African Union

STRATEGIC FRAMEWORK FOR PREVENTION AND MANAGEMENT OF ANAEMIA IN AFRICA

FEBRUARY. 2025

au.int

The Director, Department of Health, Humanitarian Affairs and Social Development, African Union Headquarters, P.O. Box 3243, Roosvelt Street W21K19 Addis Ababa, Ethiopia Tel: +251 11 551 77 00 Fax: +251 11 551 78 44

Table of Contents

Acronyms and Abbreviations

AHS	Africa Health Strategy
ANC	Antenatal care
ARNS	Africa Regional Nutrition Strategy
AU	African Union
AUC	African Union Commission
DHS	Demographic and Health Survey
G6PD	Glucose-6-phosphate dehydrogenase
HIV	Human Immunodeficiency Virus
IDA	Iron deficiency anaemia
IFA	Iron and folic acid supplements
IPT	Intermittent preventive treatment
IPTp	Intermittent Preventive Treatment during pregnancy
IRS	Indoor residual spraying
ITNs	Insecticide treated bed nets
MICS	Multiple Indicator Cluster Survey
MNPs	Micronutrient powders
NTDs	Neglected tropical diseases
PPH	Postpartum haemorrhage
QDQS	Global Diet Quality Score
RECs	Regional Economic Communities
TB	Tuberculosis
UNICEF	United Nations Children's Fund
WHA	World Health Assembly
WHO	World Health Organization
YLDs	Years Lived with Disability

Foreword

Based on evidence aligned with Africa's health and economic development goals, the African Union Commission recognizes the urgent need to escalate development by reducing anaemia through intersectoral action. Anaemia poses a significant social and economic burden on societies and highlights the importance of the African Union's 2022 Theme of the Year on Nutrition. The implementation of this theme has led to the development of a Strategic Framework for the Prevention and Management of Anaemia in Africa. This is an essential tool for developing national action plans aimed at reducing anaemia in African Union Member States.

The Africa Regional Nutrition Strategy (ARNS) 2016-2025 aims to reduce anaemia by 50% among women of reproductive age (15 to 49 years). However, it lacks a specific mechanism for achieving this goal. Current data indicate that integrating anaemia treatment interventions into disease-specific programs has not sufficiently reduced anaemia prevalence. It is therefore essential to adopt a coordinated approach, with strong accountability mechanisms tailored to anaemia. This strategic approach bridges this gap by addressing anaemia as a public health problem that requires simultaneous action adapted to local conditions and diverging from existing frameworks.

In line with the ARNS 2016–2025 and the ARNS 2026–2035, this Strategic Framework aims to reduce anaemia by 50% among adolescent girls and women of reproductive age (15 to 49 years) by 2035, in accordance with Aspiration 1 of the African Union's Agenda 2063, which envisions citizens who are well- nourished and in good health. In 2023, anaemia affected 38% of women aged 15 to 49 years, 44% of pregnant women, and 57% of children aged 6 to 59 months in Africa, with higher rates in West and Central Africa. Age- and sex-specific variations in anaemia prevalence highlight the need for a nuanced approach that takes the causes of anaemia in Africa into account.

The Africa Health Strategy 2016–2030 and the Africa Regional Nutrition Strategy 2016–2025 emphasize the African Union's commitment to improving nutrition and health outcomes in Member States, in line with the aspirations of Agenda 2063. This Strategic Framework supports the African Health Strategy's goal of reducing preventable morbidity and mortality from both communicable and non-communicable diseases, thereby contributing to health progress on the continent. Additionally, it aligns with the global nutrition target set by the World Health Assembly in 2012. Despite the efforts of Member States, only seventeen countries had made significant progress by 2021.

The primary objective of the Strategic Framework is to propose specific, evidence-based actions to reduce the prevalence of anaemia in African Union Member States. It aims to guide the development of national action plans that are equipped with robust monitoring and evaluation frameworks, and accountability mechanisms.

The five priority action areas of the Strategic Framework, presented for consideration by African Union Member States, are:

1. Analyzing data on the causes and risk factors of anaemia for effective decision-making.

2. Prioritizing key preventive and therapeutic interventions.
3. Improving integrated service delivery platforms for anaemia prevention and control across all sectors.
4. Strengthening governance, leadership, partnerships, communication and coordination at all levels.
5. Improving evidence-based knowledge generation and dissemination on prevention and control of anaemia.

This Strategic Framework was developed through a rigorous process that included a comprehensive landscape analysis and consultations with stakeholders, including Member States of the African Union, Regional Economic Communities (RECs) and partners. It was refined with the technical expertise of a Technical Advisory Group comprising the African Union Commission, Nutrition International and the World Health Organization (WHO).

The African Union Commission will coordinate efforts, align national plans and support the implementation of the Strategic Framework through capacity building, knowledge sharing, advocacy and accountability mechanisms.

Collaboration with the African Union Development Agency — New Partnership for Africa's Development (AUDA-NEPAD), the Africa Centers for Disease Control and Prevention (Africa CDC), regional economic communities (RECs), and Member States is essential for successful implementation, monitoring and evaluation.

To monitor progress in achieving the global nutrition target for anaemia reduction, Member States are encouraged to adopt a set of baseline indicators aligned with the Conceptual Framework for Accelerating Anaemia Reduction in Africa. While these indicators are not exhaustive, they are intended to guide national monitoring and evaluation efforts. Furthermore, efforts to identify and disseminate best practices will support the scaling up of successful interventions and ensure accountability towards achieving anaemia reduction targets across the continent.

Anaemia remains a persistent issue that negatively affects the health of populations and has wide-ranging effects on the continent's socio-economic development. Addressing this challenge in Africa requires a coordinated, comprehensive, multi-sectoral and context-specific approach. Through collective action guided by this Strategic Framework, we can effectively reduce the impact of anaemia and progress towards a healthier and more prosperous Africa — the Africa we want.

H.E. Ambassador Minata Samate Cessouma

Commissioner for Health, Humanitarian Affairs, and Social Development
African Union Commission

.

Acknowledgements

The African Union Commission (AUC) - Department of Health, Humanitarian Affairs and Social Development - would like to express profound gratitude to all individuals and organizations whose dedication and expertise have been instrumental in the development of the Strategic Framework for Prevention and Management of Anaemia in Africa.

This journey began with a comprehensive landscape analysis of anaemia prevalence and its determinants across the African continent. This foundational work was enriched by rigorous review and technical insights from consultations with African Union (AU) Member States, Regional Economic Communities (RECs), and development partners. Heartfelt thanks are extended to all stakeholders whose valuable contributions ensured that the Strategic Framework reflects diverse perspectives and addresses critical challenges.

The AUC is deeply indebted to the Technical Advisory Group, composed of esteemed representatives from the AUC – Gertrude Masautso Kara, Technical Advisor Nutrition Policy, and Prisilla Wanjiru, Policy and Partnerships Expert; Nutrition International – Daniel Lopez de Romana, Director Research, Innovation, and Evaluation, Alison Mildon, consultant, Ana Maria Sanson-Rosas, Technical Advisor Anemia, and Jacqueline Kung'u, Regional Technical Advisor Africa; and the World Health Organization (WHO) – Lisa Rogers, Technical Officer Department of Nutrition and Food Safety, Hana Bekele, Nutrition and Physical Activity Officer, Africa Regional Office, and Mayur Mandalia, Programme Management Officer, Africa Regional Office. Their guidance and expertise have been instrumental throughout the development of the Strategic Framework.

The AUC would also like to express its gratitude to Nutrition International's Vice-President of Global Technical Services and Chief Technical Advisor, Mandana Arabi, for providing key guidance that was instrumental in advancing the process for developing the Strategic Framework and to AUC's Senior Technical and Partnerships Specialist, Sheila Shawa, for her insightful review of the Strategic Framework.

Lastly, special thanks go to Nutrition International for the financial support that made it possible to develop this Strategic Framework.

This collaborative effort underscores shared commitment to reducing anaemia and improving health outcomes in Africa. Together, we are dedicated to implementing this Strategic Framework to achieve lasting impact and contribute to the health and well-being of our communities.

Background

Anaemia is a condition defined by low levels of healthy red blood cells or haemoglobin, the molecule in red blood cells responsible for carrying oxygen to the body's tissues (1). The resulting low oxygen supply causes fatigue, weakness, and reduced work capacity across all age groups (2). In addition, anaemia during pregnancy increases the risk of adverse birth outcomes, and anaemia in young childhood compromises cognitive and motor development (3,4). Anaemia therefore has significant health, social and economic consequences for individuals, households, and populations.

