Reviewer's report

Title: Mortality risk of black women and white women with invasive breast cancer by hormone receptors, HER2, and p53 status

Version: 1 Date: 21 January 2013

Reviewer: Keith Dookeran

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Major Compulsory Revisions:

1. The question posed by the authors is not well defined. First, in the abstract background section, the authors state that “Black women have a higher mortality risk after breast cancer diagnosis than white women and the magnitude of this disparity has been increasing in the United States.” The latter part of this statement is not clearly supported by current literature; reference #2 by Jatoi et al. reports that ‘after 1994, calendar period mortality declined for both races’ (http://jco.ascopubs.org/content/23/31/7836.short), and CDC web site data also illustrates near parallel trends for black and white breast cancer mortality between 1999-2008 (http://www.cdc.gov/cancer/breast/statistics/race.htm). This also applies to paragraph one of the introduction section and both sections require revision.

Second, also in the abstract background section, the authors state that “whether this racial disparity varies by breast cancer subtype, defined by ER, PR, HER2, and p53 protein status, is unknown”; however, reference #22 by O'Brien et al. is a seminal population based study on race, subtype and prognosis, and what appears to be specifically unclear (and under study here) is whether the inclusion of an additional tumor marker, i.e. p53, has any influence on the race-based prognostic ability of subtype. This should be made clear.

Third, hence, it appears that the main contribution of this study is the finding that luminal A/p53- tumors influenced mortality in older black women (albeit marginally); however this point is not highlighted in either the abstract or body conclusion sections, and weakens the overall strength and presentation of the article. The authors should also make a better attempt to explain the implications of this finding; and it is not clear what proportion of women fall into this subgroup? In addition, in the discussion, although the authors admit that ‘treatment information was not available’ they should attempt to explain the possible contribution of inadequacy/heterogeneity of hormonal therapy between races. Hence, additional major revisions are required for the above issues.

2. Methods questions/issues that need to be addressed. Why were only 2 of the 5 original sites used for this study? Was this a planned analysis of the larger CARE study or simply an opportunity to use an assembled dataset? What are the specific sampling details? Why is there no information on SES, comorbid disease and basic treatment, as these are important factors related to mortality? Why are
baseline estimates for overall mortality by race omitted (i.e. all black vs. white women, regardless of subtype)? The authors should also provide the specific IRB approved protocol numbers.

3. The writing is not acceptable in the current form. There are major issues in the abstract, introduction and discussion sections, as noted above. In addition, in paragraph 4 of the introduction section, the authors state “to date, no studies have addressed whether the overexpression status of p53 protein impacts the black-white disparities in mortality of TN or luminal A breast cancer”; however, this assertion is not correct. Dookeran et al. recently reported on race and the influence of p53 as a marker of prognosis in breast cancer, in the context of subtype, specifically TN status (http://www.ncbi.nlm.nih.gov/pubmed/22434242). Hence, the entire manuscript requires revision for clarity and accuracy.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.