Opportunities to Strengthen Women's Nutrition Within Maternal Health Service Delivery: Reflections From Global Health Implementation

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The World Health Organization (WHO) set an Ending Preventable Maternal Mortality target, embodied in Sustainable Development Goal 3, to "reduce global maternal mortality ratio (MMR) to less than 70 per 100 000 live births by 2030" (https://bit.ly/3DneAvO). Yet, the United States is woefully lagging behind, as one of two countries to report a substantial increase in MMR. In the United States, pregnancy-related deaths have doubled in the past two decades from 9.8 to 17.4 women per 100 000 deaths.

MATERNAL NUTRITION IS CENTRAL TO MATERNAL HEALTH

The 2021 Global Nutrition Report reveals that the prevalence of anemia among American pregnant women is 36.5%, and low birth weight affects nearly 15% of newborns. Furthermore, a 2021 March of Dimes report revealed the sobering realities of the US maternal health crises with a rise in preterm births, insufficient access to quality maternal health services, and inadequacies in prenatal care, especially experienced by communities of color.

The quest to prevent maternal mortality merits renewed thinking in our efforts to address women's nutrition in light of obesity- and nutrition-related diseases, such as hypertension and heart disease, which underlie much of maternal death in the United States. Optimal maternal nutrition is the cornerstone of maternal and child health, especially in averting adverse birth outcomes (i.e., low birth weight, preterm birth), which have not shown appreciable improvement over the years. Importantly, certain women-centered nutrition interventions have been rolled out in the United States with some success. For example, the United States Special Supplemental Nutrition Program for Women, Infants, and Children evaluated the provision of a nutrition package during pregnancy, which demonstrated modest improvements in dietary quality among recipients (i.e., increased fruit and whole grain intake, decreased fat intake) versus non-recipients.[1] This editorial reflects on four considerations for improving women's nutrition across the continuum of care (pregnancy, childbirth, and the postnatal period), described in the subsections below, that should be central to the US maternal health agenda moving forward. Experiences from the global health community provide evolving understanding of gaps and lessons learned from implementation of maternal nutrition interventions and can lend insight into ensuring quality provision of well-woman health services in the United States as delineated in the Affordable Care Act.

Better Integrate Nutrition in Medical Education

A recent systematic review illuminated gaps in nutrition medical education and skillsets in nutrition knowledge and counseling.[2] Only 29% of US medical school graduates reported receipt of sufficient nutrition training; yet, basic skills widely varied, and some did not feel their role was to discuss issues of weight with patients (i.e., overweight).[3,4] A low percentage (12%) were aware of dietary reference intakes and recommendations on protein, fat, and carbohydrates.[5]

Moreover, data show that both students and medical faculty described students' lack of preparation and comfort level to provide nutrition advice.[4] Patient-centered counseling skills, as well as the role of weight in well-being and morbidities, were described as an identified gap in medical curricula.[4] To meet these gaps in medical education and provider knowledge, alternative models of training health providers

may be considered. In Guatemala, the *Diplomado*, a maternal and child nutrition course, provided preservice and in-service training to frontline health workers (i.e., physicians, auxiliary nurses, health educators) to improve knowledge and capacities for provision of quality maternal health services (i.e., counseling on dietary diversity, weight gain during pregnancy, micronutrient supplementation during pregnancy, physical activity, and breastfeeding).[6] Since 2015, the *Diplomado* course has largely been implemented through local universities and has trained 1855 health professionals and 194 facilitators in western Guatemala.[6] For the US context, important considerations for adaptation are (1) the course was provided free of charge, (2) health providers were incentivized through the receipt of 25 continuing medical education credits, and (3) the hybrid model of online coursework combined with in-person, peer-to-peer exchange onsite at health clinics improved health providers' knowledge of maternal and child health service delivery.[7]

