Methods Showcase Report

A Summary Report on the Methods Showcase Pre-Learning Events Held in Munyonyo, Kampala, Uganda, May 29–30,2023

Introduction

As part of USAID's ongoing support to nutrition programs across Africa, USAID Advancing Nutrition coordinated learning events designed to provide in-depth discussions and analysis of specific nutrition surveillance methods. The two-day Methods Showcase event was held on May 29–30, 2023, at the Speke Resort, Munyonyo, in Kampala, Uganda, and featured four concurrent sessions, designed and facilitated by researchers in the thematic fields. The event was designed to complement the third technical meeting of the regional Learning Network for Nutrition Surveillance (LeNNS), scheduled from May 31 to June 2, 2023.

The Methods Showcase included four concurrent courses:

1. Interpreting Program Performance and Biomarker Indicators of Micronutrient Surveys, led by researchers from the U.S. Centers for Disease Control and Prevention (CDC) international micronutrient team (IMMPaCt)
2. Regulatory Monitoring Indicators and Procedures of Large-Scale Food Fortification Programs, led and facilitated by experts in food fortification from the USAID project AFFORD
3. The Diet Quality Questionnaire (DQQ), a Tool for Population-Level Diet Quality Monitoring, facilitated by the Global Diet Quality Project
4. Nutrition Indicators Beyond Anemia and Micronutrient Biomarkers in the Demographic and Health Survey (DHS), facilitated by a technical expert from the DHS Program.

The Methods Showcase courses were designed to respond to the need for greater information on the data value continuum, from conceptualization and generation to interpretation of analysis results to inform policy and program actions. They were tailored to fit the thematic discussions already happening in the LeNNS technical working groups.

Methods Showcase participants came from the eight LeNNS countries: Uganda, Djibouti, Malawi, Zambia, Tanzania, Rwanda, Kenya, and Somalia. Each session had 20 to 25 participants, including government representatives from ministries of health, research institutions, and academia. Development partners, specifically those based in Uganda, also attended the sessions.

Sessions included structured presentations, interactive discussions, group work, and peer-to-peer learning experiences shared by participants to facilitate understanding of concepts presented. Monitoring and surveillance tools were also presented, and small group practical sessions facilitated in-depth understanding of application of the tools.

The following is a summary report of the four technical sessions, key messages from each of the sessions, and the agreed next steps.

Course 1: Interpreting Program Performance and Biomarker Indicators of Micronutrient Surveys

This two-day session was facilitated by researchers from the CDC's IMMPaCt program, Yaw Addo, PhD, and Roelinda Jongstra, ScD. They provided a comprehensive overview of key micronutrient biomarkers or indicators, followed by examples using real data from the LeNNS countries and case studies of countries' decision-making experiences with nutrition and health policies.

Photo Credit: Methods Showcase meeting, photo by IGAD

To begin, the presentations focused on the importance of measuring micronutrient biomarkers and highlighted that the most common biomarkers and conditions measured in surveys fall into five main categories: Anemia and inflammation; water- and fat-soluble vitamins; minerals, such as iron, zinc, and iodine; and dietary compounds. Presenters explained the biological pathways of anemia and detailed the role of each of micronutrient in the human body, causes of deficiency, deficiency measurement—including obtaining samples and test methods—and categorization of a deficiency into severe, moderate, mild, and low. They also focused on contextual factors that influence biomarker results. For instance, facilitators explained the importance of factoring inflammation and illnesses, such as malaria, into anemia result analysis. This is because malaria infection is responsible for red blood cell loss as infected cells burst open. In addition, malaria infection causes an increase in the hormone hepcidin, which prevents iron absorption and locks iron in the spleen and liver to make iron unavailable to host pathogens (the infection). While depriving the pathogen of iron, increased hepcidin also results in insufficient iron for bone marrow to make red blood cells. Thus, malaria infections can lead to exacerbated cases of high anemia prevalence in a population.

