



Multisectoral Action on Anaemia in Africa: Navigating the Data Landscape for Effective Solutions

NAIROBI, KENYA
30 JULY – 1 AUGUST 2024

MEETING REPORT

DInA
Micronutrient Data Innovation Alliance

IGAD
PEACE, PROSPERITY AND REGIONAL INTEGRATION

Micronutrient FORUM
Turning evidence into collective action

ACKNOWLEDGMENTS

The "Multisectoral Action on Anaemia in Africa: Navigating the Data Landscape for Effective Solutions" meeting was co-hosted by the Micronutrient Forum's Micronutrient Data Innovation Alliance (DInA) and the Learning Network on Nutrition Surveillance (LeNNS) initiative, specifically the technical working group on micronutrients (Micro-LeNNS). Many partners of the Anaemia Action Alliance also participated in the organization of this meeting and contributed their technical expertise, including the Centers for Disease Control and Prevention (CDC), Nutrition International, UNICEF, the United States Agency for International Development (USAID)-funded NuMERAL project, and the World Health Organization (WHO). The meeting report was authored by Kristina Michaux and Marti van Liere from the Micronutrient Forum. Technical experts from the meeting organizing committee provided critical review and input.

The organizers extend their gratitude to all participants and acknowledge the generous contributions of the Bill & Melinda Gates Foundation (through their grant to DInA), the National Information Platforms for Nutrition (NIPN), UNICEF, and USAID for making this meeting possible.

DInA is an alliance of diverse members working to improve the availability, quality, accessibility, and use of micronutrient data across the value chain to support national-level decision-makers to better design, implement, measure, and optimize nutrition and health programs and policies. DInA is hosted by the Micronutrient Forum.

LeNNS, domiciled in the Intergovernmental Authority on Development (IGAD), is a regional initiative in Eastern and Horn of Africa for fostering learning and exchange of information and practices on nutrition surveillance among experts involved in nutrition programming and surveillance. Its technical working group on micronutrients (Micro-LeNNS) is set up to share and exchange information and practices related to health and nutrition biomarker analysis and innovative methodologies, as well as data on coverage of specific nutrition interventions. IGAD is an intergovernmental organization that brings together countries in the region to address common challenges in various sectors including health and nutrition

Suggested Citation

Micronutrient Data Innovation Alliance and Micronutrient Forum. *Multisectoral Action on Anaemia in Africa: Navigating the Data Landscape for Effective Solutions. Meeting Report*. Micronutrient Forum; 2024.

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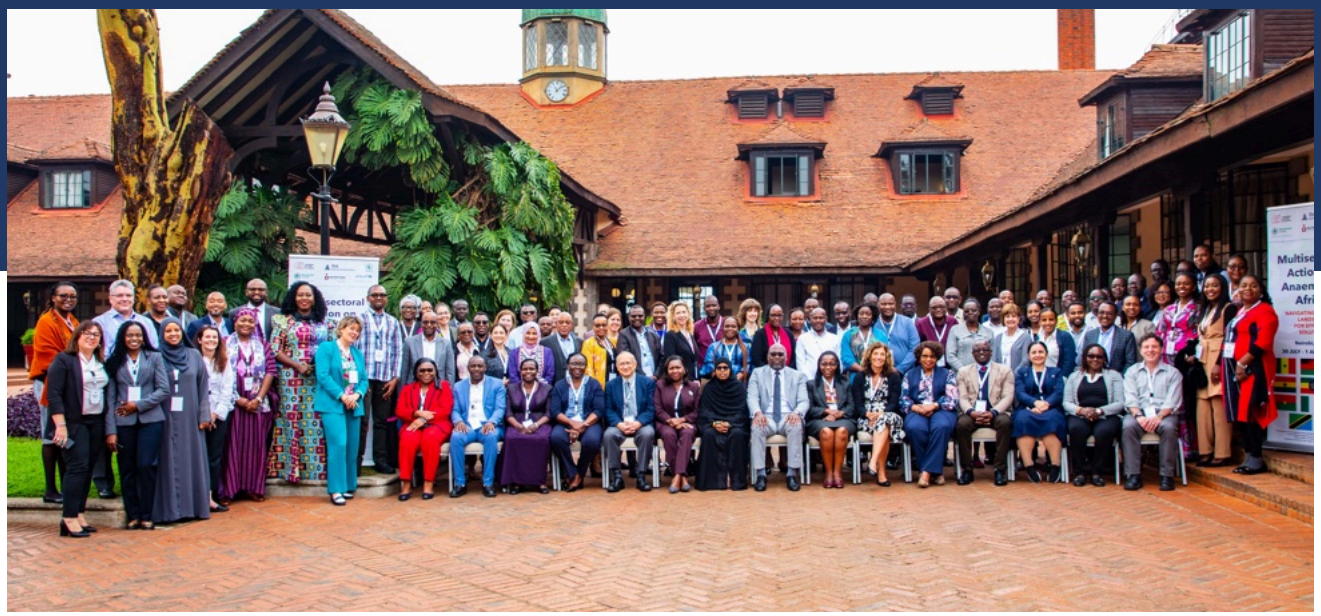


PURPOSE AND SCOPE

In July 2024, an Africa regional anaemia data meeting was held in Nairobi, Kenya, to respond to the specific needs of country data actors regarding improved knowledge and capacity in anaemia-related data. This meeting offered a first opportunity for countries to discuss the implications of a coordinated, data-driven approach to anaemia reduction, as set out in the World Health Organization (WHO) Accelerating Anaemia Reduction: A Comprehensive Framework for Action, and the forthcoming African Union's Strategic Framework for Prevention and Management of Anaemia in Africa.

