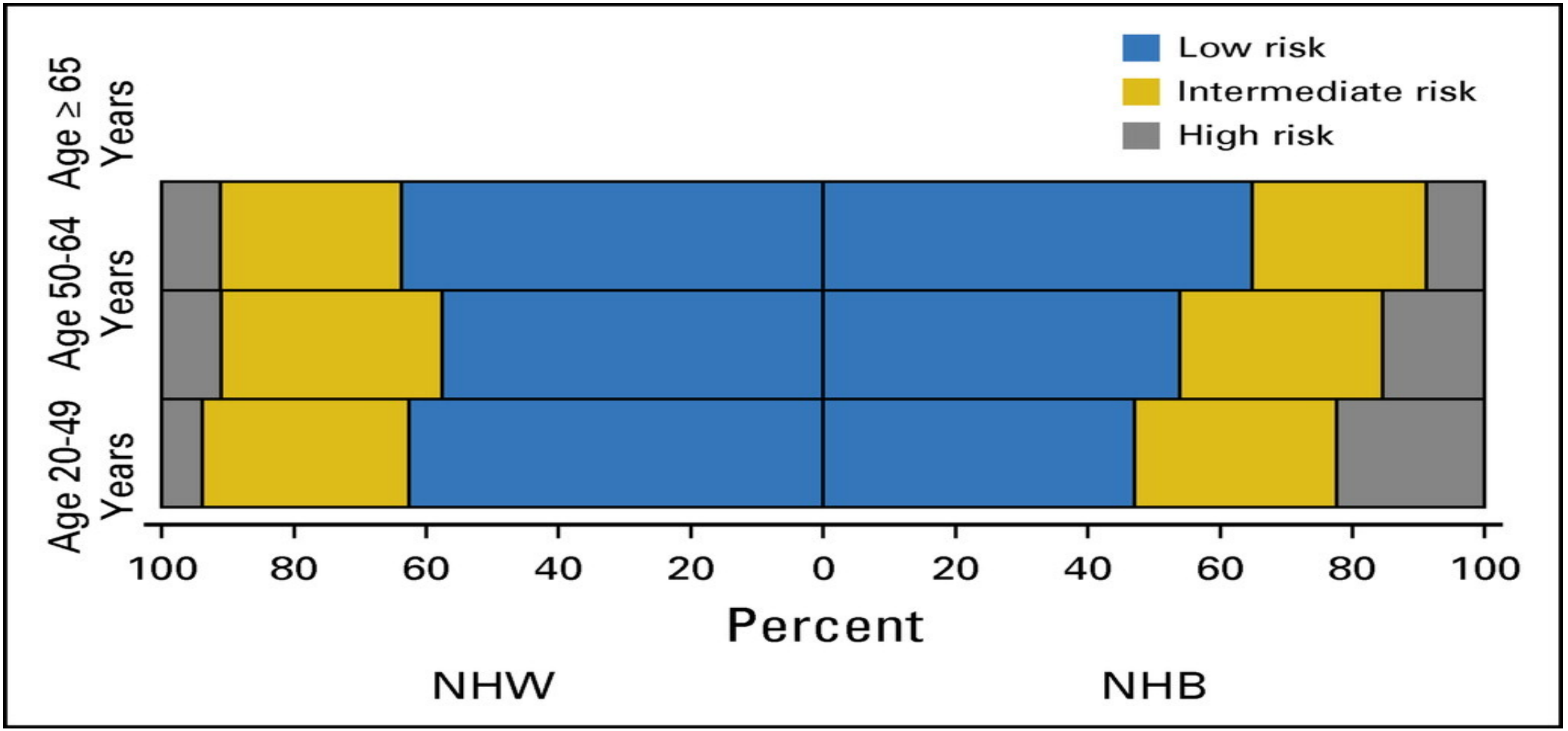
Homelessness Is Deadly*

The Disproportionate Impact of Homelessness*



Housing Is Health Care*





Holowatyj AN et al: ;; *JCO* 2018

AACR- SAN ANTONIO BREAST CANCER 2022- UPDATE RXPONDER

Yara Abdou presents results from a study of breast cancer outcomes across racial and ethnic groups in the RxPONDER trial at the 2022 San Antonio Breast Cancer Symposium. *Photo courtesy of SABCS / Todd Buchanan 2022*

- 4048 women with ER positive localized breast cancer with 1-3 + nodes, RS 14-25
- 5-year invasive disease-free survival: 91.5% White women vs 87.2% Black women
- Black women had higher BMI (mitigated the effects)
- Black women with higher grade tumors