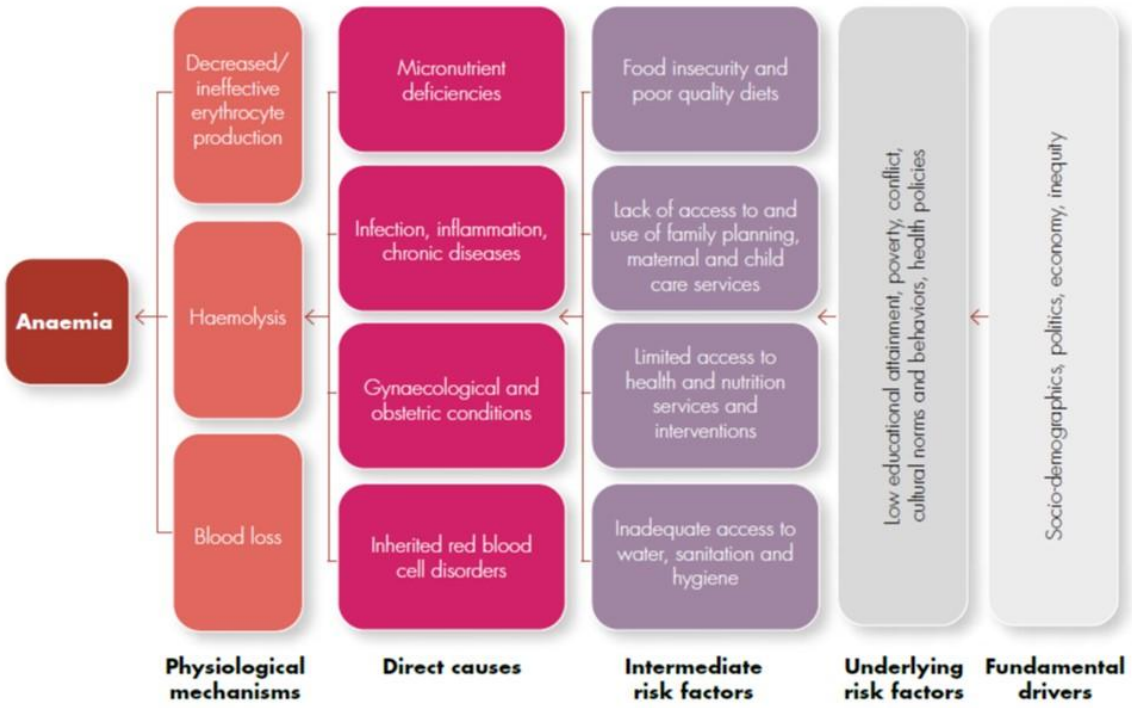
The African continent carries a high proportion of the global burden of anaemia. As of 2023, anaemia data was showing that 38% of women 15-49 years of age, 44% of pregnant women and 57% of children 6-59 months of age were affected (5). The prevalence of anaemia varies between and within Member States and sub-regions, with the highest rates in West and Central Africa. The prevalence of anaemia also varies by age and sex of individuals, with higher rates among children 6-59 months of age and women, which possibly speaks to the differences in aetiology that can exist between and within countries. Analysis of data from the Global Burden of Disease project indicates that in 2021 the number of years lived with disability (YLDs) – a measure that reflects the impact an illness has on quality of life before it resolves or leads to death – due to anaemia was high in all but ten African Member States (6). Estimated YLDs due to anaemia are highest in West and Central Africa (1,540.8 and 962.6, respectively), corresponding to the higher burden of anaemia in these regions (6).

The Africa Health Strategy (AHS) 2016-2030 and the Africa Regional Nutrition Strategy (ARNS) 2016-2025 express the commitment of the African Union (AU) to improving the nutrition and health status of the population in AU Member States (7,8) in accordance with the Agenda 2063, "the Africa We Want" which calls for *Healthy and Well Nourished Individuals.* The AHS objective of reducing morbidity and ending preventable mortality from communicable and non-communicable diseases and other conditions, lays out the continental mission for health improvement to which this Strategic Framework seeks to contribute. The ARNS includes a goal for reducing anaemia in women of reproductive age (15-49 years) by 50% from 2012 baseline levels by 2025, thus aligning with the Global Nutrition Target for anaemia reduction adopted by the World Health Assembly (WHA) in 2012 (9). As of 2021, all AU Member States were off course to reach the ARNS and Global Nutrition Target to reduce anaemia in women of reproductive age (15-49 years), with 17 Member States having achieved some progress towards the target and 36 Member States showing no progress towards the target (10,11).

Anaemia aetiology

One of the key challenges for reducing anaemia is its complex aetiology (Figure 1). There are three physiological mechanisms that explain how anaemia develops: ineffective production of red blood cells (erythrocytes), destruction of red blood cells (hemolysis), and blood loss (12). A variety of conditions directly cause one or more of these mechanisms, including micronutrient deficiencies; infections, inflammation, and chronic diseases; gynecological and obstetric conditions; and inherited red blood cell disorders. Risk factors to the direct causes of anaemia include food insecurity and poor-quality diets, lack of access and use of family planning and maternal and childcare services, limited access to and use of health and nutrition services and interventions, and limited access to water, sanitation, and hygiene. Underlying risk factors include poverty, low education, unsanitary environments, and gender inequalities. The major causes of anaemia often co-exist within individuals and populations. Iron deficiency is widely recognized as the greatest contributor to anaemia globally, however iron interventions may be ineffective in reducing anaemia burden if other unrelated causes, such as infection, chronic inflammation and other micronutrient deficiencies, as well as the underlying reasons for iron deficiency are not addressed (6). Due to the complex, multi-layered determinants of anaemia, effective prevention and control requires coordinated implementation of a context-specific, multi-sectoral package of interventions. This aligns with the strategic approaches of the AHS 2016-2030, which emphasizes strengthened health systems, scaled-up health interventions, inter sectoral action that involve state and non-state actors beyond the health sector and empowered communities (7).

Figure 1. *Conceptual framework for anaemia aetiology.*



Main causes of anaemia in Africa

This section provides a summary of the direct causes of anaemia in the African continent, drawn from the findings of the Landscape Analysis which was conducted to inform this Strategic Framework for Prevention and Management of Anaemia in Africa (5). A brief discussion of underlying causes is also included; however, the Strategic Framework mainly focuses on addressing direct causes. Annex 1 provides the country-level prevalence of the direct causes of anaemia, and highlights data gaps, while Annex 2 highlights data from the Global Burden of Disease analysis, illustrating that dietary iron deficiency appears to be one of the major causes of anaemia among females across all regions of Africa.

Direct Causes

1. Micronutrient Deficiencies

There are limited data on the prevalence of micronutrient deficiencies that are risk factors for anaemia, but the available evidence shows wide variation between Member States and extremely high rates in some settings. In 2022, an analysis based on nationally representative population-based surveys, which collected data on micronutrient biomarkers, estimated that 80% of non-pregnant women (161 million) and 64% of children 6-59 months of age in Member States in Africa have a deficiency in at least one of three micronutrients assessed (iron, zinc, and folate) (13). Furthermore, data available up to June 2023 for the prevalence of iron deficiency anaemia (IDA), measured within the past ten years in population-representative samples, indicates that iron deficiency can be a contributing factor to anaemia in the continent: 29-39% in children under five (13 countries), 7-26% in pregnant women (3 countries), and 2-28% in non-pregnant women (10 countries) (14). Data from the 2021 Global Burden of Disease analysis confirms that dietary iron deficiency is one of the major causes of anaemia among females in Africa (6). Few Member States have collected representative data on prevalence of deficiencies of zinc (6 countries), folate (10 countries), vitamin B12 (8 countries) or vitamin A (14 countries). Major common reasons for micronutrient deficiencies include food insecurity and limited dietary diversity, which result in insufficient micronutrient intake, and high rates of infection and inflammation, which both inhibits micronutrient absorption and utilization, and increases losses.

2. Infection, Inflammation and Chronic Disease

Infections of particular significance for their contribution to anaemia include malaria, soil-transmitted helminths, schistosomiasis, HIV, and tuberculosis. The Global Burden of Disease analysis found HIV to be the second greatest contributor to anaemia related YLDs (after iron deficiency) in southern Africa (6). The African continent accounts for more than two-thirds (25.6 million) of the people living with HIV worldwide and hosted around 20% of new tuberculosis cases in 2021 (2.5 million) (15,16).

In endemic areas, malaria is likely the primary cause of anaemia, particularly among children under five years of age, as the continent is home to 95% of the global burden of malaria cases and 96% of malaria deaths (17). The burden of other parasitic infections is also high in the continent. These sometimes go unnoticed and cause anaemia either directly through blood loss or indirectly through bone marrow suppression, inflammation, hypersplenism, haemolysis, or anorexia. Anaemia is particularly common in individuals infected with Schistosoma or soil-transmitted helminths including hookworm infections which contribute significantly to anaemia. Whipworm (*Trichuris trichiura*) also causes intestinal blood loss, and schoolchildren with heavy infections have a higher prevalence of anaemia (18).

3. Gynecological and Obstetric Conditions

Anaemia in women 15-49 years of age is significantly impacted by blood loss resulting from heavy menstrual bleeding and postpartum hemorrhage (PPH). While data on heavy menstrual bleeding among women in Africa are scarce, studies in other regions have reported a prevalence of 20-40% (19–22). PPH occurs in approximately 6% of women giving birth globally, with higher rates, up to 10.5%, reported for some Member States in in Africa (23,24). The higher rate is reflective of several factors, including the high prevalence of pre-existing anaemia among pregnant women, a shortage of healthcare workers, and a current gap in the implementation of World Health Organization (WHO) guidelines for managing PPH (25,26). Uterine fibroids, common benign tumors that can affect women by the onset of menopause, have been associated with abnormal uterine bleeding (27). Globally uterine fibroids can be prevalent in approximately up to 70% of women of reproductive age (27), with 20-50% of cases showing symptoms of heavy bleeding (28), which can result in iron deficiency anaemia. In the African continent the prevalence varies, ranging from 1,800 to 15,600 cases per 100,000 women (29).

