The Health Impact of Resolving Racial Disparities: An Analysis of US Mortality Data

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The US health system spends far more on the "technology" of care (e.g., drugs, devices) than on achieving equity in its delivery. For 1991 to 2000, we contrasted the number of lives saved by medical advances with the number of deaths attributable to excess mortality among African Americans. Medical advances averted 176 633 deaths, but equalizing the mortality rates of Whites and African Americans would have averted 886 202 deaths. Achieving equity may do more for health than perfecting the technology of care. (*Am J Public Health.* 2004;94:2078–2081)

Much of the billions of dollars[1] spent in the United States to improve health outcomes is directed at the "technology" of care—the race among private industries and academia to develop better drugs, devices, and procedures. Far less money and infrastructure is devoted to improving health by enhancing *equity*—achieving equal care for equal need—and eliminating disparities in the treatment and outcomes of those with similar conditions.[2]

Whether this asymmetry is prudent is best determined by comparing the degree to which the population benefits from each endeavor. Does society save more lives by enhancing the technology of care or by resolving disparities? The answer would take years to determine (data and statistical methods for sound projections are lacking), but today's policymakers need some guidance, albeit approximate, to judge whether the current balance of effort is best for the population. We performed a "thought experi-

ment"[3] to compare the number of lives saved through the 2 strategies.

METHODS

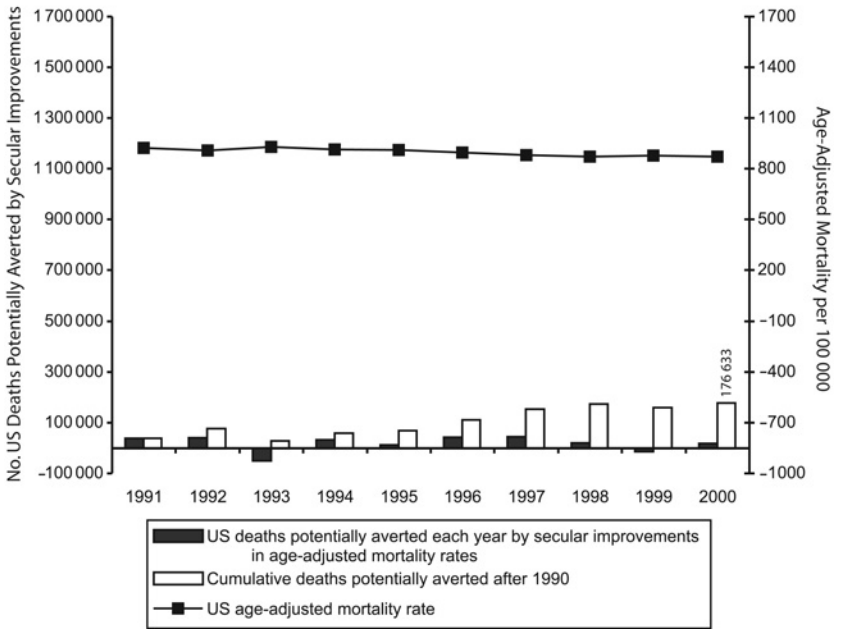
We obtained mortality data for 1991 to 2000 from the National Center for Health Statistics[4–8] to estimate the maximum number of deaths averted by improving the technology of care and the number of avoidable deaths had African Americans experienced the age-adjusted mortality rates of Whites. Our crude measure of the benefit of medical advances was declines in age-adjusted mortality rates. Such declines stem from multiple factors, not just improved technology, but we gave full credit to the latter to define the maximum number of averted deaths that could be attributed to this endeavor.

For this estimate, we performed an indirect standardization of mortality rates,[9] multiplying the population by the difference between the crude mortality rate for each calendar year and a recalculated age-adjusted rate reflecting no improvement in mortality rates. The latter was derived by multiplying age-specific populations by the corresponding age-specific mortality rates from the prior year and dividing by the total population.

To determine the number of deaths among African Americans attributable to higher mortality rates, we performed an indirect standardization of mortality rates and used African Americans as the reference population. For each calendar year, by gender, we multiplied the White age-specific mortality rate by the population of African Americans in the corresponding age groups. We divided the total calculated deaths by the population of African Americans to arrive at a gender-specific mortality rate. This hypothetical crude mortality rate was subtracted from the actual African American crude mortality rate and multiplied by the total population of African Americans to estimate the number of avertable deaths in that calendar year. (Our calculations and methods are detailed at http://www.vcu.edu/fp/research/AJPHaddendum.pdf.)

RESULTS

Age-adjusted mortality rates showed some year-to-year increases but declined an average of 0.7% per year. Our calculations suggested that these declines averted 176 633 deaths in 1991 to 2000 (Figure 1). During the same years, age-adjusted mortality rates for White males and females were an average of 29% and 24% lower, respectively, than those for African Americans. As of 2000, the mortality rate for African American infants and adults aged 25 to 54 years was more than double that of Whites. Had the age-specific mortality rates of the 2 races been comparable during 1991 to 2000, our calculations suggested that 886 202 deaths could have been averted (Figure 2).



Source. Age-adjusted death rates are from Table 35: Death rates for all causes, according to sex, race, Hispanic origin, and age: United States, selected years 1950–2001. National Center for Health Statistics. Available at: ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Health_US/hus03/Table035.xls. Potentially avoidable deaths were calculated as described in: http://www.vcu.edu/fp/research/AJPHaddendum.pdf.

