The material below originally was originally posted on journalreview.org on November 6, 2007, as http://www.journalreview.org/view_pubmed_article.php?pmid=16107620&specialty_id= It is maintained here because of the closing of that site.

Correction to statements concerning the measurement of healthcare disparities in the National Healthcare Disparities Reports in earlier comment on Vaccarino et al.

In an earlier comment [1] on Vaccarino et al.[2] and two other articles in the same issue of the New England Journal of Medicine,[3,4] I stated that in the National Healthcare Disparities Reports, the Agency for Healthcare Research and Quality (AHRQ) had typically measured disparities in healthcare in terms of relative differences between rates of receiving a procedure. I also noted that AHRQ had not adopted the recommendation of the National Center for Health Statistics ((NCHS) that all health or healthcare disparities be measured in terms of relative differences in adverse outcomes, which meant that, with respect to the size of healthcare disparities, the two agencies will tend to reach opposite conclusions about the directions of changes. In two later Journal Review comments on related issues,[5,6] and which involved distinctions between clinical outcomes and process outcomes, I stated that AHRQ "tends usually (though not in all cases) to measure disparities in healthcare processes in terms of relative differences in rates of receiving such care, and usually (though not in all cases) to measure disparities in clinical outcomes in terms of relative differences in rates of failing to achieve the desired outcome."

The statements were based on the wording of the core measures used in the healthcare disparities reports for 2005 and 2006,[7,8] as well as some of the discussion in the reports. Recent preparation for a presentation on measurement issues in the healthcare disparities reports,[9] however, has caused me to recognize that the statements concerning AHRQ's method of measuring disparities in process outcomes are incorrect. Notwithstanding the wording of the core measures, in all or almost all cases, AHRQ in fact measures disparities in terms of relative differences between rates of experiencing the adverse outcome (e.g., relative differences between rates of failing to receive prenatal care in the first trimester rather than relative differences between rates of receiving such care). This difference in measurement does not materially affect the key points made in these comments, the thrust of which is that, regardless of what measure is used, changes in such measure cannot alone identify a meaningful change in the relative health (or healthcare) of two groups – that is, identify changes that is not solely the result of changes in prevalence. It nevertheless is important to recognize that the statement that two agencies of the government would typically be reaching opposite conclusions on a matter is simply incorrect. It is also important to recognize that as healthcare improves – that is, as favorable process outcomes become more prevalent – AHRQ will not tend to conclude that disparities in process outcomes are declining (as I suggested it would), but will tend to conclude that such disparities are increasing.

In that regard, I note that the first referenced Journal Review comment discussed the findings by Sehgal [10] that, as rates of adequate hemodialysis increased between 1993 and 2000, racial and gender disparities (as measured in terms of absolute differences) had declined. The comment explained that Sehgal's findings were pretty much what one would expect in the circumstances. Sehgal's findings have been often cited as showing how improvements in healthcare will reduce disparities, including in a few places by the AHRQ officials principally responsible for the

healthcare disparities reports.[11,12] As explained in the initial comment referenced above, however, improvements in quality will not always result even in reductions in absolute differences (though that will usually be the case when the subject is something like adequacy of care). More pertinent here, however, is that the figures underlying Sehgal's findings of declining absolute differences show increasing relative differences in failure to receive adequate care.[9] Thus, under AHRQ's approach, disparities in adequacy of hemodialysis – one of the core process measures – would be deemed to be increasing during the period examined by Sehgal. The 2006 report (at 8) in fact shows disparities in adequate hemodialysis rates - measured in terms of relative differences in failing to receive adequate hemodialysis - to have increased (though that finding covers a different period from that examined by Sehgal).

Finally, in only one instance does the 2006 report shows its calculations of the size of changes in particular disparities over time. It does so in a Highlights section (at 6) in these terms:

> From 2000 to 2003, the proportion of adults who received care for illness or injury as soon as wanted decreased for Whites (from 16.2% to 13.4%) but increased for Blacks (from 17.5% to 18.4%). This corresponds to an increase of 9.8% per year in this disparity. However, from 2000 to 2004, the rate of new AIDS cases remained about the same for Whites (from 7.2 to 7.1 per 100,000 population age 13 and over) but decreased for Blacks (from 75.4 to72.1 per 100,000 population), corresponding to a decrease of 7.9% per year in this disparity.

The former reference describes the process outcome in terms of receipt of a favorable outcome, which is how the core measure is worded, and may have contributed to my misunderstanding of the measurement approach. In fact, however, consistent with the report's approach of measuring disparities in terms of adverse outcomes, the figures are rates of failing to receive care for illness as soon as wanted, and the disparity is thus adverse to blacks rather than adverse to whites. Moreover, given that the white rate of failing to receive care as soon as wanted declined while the black rate was increased, this would seem to reflect a meaningful worsening of the disparity.

While unrelated to my central point on measuring disparities, I note that both what the report describes as a 9.8% yearly increase in the disparity in receipt of care as soon as wanted and what it describes as a 7.9% yearly decrease in the disparity in new AIDS cases are what would be better described as "percentage point" changes (which is the way NCHS would describe these figures) and that the report's approach is contrary to the way NCHS would measure the changes.[13]

According to NCHS's approach and nomenclature, in the former case the disparity change would be deemed a 121% yearly increase and in the latter it would be deemed a 0.9% yearly decrease. That is, in the former case, the ratio of the black rate to the white rate increased from 1.08 to 1.37 over the three-year period. Thus, an 8% greater black rate increased to a 37% greater black rate – a 29 percentage point increase but a 363% increase (29/8). In the latter case, the ratio of the black rate to the white rate declined from 10.47 to 10.14 over the four-year period. Thus, the black rate went from being 947% greater than the white rate to being 914% greater than the white rate – a decline of 33 percentage points but only 3.5% (33/947).

Whereas this might seem merely an error in the calculation or description of these particular figures, note xix at page 5 of the report makes clear that the report is supposed to calculate what

it terms the “percent” changes this way – i.e., by taking the percentage point difference without dividing it by the original excess risk. Thus, the various calculations of what are termed “percent” changes for purposes of determining the sizes of changes in disparities over time, which size determinations underlie certain counts in the report, are apparently calculated this way as well. If such is AHRQ’s actual intent, it would be better, for clarity, to refer to the changes as percentage point changes. Inasmuch as I am raising so many questions about the meaning of various changes of measures, I am reluctant to suggest that presenting actual percent changes (also properly termed “percentage changes” but still different from “percentage point changes”) in the relative differences, as NCHS would, is the better approach. But AHRQ should be mindful that its approach seems to differ from that of NCHS in this regard.

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