With anaemia remaining a persistent public health challenge across Africa, affecting an estimated 60 percent of children under the age of five years and 46 percent of women of reproductive age,[1] this meeting aimed to elevate the discussion on anaemia beyond mere awareness to actionable steps. The primary focus was on understanding the complex and context-specific etiology of anaemia—acknowledging that anaemia is not solely a result of iron deficiency, but that it has multiple other causes and risk factors, including other nutritional deficiencies, inflammation, infections, chronic diseases, gynaecologic and obstetric conditions, and genetic red blood cell disorders.

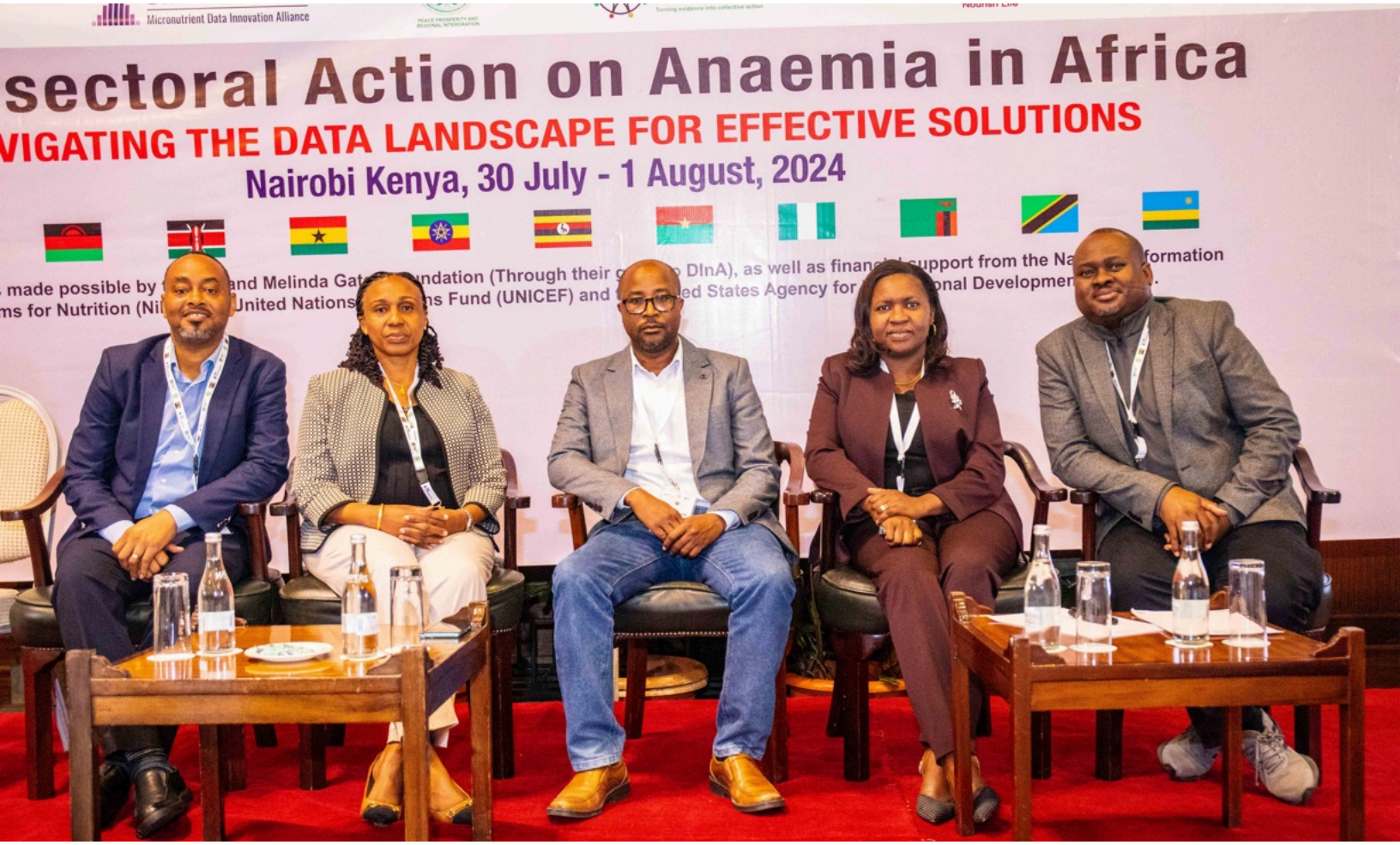
By bringing together national decision-makers and data analysts from across the African continent with technical anaemia and nutrition experts, the meeting provided a platform for countries to identify and discuss the ongoing challenges related to the collection, measurement, analysis, and reporting of anaemia data for effective decision-making. This collaborative environment enabled countries to learn from each other's successes, challenges, and lessons and promoted a coordinated response to close the anaemia data gap.

[1]Safiri S, Kolahi AA, Noori M, Nejadghaderi SA, Karamzad N, Bragazzi NL et al. Burden of anaemia and its underlying causes in 204 countries and territories, 1990–2019: results from the Global Burden of Disease Study 2019. J Hematol Oncol. 2021;14:185. doi: 10.1186/s13045-021- 01202-2.

Meeting objectives

The meeting's objectives were organized into three main areas:

- **Knowledge exchange:** Facilitate the sharing of practical experiences and lessons learned across the Africa region, promoting a collaborative environment where country actors can learn from each other's successes and challenges in addressing anaemia.
- **Data needs and challenges:** Address ongoing challenges in collecting, measuring, analyzing, and reporting anaemia data, and explore various data modeling approaches.
- **Data tool demonstrations and capacity strengthening:** Highlight and discuss the utility of different tools and guidelines available for assessing, analyzing, reporting and communicating anaemia data. Provide hands-on training in using these tools, with a focus on practical application for improved anaemia assessment and data analysis.



