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## Disparities in Ideal Cardiovascular Health: A Challenge or an Opportunity?

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In 2010, the American Heart Association (AHA) declared 2020 health strategy goals to reduce deaths from cardiovascular disease and stroke by 20% and to improve the cardiovascular health (CVH) of all Americans by 20%.<sup>1</sup> The latter goal is aimed at helping everyone living in the United States (US) to achieve, or at least move toward ideal CVH by focusing on seven key health behaviors and risk factors—smoking, body mass-index, diet (based on the healthy diet score), participation in physical activity, and levels of blood pressure (<120/80 mm Hg), blood glucose (<100 mg/dL), and total cholesterol (<200 mg/dL).<sup>2</sup> What must not be forgotten is that this 2020 AHA strategy was instituted against the background of health disparities identified by the Institute of Medicine<sup>3</sup> in 2003 that are still present in our society today. In this issue, Dong et al.<sup>4</sup> describe a strong, graded relationship between the number of ideal CVH metrics and cardiovascular disease (CVD) risk (stroke, MI, and vascular death) among whites, blacks, and Hispanics living in the same community. Furthermore, the authors assessed stroke as a separate outcome event whereas prior studies<sup>5–8</sup> on ideal CV health either did not include stroke or treated stroke only as a component of a composite outcome.

There are several other key observations reported by Dong et al. First, the study highlights the observation that ideal CVH is rare. A glaring finding of the study is the dismally low prevalence of ideal CVH in the urban setting in which no participants had all seven ideal CVH metrics, and few participants had 5–6 metrics (4.4%). Thus, considerable work needs to be done in order to achieve ideal CVH for all Americans and these findings point to a

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particular challenge in urban, relatively low income communities. However, it is encouraging that having ideal levels of even 5–6 of the CVH metrics conveys significant protection from incident events. This supports the notion that health promotion policies focused on improvements in health behaviors such as physical activity, smoking, obesity, and diet are as important as controlling vascular factors such as blood pressure, cholesterol, and blood glucose in improving CVH and lowering risk for overall CVD, stroke and MI across all race and ethnic groups.

A second key finding was the significant reduction in CV risk for achieving a single ideal CVH metric. Specifically, it is important to note that the change in adjusted event rates going from 0–1 to 2 ideal CVH metrics was much greater than for any other increase of a single CVH metric unit. Thus, the drop in adjusted CVD incidence rates going from 0–1 to 2 ideal health metrics (41.3 to 30.4 per 1000 person-years) was 2.4 times the drop in adjusted CVD incidence rates going from 2 to 3 ideal health metrics (30.4 to 25.9 per 1000 person-years). In fact, the drop in adjusted CVD incidence rates going from 0–1 to 2 ideal health metrics represented 46% of the overall drop in adjusted CVD incidence rates going from 0–1 to 5–6 ideal CVH metrics (41.3 to 23.7 per 1000 person-years). This indicates that while those with 0–1 ideal CVH metrics are at very high risk, just taking that first step toward improving CVH dramatically improves outcomes, which is a very important message for individuals and communities. Doing something, rather than nothing, to initiate the steps towards ideal CVH will make a huge difference. Given the current poor state of US population CVH metrics,<sup>5–7, 9</sup> it is important to remember this message.

The AHA 2020 strategy has shed important light on the CVH of the nation and of minority communities. Consistent with other studies,<sup>5, 7</sup> an important disparity highlighted by this report is that the prevalence of ideal CVH varies by race-ethnicity and this disparity remains significant after adjustment for age and gender. The article by Dong et al. confirms the message that all groups can have lower rates of adverse CV outcomes if they achieve ideal CVH. A major contribution of the report by Dong et al. is the inclusion of Hispanics. While there is little reason to believe that Hispanics would not benefit from ideal CVH, if achieved, it was not known whether they would benefit to an equal extent. Although the actual CVH metrics chosen by the AHA were based on the evidence from a large number of population-based studies, the definition of ideal CVH metrics has largely been derived from evidence collected in white cohorts. Thus, it is important to evaluate the application of these CVH metrics to CVD risk assessment across different populations.

Hispanics, although the largest ethnic minority group in the US,<sup>10</sup> are little understood and largely understudied. Hispanics are characterized by significantly more geographic, racial, and socio-cultural heterogeneity than white or African-American populations in the US and there have been problems of extrapolating findings from Caucasian or black populations to Hispanics. Furthermore, the Hispanic paradox clouds our view of the health of Hispanics.<sup>11, 12</sup> The paradox basically states that there is lower CV and overall mortality among Hispanics despite a worse CV and socioeconomic profile compared to non-Hispanic whites. The Hispanic paradox perpetuates the notion that Hispanics are at low cardiovascular risk when in fact this may not be the case and may result in less aggressive CVD treatment and prevention in Hispanic populations.

The study by Dong et al. helps to clarify some of these issues. Despite the presumed 'paradox', the relation of ideal CVH factors with CV outcomes was similar across race-ethnic groups. This is a very important point as some in the medical community remain unsure about how to evaluate CV risk among Hispanics. The authors indicate that there were substantial race-ethnic disparities in the prevalence of ideal CVH metrics and these disparities partially accounted for the differences in CVD risk. Additionally, the study showed that the CVD incidence rates were similar between whites and blacks after adjustment for the number of ideal health metrics. However, the overall incident CVD rates remained lower for Hispanics compared to the other race-ethnic groups regardless of the number of ideal CVH metrics. What is also striking is that the differential CV benefit of having ideal vs. poor CVH was less for Hispanics than the other race-ethnic groups. This suggests that although the components of ideal CVH predict CV risk among Hispanics, certain elements of the Hispanic paradox may in fact exist. Large studies on the Hispanic populations such as the landmark Hispanic Community Health Study / Study of Latinos may help to establish the basis for the paradox and determine which factors are relevant.<sup>13</sup>

While the authors correctly emphasize that risk factors, not race per se, determine CV risk, there are real challenges that must be explicitly addressed in order to achieve adequate control of CV risk factors across race-ethnicity minority communities. Specific challenges in Hispanic populations include language barriers and health literacy issues that need to be addressed. The cultural competency of the ideal CVH message in Hispanic populations needs attention so that we get the message across with the most impact. Hispanics and other minorities reside more frequently in areas with lower socioeconomic status with worse environments and reduced access to healthy foods and activities<sup>14, 15</sup> as well as reduced access to care.<sup>16</sup> Furthermore, not all physicians feel comfortable caring for minority patients.

Moreover, only 1/3 of cardiologists feel that health disparities even exist.<sup>17</sup> This is a problem since the 2020 goals cannot be met without acknowledgment of these disparities. Substantial progress has been made since the IOM report on health disparities was first released in 2002 and the gap has decreased considerably,<sup>18</sup> but we need to acknowledge that disparities still exist, as highlighted by the work by Dong et al., and that there is still a considerable amount of work to be done. Future studies could look at ideal CVH in other minority US populations inclusive of other Hispanic subgroups, Asians, and Native Americans. It would also be important to determine if there are CVH differences between urban and non-urban locales and whether specific interventions studies can be performed across different populations that actually change CVH to result in improved outcomes. Of course, the overwhelmingly good news is that despite the existence of disparities, achievement of ideal CVH is as important in Hispanics as for other race-ethnic groups. To reach the 2020 goals we need to be cognizant of the existing disparity issues and vigilant in working toward improved CVH for all Americans.

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