4. Inherited Red Blood Cell Disorders

Inherited red blood cell disorders, which affect approximately 5% of the world's population, are more prevalent in the African continent, with about 18% affected (30). This higher prevalence may be linked to the interaction between these disorders and malaria endemicity, as they appear to offer some protection against malarial infections (30). The main inherited red blood disorders contributing to anaemia prevalence in the continent include sickle cell disease and glucose-6-phosphate dehydrogenase (G6PD) deficiency (31). More than two-thirds of the 120 million individuals affected worldwide by sickle cell disease reside in AU Member States (32) G6PD deficiency affects approximately 400 million individuals (33), with the highest average prevalence rates having been reported among African countries (7.5%), followed by Middle Eastern countries (6%) and with prevalence rates over 15% having been reported for the Republic of Liberia, the Republic of Côte d'Ivoire, the Republic of Ghana, the Federal Republic of Nigeria, the Gabonese Republic, the Democratic Republic of Congo, the United Republic of Tanzania, the Republic of Mozambique, and the Republic of Madagascar and prevalence rates over

20% having been reported for the Central African Republic and the Federal Republic of Somalia (31).

Intermediate and Underlying Risk Factors for Anaemia

Underlying the direct causes of anaemia are complex system-based and socio-political environmental factors that not only increase the risk, but also hinder progress toward anaemia prevention and control. These are the 'intermediate' and 'underlying' risk factors referred to in the WHO conceptual framework for anaemia aetiology (Figure 1). Critical intermediate risk factors within the African continent relate to stability and effectiveness of food, health, and water, hygiene, and sanitation systems.

- Food Insecurity and Poor Quality of Diets: By 2020, the prevalence of moderate or severe food insecurity in Africa was almost 60%, compromising diet quality and nutritional status (34).
- Lack of Access to and Use of Family Planning, Maternal and Child Care Services: Coverage of four or more antenatal care visits ranged from 24-87% in AU Member States between 2015 and 2021, with similar figures for the proportion of the family planning needs met by modern contraception methods in 2020 (35).
- Limited Access to Health and Nutrition Services and Interventions: In terms of essential health services, the African continent scores 50/100 in the index for coverage on reproductive, maternal, newborn and child health services, with individual Member States scoring between 17 and 86 (36).
- Inadequate Access to Water, Sanitation, and Hygiene: Access to safely managed drinking water and sanitation services is lacking for more than 60% of the continent's population (37).

These systemic challenges are driven and further exacerbated by underlying risk factors, such as poverty, gender inequality and education. Some Member States have the highest proportion of unemployed and underemployed people in the world with approximately 433 million people living on less than US$1 a day (38). Gender inequality, lack of women's empowerment, and cultural practices associated with early marriage and pregnancy can collectively increase the risk for anaemia (39). Additionally, conflict, and humanitarian crises within the continent serve as underlying risk factors for anaemia because of lack of proper diet/starvation, etc. Finally, climate change can result in the spread of infectious diseases that cause anaemia, disruptions of healthcare services, and it can increase food insecurity (40).

The Strategic Framework for Prevention and Management of Anaemia

Rationale for development of the Strategic Framework

The AU recognizes the importance of accelerating progress in reducing anaemia through evidence-based multi-sectoral approaches aimed at achieving the continent's goals for improved health and economic development.

The ARNS 2016-2025 includes the target of reducing anaemia by 50% in women of reproductive age (15-49 years), however, it was not developed with a specific sub-strategy to achieve this target. A specific strategic framework for anaemia is therefore needed as anaemia is a cross-cutting public health issue that requires simultaneous actions to address the main causes in each local context that is not explicitly addressed in other frameworks. Furthermore, data trends show that the inclusion of anaemia interventions within separate disease-specific programs has not been adequate to reduce the burden of anaemia, and a new coordinated approach with accountability mechanisms specific to anaemia is needed.

Considering the important social and economic impact that anaemia has in societies, the AU theme of the year for 2022 on nutrition recommended the development of a Continental Strategic Framework that will serve as the foundation for strengthening of National Action Plans for the reduction of anaemia in Member States. As part of the Workplan of the AU Theme of the Year on Nutrition, WHO and Nutrition International committed to support the AUC in developing this Strategic Framework.

The Strategic Framework Development Process

The Strategic Framework development process started with a comprehensive landscape analysis on the prevalence of anaemia and its determinants, as well as the status of policies and programs addressing anaemia in the African continent. This was followed by rigorous review by technical experts through consultations with various stakeholders including AU members states, Regional Economic Communities (RECs) and development partners.

The Strategic Framework aligns with and contextualizes the WHO Comprehensive Framework for Action to accelerate anaemia reduction globally (41) and is grounded in the strategic direction and core principles of the AHS 2016-2030, which include the importance of government leadership, coordinated multi-sectoral action, health system strengthening, and data-driven decision making. The Strategic Framework harmonizes the priorities for addressing the direct causes of anaemia in Member States. Many of these priorities have already been outlined in other AU frameworks, such as the ARNS 2016-2025, the Maputo Plan of Action 2016-2030 (Universal Access to Comprehensive Sexual and Reproductive Health Services in Africa), the AIDS Watch Africa Strategic Framework 2016-2030, the Catalytic Framework to End HIV, Tuberculosis and Eliminate

Malaria by 2030, and the Continental Framework on the Control and Elimination of Neglected Tropical Diseases in Africa by the Year 2030.

The entire process was guided by a Technical Advisory Group comprising representatives from the AUC, Nutrition International, WHO, and the United Nations Children's Fund (UNICEF). The Strategic Framework was further presented at the 14th Africa Task Force on Food and Nutrition Development (ATFFND) and the Fifth AU Specialised Technical Committee on Health, Nutrition, Population and Drug Control (STC-HPDC) for endorsement.

Goal and objective of the Strategic Framework

Goal

The overall goal of the Strategic Framework for Prevention and Management of Anaemia in Africa is to provide strategic, evidence-based, implementable actions for reducing anaemia prevalence among AU Member States, thus contributing to improved maternal, child and population health and wellbeing.

Objective

The Strategic Framework for the Prevention and Management of Anaemia in Africa aims to guide Member States towards developing contextualized, costed national action plans for the prevention and management of anaemia complete with a monitoring and evaluation framework and accountability mechanisms for anaemia programmes.

Priority Action Areas for Consideration

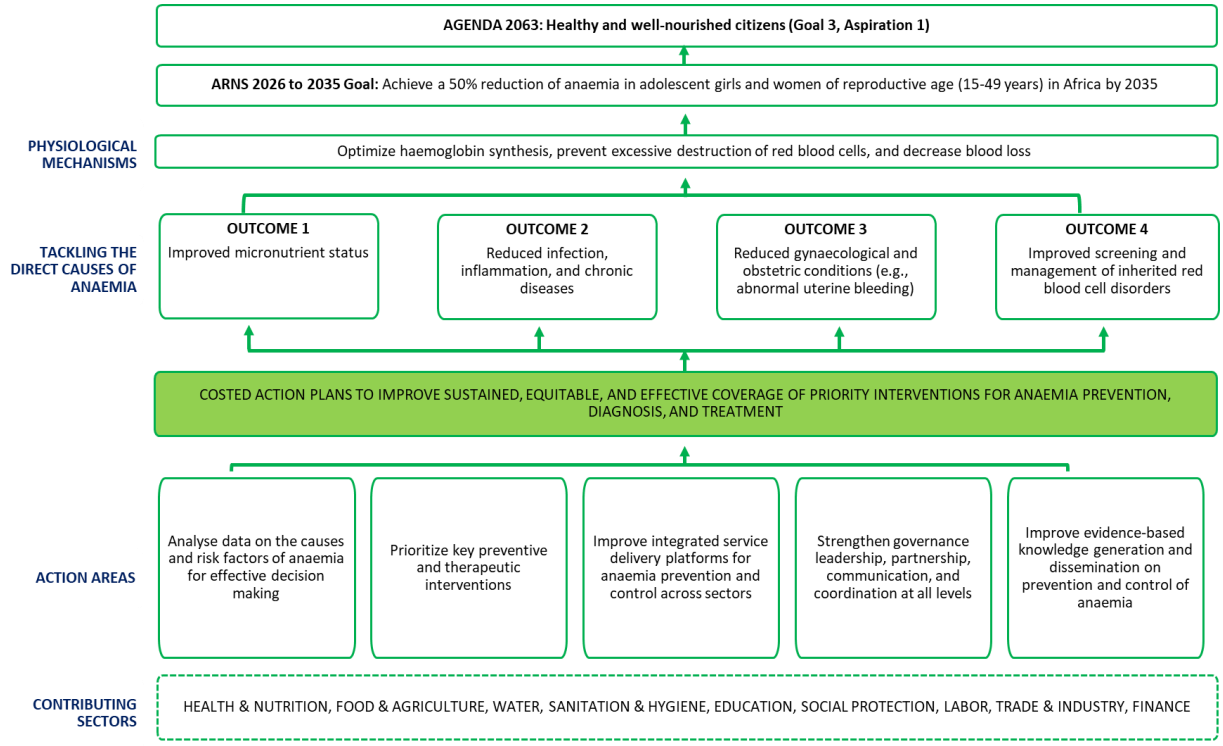
Historically, anaemia control efforts have focused on reducing iron deficiency, but this approach has proven inadequate given the multifactorial aetiology of anaemia. In addition, the extent to which iron deficiency contributes to anaemia varies across settings, depending upon the burden of inflammation and infection (40). Thus, there is a clear need for a data-driven, multi-sectoral approach that is adapted to specific contexts to effectively prevent and control anaemia.

