

**James P. Scanlan
Attorney at Law
1529 Wisconsin Avenue, NW
Washington, D.C. 20007
(202) 338-9224
jps@jpscanlan.com**

May 24, 2013

Linda D. Fried, MD, MPH, Dean
Mailman School of Public Health
Columbia University
772 W. 168th Street
New York, NY 10032

Re: Mailman School of Public Health Web Page on Racial Disparities in
Cancer Outcomes

Dear Dean Fried:

On occasion I write to institutions whose missions involve the interpretation of data on demographic differences in the law and the social and medical sciences alerting them to problems in their interpretations arising from the failure to recognize patterns by which standard measures of differences between rates of experiencing favorable or adverse outcomes tend to be systematically affected by the overall prevalence of an outcome. One recent communication of this nature is an October 9, 2012 [letter](#)¹ to Harvard University President Drew Gilpin Faust. The letter, written preparatory to an applied statistics [workshop](#) I was to give at Harvard's Institute for Quantitative Social Science on October 17, 2012, addressed, among other things, problems with health and healthcare disparities research at Harvard Medical School and Harvard School of Public Health as a result of researchers' reliance on particular measures of differences between outcome rates to appraise the size of disparities without consideration of the way those measures tend to be affected by the prevalence of an outcome. The points in that letter are generally pertinent to health and healthcare disparities research at other universities, including research with which I am familiar at the Mailman School of Public Health.

The particular purpose of this letter, however, involves a [web page](#) on the Mailman School of Public Health website where the main content is titled "Cancer Survival Disparities for Most Minority Populations Increase as Cancer Becomes More Treatable." As of the date of this letter, the page is the first result of a Google search for "cancer survival disparities."

¹ To facilitate consideration of the issues raised in letters such as this I make available electronic copies of the letters on the Institutional Correspondence subpage of the Measuring Health Disparities page of jpscanlan.com. Underlinings in this letter reflect links to the underlined material in such a copy of the letter. If the letter is corrected after it is first posted on the website, such fact will be noted on the final page.

The page discusses a 2009 study in the journal *Cancer Epidemiology, Biomarkers & Prevention (CEBP)* by researchers at the Mailman School of Public Health and the Herbert Irving Comprehensive Cancer Center.² Although the web page describes the study as analyzing racial disparities in cancer survival according to level of treatability, the study in fact analyzed racial differences in cancer mortality according to level of treatability. The distinction between analyses of disparities in survival and disparities in mortality is a matter of some consequence.

One of the principal issues addressed in the Harvard letter, which I have also addressed in a great many other places since 1987,³ is the pattern by which the rarer an outcome the greater tends to be the relative difference in experiencing it and the smaller tends to be the relative difference in avoiding it. With regard to racial and socioeconomic disparities in cancer outcomes, implications of these patterns include the following:

- As survival rates generally increase, relative differences in survival tend to decrease while relative differences in mortality tend to increase.
- Subpopulations with generally higher survival rates tend to show smaller relative differences in survival, but larger relative differences in mortality, than subpopulations with generally lower survival rates.
- Cancers with generally higher survival rates tend to show smaller relative differences in survival, but larger relative differences in mortality, than cancers with generally lower survival rates.

More broadly, with regard to a wide range of issues involving the comparative size of disparities in cancer outcomes, researchers who examine such disparities in terms of relative differences in mortality will tend to reach conclusions that are the opposite of those reached by researchers who examine relative differences in survival. Correspondingly, researchers who analyze disparities in terms of relative differences in mortality often will draw conclusions about the implications of the comparative size of disparities that differ starkly from the conclusions drawn by researchers who analyze disparities in terms of relative differences in survival.⁴

² Tehranifar P, Neugut AI, Phelan JC, et al. Medical advances and racial/ethnic disparities in cancer survival. *Cancer Epidemiol Biomarkers Prev* 2009 Oct;18(10):2701-8.

³ See, e.g., "[Misunderstanding of Statistics Leads to Misguided Law Enforcement Policies](#)" (*Amstat News*, Dec. 2012); "[Can We Actually Measure Health Disparities?](#)" (*Chance*, Spring 2006); "Race and Mortality" (*Society*, Jan./Feb. 2000) (reprinted in *Current*, Feb. 2000); "[Divining Difference](#)" (*Chance*, Spring 1994); "[The Perils of Provocative Statistics](#)" (*Public Interest*, Winter 1991); "[The 'Feminization of Poverty' is Misunderstood](#)," (*Plain Dealer*, Nov 11, 1987) (reprinted in *Current*, May 1988, and *Annual Editions: Social Problems 1988/89*, Dushkin 1988). Many other articles, conference presentations, and journal comments on this subject are available on the [Measuring Health Disparities](#) page of [jpscanlan.com](#).

⁴ I note that the above points are not pertinent to determinations of whether disparities exist or which group is the disadvantaged group. Further, they ordinarily are not pertinent to appraisals of the proportion of a disparity explained by some factor. That is, a factor that explains a certain proportion of a relative difference in survival should explain the same proportion of the relative difference in mortality. But that can depend on the method of adjustment employed. See [Second Comment on Lynch JECH 2006](#).

