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**Media Contact:**  
Jeremy Moore  
(215) 446-7109  
[Jeremy.Moore@aacr.org](mailto:Jeremy.Moore@aacr.org)  
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(202) 249-4005

## **Black Women Had Worse Breast Cancer Mortality Regardless of Cancer Subtype**

- Black women had worse survival compared with other racial/ethnic groups.
- They were more often diagnosed with less treatable cancer subtypes.
- The survival difference was not attributable entirely to differential subtype diagnosis.

WASHINGTON, D.C. — Black women with breast cancer had significantly worse survival compared with other racial and ethnic groups across cancer subtypes, which suggests that the survival differences are not solely attributable to the fact that black women are more frequently diagnosed with less treatable breast cancer subtypes, according to data presented at the AACR Annual Meeting 2013, held in Washington, D.C., April 6-10.

“The results seem to indicate that although African-American women are more likely to be diagnosed with less treatable subtypes of breast cancer compared with white women, it is not the only reason they have worse breast cancer mortality,” said Candyce Kroenke, M.P.H., Sc.D., research scientist at Kaiser Permanente Division of Research in Oakland, Calif.

Kroenke and colleagues examined the link between race and breast cancer survival in a prospective cohort of 1,688 breast cancer survivors enrolled in the Life After Cancer Epidemiology and Pathways study. The survivors had been treated for luminal A, luminal B, basal-like or HER2-enriched breast cancer.

The researchers obtained participants’ self-reported race information from mailed questionnaires. They tested samples of the patients’ tumors to determine their molecular subtype of cancer.

After 6.3 years of follow-up, 499 women had died, 268 of them from breast cancer. Consistent with previous data, black women were nearly two times more likely to have died from breast cancer compared with white women. In addition, black women were less likely to be diagnosed with either the luminal A or luminal B breast cancer subtypes compared with white women.

“African-Americans were more likely to have the hard-to-treat triple-negative breast cancer subtype and had a lower likelihood of having the luminal A subtype, which tends to be the most treatable subtype of breast cancer and has the best prognosis,” Kroenke said.

However, the researchers found that poor prognosis among blacks appeared consistent across breast cancer subtypes. Compared with white women, black women were 2.3 times more likely to die from the luminal A breast cancer subtype, 2.6 times more likely to die from the luminal B subtype, 1.3 times more likely to die from the basal-like subtype and 2.4 times more likely to die from the HER2-enriched subtype.

“African-Americans with breast cancer appeared to have a poorer prognosis regardless of subtype,” Kroenke said. “It seems from our data that the black–white breast cancer survival difference cannot be explained entirely by variable breast cancer subtype diagnosis.”

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Founded in 1907, the American Association for Cancer Research (AACR) is the world’s first and largest professional organization dedicated to advancing cancer research and its mission to prevent and cure cancer. AACR membership includes more than 34,000 laboratory, translational and clinical researchers; population scientists; other health care professionals; and cancer advocates residing in more than 90 countries. The AACR marshals the full spectrum of expertise of the cancer community to accelerate progress in the prevention, biology, diagnosis and treatment of cancer by annually convening more than 20 conferences and educational workshops, the largest of which is the AACR Annual Meeting with more than 17,000 attendees. In addition, the AACR publishes eight peer-reviewed scientific journals and a magazine for cancer survivors, patients and their caregivers. The AACR funds meritorious research directly as well as in cooperation with numerous cancer organizations. As the scientific partner of Stand Up To Cancer, the AACR provides expert peer review, grants administration and scientific oversight of team science and individual grants in cancer research that have the potential for near-term patient benefit. The AACR actively communicates with legislators and policymakers about the value of cancer research and related biomedical science in saving lives from cancer. For more information about the AACR, visit [www.AACR.org](http://www.AACR.org).

**Abstract Number:** 131

**Presenter:** Candyce Kroenke, M.P.H., Sc.D.

**Title:** Race and breast cancer prognosis by PAM50 subtype in the LACE and Pathways studies

**Authors:** *Candyce Kroenke<sup>1</sup>, Marilyn Kwan<sup>1</sup>, Philip Bernard<sup>2</sup>, Adrienne Castillo<sup>1</sup>, Carole Davis<sup>2</sup>, Rachel Factor<sup>2</sup>, Laurel Habel<sup>1</sup>, Larry Kushi<sup>1</sup>, Charles Quesenberry<sup>1</sup>, Kaylynn Shakespear<sup>2</sup>, Inge Stijleman<sup>2</sup>, Carol Sweeney<sup>2</sup>, Erin Weltzien<sup>1</sup>, Bette Caan<sup>1</sup>.* <sup>1</sup>Kaiser Permanente Division of Research, Oakland, CA; <sup>2</sup>University of Utah, UT

**Background:** African-Americans have poorer breast cancer (BC) prognosis, and Asians and Hispanics have better prognosis, compared with Whites. The Black-White difference is unexplained and has been attributed to diagnosis with less treatable tumor subtypes in African-Americans. However, little research has examined whether race-survival differences exist by breast cancer subtype. Therefore, we examined associations between race and BC survival by PAM50 breast cancer subtypes (luminal A, luminal B, basal-like, HER2 enriched) in a prospective cohort of 1,282 breast cancer survivors from the Life After Cancer Epidemiology and Pathways cohorts.

**Methods:** Self-reported race was obtained at study entry from mailed questionnaires. 1 mm punches were obtained from areas of representative tumor in formalin-fixed, paraffin-embedded tumor blocks. Expression of the PAM50 genes for molecular subtype was determined by RT-PCR of extracted RNA. After a median 6.3 years of follow-up (range 0.3-15.5 years), 213 deaths, with 118 from breast cancer, were reported. Delayed entry Cox proportional hazard models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI) of BC mortality, controlling for time from diagnosis to enrollment, socioeconomic status, BC severity, BC subtype, treatment, and other known prognostic factors. Logistic regression was used to evaluate associations between race and subtype. Survival analyses stratified by subtype were adjusted for age, time from diagnosis to enrollment, BC severity, and BC treatment

**Results:** Consistent with previous research, adjusted for stage and breast cancer treatment, BC mortality was significantly higher in African-Americans (HR=2.90, 95% CI: 1.74-4.86) and lower in Latinas and Asians (HR=0.51, 95% CI: 0.26-0.99), compared with Whites. In addition, compared with Whites, African-Americans had a lower likelihood of the luminal A (OR=0.61, 95% CI: 0.38-0.98) and luminal B (OR=0.43, 95% CI: 0.23-0.82) subtypes and a greater likelihood of the less treatable basal subtype (OR=2.93, 95% CI: 1.94-4.44). Asians were less likely to be diagnosed with the basal subtype (OR=0.41, 95% CI: 0.23-0.71) and somewhat more likely to be diagnosed with the HER2-enriched subtype (OR=1.47, 95% CI: 0.97-2.21). Stratified by subtype, African-Americans had poorer prognosis among those with luminal A (HR=2.64, 95% CI: 0.93-7.49), luminal B (HR=2.20, 95% CI: 0.43-11.26), basal-like (HR=1.66, 95% CI: 0.78-3.54), and HER2 enriched (HR=3.25, 95% CI: 1.04-10.15) subtypes than Whites.

**Conclusion:** African-Americans had worse breast cancer survival than other racial/ethnic groups and had less treatable types of breast cancer. However, breast cancer mortality was higher in African-Americans across tumor subtypes, suggesting that the Black-White survival difference may not be attributable to differential diagnosis by subtype.