Although interventions to address the direct causes of anaemia are primarily led by the health and nutrition, and food and agriculture sectors, interventions directly addressing anaemia rely on actions from other sectors to address the intermediate and underlying determinants of anaemia. Effective coordination and multisectoral collaboration are therefore needed to ensure that all priority interventions are implemented simultaneously, working synergistically in each setting.

This strategic framework provides guidance to assist AU Member States in establishing or refining national goals and action plans, based around five priority Action Areas outlined in figure 2, below.

In line with the ARNS 2016-2025, its successor ARNS 2026-2035, and the Africa Union Agenda 2063 of aspiring healthy and well-nourished citizens in Africa, this framework will support the goal of achieving a 50% reduction of anaemia in adolescent girls and women of reproductive age (15-49 years) in Africa by 2035.

Figure 2. *Conceptual Framework for accelerating anaemia reduction in Africa.*



Adapted from: Accelerating anaemia reduction: a comprehensive framework for action. Geneva: World Health Organization; 2023; and Global anaemia reduction efforts among women of reproductive age: impact, achievement of targets and the way forward for optimizing efforts. Geneva: World Health Organization; 2020.

The strategic areas of focus include the following:

1. Analyse data on the causes and risk factors of anaemia for effective decision making.
2. Prioritize key preventive and therapeutic interventions.
3. Improve integrated service delivery platforms for anaemia prevention and control across sectors.
4. Strengthen governance, leadership, partnerships, communication, and coordination at all levels.
5. Improve evidence-based knowledge generation and dissemination on prevention and control of anaemia.

The Action Areas are not prescriptive but provide a menu of interventions and actions that Member States are encouraged to adapt depending on context and need.

The first three action areas are supported by the last two areas, which are considered cross-cutting.

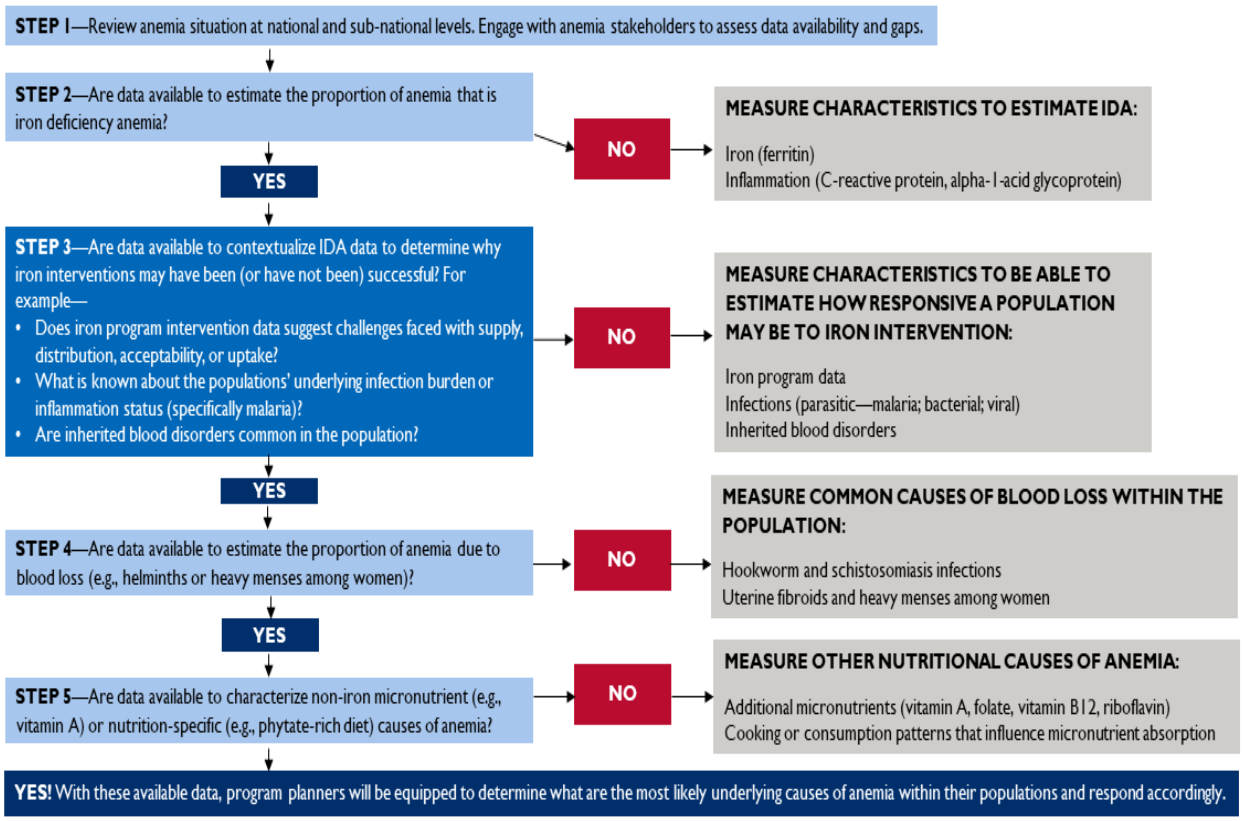
Figure 2 also highlights the relevant sectors that contribute to anaemia prevention and control including education; social protection; water, sanitation, and hygiene (WASH); labour, trade, and industry; and finance. This collaboration creates the conditions necessary for achieving equitable coverage, promoting high uptake, and ensuring the effectiveness of health and nutrition interventions.

Action Area 1: Analyse data on the causes and risk factors of anaemia for effective decision making

A preliminary step to address the anaemia issue is understanding its different causes and risk factors. Given its complex aetiology, multiple data sources are needed to adequately understand the causes and risk factors of anaemia in a specific country. These data sources are vital for determining priorities for introducing, strengthening and/or coordinating interventions as a response (42–44). The process of collecting and analysing data may therefore be a sizeable and costly task, but it is necessary to ensure that effective actions are implemented. It is recommended to use existing data sources, including government and programmatic monitoring systems and cross-sectional surveys such as the Demographic and Health Survey (DHS), National Malaria Survey, and Multiple-Indicator Cluster Survey (MICS) as described in Figure 3.

These should be complemented by an understanding of local traditions and practices that may influence the uptake and efficacy of specific interventions. Where available, national micronutrient surveys are one of the richest sources of data on the prevalence and causes of anaemia in specific countries. Over the past ten years, such surveys have been conducted in at least six Member States (Somalia, Sierra Leone, Senegal, Malawi, Ghana, and Gambia) (45–50). In addition, an anaemia aetiology study was conducted in Ethiopia (51). The findings of these surveys show that the main determinants of anaemia, and therefore the priority interventions to address it, vary significantly between countries.

Figure 3. Framework for Decision-Making to Collect Information on the Underlying Causes of Anemia at the Population Level.



Source: Williams AH, Brown KH, et al. (2023). Improving anemia assessment in clinical and public health settings. J Nutr https://doi.org/10.1016/j.tjnut.2023.05.032.

Suggested strategic actions to collect and analyze data on the causes and risk factors of anaemia include:

1. **Conducting a landscape analysis of national and subnational anaemia prevalence and determinants using existing data sources**

It is strongly recommended that stakeholders representing all relevant sectors and actors be engaged in the landscape analysis process, which should include pertinent information on:

- Prevalence of anaemia and of the direct causes of anemia.
- Coverage, equity and quality of service delivery platforms and key anaemia-related interventions.
- Status of programmes related to nutrition, disease control, water and sanitation, reproductive health, agriculture and genetic counselling and management
- Existing strategies and policies enacted related to anaemia.

2. **Conducting an analysis of monitoring data and of policies and guidelines to identify opportunities for integration across sectors and platforms.**
3. **Conducting an analysis of the cost of existing interventions and programs**.

The Landscape Analysis of Anaemia in Africa that guided the development of this Strategic Framework was designed to provide information that can be complemented and/or triangulated by a landscape analysis conducted at country level, if required.

Reference can also be made to the guidance in the *Anaemia Landscape Analysis Tool* developed by USAID's Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) (52). SPRING has also documented the country level experiences of Uganda and Sierra Leone in conducting an anaemia landscape analysis and how to use the findings to develop a multisectoral anaemia action plan (53,54).

Action Area 2: Prioritize key preventive and therapeutic interventions

Contextualized data on the prevalence and main causes of anaemia drive the selection and prioritization of interventions for anaemia prevention and control. While many relevant interventions are already implemented within various national sectoral programs, there may be a need to explicitly recognize their role as part of the anaemia control plan. This could mean strengthening community-based and institutional service delivery mechanisms, including orienting and training staff at all levels, coordinating implementation with other anaemia interventions, and developing an integrated framework for monitoring, evaluation, and reporting on anaemia. Furthermore, it should be noted that, depending on the context and resources, these interventions may be delivered through community-based or institutional-based health platforms, workplaces, schools, social safety net programs, or open market platforms.

There is a considerable range of effective interventions available to improve haemoglobin concentrations and reduce anaemia prevalence (60). This section outlines the key recommended interventions for addressing the direct causes of anaemia, with priority actions for consideration within national anaemia action plans. Further details on the specific interventions and links to guidance documents are available in the web annex of the WHO *Accelerating anaemia reduction: a comprehensive framework for action* and in recent reviews (41,60–62).

A. IMPROVING MICRONUTRIENT STATUS

Improving micronutrient status in the general population is critical for anaemia prevention and control. There are various interventions to consider, including dietary diversification and staple food fortification, as well as point-of-use fortification and micronutrient supplementation targeting specific groups at risk of inadequate intakes.

