Perspective

Perspective: The Human Milk Composition Initiative - Filling Crucial Gaps in Data on and Related to Human Milk in the United States and Canada

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The Human Milk Composition Initiative (HMCI) is a joint effort between multiple federal agencies within the United States and Canada to coordinate the development of human milk (HM) composition (HMC) data for use by federal policy, programs, and other stakeholders [1]. HMCI is not a funded research program or a funding body; instead, it is a strategic collaboration with the aim of fostering concerted and informed efforts to positively impact public health through a coordinated approach to collecting data on and related to HMC.

HMCI was founded in large part due to data needs of the Dietary Guidelines for Americans (DGA). The 1990 to 2015 editions of the DGAs provided guidance for Americans aged ≥2 y. However, the Agricultural Act of 2014 mandated that starting with the 2020–2025 edition and every edition thereafter, the DGAs must also provide guidance for children aged <2 y [2]. When developing the DGAs, population-level nutrient exposures from foods are compared to the daily recommended intakes, such as DRIs, to identify discrepancies that could pose a public health concern. Public health concerns for micronutrient inadequacy can then be addressed through the development of DGA policy recommendations, which also guide federal programs.

When planning for the 2020–2025 DGA, it became clear that the existing single profile of HMC in the USDA Nutrient Database for Standard Reference (SR) [3], the primary source of food composition data for national nutrition monitoring, was unsuitable. The HMC data were ~50 y old, the source was unverifiable, and some values were based on unfortified cow milk [4]. In addition, the underlying data used to define the energy content of human milk were from foundational studies of 3 individuals collected in the late 1920s who overproduced their milk volumes [5–7]. The HMC profile in the Canadian Nutrient File was mainly based on USDA SR data apart from transfatty acids analyzed in Canada [8]. In 2018, the USDA moved this SR to legacy status [9], and therefore, the United States and Canadian federal governments do not have a relevant profile for HM to calculate population estimates of nutrients (or contaminants) that children are exposed to through HM.

To compound the challenge in determining nutrients of public health concern for infants, it has been recognized that, in many cases, the data used to develop the DRIs for infants are outdated, particularly for nutrients with Adequate Intake values (all DRIs for infants, except iron, zinc, and protein).

HMCI is dedicated to finding a path to fill the gaps in HMC data that will unveil new knowledge for public health, including that related to the developmental origins of health and disease. To this end, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, in support of HMCI, commissioned the scoping review by Mohr et al. (in press) [10]. This review aimed to identify available evidence with the potential to meet inclusion criteria for developing new estimates for nutrients in HM. The findings of the review supplement the findings of the 2020 NASEM scoping review entitled, "Scanning for new evidence on the nutrient content of human milk: A model for the derivation of age specific nutrient requirements," which identified the available data that could meet the inclusion criteria for updating the DRIs for infants [11].

HMCI has a long-term vision for publicly accessible repositories of HMC data that represent the current United States and Canadian populations and contain HMC and relevant metadata from lactating individuals and child dyads. These repositories could include population averages and variability as well as allow for the use of modeling techniques to approximate HMC profiles for subgroups, providing more accurate exposure assessments for the purposes of public health monitoring and surveillance and improved national nutrition monitoring data to inform public health policies, food and nutrition programs and regulations, and clinical practice guidelines.

We are still in the early years of working toward the long-term visions of HMCI and want to thank our partners at the Academy of Nutrition and Dietetics whose methodic work on this scoping review has moved us one step closer to our vision.

Acknowledgments

Conflict of interest

The authors report no conflicts of interest.

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