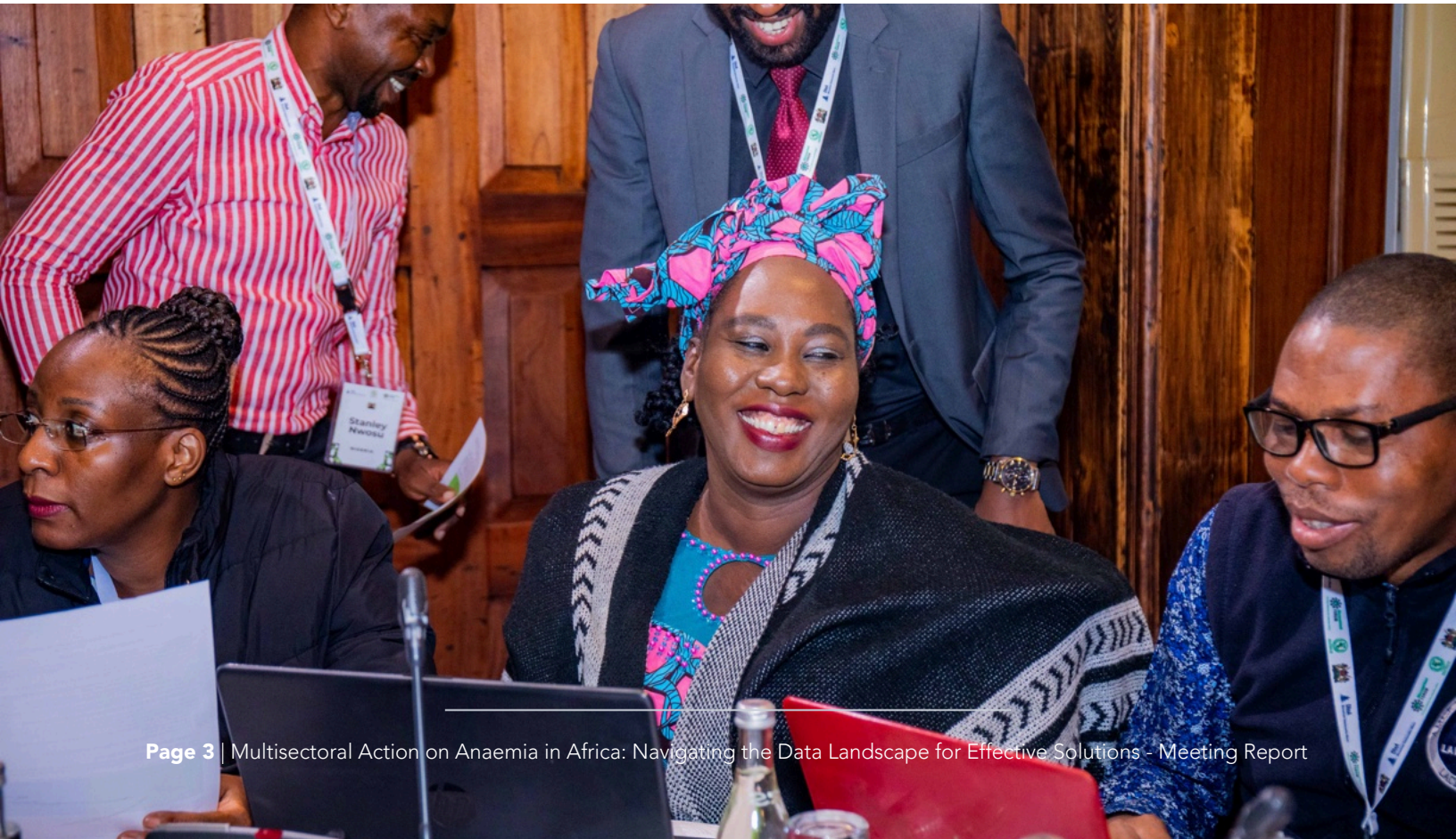
PARTICIPATION AND MEETING OVERVIEW

The meeting was a collaborative effort to bring together national data actors and decision-makers, and representatives of normative and technical agencies at the global, regional and national levels.

Held in Nairobi, Kenya from July 30 to August 1, 2024, the meeting convened over 100 participants. This included representatives from national health ministries and technical experts from 11 African countries: Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Nigeria, Rwanda, Senegal, Tanzania, Uganda, and Zambia. Regional bodies such as the African Union Commission, the East, Central and Southern Africa Health Community (ECSA-HC), and the Southern African Development Community (SADC) were also represented.

The meeting spanned three days, each carefully structured to maximize engagement and learning:

- **Day 1:** Focused on setting the stage with opening remarks, an introduction to the frameworks on anaemia reduction, and discussions on the determinants and assessment of anaemia and related data needs and challenges
- **Day 2:** Highlighted country anaemia data landscapes and discussions on tools for data assessment, collection and analysis, with a strong emphasis on practical case studies.
- **Day 3:** Dedicated to capacity strengthening of select participants with the skills needed to implement the presented tools in their respective countries.



ALIGNMENT ON ANAEMIA DATA NEEDS

Participants agreed on the need for a comprehensive, data-informed approach to tackle this persistent public health problem. Several countries have already made important progress by forming a national coordination group that brings together experts from across sectors to address the many data challenges that countries face, particularly concerning assessing the context-specific causes and risk factors of anaemia. The African Union Commission is developing its Strategic Framework for Prevention and Management of Anaemia in Africa, which will be launched in March 2025.

The complexity of anaemia's etiology necessitates comprehensive approaches and data systems that can capture this diversity and ensure collaboration across areas of expertise within the health sector and across other sectors. The following section describes the common challenges identified throughout the three-day meeting, highlighting opportunities for collective efforts and a targeted approach to address anaemia data gaps and needs.