1. Dietary Diversification

Dietary diversification encompasses a variety of interventions aimed at improving the intake of micronutrient-rich foods, guided by data and knowledge of dietary patterns, food security and food environments. The Africa Common Position on Food Systems outlines the continental strategy for strengthening food systems, promoting food security, nutrition, and economic prosperity.

Depending on the context, costed action plans may include interventions to improve dietary diversification through equitable improvements in:

- **Food production and preservation to ensure access to and consumption of safe and nutritious food.**
- **Promotion of the production and consumption of natural food industry/indigenous foods.**
- **Food distribution systems including strengthening and harnessing local food markets.**
- **Economic development.**
- **Social protection programs.**
- **Nutrition education and behavior change interventions.**

Goals, targets, and interventions should be determined, implemented and monitored through a coordinated, multi-sectoral approach, as emphasized in the Africa Common Position on Food Systems (Item 63, p.11) (63). Targets will vary depending on baseline levels.

2. Staple food fortification

This involves the addition of micronutrients during processing of foods widely consumed by the population and offers a means to increasing micronutrient intake without requiring changes in dietary habits, provided that the fortified food is widely consumed. The fortification process must use appropriate levels of highly bioavailable iron, supported by strong regulatory and quality control systems (64).

In 2022, the AU adopted a declaration to scale up food fortification and biofortification in Africa[1]. Many Member States already fortify wheat and/or maize flour, but there may be a need to expand the reach and improve quality control. The fortification vehicle selected must be adapted to each country's staple food consumption and in some cases, the choice of fortification vehicle may need to be reconsidered based on current consumption patterns. Fortification goals in national anaemia action plans will therefore vary depending

[1] https://au.int/sites/default/files/decisions/41583-Assembly_AU_Dec_813-838_XXXV_E.pdf

on the stage of planning and implementation and should be guided by a landscape analysis.

Member States with existing fortification programs for staple grains may consider including one or more of the following actions in their national costed anaemia plan:

- **Conducting an evaluation of the ongoing national fortification program, ensuring alignment with fortification standards and vehicles at regional level.**
- **Expanding reach of adequately fortified staple grains.**
- **Implementing legislation mandating staple food fortification.**
- **Improving compliance with regulatory standards for fortification supporting millers.**
- **Strengthening monitoring and enforcement mechanisms to ensure consistency on fortification of staple grains throughout the supply chain.**
- **Investigating feasibility of fortifying one or more additional staple grains.**

Member States not currently implementing staple food fortification may consider including one or more of the following actions:

- **Conducting a fortification feasibility study.**
- **Developing a national fortification strategy ensuring alignment with fortification standards and vehicles at continental and regional levels.**
- **Conducting public awareness campaigns to educate the population about the benefits of consuming fortified staple grains.**

3. Micronutrient Supplementation

Micronutrient supplementation involves the provision of specific micronutrients, usually in tablet form, to target groups with higher prevalence or risk of deficiency, including pregnant women, adolescent girls and non-pregnant women 15-49 years of age, and children.

i. Pregnant women

Daily supplementation with iron and folic acid (IFA) for all pregnant women is recommended as a standard intervention within national antenatal care (ANC) programs (65) however, achieving universal coverage and ensuring the consumption of a full course of IFA is challenging. National surveys such as DHS can be analyzed to identify potential falter points, including timing of first ANC visit, coverage of at least four ANC visits, receipt of IFA through ANC, and consumption of 90 or 180 tablets (66). Implementation research indicates a need to strengthen both supply chains and IFA counseling to improve IFA coverage (67).

It is recommended that all Member States examine IFA coverage data, including any data related to barriers and facilitators of IFA delivery, as part of the anaemia landscape analysis (Action Area 1). Based on the findings, one or more of the following actions may be included in the national anaemia plan, with contextually appropriate targets and supporting activities:

- **Improving ANC coverage and/or timely care seeking.**
- **Improving IFA coverage through ANC services.**
- **Improving the proportion of pregnant women taking 180 tablets containing iron.**
- **Conducting implementation research to understand barriers and facilitators to coverage and compliance of iron-containing supplements at national and subnational levels.**
- **Conducting advocacy and policy awareness targeting policymakers and key stakeholders to prioritize anemia as a public health issue.**
- **Allocating resources for comprehensive interventions, including IFA supplementation and ANC services.**

The WHO's latest update of the antenatal care (ANC) guidelines recommends the provision of multiple micronutrient supplementation (MMS) to pregnant women in the context of rigorous research (65). Several countries are already moving forward and successfully using implementation research to understand the barriers and enablers of supply, demand and delivery and to design and test strategies to deliver MMS effectively in their national context. Therefore:

- **If feasible, countries are encouraged to conduct implementation research to evaluate the routine distribution of MMS as part of the standard of care during pregnancy.**

ii. Adolescent girls and non-pregnant women of reproductive age

Iron and folic acid supplementation is recommended for menstruating adolescent girls and non-pregnant women with schedules based on the prevalence of anaemia in this target group. Daily supplementation for three consecutive months per calendar year is recommended when the anaemia prevalence is 40% or higher (68). In settings with an anaemia prevalence between 20-39%, provision of weekly iron and folic acid supplements (WIFAS) in a rotating cycle of three months on followed by three months off is recommended (69). There are challenges to implementing these recommendations, and few Member States have well-established preventive supplementation programs for this target population, but potential delivery platforms include schools, community health programs, and workplaces (70).

Depending on anaemia prevalence and existing programs for adolescent girls and women of reproductive age, Member States may consider one or more of the following actions for their national costed anaemia plans:

- **Developing an implementation strategy to provide preventive iron supplementation to adolescent girls and non-pregnant women 15-49 years of age.**
- **Conducting implementation research to understand the barriers and facilitators of implementation and compliance with iron supplementation for adolescent girls and non-pregnant women 15-49 years of age at national and subnational levels.**

iii. Infants, preschool and school-aged children

Daily iron supplementation for three consecutive months per calendar year is recommended when the prevalence of anaemia in in infants and young children aged 6–23 months is 40% or higher, with dosage varying according to age group (71). However, providing iron supplements to young children can present significant implementation and compliance challenges. It is essential to note that in malaria-endemic settings, interventions providing additional iron to children should not be implemented unless there are adequate malaria surveillance, prevention, and treatment measures in place.

In settings where the prevalence of anaemia in preschool (24–59 months) or school-age (5–12 years) children is 20% or higher, intermittent iron supplementation is recommended by WHO as a public health intervention in preschool and school-age children to improve iron status and reduce the risk of anaemia (71). The recommendation indicates that the provision of iron supplements on an intermittent basis may be integrated into school or community programmes to reach the target populations, ensuring that the daily nutritional needs of preschool or school-age children are met and not exceeded through the evaluation of nutritional status and intake.

As indicated under Action Area 1, it is recommended that Member States conduct a landscape analysis to assess the prevalence of anaemia and malaria in children, and the status of programs addressing them. This information will inform the consideration of one or more of the following actions for their national costed anaemia plan:

- **Studying the feasibility and acceptability of implementing iron supplementation for children.**
- **In malaria endemic areas, strengthening coverage of malaria prevention and control interventions for children.**
- **Strengthening coverage of existing iron supplementation programs for children.**

4. **Point-of-use Fortification**

This is an effective approach for improving micronutrient intakes of children, particularly young children. The use of multiple micronutrient powders (MNPs) for point-of-use fortification is recommended to reduce anaemia among children 6-23 months and 2-12 years of age (72). MNPs may be distributed through a variety of channels, including infant and young child feeding programs, school meal programs, child health services, private sector vendors, and emergency food programs. The selection of the most appropriate delivery platforms and coverage targets will depend on the country context.

Suggested actions for Member States with existing point-of-use fortification programs include:

- **Conducting process evaluation and/or implementation research to identify barriers and facilitators of distribution and utilization of MNPs.**
- **Expanding coverage of point-of-use fortification.**

Suggested actions for Member States considering including point-of-use fortification within national anaemia action plans:

- **Conducting a feasibility study of acceptability and delivery of MNPs.**
- **In malaria endemic areas, strengthening coverage of malaria prevention and control interventions for children.**
- **Developing a national strategy for point-of-use fortification.**

5. **Biofortification**

Biofortification encompasses a variety of breeding and cultivation techniques for increasing the micronutrient content of staple food crops and is currently implemented in 38 African countries. The 2022 AU Continental Declaration to scale up food fortification and biofortification in Africa recommends that Member States include funding for biofortification within agriculture and food security budgets. Depending on the status of biofortification and the agricultural context, actions for consideration in national costed anaemia plans may include:

- **Conducting a pilot or feasibility study of biofortified crop(s).**
- **Developing/reinforcing/implementing a legal framework on biofortification and ensure compliance.**
- **Establishing or strengthening facilities for breeding biofortified crop(s).**
- **Developing a strategy for introducing and/or scaling up biofortification.**
- **Evaluating the effectiveness and/or implementation of biofortification.**

6. Promotion of Optimal Breastfeeding and Infant and Young Child Feeding

During the first months of life, breast milk provides all the energy and nutrients a child needs and continues to provide a significant part of a child's nutritional needs after the second half of the first year. At the age of six months, when breastmilk needs to be complemented by foods, a child must receive appropriate complementary feeding as this is a critical period for risk of micronutrient deficiencies.

Suggested actions for Member States include:

- **Promoting optimal breastfeeding and complementary feeding following the latest guidelines** (73)**.**
- **Exploring the use of supplements or fortified food products in contexts where a child's micronutrient requirements cannot be met** (73).