ORIGINAL ARTICLE

21-Gene Assay to Inform Chemotherapy Benefit in Node-Positive Breast Cancer

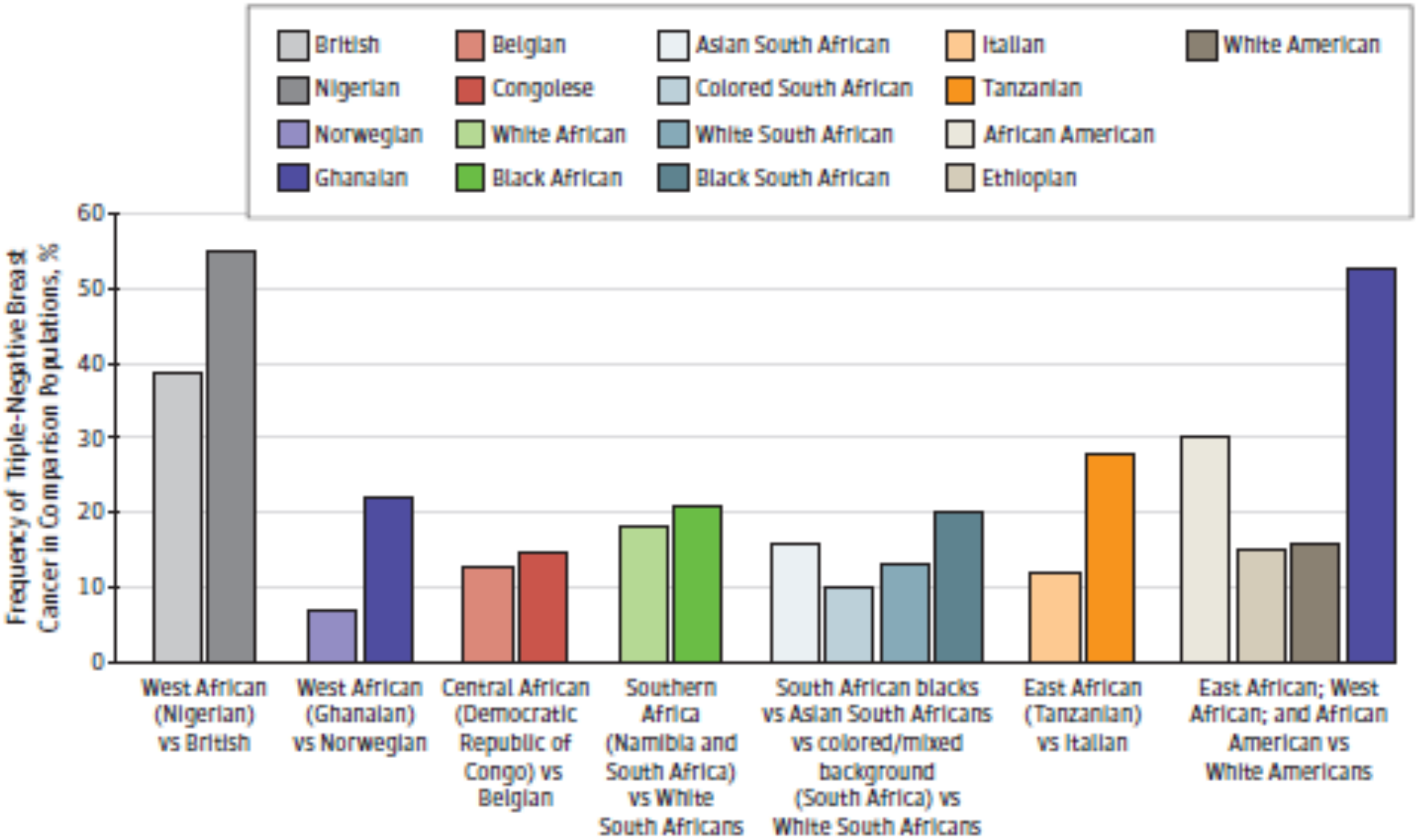
Kevin Kalinsky, M.D., William E. Barlow, Ph.D., Julie R. Gralow, M.D., Funda Meric-Bernstam, M.D., Kathy S. Albain, M.D., Daniel F. Hayes, M.D., Nancy U. Lin, M.D., Edith A. Perez, M.D., Lori J. Goldstein, M.D., Stephen K.L. Chia, M.D., Sukhbinder Dhesy-Thind, M.D., Priya Rastogi, M.D., et al.

Article | Figures/Media | Metrics

28 References | 101 Citing Articles

December 16, 2021
N Engl J Med 2021; 385:2336-2347
DOI: 10.1056/NEJMoa2108873
Chinese Translation 中文翻译

B Frequency of triple-negative breast cancer in African vs non-African patient populations



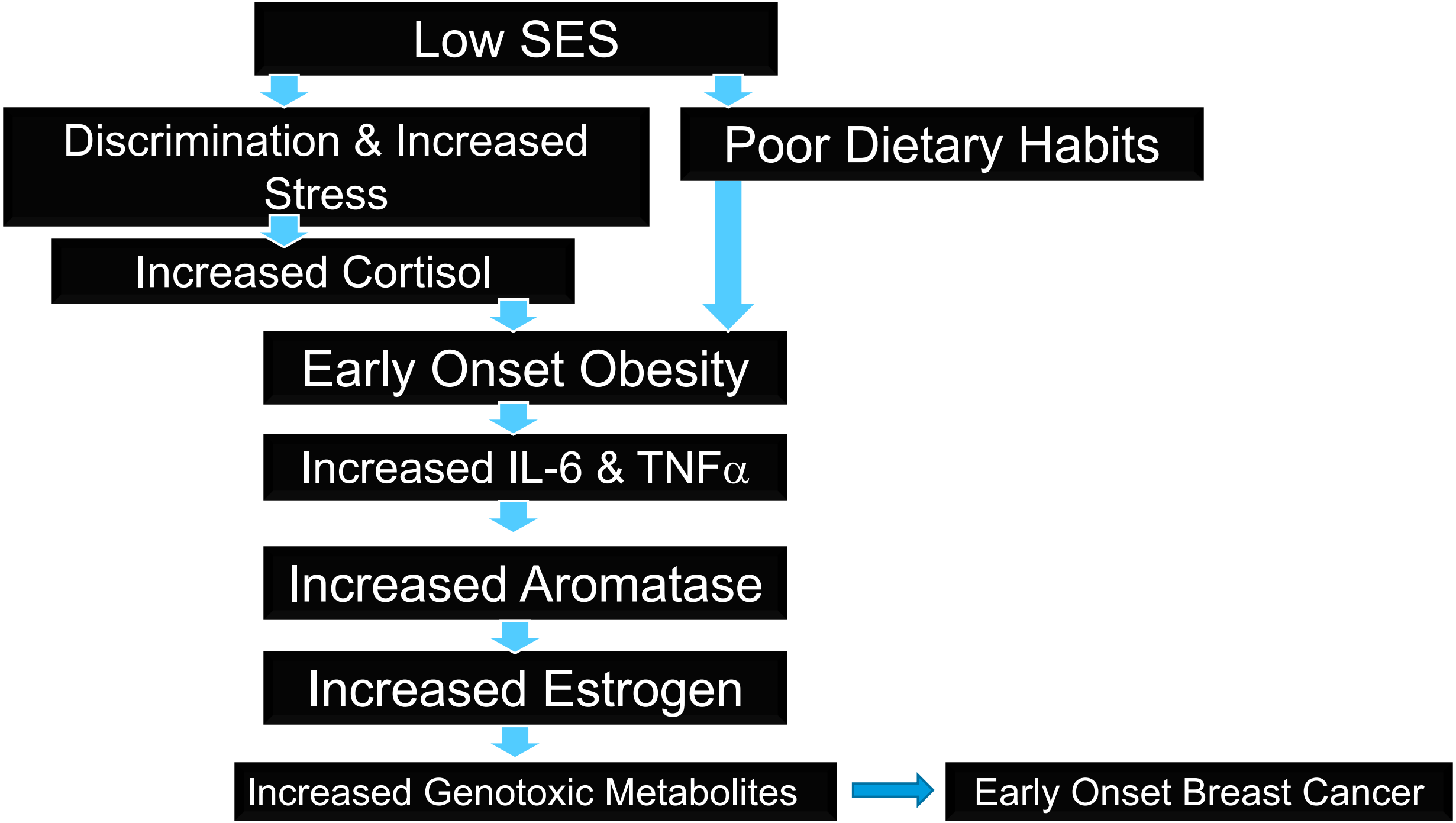
Frequency of triple-negative breast cancer.