Adopting new global guidelines

The recently updated WHO Guideline on Haemoglobin Cutoffs to Define Anaemia in Individuals and Populations was presented. The guideline introduces new adjustment factors to account for altitude of residence and smoking habits, revised cut-off values for diagnosing anaemia in children 6-23 months of age and women in the second trimester of pregnancy, and recommendations for blood sampling and diagnostics tools.

These changes have significant implications, impacting reported anaemia prevalence and necessitating reanalysis of past data according to the new standards. The implementation of this guideline presents challenges, particularly for health systems with limited resources. The recommendation to use venous blood for hemoglobin assessment may strain already stretched health systems with limited local laboratory and technical capacity. Additionally, policymakers will need a clear and strong narrative to understand and explain potential unexpected changes in anaemia trends resulting from the application of the new guideline.

Understanding the new WHO guideline

1. **Scientific understanding evolves:** the new guideline reflects advancements in knowledge of anaemia assessment.
2. **Improved data on environmental factors:** new information provides a better understanding of how elevation and smoking habits affect hemoglobin levels.
3. **Improved identification of at-risk individuals:** updates allow for more accurate identification of anaemia in children aged 6-23 months and women in the second trimester of pregnancy.
4. **Consistency in trend analysis:** to ensure accurate comparison over time, it's critical to use data from consistent blood sources, cut-off points, and adjustments for elevation and smoking.

WATCH 'KNOWLEDGE BYTES' ABOUT NEW GLOBAL GUIDANCE ON ANAEMIA

Gaps in anaemia data assessment

A landscape analysis of existing data is the first step toward developing a costed national anaemia action plan. The presented country data landscapes revealed considerable variability in the availability of anaemia-related data across countries. These differences are largely due to varying levels of government investment in the collection of data, influenced by the recognition of anaemia as a major public health problem. The country landscapes also highlighted differences in the comprehensiveness of available data. For example, in some countries, there are notable gaps in data for key population groups, such as school-aged children and young adolescents, and for non-nutritional causes of anaemia, such as inherited red blood cell disorders and gynecological conditions.

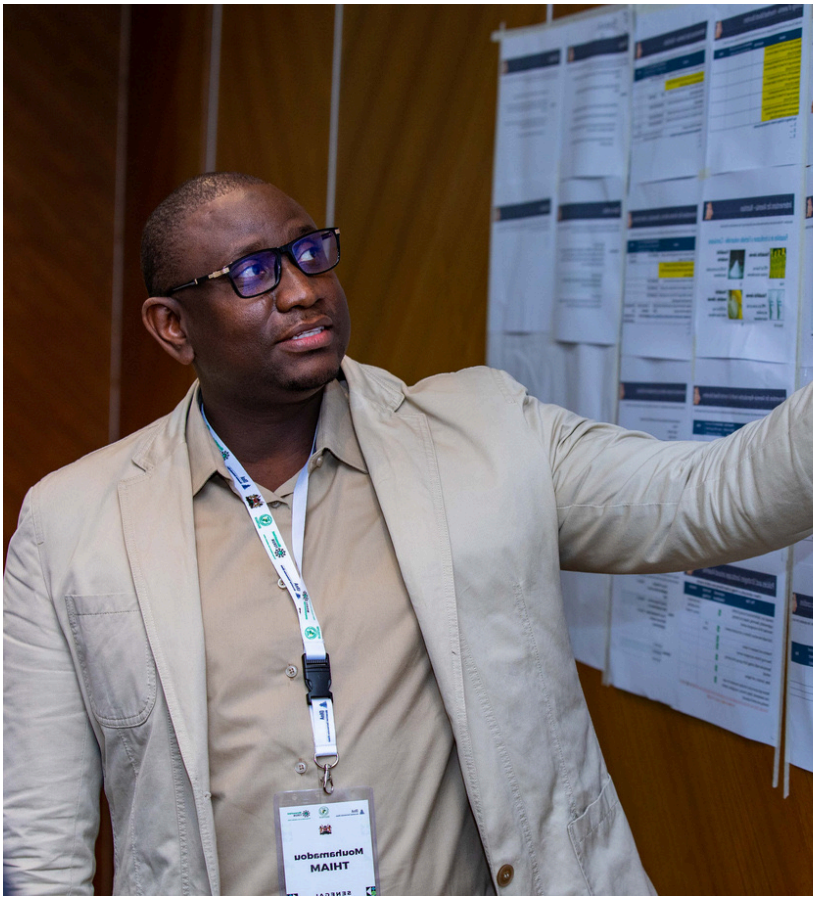
These gaps make it difficult to develop context-specific anaemia reduction plans that address the root causes of anaemia in different populations. Countries need to make better use of a variety of available data sources on nutritional and non-nutritional determinants and be more intentional in data collection and analyses. When country data are lacking, then global databases may provide information on determinants of anaemia. Global guidance and tools, such as the District Assessment tool for Anemia (DATA) developed by the USAID-funded SPRING project, also need to be updated and aligned with country needs.

WATCH 'KNOWLEDGE BYTES' ON ANAEMIA ASSESSMENT

Inconsistent data quality

One of the primary challenges highlighted during the meeting was the inconsistency in data quality across different regions and countries. This variability stems from differences in hemoglobin data collection methods, the type of blood samples (venous vs. capillary), and equipment used for analysis of hemoglobin concentrations. There is a pressing need for harmonization and reporting of data collection methods across countries to ensure accurate and comparable data for monitoring and evaluating interventions across the region.