In addition, facilitators explained the interdependence of micronutrients and the role some play in the absorption of others, which then must be measured simultaneously to provide the actual status in a person's body. For instance, the interrelationship between folate and vitamin B12 is best explained by the methyl trap hypothesis, which states that vitamin B12 deficiency can lead to lowered levels of methionine synthetase, which results in a functional folate deficiency.

For each biomarker, the facilitators provided examples from survey data obtained in the LeNNS countries for discussion and used them to practically apply contextualization and other factors shared in the presentations. Facilitators also used these examples to explain how to interpret surveillance data to make decisions that can influence program or policy adjustments.

To help participants develop an understanding of some analysis methods for biomarker indicators, the facilitators led a hands-on data analysis demonstration using national micronutrient survey data. Facilitators demonstrated some popular statistical software, such as Stata, SPSS, SAS, and showed how each is used and applied.

Finally, facilitators provided information on the pre-analytic factors in biomarker surveillance and specifically detailed laboratory infrastructure: lab capacity and cold-chain logistics (depending on indicators); quality control procedures used in each assay to assure a test run is valid and results are reliable; and important elements of a quality management system that include external quality assurance

programs, documentation, standard operating procedures, and quality control samples. The CDC provides external quality assessment programs and reference lab support at no cost. Under this support, labs receive quality control materials, analytical guidelines, technical training, and consultation so they can accurately measure biomarker levels in their national surveys.

Participants expressed their appreciation for the opportunity to discuss nutrition data analyses following established global guidelines on micronutrients; interpretation of biomarker data in relation to contextual factors; and program performance. The country case study discussions enabled participants to share experiences and demonstrate best practices for biomarker interpretation, which should enhance the use of biomarker data in decision-making across countries. In addition to sharing the above learning lessons, facilitators encouraged participants to adopt micronutrient laboratory networking to increase micronutrient biomarker lab capacity in their regions, share technical expertise, and ensure reproducibility of lab methods for biomarkers.

Course 2: Regulatory Monitoring Indicators and Procedures of Large-Scale Food Fortification Programs

This two-day technical session was facilitated by Gwyneth Cotes, MPH, and Phillip Makhumula from the USAID project AFFORD. The session examined the role of food fortification in managing micronutrient inadequacies and facilitated sharing of food fortification success stories that highlight key factors for success, as well as LeNNS country experiences with food fortification monitoring. Specifically, the session covered:

- Definitions of regulatory monitoring and why monitoring is important
- Food fortification standards and regulations and how they were developed
- Steps followed during regulatory monitoring, including key elements in internal monitoring, external monitoring, and commercial monitoring (for foods such as oil, flours, salt, and sugar)
- The role of social auditing and other monitoring processes that complement regulatory monitoring.

Food fortification is carried out following prescribed levels that ensure a significant increase in nutrient intake among a population to address an identified gap in intake, often manifested by a measured deficiency. These fortification levels (specified in a country's national standards or regulations) must provide desired increased intake based on consumption patterns of the food vehicles. Facilitators took participants through the process of developing these standards, considerations in setting nutrient levels, and best practices for presentation in standards or regulations for easy application. Facilitators explained that fortification levels must be based on a population's daily need for a nutrient, per capita; daily consumption of the food vehicle; and upper tolerable levels of the added nutrient to ensure safety of a population that consumes large quantities of fortified foods. Upper tolerable levels should be presented in ranges to facilitate compliance by industry.