BREAST CANCER IN YOUNG WOMEN

- Age 35-40: Breast cancer is #1 cause of death and #1 cancer in USA
- Age 25-34: Breast cancer is #2 cause of death (behind accidents) in USA
- Age 25-40: Breast cancer accounts for 23% of all cancer deaths (#1 cancer) in USA
- Age 15-39: Hispanics 3.25 RR and AA 1.65 RR compared to NHW
- Keegan et al: 5605 breast cancer women age 15-39 diagnosed 2005-09: more likely TN, HER2 positive, Stage 3-4, more Hispanics, AA, NA.

CONCLUSIONS FROM RECENT DATA

- Disparities are greatest in young age group (age less than 40)
- There is a need for more studies on the interplay between genetic and environmental factors
- There is a need for preventive interventions in the young age group (age less than 40)
- Need for preventive interventions in low SES neighborhoods and uninsured/under-insured patients.



CHILDHOOD OBESITY

- Prevalence of obesity in US children and adolescents has tripled over the last 30 years (NHANES data).
- Prevalence is highest in non-White subsets: 30% AA, 20% Mexican American, 11% NHW (Ogden et al, JAMA 2002)
- Obesity in childhood predicts for adult obesity: Among 2400 obese 5-14 year old followed for 17 years, 83% AA vs 68% NHW were obese as adults (Obesity Res 2005)
- Low income is associated with higher obesity and higher consumption of fast foods, snacks and soft drinks.

THE JOURNAL OF PEDIATRICS • www.jpeds.com

ORIGINAL ARTICLES

Occurrence and Timing of Childhood Overweight and Mortality: Findings from the Third Harvard Growth Study

Aviva Must, PhD[1], Sarah M. Phillips, MPH[1], and Elena N. Naumova, PhD[1,2]

Objective To assess the mortality experience of participants in the Third Harvard Growth Study (1922-1935) who provided ≥8 years of growth data.

Study design A total of 1877 participants provided an average of 10.5 body mass index measurements between age 6 and 18 years. Based on these measurements, the participants were classified as ever overweight or ever >85th percentile for height in childhood. Age at peak height velocity was used to indicate timing of overweight relative to puberty. Relative risks of all-cause and cause-specific mortality according to measures of childhood growth were estimated using Cox proportional hazards survival analysis.

Results For women, ever being overweight in childhood increased the risks of all-cause and breast cancer death; the risk of death from ischemic heart disease was increased in men. Men with a first incidence of overweight before puberty were significantly more likely to die from ischemic heart disease; women in the same category were more likely to die from all causes and from breast cancer.

Conclusion We find evidence of long-term effects of having ever been overweight, with some evidence that incidence before puberty influences the pattern of risk. *(J Pediatr 2012;160:743-50)*.

Table I. Summary statistics for subjects with at least 8 years of childhood data

	Men (n = 1019)			Women (n = 858)		
	n	Mean (SD)	%	n	Mean (SD)	%
Childhood anthropometry						
Number of childhood measurements	10 749	10.6 (1.3)		9014	10.5 (1.3)	
Mean BMI *z*-score	1019	−0.05 (0.71)		858	−0.07 (0.78)	
Mean height-for-age *z*-score	1019	−0.82 (0.92)		858	−0.79 (0.95)	
Age at first incidence of overweight	232	8.5 (2.8)		206	9.3 (3.2)	
Age at PHV	755	14.1 (0.92)		804	12.1 (0.96)	
Age at menarche				230	12.8 (0.95)	
BMI-for-age ever >85th percentile	232	-	23	206	-	24
BMI-for-age ever >95th percentile	47	-	5	63	-	7
Height-for-age ever >85th percentile	72	-	7	59	-	7
First incidence of overweight before puberty	166	-	16	135	-	16
First incidence of overweight after puberty	19	-	2	53	-	6
Follow-up						
Midlife BMI	481	25.6 (3.1)		477	24.4 (3.8)	
Ever pregnant (total, n = 557)	-	-	-	404	-	73
Vital status						
Age at death	716	67.6 (13.5)		431	69.2 (14.4)	
Age at death from IHD	217	67.4 (10.6)		70	73.2 (8.0)	
Age at death from breast cancer	-	-		29	63.2 (13.5)	
Age at death from ovarian cancer	-	-		15	67.9 (13.6)	