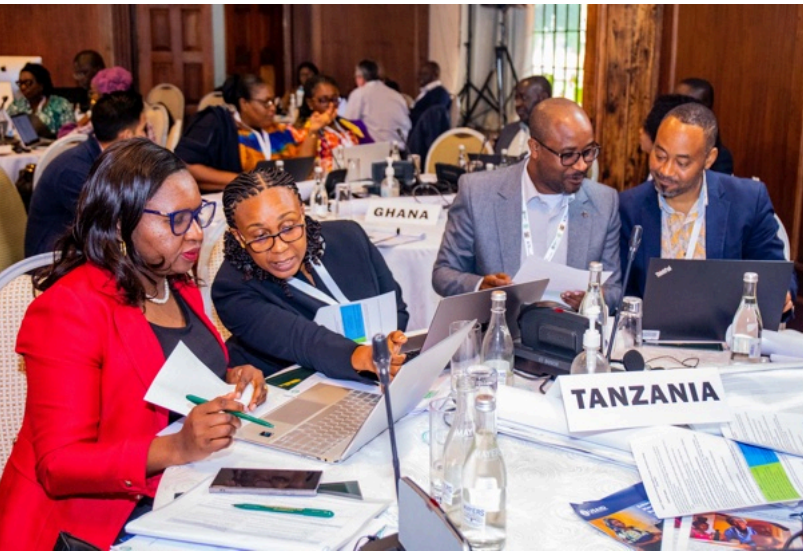
WATCH 'KNOWLEDGE BYTES' ABOUT DATA QUALITY



Capacity strengthening

Another key challenge identified throughout the meeting was insufficient capacity at the national level for data analysis. During day one, hierarchical modeling was introduced as a method to analyze data across multiple levels (e.g., individuals, households, communities) to better understand anaemia etiology. This approach allows for a more nuanced understanding of how various factors at different levels influence anaemia. Participants also received hands-on practice with tools like the BRINDA RShiny App and the WHO Micronutrient Survey Analyzer, which support the analysis of hemoglobin and other biomarkers, as well as assess the impact of inflammation. There is a clear need to increase awareness of existing tools and methods and strengthen local capacity through widespread training and support in advanced analytical techniques. This will help countries better analyze their anaemia data and derive meaningful insights.

WATCH 'KNOWLEDGE BYTES' ON CAPACITY STRENGTHENING



Translating evidence into policy

Lastly, a significant challenge lies in translating data into actionable insights that can guide the development and implementation of effective anaemia reduction programs and policies. A key aspect of this translation is interpretation—understanding what the data mean and determining appropriate actions. Yet, meaningful dialogue between national data actors and decision-makers on the insights that can be derived from the data does not always occur.

There is a clear need to strengthen capacity at a national level and develop or use existing tools for data visualization and communication. These tools can stimulate data-informed dialogue, leading to better, more actionable, and context-specific recommendations. Furthermore, there is a need to capture real-life examples of how data and its interpretation have influenced program or policy changes and what the subsequent impact was. The discussion in the breakout session on data communication and visualization drew from themes in the UNICEF technical note on Designing Effective Data Visualizations and the DataDENT presentation developed for Agriculture, Nutrition & Health Academy (ANH) 2020 learning lab titled, "Making better figures: visualizing data for action."

WATCH 'KNOWLEDGE BYTES' ON EVIDENCE TRANSLATION

COUNTRY SPECIFIC INSIGHTS

The meeting highlighted countries' challenges and strategies for addressing anaemia data issues, emphasizing the need for context-specific approaches:

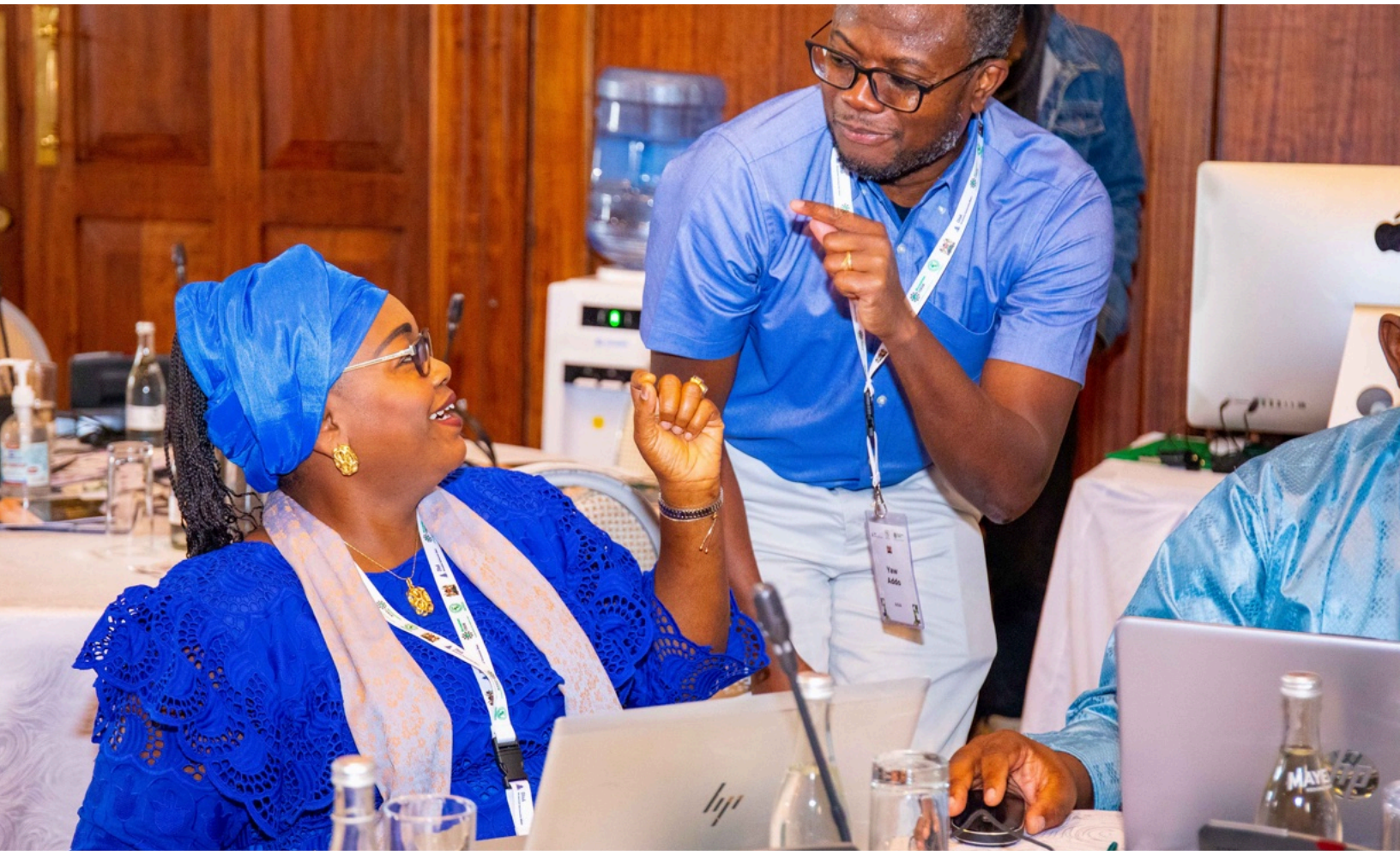
- **Ghana:** Ghana utilizes the District Health Information Management System (DHIMS II) for real-time data collection, providing access to service providers, managers, and policymakers at all levels. However, challenges remain, such as limited infrastructure for in-country data analysis and the necessity to send samples abroad. Ghana is focusing on context-specific studies and better use of existing routine data systems to improve data quality and relevance.

