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Editorial

Editorial on Lansdorp-Vogelaar et al., p. 728

Addressing Disparities in Colorectal Cancer Burden: How Far Could Equal Health Care Access Bring Us?

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Enthusiasm over scientific progress in prevention, early detection, and treatment of colorectal cancer (CRC) remains tempered by the sobering recognition that racial and ethnic disparities in CRC screening, incidence, and mortality exist in the United States. According to 2004–2008 data from the NCI's Surveillance, Epidemiology and End Results (SEER) Program, the incidence of CRC is approximately 24% higher in blacks than in whites and mortality from CRC is 49% higher in blacks than whites (1).

The causal web leading to unequal cancer burden across racial and ethnic groups is complex and includes socioeconomic, environmental, behavioral, and genetic factors (2). Nevertheless, research that identifies remediable factors responsible for disparities can point to actionable solutions and illuminate areas in need of more research. Partitioning the observed CRC disparities in a way that clarifies the extent to which differences in disease burden may be amenable to improvement in health care access is useful in that it allows us to understand how policy interventions promoting access to systematic screening and timely and appropriate treatment in vulnerable populations could reduce disparities in CRC and lessen the burden of CRC overall.

The study by Lansdorp-Vogelaar and colleagues in this issue of *Cancer Epidemiology, Biomarkers & Prevention* seeks to estimate the degree to which factors that reflect health care access, as opposed to factors that are not directly affected by having access to cancer screening and treatment (e.g., obesity, physical inactivity, meat consumption, smoking, genetic factors), can explain racial disparities in CRC burden (3). The investigators use the well-validated MISCAN-Colon model to address the following specific questions: (i) How much would the 2007 black-white disparity in CRC incidence and mortality be reduced if blacks and whites had been screened at the same rates (i.e., if the screening pattern for blacks was the same as for whites during the years 1975–2007)? (ii) How much would the 2007 black-white disparity in CRC mortality be reduced if blacks and whites had received equally effective cancer treatment (using stage-specific survival as a proxy) during these years? and (iii) How much would the 2007 black-white disparity in CRC mortality be reduced if blacks and whites had received *both* the same screening and same treatment during these years?

They found that screening and treatment differences are indeed major contributors to disparities in CRC burden. Specifically, their models suggest that differences in CRC screening accounted for 42% of the observed disparity in CRC incidence and 19% of the observed disparity in CRC mortality between blacks and whites. Differences in stage-specific survival accounted for 36% of the disparity in CRC mortality. Together, differences in screening and stage-specific survival explained just more than half of the disparity in CRC mortality between blacks and whites.

Because modeling is dependent on the assumptions used to build the simulation, it is important to conduct sensitivity analyses to understand the effects of uncertainty with respect to key inputs. In their sensitivity analyses, the investigators examined the influence of several assumptions on their findings. These analyses allowed them to examine the effect of our uncertainty as to whether differential care *quality and effectiveness* rather than differential care *quantity* (access to screening and treatment *per se*) might actually explain the observed CRC disparities. To do this, they re-ran models assuming a 25% lower adenoma detection rate for screening colonoscopy among blacks (an assumption for which there is some empiric evidence). They also ran models assuming that 25% of the difference in stage-specific survival could not be removed, in essence an assumption that access to CRC treatment alone would not completely remove differences in treatment quality or biologic differences in treatment response. Last, they tested the extent to which the findings would be altered if one assumed not only that equal access to care not only resulted in the same stage-specific survival but also in the same stage distribution. Their findings were robust to these different analyses, providing more confidence in their conclusions.

We suggest that these findings have several implications. First, they reinforce the importance of implementing policies aimed at providing broad access to cancer screening and treatment as central strategies for reducing cancer health care disparities. In this regard, there is evidence that some progress is being made. Recently released data from the 2010 National Health Interview Survey (NHIS) show that the gap in screening is closing: 55.0% of African-Americans are up-to-date with screening compared with 59.8% for whites (4). A second implication of these findings is that, as access to care appears to

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explain only about half of the observed black-white disparities in CRC burden, research efforts aimed at understanding how the "unexplained" portion of CRC disparities can be addressed should continue. This includes examining the role of socially determined behaviors and lifestyle, differences in care quality, or even biologic differences that could influence disparities, such as differences in response to therapy or differences in adverse effects from treatment. Nevertheless, efforts to clarify these other potential drivers of disparities should not lessen our resolve at making improved access to cancer control health care services a top policy priority.

A third implication of this study is that it shows the potential value of simulation modeling as an efficient means of addressing longitudinal, population-level questions, including those relevant to cancer control health policy. High-quality modeling relies on having good nationally representative data and, in cases like this, is greatly enhanced by the availability of natural history data collected before screening and treatment become widespread. This study also points to the need for future studies that use analogous methods to examine the drivers of cancer disparities seen in other vulnerable groups, including Hispanics, who make up the nation's largest and fastest growing racial/ethnic minority group and also have the nation's lowest CRC screening rate (4). Although their overall CRC mortality is lower than in non-Hispanic whites, Hispanics are more likely to be diagnosed with advanced stage CRC and have a lower probability of survival after CRC diagnosis than non-Hispanic whites (4, 5). These data point to a significant preventable CRC burden in Hispanics that is likely related to lower use of CRC screening and limited access to timely and appropriate treatment.

Finally, the study by Lansdorp-Vogelaar and colleagues also informs the larger dialogue about health care access in the United States. The importance of health care access is, surprisingly, still debated in the political sphere, as was evident recently when a presidential primary candidate publically stated, "I reject that . . . people die in America because of lack of health insurance" (6). While the debate over *how* to achieve universal access to health care, including cancer control services, is not resolved, questions as to whether differences in health care access explain a significant proportion of the inequities in health outcomes are empirical, not ideological, questions. This study adds still more convincing data supporting this relationship.

Disclosure of Potential Conflicts of Interest

M.P. Pignone is a consultant/advisory board member for Archimedes. No other potential conflicts of interest were disclosed.

Authors' Contributions

Conception and design: D.S. Reuland, M.P. Pignone
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