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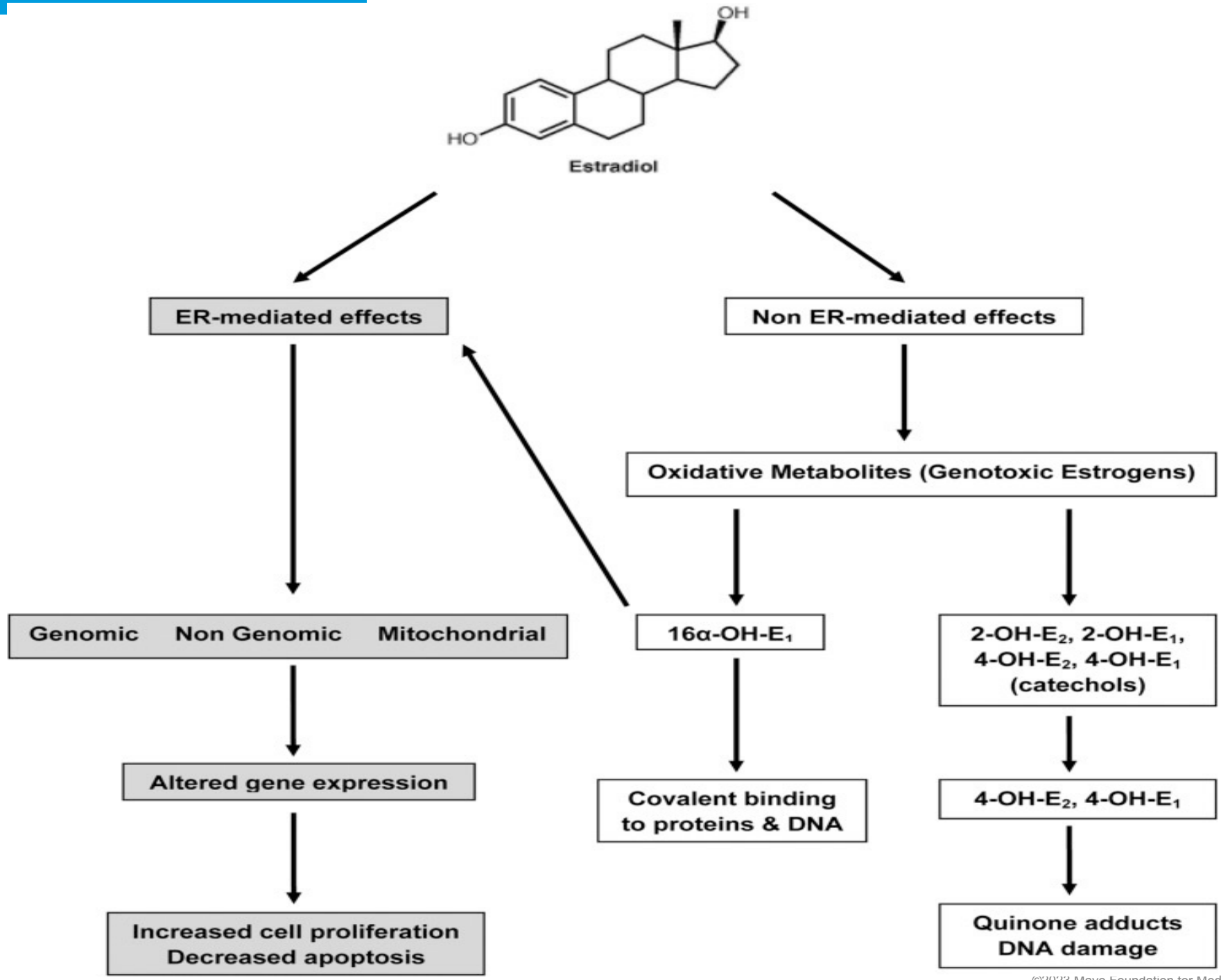
Table IV. Unadjusted and adjusted RRs of mortality associated with ever overweight in childhood and timing of overweight in childhood among subset of subjects with data on midlife BMI or pregnancy

	Men			Women		
	n	Unadjusted	Adjusted*	n	Unadjusted	Adjusted*
All cause						
Ever overweight (overall)†	322	1.2 (0.92-1.5)	1.1 (0.86-1.5)	231	1.5 (1.1-2.0)‡	1.5 (1.1-2.0)‡
Never overweight in childhood	262	-	-	210	-	-
First incidence before puberty		1.2 (0.92-1.6)	1.2 (0.87-1.6)		1.5 (1.1-2.2)§	1.5 (1.04-2.2)§
First incidence after puberty		0.95 (0.39-2.3)	0.80 (0.32-2.0)		1.4 (0.88-2.3)	1.4 (0.86-2.3)
IHD						
Ever overweight (overall)†	95	1.6 (1.1-2.5)§	1.4 (0.90-2.3)	29	2.9 (1.4-6.1)‡	2.8 (1.3-6.0)‡
Never overweight in childhood	80	-	-	23	-	-
First incidence before puberty		1.6 (0.97-2.6)	1.4 (0.81-2.3)		4.3 (1.8-10.1)‡	4.5 (1.9-11.1)‡
First incidence after puberty		1.4 (0.34-5.7)	0.88 (0.20-3.8)		1.9 (0.42-8.5)	2.0 (0.44-9.1)
Breast cancer	-					
Ever overweight (overall)†		-	-	24	2.6 (1.1-5.8)§	2.6 (1.1-5.9)§
Never overweight in childhood		-	-	23	-	-
First incidence before puberty					2.7 (1.1-6.7)§	2.7 (1.1-6.7)§
First incidence after puberty					1.9 (0.43-8.3)	1.9 (0.44-8.5)
Ovarian cancer	-					
Ever overweight (overall)†		-	-	11	2.1 (0.63-7.4)	2.2 (0.64-7.6)
Never overweight in childhood		-	-	11	-	-
First incidence before puberty		-	-		0.80 (0.10-6.5)	0.81 (0.10-6.6)
First incidence after puberty		-	-		6.1 (1.6-23.5)‡	6.3 (1.6-24.3)‡

*All-cause and ischemic outcomes are adjusted for midlife BMI; breast and ovarian cancer adjusted for ever pregnant.
†Reference group for each model is never overweight.
‡$P \leq .01$.
§$P < .05$.