- **Kenya:** Kenya's Universal Health Coverage framework has integrated anaemia management into broader health promotion and disease prevention strategies. However, the country faces challenges in scaling up these initiatives, particularly in remote areas. The use of community health promoters has been effective in improving data collection, but funding and logistical challenges remain.

- **Rwanda:** The 2019/2020 Demographic and Health Survey (DHS) collected both capillary and venous blood samples. Anaemia prevalence differed between these blood sample types, highlighting the importance of using appropriate collection methods to assess anaemia prevalence. Additionally, data were analyzed using both the previous and updated WHO guidelines; not surprisingly, more children were identified as having anaemia under the new guideline.

  Country context matters: Rwanda is a mountainous country and hemoglobin data must be adjusted for altitude. These points will help to explain the relevance of using the updated WHO guideline and provide necessary information to manage anaemia in Rwanda.

- **Uganda:** Uganda identified the need for better-adjusted estimates of anaemia and has established a local LeNNS group to build laboratory capacity and improve micronutrient analysis, both domestically and for neighboring regions, with a particular focus on addressing the disparities in data quality between urban and rural areas. Uganda also integrated a nutrition module (hemoglobin, micronutrients, malaria) into an existing integrated panel survey, which lowered costs of data collection compared to a standalone survey. However, integrating the new WHO hemoglobin guideline into national strategies remains a significant hurdle.



OVERVIEW OF ANAEMIA DATA TOOLS AND GUIDELINES

A central focus of the meeting was the presentation and training on various tools and guidelines designed to address the challenges in the assessment of anaemia etiology, as well as improve data accuracy, standardization, and usability. These tools were introduced not just as technical solutions but as integral parts of a broader strategy to improve anaemia assessment and management across the region. Three types of tools were presented: those supporting hemoglobin assessment and correction, tools for assessing context-specific anaemia etiology, and tools providing access to data on anaemia determinants. **Table 1** summarizes these resources, describing their purpose and the specific data challenge they address.

TABLE 1. RESOURCES TO SUPPORT THE ASSESSMENT OF ANAEMIA, ITS CONTEXT-SPECIFIC ETIOLOGY, AND DATA COLLECTION ON ANAEMIA DETERMINANTS

Tool/Guideline	Purpose: support the assessment and correction of hemoglobin
Guideline on Haemoglobin Cutoffs to Define Anaemia in Individuals and Populations (WHO)	Guideline to improve the diagnosis of anaemia. It provides standardized cutoffs to define anaemia, considering age, life-stage, and sex. The guideline includes revised cutoffs for children aged 6-23 months and pregnant women in the second trimester. It also includes updated adjustment factors for smoking status and elevation of residence, and provides guidance on measuring hemoglobin concentration using different blood sources, analytical tools, and techniques.
Statistical Apparatus of Micronutrient Biomarker Analysis (SAMBA) (BRINDA)	An R statistical tool for processing, analyzing, and visualizing micronutrient biomarker data. It generates prevalence estimates of micronutrient deficiency with measures of uncertainty (e.g., standard errors and confidence intervals). The tool can analyze multiple datasets simultaneously, using the BRINDA method to adjust biomarkers for inflammation. Users can also modify cut-off values to define deficiency when guidelines change.
RShiny App (BRINDA)	An online analysis tool to support inflammation adjustment of anaemia-related micronutrient biomarkers.
Micronutrient Survey Analyzer (WHO)	A soon-to-be-published online tool for analyzing micronutrient survey data. It will be initially released with the capability of analyzing data for four biomarkers: hemoglobin, iron deficiency anaemia, ferritin, and urinary iodine. As a resource to support countries in standardizing their data analysis processes, it provides a framework for calculating anaemia prevalence and allows for the adjustment of hemoglobin concentrations based on elevation of residence and smoking habits.
Micronutrient Survey Manual and Toolkit (CDC, Nutrition International, WHO)	This manual and toolkit provides guidelines for conducting cross-sectional surveys on micronutrient status, essential for understanding the nutritional determinants of anaemia. It supports country capacity on survey data collection, analysis, and reporting.

