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The Centers for Disease Control and Prevention does not recommend race-adjusted thresholds to define anemia

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Dear Editor,

We read with interest the article by Kang et al. [1], “Hemoglobin distributions and prevalence of anemia in a multiethnic United States pregnant population,” as well as the accompanying Editorial by Merz and Achebe [2], “Iron deficiency in pregnancy: a health inequity [2].” Both Kang et al. [1] and Merz and Achebe [2] incorrectly stated that the Centers for Disease Control and Prevention (CDC) recommend use of lower race-adjusted thresholds to define anemia for Black individuals. The CDC does not recommend separate diagnostic thresholds to define anemia for Black individuals or any other race/ethnic group. Here, we clarify misinterpretations in recent American Journal of Clinical Nutrition publications regarding the CDC anemia threshold recommendations.

The 1998 “Recommendations to prevent and control iron deficiency in the United States” [3], the most recent CDC publication providing guidance on thresholds to define anemia in individuals, did not recommend race-specific cutoff values for anemia. The 1998 recommendations included criteria for anemia threshold adjustments based on age, sex, pregnancy status, gestational age, altitude, and smoking status [3]. To guide the development of these 1998 CDC recommendations, the CDC requested that the Institute of Medicine (IOM) convene an expert committee to develop recommendations for preventing, detecting, and treating iron deficiency anemia among children and women of reproductive age in United States. The IOM report published in 1993 [4] is independent and not an official institutional CDC/federal recommendations publication. The 1998 CDC recommendations considered inputs from the IOM report [4], conclusions of a CDC expert panel convened in April 1994, and from other multidisciplinary subject matter experts [3].

The 1998 CDC recommendations discuss publications that describe the distributions of hemoglobin concentration and anemia by race. The IOM report recommended lowering

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hemoglobin and hematocrit thresholds for Black children aged <5 y by 0.4 g/dL and 1%, respectively, and Black adults by 0.8 g/dL and 2%, respectively. Importantly, the CDC did not adopt this race-based recommendation and explicitly stated, “Because the reason for this disparity in distributions by race has not been determined, the recommendations in this report do not provide race-specific cutoff values for anemia.” (3, page 14).

Kang et al. [1] reference O’Brien and Ru [5] when explaining their rationale for using race-adjusted thresholds for Black individuals in one of their analyses, “as indicated by CDC.” O’Brien and Ru [5] reference 4 publications, including the 1998 CDC recommendations [3], when explaining “Additional CDC criteria” for various anemia threshold adjustments, including for “African American race.” Among the other citations are an older 1989 CDC anemia guideline, which does not recommend race-adjusted anemia thresholds and was superseded in 1998 by the CDC iron deficiency recommendations [3] and a report published by the WHO, UNICEF, and UNU [6].

The most recently published reference cited by O’Brien and Ru [5] supporting “additional CDC criteria” was a WHO/CDC report of a 2004 technical consultation on iron status assessment in populations [7]. This publication is a meeting report summarizing the evidence presented and discussed, with recommendations from the individuals attending that specific consultation, but not an official practice recommendation from the CDC. The second edition of the consultation report included as annexes the final commissioned literature review papers that were presented and discussed during the consultation, including a paper by Sean Lynch on red blood cell parameters for identifying iron deficiency [7]. Lynch’s literature review summarizes evidence for race/ethnic-based anemia thresholds and suggests threshold adjustments for specific groups based on these studies. The literature reviews in this consultation report are the independent work of each of those authors. Appendix 1 of the WHO/CDC report of the 2004 technical consultation includes a table summarizing the main biochemical indicators of iron status; the row for hemoglobin lists a disadvantage of this indicator as adjustment of thresholds needed for age, sex, pregnancy, altitude, smoking, and some ethnic groups, but does not provide specific numeric adjustments for the ethnic group adjustments. Notably, the recommendations and priorities for research resulting from the consultation do not include race/ethnic-based anemia threshold adjustments.

The report published by the WHO, UNICEF, and UNU [6] includes reference to peer reviewed journal articles authored by former CDC staff that are not official CDC recommendations. Peer reviewed journal articles written by individual CDC staff usually are not CDC recommendations and should not be mistaken for institutional CDC guidance unless clearly stated as such.

The 1998 CDC recommendation publication [3] is a foundational guidance document for federal, clinical, and program guidelines [8], and federal agencies use the 1998 CDC recommendations. For example, USDA Food and Nutrition Service uses them for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and therefore, does not apply lower Black race-adjusted anemia thresholds for WIC participants [9].

Conflict of interest

MEC and KSS were 2 of the CDC staff who prepared or collaborated on the 1998 iron deficiency recommendations publication [3]. GMB was a member of the CDC expert panel convened in April 1994. There was no funding used for this letter to the editor. All other authors report no conflicts of interest.

The findings and conclusions in this letter are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the US Department of Agriculture.

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