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ARTICLE

Estrogen Metabolism and Risk of Breast Cancer in Postmenopausal Women

Barbara J. Fuhrman, Catherine Schairer, Mitchell H. Gail, Jennifer Boyd-Morin, Xia Xu, Laura Y. Sue, Saundra S. Buys, Claudine Isaacs, Larry K. Keefer, Timothy D. Veenstra, Christine D. Berg, Robert N. Hoover, Regina G. Ziegler

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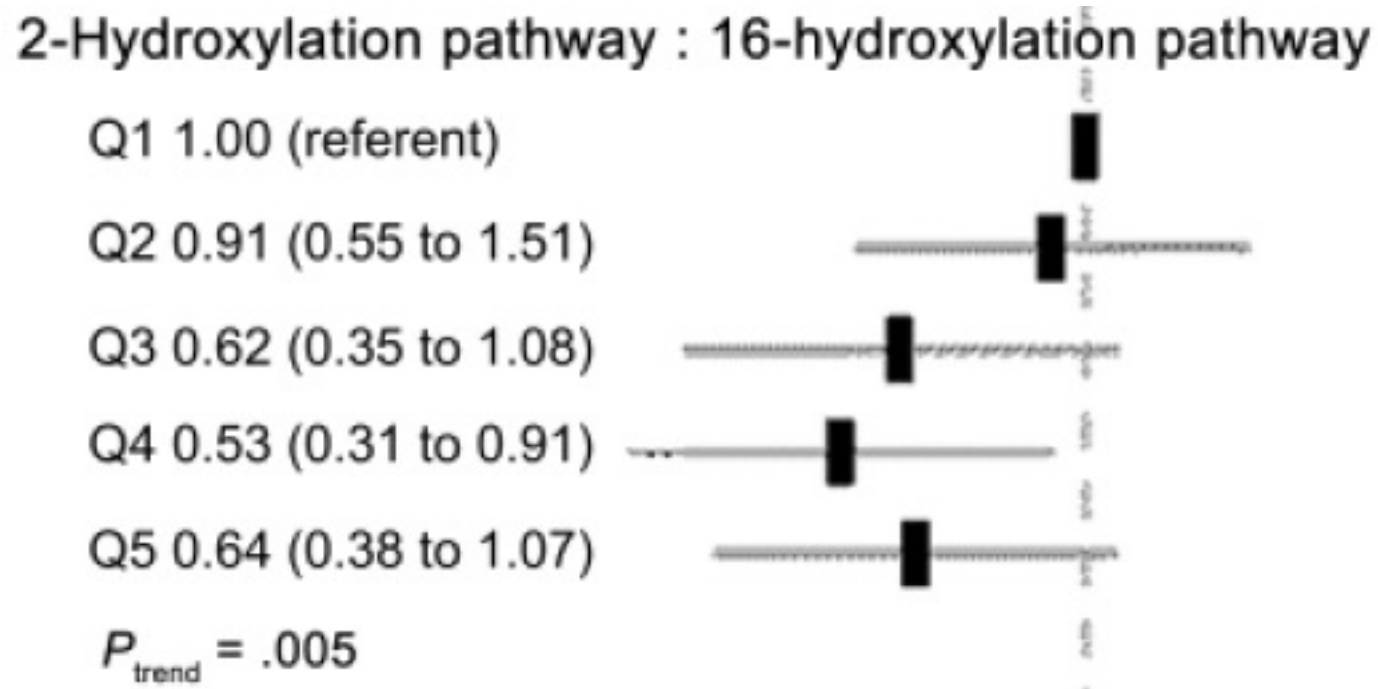

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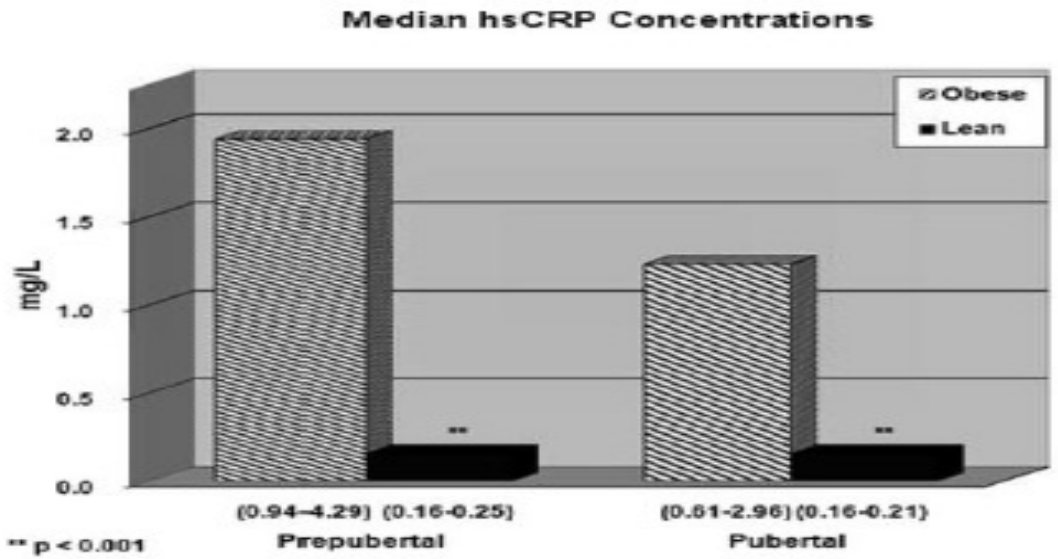
ORIGINAL ARTICLE

Endocrine Care

Obesity without Established Comorbidities of the Metabolic Syndrome Is Associated with a Proinflammatory and Prothrombotic State, Even before the Onset of Puberty in Children

Nelly Mauras, Charles DelGiorno, Craig Kollman, Keisha Bird, Melissa Morgan, Shawn Sweeten, Prabhakaran Balagopal, and Ligeia Damaso

Nemours Children's Clinic (N.M., C.D., K.B., M.M., S.S., P.B., L.D.) and Mayo Clinic (C.D., M.M.), Jacksonville, Florida 32207; and Jaeb Center for Health Research (C.K.), Tampa, Florida 33647



