HHS Public Access

Author manuscript

Am J Clin Nutr. Author manuscript; available in PMC 2023 May 10.

Published in final edited form as:

Am J Clin Nutr. 2021 July 01; 114(1): 392–393. doi:10.1093/ajcn/nqab182.

Reply to Hasman et al.

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Dear Editor:

We agree that an open dialogue about modifying universal vitamin A supplementation (VAS) programs, suggested by researchers at Harvard (1) and supported by UNICEF (2), is needed. The goal of universal VAS programs is prevention of mortality and morbidity (3), given the role of vitamin A in immune functions (4). The Global Alliance for Vitamin A (GAVA) has a framework for evidence-based decision making to scale back universal VAS, and the decision tree outlined in the GAVA framework starts with a determination of the vitamin A status of a population using biochemical indicators (5). We recognize that the resource requirement, government commitment, and agency coordination required to collect and synthesize population-based vitamin A biochemical data are not trivial. Here, we describe the experience in Malawi by the government and partners to collect and analyze vitamin A biomarker data during the 2015–16 National Micronutrient Survey, as well as a pilot to test a new distribution model for VAS.

The Government of Malawi regularly assesses their national vitamin A status, completing national surveys that collected vitamin A biomarker data in 2001, 2009, and 2015–16. In early 2019, planning discussions for the next national micronutrient survey were interrupted by the coronavirus disease 2019 pandemic. Survey planners anticipated low vitamin A deficiency (VAD) in 2015–16 (6), given the trend of decreasing VAD between 2001 and 2009 and the implementation of multiple, overlapping vitamin A interventions. Thus, survey planners decided a priori to collect sufficient serum for analyses of multiple vitamin A biomarkers. After the main vitamin A survey results of the modified-relative-dose response

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Author disclosures: AMW, MEJ, and PSS work for the CDC: the International Micronutrient Malnutrition Prevention and Control team (IMMPaCt) program at the CDC provided technical support in the design and implementation of 3 national micronutrient surveys in Malawi (2001,2009 and 2015–16). IMMPaCt/the CDC also collaborates technically in certain Global Alliance for Vitamin A (GAVA) activities, including the development of the GAVA scaling back framework and related workshops.

and retinol binding protein were disseminated, due to low levels of VAD a decision was made to also analyze retinyl esters, carotenoids, and retinol using back-up serum.

In 2020, when the complete vitamin A data from the 2015–16 survey became available, the Government of Malawi organized a workshop to review findings to inform how national vitamin A programs may need to be modified. In preparation for this workshop, government agencies collated data on performance and coverage of vitamin A programs (i.e., VAS, sugar and cooking oil fortification, micronutrient powders, biofortified foods, and supplementary feeding for low-income households), dietary intake, and biomarkers (i.e., retinyl esters, carotenoids, retinol, modified-relative-dose response, and retinol binding protein). The workshop was organized in accordance with the GAVA framework that states “decisions to scale back or shift from universal VAS should be based on information that verifies that vulnerable populations have an adequate and sustained vitamin A status from dietary sources and other interventions” (5). Malawi is unique to have this wealth of data; yet, at the conclusion of the workshop, data gaps precluded decisions to scale back VAS.

Key data gaps that were identified included the need for more granular biomarker data by age group (children aged 6–11, 12–24, 25–36, and 37–59 months) and geography (7), which translates to a larger sample size. Furthermore, vitamin A biomarker data may need to be collected in a season when vitamin A–rich fruits and vegetables are less accessible (7). More comprehensive dietary intake data among infants and young children were also needed (7).

Survey data that collected information on individual intakes in the past 24 hours or household expenditures did not provide the distinctions necessary to determine regular intake patterns and intrahousehold food consumption. Modeling household expenditure data suggested that children aged 6–59 months in the lowest-wealth categories may not have access to sufficient vitamin A–rich foods or vitamin A–fortified foods (oil and sugar). Triangulating program coverage, quality, and adherence data with the age groups of the populations reached by programs was proposed as a follow-up activity from the workshop deliberations (7).

A separate but related activity to pilot a modified VAS delivery system was tested in 2019. Since 2004, Malawi has achieved >90% VAS coverage for children aged 6–59 months using a Child Health Day campaign delivery platform (8). Malawi concluded that separate delivery of VAS and routine immunizations may be inefficient, both financially and with health worker shortages (8).

Considering that immunization and VAS target the same children and are delivered by the same health workers, the Ministry of Health piloted the distribution of VAS within the Expanded Program on Immunization in 10 districts to assess feasibility and assess VAS coverage using routine delivery (8). The target for VAS coverage within the pilot program was 80% for children aged 6–11 months and 50% for children aged 12–59 months, which was exceeded as of June 2020, with all children aged 6–11 months reached and 54% coverage among children aged 12–59 months (8). The VAS delivery pilot provided data that can inform decisions about ways to deliver VAS effectively.

In some ways, the situation in Malawi is unique, given multiple vitamin A biomarkers and evidence of elevated levels of vitamin A among children using the triangulation of the modified-relative-dose response and serum retinyl esters and carotenoids (9). Resource constraints, however, are not unique to Malawi. The Government in Malawi chose not to scale back VAS, because more data were needed to follow the GAVA evidence-based framework. The increase in food insecurity during 2020 (10) further suggests that more contemporary diet and status data may be necessary to make data-driven decisions. We hope that the experience in Malawi can be useful for others.

Acknowledgments

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.

Abbreviations used

GAVA	Global Alliance for Vitamin A
VAD	vitamin A deficiency
VAS	vitamin A supplementation

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