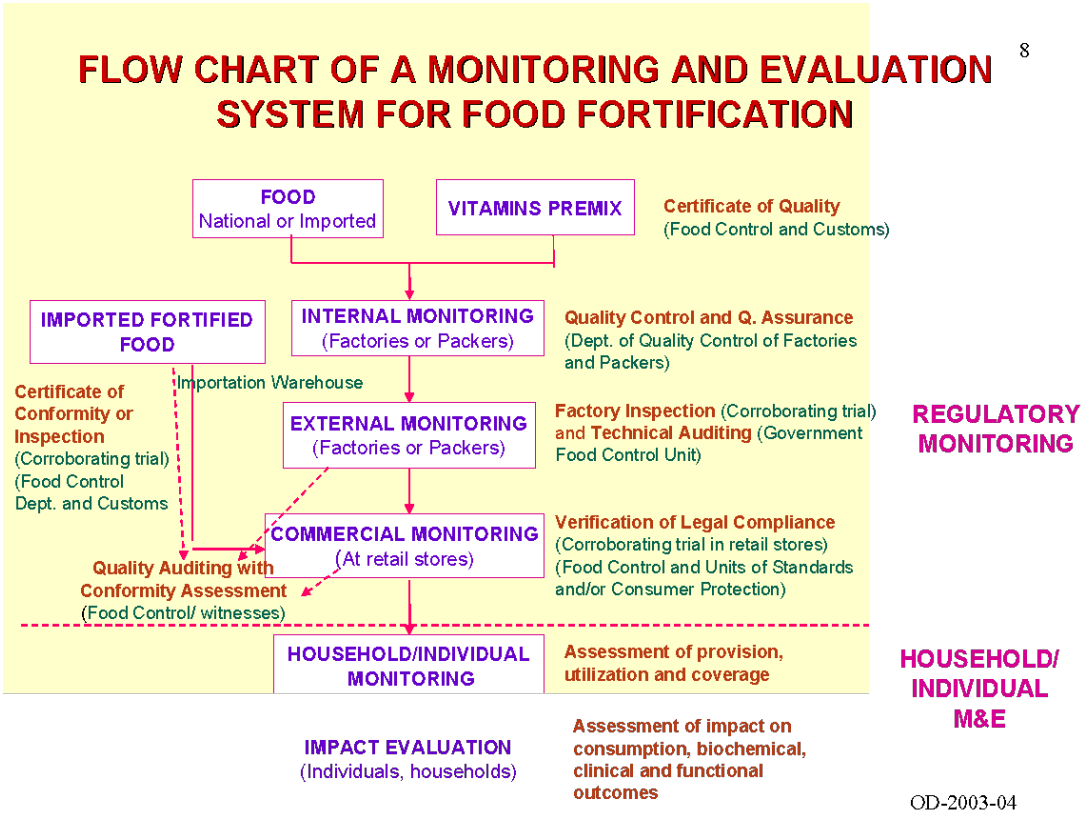
The facilitators observed that enforcement of standards or regulations through regulatory monitoring is key to ensure that fortified foods have adequate amounts of a desired nutrient to meet recommended intake. They elaborated on the process of regulatory monitoring, including different levels of monitoring at various locations, and explained the processes involved under each level and the tools and methods required (see figure 1):

- Importation sites: To verify the adequacy of imported fortified foods and confirm compliance of imported premixes

- Production sites by producers: To check if they are adding the right premix at the right amount and if the final product conforms to nutrient content and labeling (quality assurance, quality control)
- Markets, such as retail outlets, wholesalers, supermarkets, open-air markets: To confirm whether the food is fortified, has adequate nutrients according to market standards, and is labeled per regulations or national standards.

Figure 1. A Monitoring and Evaluation System for a Large-Scale Food Fortification Program

The facilitators advised that impact evaluation should only be conducted if results from regulatory monitoring are satisfactory and if household monitoring shows fortified foods have reached a significant number of households.



Facilitators took participants through alternative and often less costly ways of monitoring fortified foods to verify compliance, though noted that the results may not be legally binding as they may not be in compliance with national guidance. These methods include social auditing, premix reconciliation by producers and inspectors, and nutrition surveillance at the household level.

Facilitators also introduced the fortification monitoring and surveillance (FORTIMAS) approach to collect data on a food fortification program and inform on its performance. The system allows for collection of data at three main phases:

- Quality: Are available fortified foods adequately fortified?
- Reach: Is adequately fortified, quality food reaching more than 80 percent of the population based on per capita consumption?
- Consistency: Has the quality and reach been sustained for at least a year?