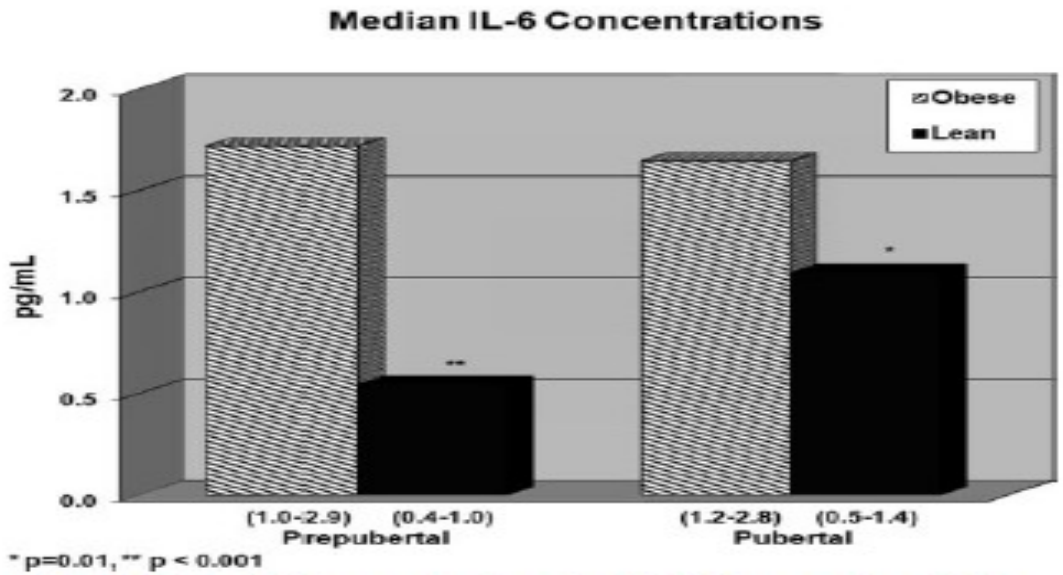
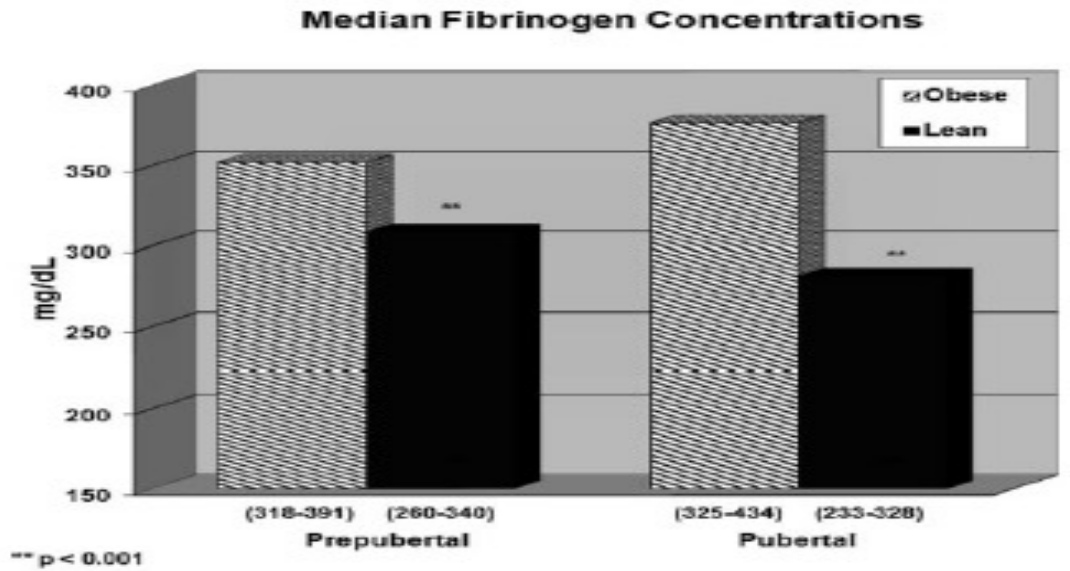


FIG. 1. Median (IQR) concentrations for hsCRP (*top panel*) and IL-6 concentrations in the group with simple obesity (*hatched bars*) and lean group (*solid bars*). The prepubertal and pubertal groups were shown as well.



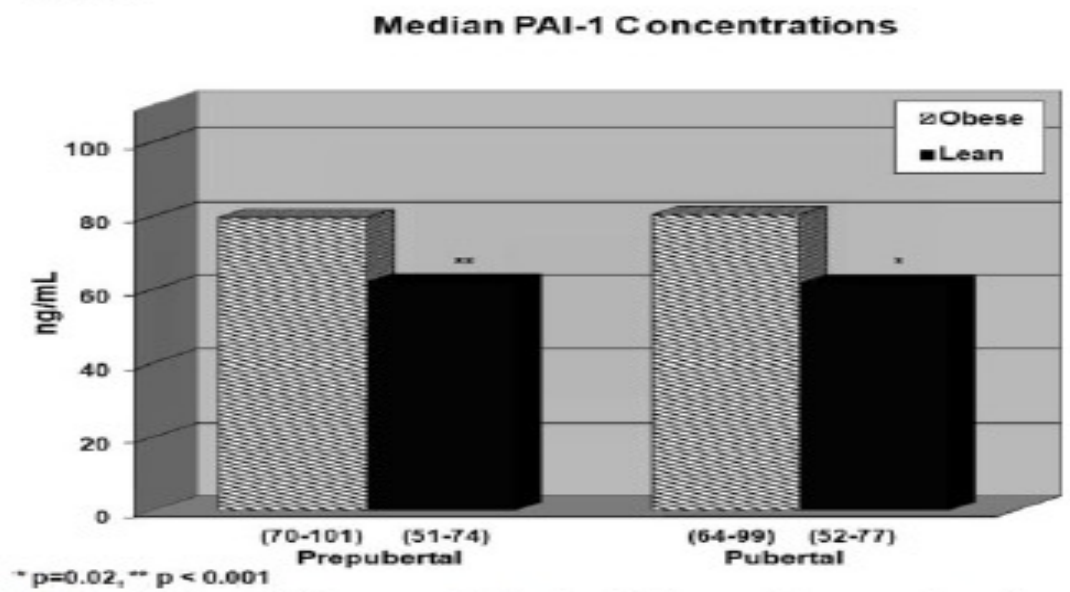


FIG. 2. Median (IQR) concentrations for fibrinogen (*top panel*) and PAI-1 concentrations (*bottom panel*) in the group with simple obesity (*hatched bars*) and lean group (*solid bars*). The prepubertal and pubertal groups were shown as well.