FIGURE 1—Potential number of lives saved by improvements in age-adjusted mortality rates in the United States, 1991–2000.

DISCUSSION

Improvements in the technology of care did save lives during 1991 to 2000, but the deaths averted were considerably fewer than the potential lives saved by reducing the mortality rate of African Americans to the rate of Whites. Five deaths could have been averted for every life saved by medical advances.

This contention assumes that racial disparities could be abolished, a formidable premise. Elsewhere, we discuss the immense societal challenges such an effort must overcome.[10] Here, our intent was to offer policymakers a sense of perspective about how the potential gains from overcoming these challenges would compare with continued investment in the technology of care.

Because we observed a 5-fold difference in averted deaths, more precise calculations would be unlikely to change the direction of our findings. Our estimates are consistent with others.[11,12] We acknowledge important limitations, however. First, we focused on mortality, and racial disparities encompass morbidity and other domains. Second, mortality is influenced by variables other than medical care (e.g., demographics, lifestyle, environment). Modeling techniques can clarify the contribution of medical interventions,[13] but the requisite interactive terms are lacking. Third, the absence of a reduction in mortality does not exclude a benefit from improved care, which

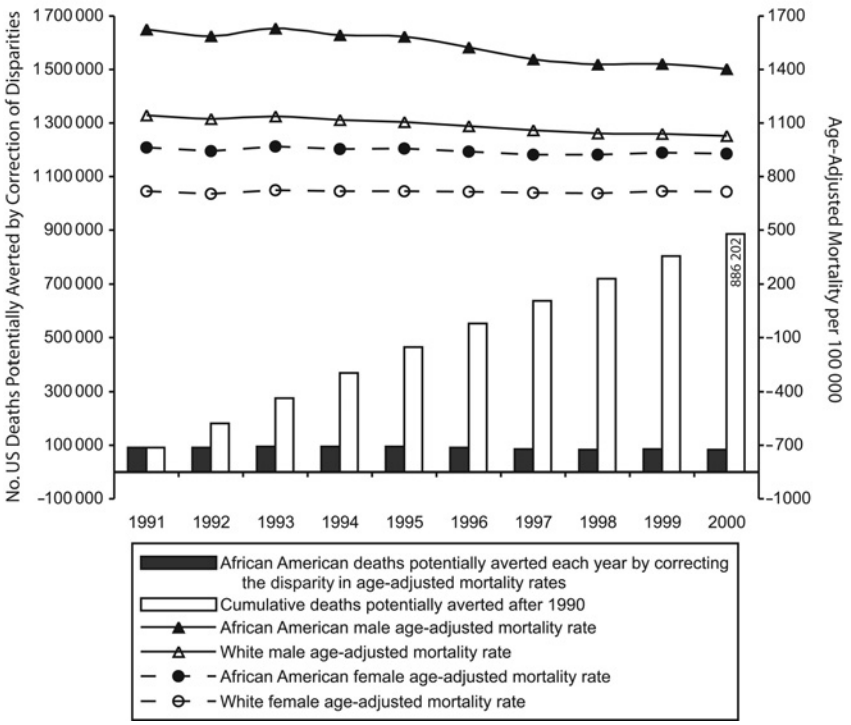


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FIGURE 2—Difference in age-adjusted mortality rates of Whites and African Americans in 1991–2000 and potential number of lives saved if the rates had been comparable.

might avert a rise in mortality. Our calculations assumed that medical advances would lower mortality in the same decade, but benefits might occur years later[14] or might accrue more in population subgroups.

Fourth, our calculations modeled a sudden disappearance of disparities. A graduated model would be more realistic, projecting benefits from partial reductions in disparities over time. Fifth, we treated efforts to improve technology and reduce disparities as mutually exclusive, when one can enhance the other. Sixth, our analysis dealt with only 2 races, excluding the disparities experienced by others (e.g., Native Americans). Lives also might be saved by reducing the mortality rate of Whites to that of Hispanics or Asian Americans.[15] Socioeconomic conditions represent a more pertinent cause of disparities than race.[10,16] An intriguing question is whether more lives are saved by medical advances or by resolving social inequities in education and income.

Future work will explore these issues but is unlikely to alter our fundamental finding: resolving the causes of higher mortality rates among African Americans can save more lives than perfecting the technology of care. Policymakers could act on this information without waiting for more precise projections. The prudence of investing billions in the development of new drugs and technologies while investing only a fraction of that amount in the correction of disparities deserves reconsideration. It is an imbalance that may claim more lives than it saves. ■

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Steven H. Woolf and Robert E. Johnson are with Virginia Commonwealth University, Richmond. At the time of this study, George E. Fryer Jr was with the American Academy of Family Physicians Robert Graham Center for Policy Studies in Family Practice and Primary Care, Washington, DC. George Rust and David Satcher are with the National Center for Primary Care, Morehouse School of Medicine, Atlanta, Ga.

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Contributors

S.H. Woolf originated the study and was chiefly responsible for writing the brief. R.E. Johnson provided methodological and statistical advice, conducted calculations, and developed related figures and tables. G.E. Fryer Jr, G. Rust, and D. Satcher provided advice on content, data interpretation, and policy implications.

Human Participant Protection

No human subjects were involved in this study.

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