B. PREVENTING AND TREATING INFECTION AND INFLAMMATION

Strategic Priority 2 of the AHS 2016-2030 includes *"ending AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other emerging and reemerging communicable diseases"* (7). Many of these diseases contribute to the burden of anaemia, particularly malaria, helminths, and schistosomiasis (neglected tropical diseases), and HIV/AIDS and tuberculosis (TB) (Annex 1). In endemic areas, malaria is often a leading cause of anaemia. Various frameworks, such as the AIDS Watch for Africa Strategic Framework 2016-2030, Catalytic Framework to End AIDS, TB, and Eliminate Malaria in Africa by 2030, and the Continental Framework on Elimination of NTDs by 2030, outline strategic directions to accelerate progress in eliminating these diseases, which will also significantly reduce anaemia. Prevention and treatment of gastrointestinal disease, chronic kidney disease, and mitigating the rise in obesity are also relevant to reducing anaemia related to infection and inflammation.

1. Malaria prevention and control

This includes use of insecticide-treated bed nets (ITNs) and indoor residual spraying (IRS) in areas of active malaria transmission (74). These are core activities in many national malaria control strategies, but coverage may need strengthening. This may require research to understand barriers and facilitators of coverage and adherence; systems strengthening to ensure effective supply chains; and/or renewed social and behaviour change communication efforts. Depending on the findings of the landscape analysis regarding current programme status (Action Area 1), Member States with active malaria transmission are encouraged to renew efforts to achieve the targets outlined in the AU's Catalytic Framework to End AIDS, TB, and Eliminate Malaria and The AIDS Watch for Africa Strategic Framework.

Malaria prevention actions for national costed anaemia plans may include:

- **Increasing coverage of integrated vector control strategies including larvicides and ITNs distribution.**
- **Increasing coverage of environmental strategies for vector control, including indoor and outdoor residual spraying.**
- **Conducting research to understand the barriers and facilitators of vector control strategies.**
- **Developing a social and behaviour change communication strategy to promote malaria prevention mechanisms.**

In addition, malaria chemoprophylaxis is recommended for population groups at high risk (74) as follows:

i. Intermittent preventive treatment for pregnant women (IPTp).
ii. Perennial malaria chemoprophylaxis for children under two years of age living in areas of moderate to high perennial malaria transmission.
iii. IPT for school age children living in areas of moderate to high seasonal or perennial malaria transmission.
iv. IPT during the transmission season for children in age groups at high risk of severe malaria.
v. Post-discharge chemoprevention for children admitted to hospital with severe anaemia and living in settings with moderate to high malaria transmission.

It is recommended that Member States review their national guidelines for malaria chemoprophylaxis and assess coverage against current malaria control plans (Action Area 1). Member States with moderate to high rates of malaria transmission are encouraged to consider the following actions for the national costed anaemia plan, and to set appropriate targets for malaria chemoprophylaxis:

- **Identifying barriers to universal coverage of malaria chemoprophylaxis among vulnerable groups.**
- **Increasing coverage of malaria chemoprophylaxis among pregnant women and children.**

In addition to these actions focused on prevention and vector control, the Multisectoral Malaria Framework highlights the importance of underlying determinants of malaria (75). Eliminating malaria will require both direct interventions and progress in strengthening broader systems and socio-economic conditions, including addressing inequities.

2. **Helminth and Schistosomiasis prevention and control**

This involves vector control to prevent transmission. Periodic chemoprevention is also recommended to reduce the burden of infection.

For hookworm and other soil-transmitted helminths chemoprevention is recommended for the following groups at high risk (76):

i. children 12 months to 12-14 years of age, non-pregnant adolescents and women of reproductive age living in areas where infection prevalence is 20% or higher.
ii. pregnant women after the first trimester in settings where infection prevalence is 20% or higher and anaemia prevalence is 40% or higher among pregnant women.

Chemoprevention for schistosomiasis is recommended in settings with infection prevalence 10% or higher, reaching all individuals 2 years of age and above, except pregnant women in the first trimester (77).

It is recommended that Member States assess the prevalence of hookworm and/or schistosomiasis infection, the state of vector control programmes and coverage of chemoprevention (Action Area 1). Based on the landscape analysis findings and the Continental Framework on the Control and Elimination of Neglected Tropical Diseases in Africa by 2030, Member States with endemic helminths and/or schistosomiasis may consider the following actions for their national costed anaemia plans:

- **Increasing coverage of environmental strategies for vector control.**
- **Conducting research to understand barriers and facilitators of vector control and/or chemoprevention strategies.**
- **Developing a social and behaviour change communication strategy to promote prevention mechanisms.**
- **Increasing coverage of helminth and/or schistosomiasis chemoprevention.**

3. **HIV/AIDS**

HIV/AIDS targets and the priority interventions to achieve them are defined in the Catalytic Framework to End AIDS, TB, and Eliminate Malaria in Africa by 2030. Member states with a high burden of HIV are encouraged to consider incorporating the same actions their national costed anaemia plans:

- **Increasing coverage of antiretroviral treatment.**
- **Increasing prevention of new infections in children.**
- **Increasing access to Combination Prevention Services among priority populations.**
- **Implementing or strengthening HIV-sensitive social protection.**

4. Tuberculosis

Targets and strategies to address TB are defined in the Catalytic Framework to End AIDS, TB, and Eliminate Malaria in Africa by 2030. Member states with a high burden of TB are encouraged to consider incorporating these actions their national costed anaemia plans:

- **Increasing access to TB diagnosis and treatment.**
- **Integrating delivery of HIV and TB activities.**
- **Increasing coverage of preventive treatment and vaccination for high-risk groups.**
- **Strengthening capacity for laboratory testing.**
- **Developing a social and behaviour change communication strategy to increase awareness of TB and infection control.**

C. MANAGING GYNECOLOGICAL AND OBSTETRIC CONDITIONS

Anaemia interventions for menstruating girls and women of reproductive age focus on reducing blood loss due to heavy menstrual bleeding, uterine fibroids, and postpartum hemorrhage (PPH). The use of modern (hormonal) contraception reduces menstrual blood loss and supports birth spacing, and ultimately reduces the risk of anaemia. This approach protects maternal nutritional reserves and reduces the risk of adverse pregnancy and birth outcomes. Preventing early pregnancy and unnecessary caesarean section are also important strategies for reducing anaemia prevalence in adolescent girls and women (78,79). Management of uterine fibroids is determined with consideration of fertility preservation and options include medical therapy (e.g., oral contraceptives, hormone therapy, and nonsteroidal anti-inflammatory drugs), surgical treatment (e.g., hysterectomy and myomectomy), and non-surgical therapy (e.g., fibroid ablation).

Strategic Objective 2 of the AHS 2016-2030 expresses a commitment to *"end preventable maternal, newborn and child deaths, and ensure equitable access to comprehensive, integrated sexual, reproductive, maternal, neonatal, child and adolescent services, including voluntary family planning"* (7). In addition, the Maputo Plan of Action for 2016-2030 signals the commitment of Member States to operationalize the Continental Framework for Sexual and Reproductive Health and Rights, including expanding contraceptive use and enacting legislation to prevent early marriage (80). Accelerating attainment of these commitments will also enhance the prevention and control of anaemia. Suggested actions for national costed anaemia plans include:

- **Reviewing and updating national policies and guidelines regarding access to modern contraception and prevention of early pregnancy.**
- **Examining and addressing barriers to reach and voluntary uptake of modern contraception.**

- **Reviewing and updating national guidelines/clinical protocols regarding PPH management with uterotonics.**
- **Reviewing and updating national guidelines/clinical protocols regarding management of uterine fibroids.**
- **Strengthening health worker training regarding modern contraception and/or PPH management with uterotonics.**

In addition to interventions targeting menstruating girls and women, delaying umbilical cord clamping until pulsations stop, between one and three minutes after birth, is recommended to reduce infant anaemia (81). It is difficult to assess coverage of this intervention, but it should be included in national anaemia action plans through the following actions:

- **Reviewing and updating national guidelines/clinical protocols regarding timing of cord clamping.**
- **Strengthening health worker training regarding delayed cord clamping.**
- **Monitoring of delayed cord clamping in routine health data collection systems.**

D. MANAGING INHERITED RED BLOOD CELL DISORDERS

Management of genetic blood disorders is primarily a targeted intervention approach that starts with genetic testing to identify affected individuals. Depending on the disorder, counseling and/or active treatment may be needed, including blood transfusions for sickle cell disease (82). Member States may consider the following actions for national anaemia plans:

- **Developing or reviewing and revising as needed a strategy for management of sickle cell anaemia.**
- **Reviewing and updating national guidelines/clinical protocols regarding testing, counseling, and management of genetic blood disorders.**
- **Strengthening health worker training regarding testing, counseling, and management of genetic blood disorders.**
- **Implementing newborn screening for haemoglobinopathies.**
- **Developing a social and behaviour change communication strategy to improve community awareness of genetic blood disorders and uptake of genetic testing and counseling.**

It is also important that malaria treatment protocols are appropriate for populations where G6PD deficiency is prevalent, as common medications may induce hemolytic anaemia in affected individuals (60,74).