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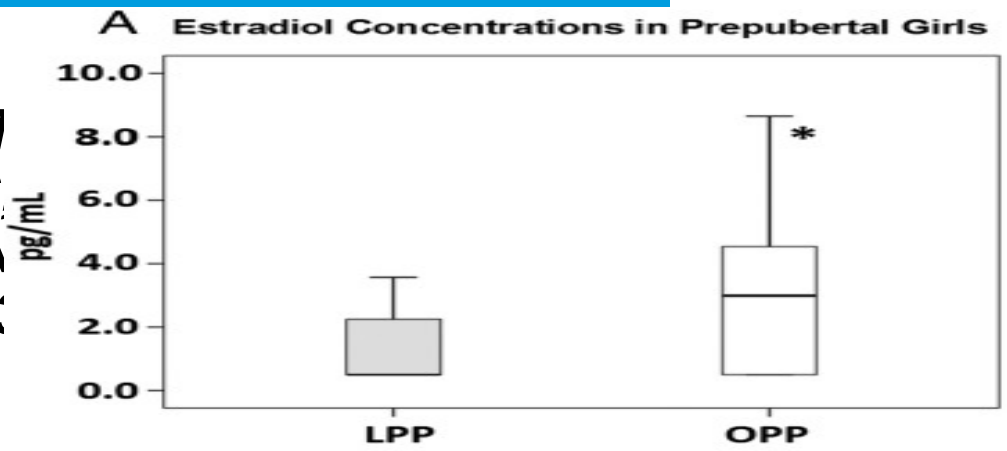
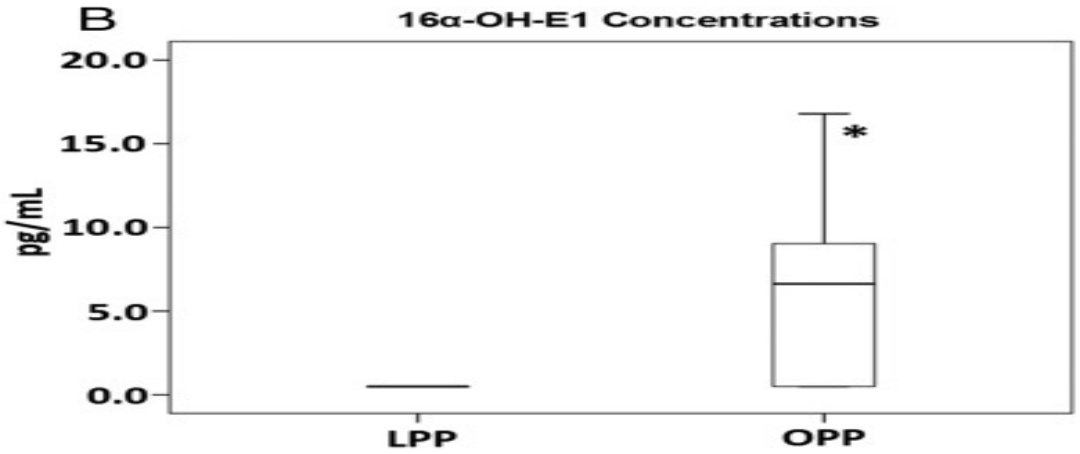
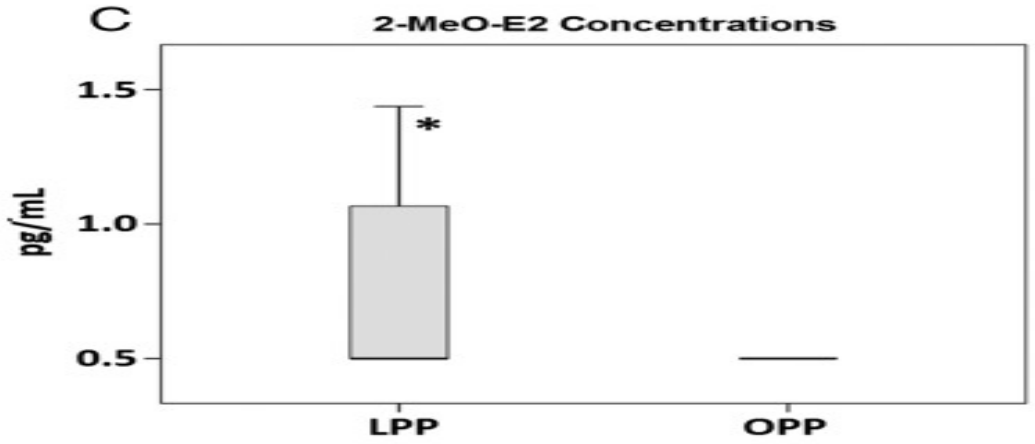
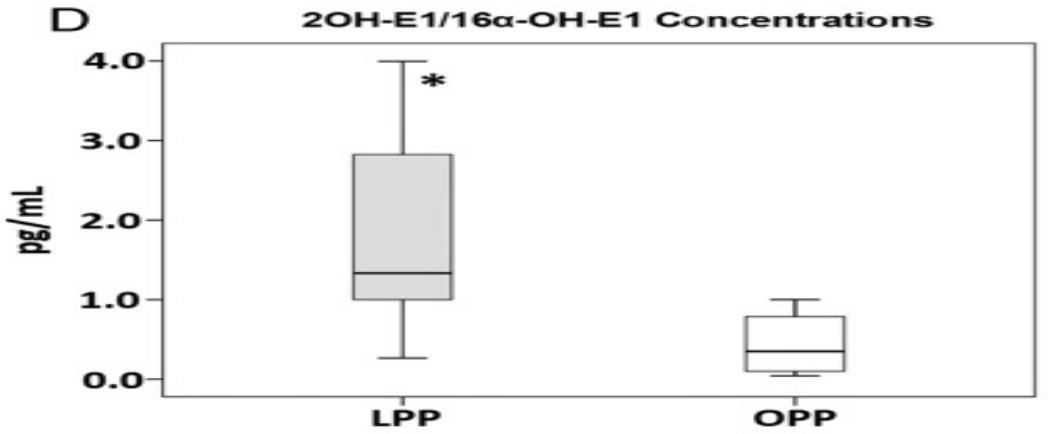
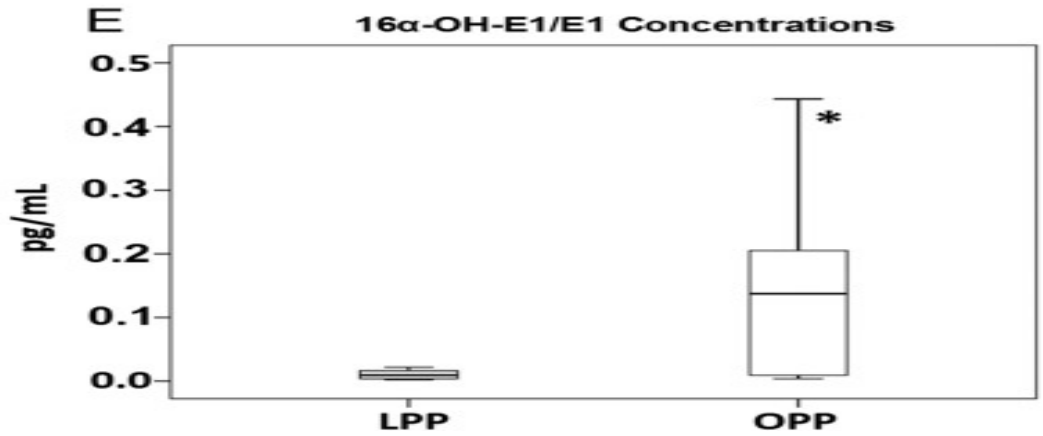