Strengthen Routine Maternal Nutrition Counseling

Recent data show that 10%–43% of US pregnant women have inadequate dietary intakes of essential nutrients, such as vitamins A, D, and E, iron, folate, and calcium, required to support healthy pregnancy and fetal growth and development.[7] US women's suboptimal diets are likely exacerbated by a food system centered on processed unhealthy foods and beverages, which lack important nutrients to support optimal maternal health and well-being. Moreover, a few studies showed that provider advice on diet, weight gain, and physical activity during pregnancy was often perceived as vague or too generalized by women themselves.[8] Similarly, in other country contexts across Africa, Asia, Latin America, and the Middle East, there is often little to no provision of maternal dietary counseling during routine health contacts at health facilities.[9] Health professionals in the United States and globally who have a thorough understanding of WHO Antenatal (ANC) Guidelines and Quality of Care Standards, which provide evidence-based guidance for health service delivery regarding maternal and infant health and nutrition interventions, can aid in setting standards for the quality delivery of maternal health services. Building the capacity of nurses, midwives, and physicians to apply this evidence-informed guidance through the lens of cultural and social norms and racial, ethnic, and socioeconomic inequities while addressing any sources of misinformation (i.e., social media outlets, Internet searches) can aid in shaping women's food choices, preferences, and related dietary behaviors (i.e., physical activity). Country experiences from the Democratic Republic of Congo, Egypt, Kenya, Mozambique, and Tanzania, funded by the United States Agency for International Development (USAID), has shown that conducting formative assessments and subsequent use of these data can aid in operationalizing global guidance to specific contexts and developing culturally relevant counseling approaches and messages to address beliefs and misperceptions about dietary diversity, weight gain, or micronutrient supplementation during pregnancy and diet during breastfeeding.[10] These examples can be drawn upon in designing and implementing United States-based public and private initiatives aiming to improve health service delivery through clinical care settings, health professional associations, and behavior change approaches. Furthermore, it is of critical importance that such initiatives are tailored to US Black, Indigenous, and people of color communities (i.e., African, Asian, Latinx, Middle Eastern, and Native American ethnic groups) that may not have been exposed to or had access to action-oriented, culturally resonant nutrition advice.

Ensure Quality Counseling on Pregnancy Weight Gain

A global review noted little knowledge of and counseling on weight gain during pregnancy from women's and health providers' perspectives in Egypt and Nigeria.[9] Some women were not weighed or monitored for weight gain or loss and expressed confusion about the amount of weight to gain during pregnancy. Although most countries and regions do not have context-generated guidance on weight gain during pregnancy, the WHO ANC guidelines reference the US Institute of Medicine (IOM)-developed weight gain classifications (i.e., underweight, normal weight, overweight, obese) as current guidance. Yet, some data indicate that US health providers tend to target advice to overweight and obese pregnant women rather than provide counseling as a standard part of routine health care for all pregnant women, as indicated in the IOM guidance.[11,12] Another study noted that women in the United States were less likely to have correct knowledge of gestational weight gain recommendations if they were obese before becoming pregnant, Black, and socioeconomically disadvantaged.[13] With this in mind, health professionals should be equipped during routine health visits to discuss the topics of how much total weight to gain, why, and progress achieved in

relation to prepregnancy body mass index, dietary intake, and physical activity during ANC.

Engage Women and Their Communities

Finally, use of multiple platforms, such as women's groups and participatory strategies, are additional ways to meaningfully engage women and their peers to provide the motivation and social support to improve women's dietary diversity and breastfeeding practices, as has been demonstrated in South Asia. In Bangladesh, a mixed model that included counseling by both health facility workers and community volunteers, alongside active engagement with key influencers (i.e., fathers), improved maternal, infant, and young child nutrition outcomes.[14] In the United States, community doula programs have provided support across the continuum of antenatal care, childbirth, and postpartum care, fostered linkages with local champions at partner hospitals for comprehensive childbirth support for people of color, and provided peer-to-peer doula mentorship. In the future, building upon successful, community-based and multifaceted approaches may aid in improving women's nutrition outcomes.[15]

CONCLUSIONS

In sum, these reflections for improving health provider capacity and the implementation of maternal nutrition interventions from various countries may renew thinking and spur action to better strengthen delivery of women's nutrition-health services in the United States. AJPH

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CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

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