Tool/Guideline	Purpose: support the assessment of context-specific etiology of anaemia
Regional Operational Guide on Maternal Anemia (UNICEF)	Framework for addressing maternal anaemia with context-specific interventions. To be used as an initial step towards aligning national assessments with the WHO Comprehensive Framework for Action. It helps guide countries to develop context-specific strategies for managing maternal anaemia. The guide emphasizes the need for comprehensive data collection that includes non-nutritional factors influencing anaemia.
District Assessment Tool for Anemia (DATA) and National Data Landscape (SPRING, USAID)	Supports national and district-level anaemia assessment. It provides a structured approach to understanding the multiple causes of anaemia within specific populations, allowing for targeted interventions. The tool helps users prioritize activities and interventions in a way that is most likely to address the most important causes of anaemia.

Tool/Guideline	Purpose: provide access to data on determinants of anaemia
Vitamin and Mineral Nutrition Information System (VMNIS) (WHO)	VMNIS consists of three key elements that work together to provide a robust system for tracking and analyzing micronutrient nutrition: 1) a comprehensive micronutrient database; 2) detailed summaries of biochemical markers used to evaluate the prevalence of vitamin and mineral deficiencies across populations; and 3) a set of surveillance tools for monitoring nutritional status.
Micronutrient Action Policy Support (MAPS) Tool	A web-hosted tool that helps guide food system interventions to improve micronutrient adequacy across Africa. The tool models dietary data (from Household Food Consumption and Expenditure Surveys, Food Balance Sheets, and Food Composition Tables), biomarker data, food and nutrient supply projects, and cost-effectiveness data to estimate micronutrient inadequacy and deficiency at national and sub-national levels in Africa.
Global Fortification Data Exchange (GFDx) website (GAIN, FFI, IGN, Micronutrient Forum)	A web-based tool that provides actional data on food fortification for 196 countries and five food vehicles: maize flour, oil, rice, salt, and wheat flour. Indicators include information on fortification legislation and standards, regulatory monitoring protocols, alignment with WHO guidance for nutrient compounds and standards, food availability and intake, proportion of population consuming the foods, proportion of the foods industrially processed, fortification quality, population coverage of the fortified foods, and health status indicators before and after fortification.

SUMMARY AND NEXT STEPS

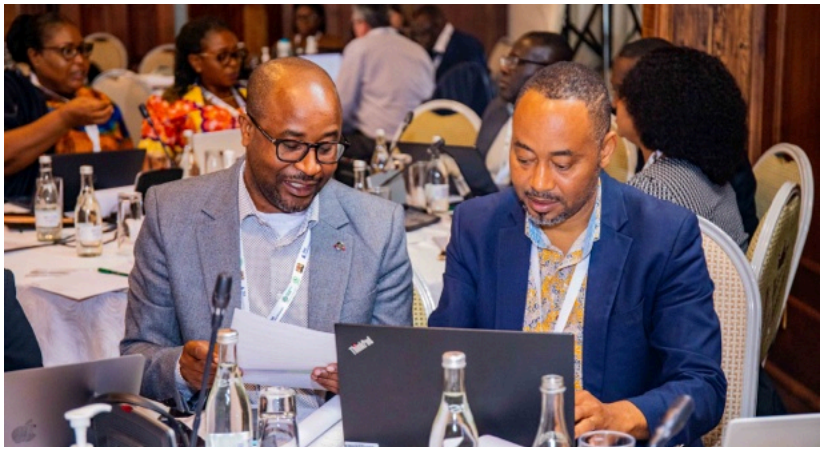
The following recommendations and actionable next steps for global, regional, and national anaemia stakeholders emerged from the meeting discussions.

1. Strengthening data collection and utilization

- **Apply new WHO guidelines:** Ensure the application of the new standardized WHO guidelines for hemoglobin assessment, including use of appropriate blood sample type and adjustment factors for elevation of residence and smoking. This will improve the accuracy and reliability of anaemia data.
- **Improve data quality and disaggregation:** Focus on enhancing the quality of anaemia-related data, ensuring it is appropriately disaggregated by factors such as age, sex, socioeconomic status, geographical areas, and levels of service delivery (e.g., households, community, health facility, district, province). Collect data at levels that inform decision-making and programming, with more emphasis on subnational data where it can impact policy.
- **Leverage existing data:** Prioritize conducting more secondary analyses with existing data. The aim is to derive more insights from the data countries already have, rather than necessarily seeking more data.
- **Translate data into action:** Prioritize translating collected data into actionable insights that can drive policy and program implementation.

2. Capacity strengthening and regional collaboration

- **Invest in capacity strengthening:** Invest in capacity strengthening across the entire data lifecycle, from collection to analysis and utilization. Practical, hands-on training sessions, such as the use of tools with presentations and support, are highly valuable.
- **Build consensus on anaemia data tools:** Provide more training and build consensus around the use of tools among national stakeholders. This will help ensure that the tools are used effectively and consistently across different contexts.
- **Regional and multisectoral collaboration:** Promote regional cooperation for specialized testing and data sharing, addressing capacity gaps, and ensuring consistency in data collection methods. Given the complexity of anaemia's etiology, collaboration across multiple sectors, including health, nutrition, agriculture, and education, is critical. Although multisectoral approaches are challenging, they are essential, and continuous efforts should be made to refine and improve these strategies.