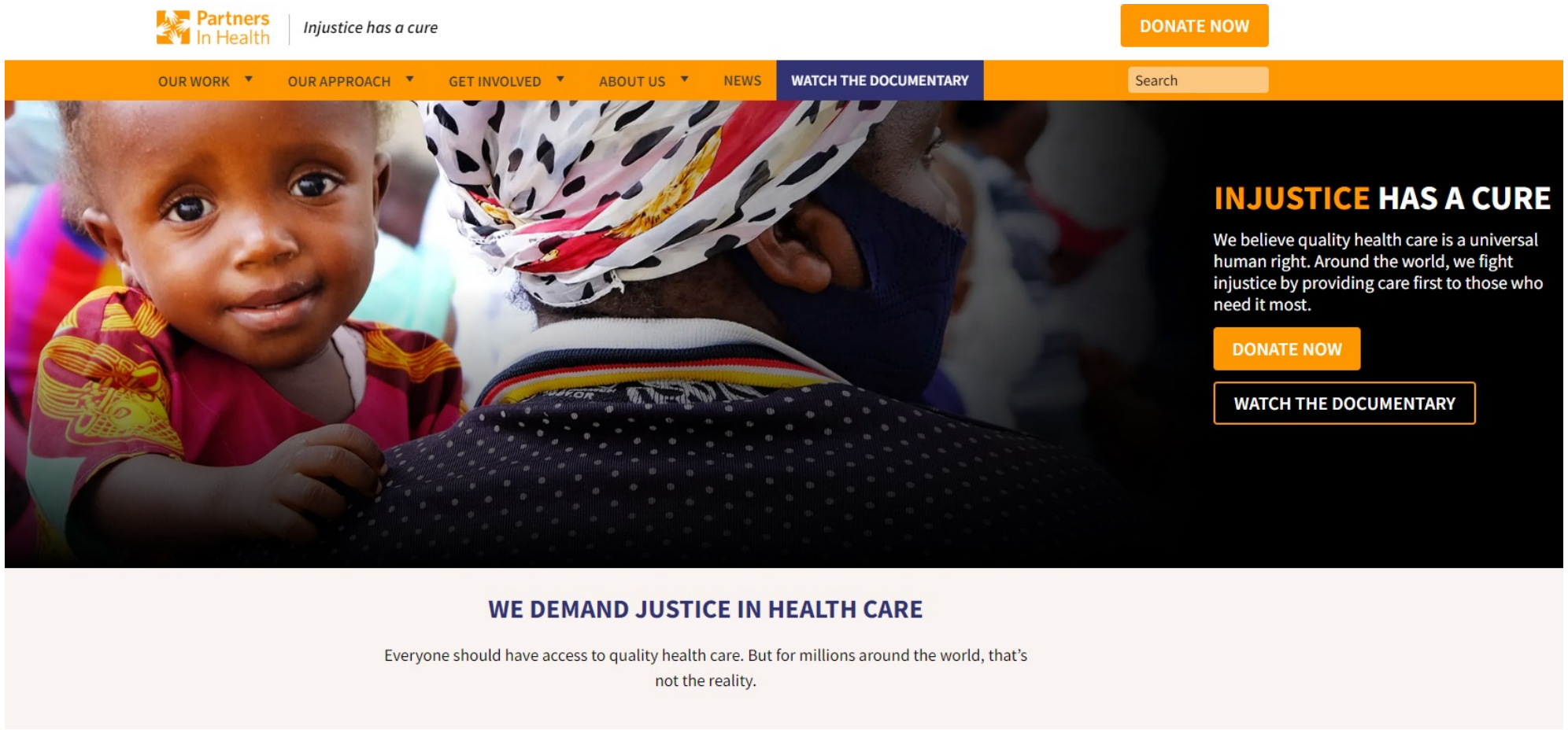






TAKE HOME MESSAGES

- Race is a social construct
- Racism is still a significant problem in the USA and the rest of the world
- Main cause of breast cancer disparities relate to historical socio-economic disparities
- Achieving health equity in breast cancer outcomes will require changes in health systems and health policies that address socio-economic disparities and health access issues
- Breast cancer disparities are more marked in the young patient age groups (age <50) and early onset obesity may be a main factor
- New breast cancer preventive and screening interventions are needed focusing in low-income minority populations



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