When these three conditions are satisfied, countries can expect to see the impact of reduced deficiencies that can be confirmed at health facilities based on nutrition deficiency indicators.

To ensure deeper learning, the participants shared their country experiences, highlighting regulatory monitoring processes, scope and status of national food fortification programs, gaps, and any challenges. Participants discussed with one another, allowing for learning, exchange of experiences to resolve challenges and fill gaps, and agreed on several regional approaches to ensure scale-up of fortification programs in all LeNNS countries.

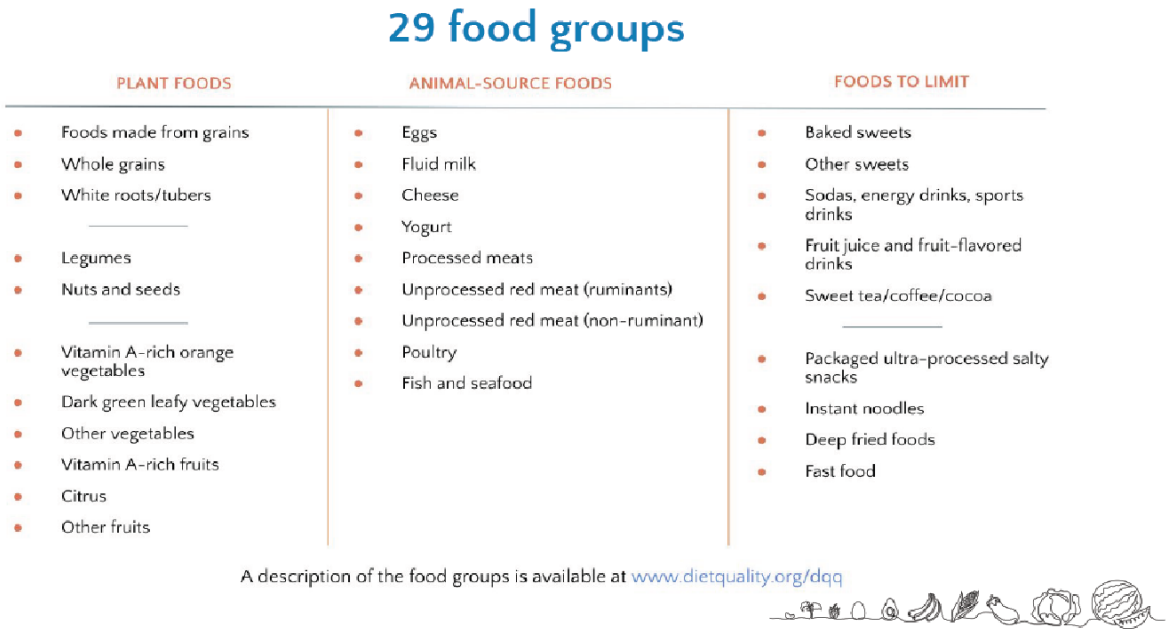
Some of the commonly observed challenges across countries included consolidation of data from different sources; information sharing among different stakeholders; capacity building; civil societies being underutilized resources; the full use of FORTIMAS; and access to quality premix.

Course 3: The Diet Quality Questionnaire (DQQ), a Tool for Population-Level Diet Quality Monitoring

This one-day course was led and facilitated by Gina Kennedy, PhD, Kristina Sokourenko, MPP, and Enock Musinguzi from the Global Diet Quality Project. The session's aims were to give participants an understanding of why measuring diet quality is important in a nutrition surveillance system, what the DQQ tool measures, and indicators that can be calculated from the DQQ. It also aimed to inform participants about the country-specific adaptation and validation work done in Uganda and elsewhere and allow participants to practice using the tool.