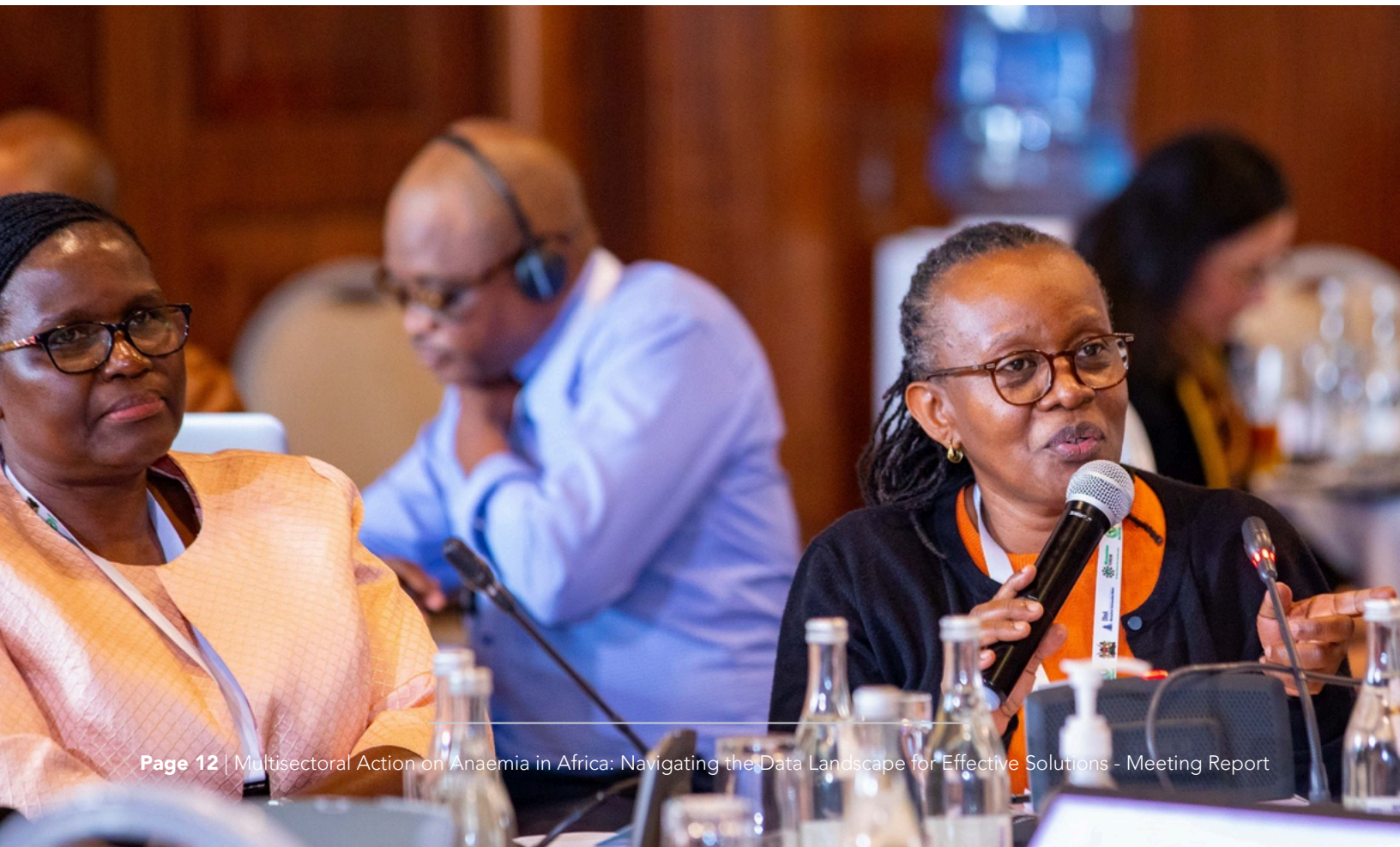


3. Policy development and implementation

- **Tailor interventions:** Develop and implement anaemia reduction strategies that are context-specific and informed by accurate data. These strategies should set realistic, locally relevant targets for anaemia reduction.
- **Monitor and evaluate:** Establish robust monitoring and evaluation frameworks to assess the impact of anaemia interventions. Regular reviews should be conducted to ensure that strategies remain effective and can be adjusted as needed.
- **Advocacy:** Strengthen advocacy efforts at both the national and regional levels to prioritize anaemia data and interventions in health and nutrition policies. Advocacy should also focus on increasing domestic financing for anaemia reduction initiatives.

4. Resource mobilization and stakeholder engagement

- **Mobilize resources:** Secure funding from both domestic and international sources to support the analysis and use of critical data to effectively develop and implement anaemia reduction strategies.
- **Form country-specific alliances:** Promote the formation of country-specific anaemia alliances that align with broader regional and global initiatives. These alliances should bring together stakeholders from various sectors to coordinate efforts and share best practices on the comprehensive assessment of anaemia.



Next steps

A strong consensus emerged from the meeting regarding the need for practical guidance on the minimum data requirements, analysis of different types of data sources, and the use of available tools. The need for monitoring guidance was also highlighted—reliable indicators and tools are needed to track progress and make informed decisions.

The primary role of the Anaemia Action Alliance is to support countries in the implementation of the WHO Comprehensive Framework for Action. As immediate next steps, Alliance partners will develop operational guidance for the framework, specifically around Action Area 1, to support and facilitate the context-specific anaemia etiology assessment. This process will involve collaboration with end-users in various countries to ensure the guidance is both practical and context-specific, while also being mindful of user resources. The partners will also update existing tools, such as the District Assessment Tool for Anemia (DATA), and develop a repository of existing tools, including examples for their use cases.

Country participants committed to completing the anaemia data landscape as an initial step in assessing their country-specific anaemia etiology. This may involve multisectoral coordination to access data on non-nutritional causes of anemia, such as obstetric and gynecological conditions or inherited blood disorders, as well as the collection of blood samples from underrepresented groups, such as children aged 5–9 years, in existing surveys or surveillance systems.

Some countries committed to establishing multisectoral anaemia coordination groups, while those with existing mechanisms committed to undertaking additional data collection or modeling of existing data. These efforts aim to identify context-specific anaemia determinants and levers, and revise sector action plans accordingly.

Anaemia Action Alliance partners will continue to support countries in developing national roadmaps to combat anaemia, integrating the tools and strategies discussed during the meeting, with an emphasis on improving data systems and ensuring that anaemia reduction efforts are targeted, comprehensive, and context-specific.

Join the Anaemia Action Alliance:

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