Action Area 3: Improve integrated service delivery platforms for anaemia prevention and control across sectors

Many interventions addressing the main causes of anaemia will already be part of national health, nutrition, and food sector plans. However, there are often opportunities to strengthen coverage and coordination to maximize their effectiveness. This aligns with the AHS 2016-2030 focus on comprehensive, integrated, and equitable primary health care delivery. Key elements of prior success in optimizing service delivery across health and other sectors at country level include having a high-calibre champion for anaemia (for example the Prime Minister); synergistic relationships within sectors; and clear knowledge, coordination and accountability of the various ministries and departments involved. It has been observed that efforts to reduce anaemia in women have better results when programmes work through several sectors at once (43).

Building programming across sectors can include incorporating anaemia interventions into antenatal care (e.g., IFA or MMS, deworming, iPTp, and counseling regarding birth spacing, modern contraception, and delayed umbilical cord clamping), community outreach activities (e.g., vitamin A and iron supplementation, deworming, and ITN for preschool aged children, distribution of iron supplements or MNPs to children 6-24 months of age in conjunction to counseling on IYCF to their caregivers, and/or IFA, deworming, and ITN for WRA), school programmes (e.g., WIFAS, deworming, ITN, and counselling on Sexual and Reproductive Health (SRH) and healthy meals to adolescent girls) and child health days (e.g., vitamin A and iron supplementation, ITN, deworming, counselling on anemia prevention). In malaria-endemic areas, consider integrating interventions that address both anaemia and malaria.

It is noteworthy to highlight the role that community health-based platforms could play in reducing anaemia rates by delivering and monitoring multiple interventions to multiple target groups It is encouraged that community health worker programs are strengthened and integrated into the general health system based on the population health needs and the health system capacities (83).

Although screening for anaemia is not always feasible or recommended across all platforms (84), it is encouraged that actors from different platforms can recognize anaemia symptoms so that individuals can be referred to an appropriate health service where the need for a formal assessment can be determined and treatment provided, if needed (65,82,85). In malaria endemic regions, it is encouraged that while treating for malaria, anaemia is assessed, if feasible.

It is important to examine coverage data for priority interventions at both national and subnational levels to identify gaps and inequities in service delivery. This should include an analysis of disparities between the utilization of service delivery platforms and coverage of anaemia interventions delivered through those platforms. For example,

disparities may exist between the proportion of pregnant women accessing at least four antenatal care visits and the proportion who receive a full course of IFA supplements (86).

If monitoring data allow, it is also important to evaluate the coverage of combinations of interventions delivered to the same individual. This is a very useful means of assessing the extent to which interventions are being delivered synchronously within a multi-component package addressing the diverse causes of anaemia. If such data are not available, efforts can be made to adapt routine monitoring systems or integrate monitoring data from different sectors to improve the tracking of comprehensive intervention delivery for anaemia.

In addition to identifying service delivery gaps, conducting implementation research or process evaluations to understand the factors influencing coverage and quality is often necessary. Common challenges typically relate to supply chains, human and financial resources, and accessibility. However, the specific issues can vary depending on the context and the intervention. Once the key barriers are well understood, several strategies can be considered for optimizing coverage and quality. These include strengthening existing delivery platforms; bundling interventions through shared delivery platforms; integrating delivery platforms to improve coverage; improving monitoring, coordination, and accountability mechanisms; and exploring innovative delivery platforms, such as workplaces (70).

Member States are encouraged to consider incorporating one or more of the following actions related to optimizing service delivery into national anaemia plans:

- **Strengthening early detection of anaemia by promoting awareness of anaemia symptoms across different platforms and referral to the appropriate service in which the need for anaemia testing can be determined and treatment and follow-up provided, if needed.**
- **Broadening community-level service delivery by strengthening community health worker programmes and their integration into the health system.**
- **Develop an integrated monitoring and evaluation plan.**

Action Area 4: Strengthen governance, leadership, partnerships, communication and coordination at all levels

Strategic actions to address Action Area 4 include the following:

1. Coordinating leadership and governance on anaemia at national, regional, and continental levels

Countries are key for addressing the challenge of reducing anaemia in the population and leadership and ownership should be encouraged at national level. Support from partners should be complementary and national and continental initiatives should be coordinated

to address the problem of anaemia. Countries commonly have the following initiatives in place:

- National and sub-national Multisectoral Plans of Action on Nutrition that include anaemia.
- Coordination mechanisms for multisectoral implementation of programs.
- Technical Working Groups on nutrition, maternal health, child health, malaria, NTDs, HIV, etc.

National and subnational Multisectoral Plans of Action on Nutrition should integrate anaemia actions across sector, platforms, etc. where feasible.

Building on these existing initiatives, countries can explore whether establishing a task force dedicated to anaemia reduction at national, regional, and continental level is required. A collaborative approach of leadership and governance is critical for the effective design, implementation, and monitoring of anaemia prevention and control programmes. It ensures that relevant stakeholders are working together, thus optimizing efforts to address anaemia and its underlying causes. It also facilitates the integration of anaemia programmes into broader nutrition, or other health, strategies and contributes to more effective and coordinated multisectoral responses.

National level governance and leadership initiatives should coordinate with those existing at continental level, such as:

- African Task Force for Food and Nutrition Security (ATFFND).
- Task Force on Maternal, New-born and Child Health (MNCH).
- AIDS Watch Africa.
- African Leaders Malaria Alliance.
- African Union Home Grown School Feeding Cluster.

Finally, leadership Autoand governance can also be coordinated with global level initiatives, such as:

- Scaling Up Nutrition (SUN) Movement: most AU Member States have joined and have developed multi-sectoral nutrition strategies.
- The Anaemia Action Alliance: brought together by UNICEF and WHO. Includes members from intergovernmental agencies, non-governmental agencies, academic institutions, and philanthropic foundations. One task of the Alliance is to support Member States to implement multisectoral plans.
- The Global Fund to Fight AIDS, Tuberculosis and Malaria.
- The U.S. President’s Malaria Initiative
- Global NCD Compact 2020–2030.

2. Strengthening accountability mechanisms at national, regional, and continental levels

Accountability mechanisms drive stronger action and accelerate progress in addressing anaemia. Accountability frameworks are tools that facilitate the monitoring of commitments, initiatives, and progress at all levels of governance, from continental to national levels. They can reinforce commitment to addressing anaemia, and help ensure that efforts are comprehensive, well-coordinated, and transparent. Accountability mechanisms can be key drivers of action and support the effective implementation of anaemia prevention and control programs. They can be instrumental in holding stakeholders and leaders responsible for their commitments and actions in addressing anaemia. **One such national level accountability mechanism is developing and implementing national and subnational scorecards to include anaemia.**

National-level accountability frameworks should feed into continental-level accountability frameworks related to anaemia, such as:

- The African Union Continental Nutrition Accountability Scorecard (CNAS).
- African Union Continental Nutrition Report
- Africa Agriculture Transformation Scorecard (AATS)
- AHS 2016-2030 Scorecards for malaria and NTDs, Tuberculosis
- Regional Accountability Framework: Ministerial Commitment on comprehensive sexuality education and sexual and reproductive health services for adolescents and young people in Eastern and Southern African (ESA)

In addition, there are global accountability frameworks related to anaemia that can serve as resources:

- Global Nutrition Report Nutrition Accountability Framework is an independent and comprehensive platform for registering SMART nutrition commitments and monitoring nutrition action (87).
- The Comprehensive Multisectoral Action Framework: Malaria and Sustainable Development provides guidance and country examples for multisectoral action to accelerate progress in addressing malaria (75)

3. Advocacy and communication on anaemia targeting different stakeholders

Strategic engagement of policy actors and effective communication on anaemia requires that data are translated into evidence and action. Several initiatives exist that support communication about anaemia at all levels.

- Nutrition advocates around the world include individuals working in government agencies, international NGOs, and local civil society organisations. Their primary goal is to facilitate effective communication tailored to different stakeholders, promoting awareness about nutrition and anaemia.
- The Anaemia Action Alliance works to raise awareness about the importance of urgently addressing the high prevalence of anaemia globally, ensuring that the multiple causes and risk factors are not only acknowledged but also addressed.
- Effective advocacy and communication efforts require collaboration across the various sectors and the engagement of diverse stakeholders. This is important for creating tools such as policy briefs, action plans and investment cases. Given that anaemia is a complex, cross-cutting issue, advocacy and communication must cut across sectors, including health, development, agriculture and water, sanitation, and hygiene.
- Effective advocacy and communication should be evidence-informed and leverage existing structures. For instance, National Information Platforms for Nutrition (NIPN) provide support to Member States to strengthen their information systems for nutrition, to improve the analysis of data to inform decision making by different sectors.
- Advocacy efforts targeting anaemia must lead to the prioritization of anaemia actions.
- The AU has developed an Africa Regional Advocacy and Communication Strategy to renew collective momentum to accelerate action and complement the strategic actions in the ARNS 2016-2025 through continental unifying nutrition narratives.

Specific actions that Member States could consider for advocacy and communication for anaemia include:

- Implementing a targeted public awareness campaign on anaemia at national and continental level.
- Promoting the utilization of the nutrition accountability scorecard as a tool for advocating against anaemia.
- Engaging civil society organizations (CSOs) and/or media as a valuable source of information to populations.
- Organizing high level events to produce a communique and call to action to prevent, manage and control anaemia in Africa.

- Creating awareness on health, hygiene, and nutrition to promote the use of clean play space, appropriate sanitation facilities and safely managed drinking water sources.

4. Enabling environment and political will

Having political will and support is crucial to implement anemia interventions effectively. To garner political will, the political context and interests of the countries should be recognized while framing the anemia issue. In advocating for political will, there is need to frame anaemia as an economic issue**.** For example, the economic cost of anaemia in children and adolescents for Sub Saharan Africa alone is US$30 billion (88). Furthermore, according to the World Bank, each US$1 invested in a set of interventions to address anemia is estimated to yield US$12 in economic returns (89).