The facilitators explained that the DQQ was developed as a tool to rapidly assess diet quality at the population level. The DQQ takes 5 to 10 minutes to complete and consists of yes–no questions that can be read out face-to-face and that focus on foods consumed the previous day. The tool covers 29 universal food groups, which are adaptable by country (see figure 2).

Figure 2: Food Groups included in the Diet Quality Questionnaire



The tool can be adapted to estimate dietary intake for different interventions, such as protection against noncommunicable diseases, infant and young child feeding, micronutrient programs, such as food fortification, and other diet-related programs.

To ensure its reliability, the Global Diet Quality Project validated the tool in three countries based on 24-hour dietary recall. The DQQ has been used in all eight LeNNS countries to collect data on diet consumption and has been successfully integrated into the DHS Program in Uganda to collect data related to food consumption by women, infants, and young children. The DQQ can be easily integrated into other existing surveys, such as the DHS health surveys, household consumption surveys, and expenditure surveys.

Advantages of the DQQ Tool:

- Cost-effective approach to collecting diet quality data
- Simple, low-burden tool that takes 5 to 10 minutes to administer
- Rapid results for policymakers to make decisions
- Indicators in line with WHO, UNICEF, and FAO dietary guidelines
- Easy adaptability for each country level, yet can be standardized across a region to enable comparability.

However, facilitators cautioned participants on the following when adapting the tool for country use:

- Cognitive validity is improved using close-ended questions; respondents tend to provide more succinct answers to close-ended questions than open-ended questions, as the latter allows them to veer off the list of foods covered in the DQQ.
- Principles of the tool should remain at the forefront: Inclusion of only the sentinel foods for each group, meaning the foods consumed by a large population; use of locally understood food terms; avoidance of overinflating food groups and use of trendy foods, depending on where the DQQ is being implemented.

Similarly, facilitators cautioned participants to ensure consistency and comparability, identify discrepancies and redundancies, and correct discrepancies on an ongoing basis when adapting the tool and harmonizing food lists by region and subregion.

Course 4: Nutrition Indicators Beyond Anemia and Micronutrient Biomarkers in the Demographic and Health Survey (DHS)

This one-day course was facilitated by Rukundo Benedict, PhD, from the DHS Program. The session aimed to impart knowledge on the nutrition data collected in DHS surveys and Service Provision Assessment (SPA) surveys, the role of DHS Program data in the nutrition data ecosystem, ways to read and interpret nutrition-related indicators collected in these surveys and utilize the data for action, and ways to use the DHS Program's STATCompiler to examine multiple indicators and trends over time

The facilitator provided an overview of the DHS Program, a USAID-funded project that provides technical assistance to improve the collection, analysis, and presentation of population, health, and nutrition data and to facilitate use of these data for planning, policymaking, and program management. She outlined the common surveys that are supported by the DHS Program:

- DHS surveys provide a wide range of data in the areas of population, health, and nutrition.

- SPA surveys provide information about the characteristics of a country's health facilities and other services.
- Malaria Indicator Surveys provide data on malaria-related behaviors, interventions, and outcomes.

The samples that are collected through DHS surveys are representative of the national-level status, urban and rural areas, regional level (sometimes groups of regions), and sometimes at provincial or district level.