The point of this work is not that one will always observe these patterns. Nor is it that one relative difference provides researchers more useful information than the other. Rather, the point is that researchers cannot appraise the strength of the forces causing the rates at which advantaged and disadvantaged groups experience an outcome to differ without consideration of the implications of the overall prevalence of the outcome.

In studying these issues over the years, I have occasionally found that researchers refer to relative differences in mortality and relative differences in survival interchangeably, sometimes purporting to examine one while in fact examining the other – something I mentioned in the 2000 *Society* article listed in note 3. Sometime near the end of 2009, after reading reportage of the above-mentioned 2009 *CEBP* study, I came to recognize that the practice of referring to differences in mortality and differences in survival interchangeably is particularly evident in discussion of cancer outcome disparities, including that in the 2009 *CEBP* study. The recognition caused me to create a web page on jpscanlan.com titled “[Mortality and Survival](#)” (which is also available as a PDF [file](#)) to discuss that practice. The page, which I often mention in addressing issues about the measurement of health and health care disparities,⁵ discusses the 2009 *CEBP* study and various other published studies that implicate similar issues. In the case of the *CEBP* study, the web page (in Section [1] or at page 4 of the PDF) points out that the study purports to be analyzing disparities in survival but actually analyzes relative differences in mortality and discusses some of the implications of that fact in light of the underlying data made available in the article.⁶

⁵ See, for example, my recent [Comment on Epstein BMJ 2013](#), [Comment on King BMJ 2012](#) and [Comment on PRISMA PLoS Medicine 2012](#). The continuing practice of referring to disparities in favorable and adverse outcomes interchangeably even when patterns as to the comparative size of disparities in the outcome purportedly analyzed are the opposite of such patterns in the outcome actually analyzed is also treated in my forthcoming “Race and Mortality Revisited” (*Society*, ____ 2013) (in press).

⁶ The material on the 2009 *CEBP* article reads (note and reference omitted):

A much-publicized 2009 article in *CEBP* by Tehranifar et al. illustrates several aspects of the matter. The article purported to analyze relative racial differences in cancer survival according to level of treatability. But it in fact analyzed relative differences in mortality. As discussed above, SR would tend toward causing larger relative differences in mortality rates among more treatable cancers (where mortality is lower) but smaller relative differences in survival rates among those cancers. Unfortunately, the authors presented no actual survival rates for any cancers and only graphically presented the survival rates according to level of treatability. Figure 1 of the article nevertheless allows one to derive estimates of the actual rates, and, for example, those estimates indicate that the black-white relative difference in mortality and survival both increase with increasing level of treatability. That would tend to indicate that, in a meaningful sense, the strength of the forces driving black-white outcome differences is greater for more treatable cancers than for less treatable cancers. But, as discussed below, data on particular cancers might show varying patterns. And with regard to all treatable cancers, as treatment improves and survival rates increase further, the increases in survival rates may well be attended by decreasing relative differences in survival but increasing relative differences in mortality.

Linda D. Fried, MD, MPH, Dean
Mailman School of Public Health
May 24, 2013
Page 4

I have not materially revised the Mortality and Survival page for some time. But I have observed that the practice of referring to disparities in cancer survival in article titles while in fact analyzing relative differences in mortality appears to be quite prevalent among recent articles on disparities in cancer outcomes. So I may well update the page to discuss such articles.

If I update the Mortality and Survival page, I may or may not discuss the material about the 2009 *CEBP* study on the Mailman School of Public Health web page. But I thought I should in any case advise Mailman School of Public Health of the reasons why it might wish to consider whether the material is accurate and whether it should be modified.

Irrespective of the correctness of points I make about patterns by which measures tend to be systematically affected by the prevalence of an outcome and the need to consider such patterns in analyses of demographic difference in outcome rates, I suggest that an educational institution ought not to describe research as analyzing differences in survival when the research in fact analyzes differences in mortality. That would hold even if comparisons of the size of disparities in different settings based on relative differences in mortality tended to exhibit exactly the same patterns as comparisons based on relative differences in survival. But it especially holds in circumstances where in point of fact comparisons of the size of disparities in different settings based on relative differences in mortality commonly exhibit patterns that are the opposite of patterns based on relative differences in survival. And that applies not only to the web page materials on the 2009 *CEBP* study, but to other research into favorable and adverse outcomes at Mailman School of Public Health.

I hope, of course, that in addition to ensuring that its researchers do not refer to disparities in favorable and adverse outcomes interchangeably, Mailman School of Public Health will consider the points I make in the Harvard letter and elsewhere about the problematic nature of standard measures of differences between outcome rates with respect to all other aspects of the school's research on health and healthcare disparities, as well as with respect to the school's research concerning other matter where those points may be pertinent.⁷

Sincerely,

/s/ **James P. Scanlan**

James P. Scanlan

cc:

Stephen Emerson, MD, PHD, Director
Herbert Irving Comprehensive Cancer Center

⁷ See the [Subgroup Effects](#) sub-page of the [Scanlan's Rule](#) page of [jpscanlan.com](#) regarding the clinical implications of the patterns by which rate ratios tend to be affected by the prevalence of an outcome.