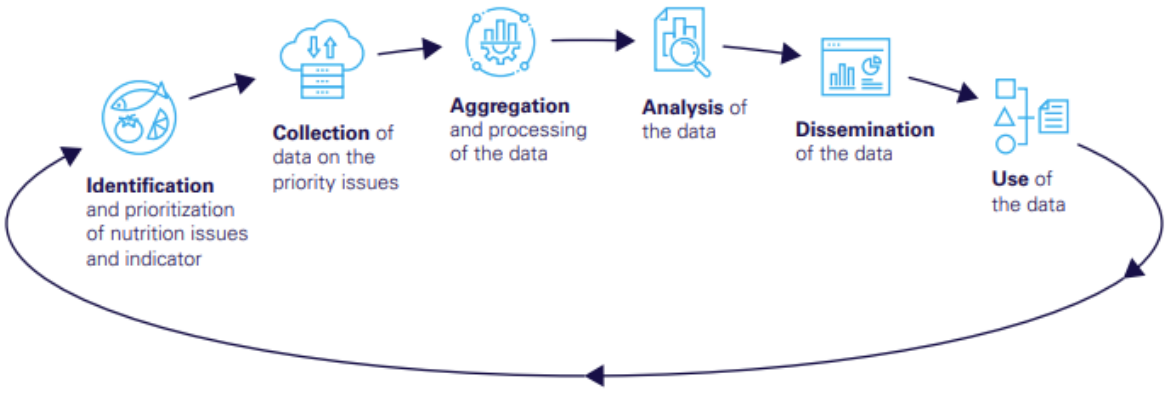
The facilitator further explained the types of nutrition data collected in DHS surveys, which are grouped in topics and include:

- Children's nutritional status and anthropometry data
- Infant and young child feeding practices
- Child growth monitoring
- Women's dietary practices and nutrition counseling
- Adult and child anemia
- Micronutrient supplementation and deworming in children
- Salt iodization
- Quality food insecurity, including food or cash assistance
- Supplementation during pregnancy

The SPA survey focuses mainly on service provision in health facilities by type and managing authority but also collects nutrition data, which include the following:

- Availability and provision of micronutrient supplements
- Availability of nutrition-related equipment
- Availability of guidelines in the facility
- Health worker training in the last 24 months
- Nutrition counseling
- Physical assessments and tests
- Newborn care and other treatment

Figure 3: Attributes of a National Nutrition Information System



Main attributes of a national nutrition information system: Nutrition data value chain

To correctly interpret data, participants must know how to read and understand the data presented in DHS tables. In groups, they practiced reading data (from a sample set provided) and made interpretations, which they discussed in a plenary session.

The facilitator also took participants through the data value chain (see figure 3) to help them appreciate how DHS data fit into the nutrition data ecosystem. She explained each of the stages, with participants critically reflecting on the status of each in their countries, as well as gaps, challenges, and effectiveness of existing national resources.

Finally, participants discussed and examined the DHS Program digital tools and courses and practiced their use and application in groups. Available tools include the DHS Mobile App, which provides on-the-go data for some indicators collected on the platform; DHS Learning Hub, which offers e-learning courses; and STATcompiler, which lets people generate charts, graphs, datasets, and maps using the online data.

Conclusion

From discussions held within the four thematic courses, it is clear that LeNNS continues to provide a needed platform for knowledge imparting and sharing and for provision of high-level technical information on nutrition surveillance. All sessions included a good balance of theory and practice, which helped participants understand some of the ongoing data collection platforms as well as learn about, practice, and reflect on different tools and methods available for nutrition surveillance in their countries. The sessions further helped participants develop a deeper understanding data generation using different platforms and the need for accurate interpretation of data to inform policymaking, programming, and decision-making.

Participants filled out evaluations regarding the usefulness of Methods Showcase events. Many participants applauded the idea of having this type of pre-learning offering prior to the LeNNS meeting, because discussions could then continue during the LeNNS meeting and into the technical working group discussions. More than 90 percent of participants indicated that Methods Showcase events were useful and relevant to their work and for their institutions and requested that USAID Advancing Nutrition organize similar future events where a deeper dive into quality issues (from the field quality of samples to data cleaning, analysis, and interpretation of nutrition data) could be discussed. Survey respondents reiterated the need for practical aspects that look at additional case studies in a bit more detail.

USAID ADVANCING NUTRITION
Implemented by:
JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th Floor
Arlington, VA 22202

Phone: 703–528–7474
Email: info@advancingnutrition.org
Web: advancingnutrition.org

July 2023

USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project, addressing the root causes of malnutrition to save lives and enhance long-term health and development.

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of JSI Research & Training Institute, Inc. (JSI), and do not necessarily reflect the views of USAID or the United States Government.