At global, continental, and national levels, influential champions play an important role in advancing goals related to the prevention and control of anaemia. These champions are responsible for raising awareness and mobilizing support from governments, international organizations, the private sector, and the public on anaemia. Their efforts are integral to building and sustaining political commitment for reducing anemia. For nutrition, the Malabo Declaration endorsed the AU Nutrition Champion in 2014.

The African Leaders for Nutrition (ALN) Initiative was endorsed in 2018 and serves as a platform for high-level political engagement to advance nutrition in Africa. These leaders are prominent figures committed to making nutrition a priority for everyone, everywhere. The ALN initiative works to spark and drive progress towards achieving established continental and global nutrition targets by strengthening political engagement, building partnerships, and expanding the evidence-base through nutrition advocacy tools that encourage accountability, and accelerate action and investments to end malnutrition in Africa.

Specific actions that Member States could consider for creating an enabling environment and political for anaemia reduction include:

- Framing anaemia as an economic issue to garner political will.
- Identifying and supporting champions to raise awareness and sustain a commitment to anaemia reduction.
- Engaging high-level political platforms already committed to reducing malnutrition.
- Encouraging decentralization of health services related to anaemia, recommended to ensure broader coverage of interventions within countries.

5. Fundraising for anaemia

Existing costed national and sub-national multisectoral plans of action that include anaemia have limitations in addressing anaemia comprehensively, since these programs

rely on funding and implementation tied to other areas such as maternal health, child health, and malaria. African governments have also pledged to allocate at least 15% of their annual budgets to the health sector and 10% to agriculture, which includes food security and nutrition.

AUC is working on a Multisectoral Nutrition Policy Framework to guide the adoption of a multisectoral approach to unblock investments in nutrition and accelerate the achievement of the continental and global targets on nutrition; and a Funding Target for Nutrition Investment in Africa to support and inform high-level political advocacy toward securing domestic and regional resources for nutrition financing.

Specific actions that Member States could consider for strengthening fundraising for anemia include:

- Developing and costing national anaemia action plans can serve as a catalyst for securing funding commitments specifically dedicated to anaemia programs.
- Instituting innovative financing mechanisms to secure funding for anaemia initiatives, that may include performance-based financing arrangements and matched funding agreements, such as those based on domestic resource mobilization.

6. Capacity development for accelerated anaemia action

Capacity development is a critical prerequisite for achieving goals related to reducing anaemia prevalence.

Specific actions that Member States could consider for in-country capacity development include:

- Conducting a comprehensive mapping of the existing capacities for implementing multisectoral and multi-stakeholder programs and establishing and building on mapped capacities.
- Strengthening in-country capacities to analyse anemia situation at all levels.
- Strengthening the capacities of both governmental bodies and non-State actors for carrying out the appropriate multisectoral and multi-stakeholder policy actions including planning, budgeting, and the implementation of multisectoral anaemia programs.

7. **Promoting civil society engagement and empowerment**

Civil society organizations (CSOs) can play a critical role in advocating, mobilizing communities, and monitoring commitments related to anaemia prevention and reduction (41). It is encouraged that CSOs are part of anaemia reduction efforts. CSOs can contribute by identifying the needs of the communities, building the capacity for civic engagement, advocating for political commitments, informing the design and evaluation of interventions, ensuring accountability mechanisms and surveillance systems to track impacts of nutrition policies and using the media to report successes and challenges (90).

Action Area 5: Improve evidence-based knowledge generation and dissemination on prevention and control of anaemia

The need for data and research to inform decision-making has been emphasized throughout the Strategic Framework, as well as the AHS 2016-2030, ARNS 2016-2025 and other AU Strategic Frameworks relevant to anaemia. Contextualized anaemia action plans rely on current data regarding the prevalence and main causes of anaemia at both national and subnational levels. These data form the basis for defining intervention targets and priorities.

If the landscape analysis exercise results in a need to collect more data on the prevalence of anemia across different population groups or to assess the causes and risks factors of anaemia:

1. **Consider conducting a national anaemia prevalence and aetiology survey, including prioritized population groups data and the assessment of biomarkers of micronutrient deficiencies, inflammation, parasitic infections, and inherited red blood cell disorders**

This is recommended if either: 1) the landscape analysis reveals that there are insufficient data to complete the decision-making algorithm (Figure 3); or 2) it has been at least five years since a national micronutrient or anaemia aetiology survey was last conducted.

It is a major undertaking to conduct a comprehensive national anaemia aetiology survey, and this will require financial commitment and leadership from governments, engagement of national and international partners, detailed planning, and allocation of sufficient resources.

Recommended indicators and methods to determine anaemia aetiology have been summarized by Garcia-Casal et al. (2023) (55). Detailed guidance for planning and conducting the survey is available in the *Micronutrient Survey Manual and Toolkit*, which includes multiple practical modules and tools (56,57).

2. **If required and feasible, consider conducting a food consumption/dietary practice survey.**

This is recommended to complement data on the prevalence of micronutrient deficiencies and to guide the selection of appropriate interventions to improve nutritional determinants of anaemia. The Global Diet Quality Score (GDQS) is a validated tool for assessing nutrient adequacy and nutritional risk factors at the population level. The GDQS can be incorporated into large-scale cross-sectional surveys, and the GDQS telephone-based application allows for low-cost data collection and facilitates the data analysis. Detailed information is available in *The Global Diet Quality Score Toolkit* (58). Further information and resources for conducting dietary surveys are available at *Intake: Center for Dietary Assessment* (59).

Monitoring data and implementation research are also essential for tracking progress and for identifying, understanding, and addressing gaps in the coverage, equity, and quality of intervention delivery. Achieving these targets requires investments in leadership, human resource capacity, coordination and infrastructure to facilitate effective data collection, analysis, reporting, and utilization, with strong quality assurance measures.

There are also opportunities to develop and test innovative delivery platforms, products and approaches to anaemia prevention and control. Much of this research is already taking place within Africa, but as expressed in the AHS 2016-2030 "t*here is need to institutionalize mechanisms for defining, producing and utilizing African research in ways that can transform the health sector as well as the African economy and society as a whole"* (p.20) (7). Engagement and allocation of resources to African academic partners are important actions towards this goal.

Furthermore, as indicated in WHO's Comprehensive framework for action, "*There is limited information about the effectiveness of integrated, multisectoral anaemia programmes. Because the reach of current interventions may be inadequate, implementation research will be useful to determine how best to increase this reach, as well as how to best increase the use of health facilities*" (p.13) (41).

Suggested actions to address Action Area 5 include:

- **Developing an anaemia research agenda for data generation for dissemination at all levels within the country and use in policies and program design and implementation.** The research agenda should be driven by contextual needs**.**
- **If from the landscape analysis results it is deemed a priority, or it has been at least five years since a national micronutrient or anaemia aetiology survey was last conducted:**
    - **Consider conducting a national anaemia prevalence and aetiology survey that includes data collection for prioritized population groups.**

- **If red blood cell disorders are a determinant of anaemia, consider investing in research to understand issues related to red blood cells disorders.**
- **Conducting implementation research to understand factors influencing coverage, equity, and quality of anaemia programs and interventions.**
- **Conducting context-specific research to fill evidence-gaps and research to identify best practices.**
- **Conducting evaluations to improve programs.**
- **Facilitating knowledge dissemination among academia, institutes, and other relevant stakeholders.**

The AUC, in its role to guide harmonization of national plans with continental priorities and frameworks will:

- Facilitate the establishment of an Africa-wide Community of Practice to promote investments in research and innovation.
- Support conducting comprehensive studies for availability of recent data on anemia across all Member States.
- Support Member States in the development of an anaemia research agenda for data generation.

Monitoring Progress Towards Anaemia Reduction in Africa

A key challenge in responding to anaemia is the lack of data for monitoring and evaluation. Having reliable and consistent information available within and among countries is essential for effective decision-making and successful operationalization of costed national action plans to reduce anaemia in populations. For monitoring progress towards the Global Nutrition Target for Anaemia Reduction at national level, a core set of indicators are proposed in Table 1 to guide Member States in developing or updating monitoring and evaluation frameworks. The suggested core indicators are aligned to the Conceptual Framework for accelerating anaemia reduction in Africa (Figure 2) and are not meant to be comprehensive but rather provide examples of indicators that could be included in national monitoring and evaluation frameworks. Complementary efforts to build national monitoring and evaluation capacities will be required.

In addition to national level monitoring, efforts to identify and disseminate best practices and lessons learned will contribute to scaling up responses that work and ensure accountability for the attainment of the continental goal for anaemia reduction. The AUC, in its role to facilitate a shared monitoring and accountability system among Member States, will determine which indicators should be selected to monitor activities Member States conduct within the action areas, especially for Action Area 1 (Analyse data on the causes and risk factors of anaemia for effective decision making), Action Area 4 (Strengthen governance, leadership, partnerships, and communication and coordination

at all levels) and Action Area 5 (Improve evidence-based knowledge generation and dissemination on prevention and control of anaemia).

Table 1: *Core Indicators that can be considered for inclusion in national M&E frameworks*

Objective Hierarchy		Suggested Indicators
Impact	Reduced anaemia in adolescent girls and women of reproductive age (15-49 years)	Anaemia prevalence in adolescent girls and women of reproductive age (15-49 years)
Outcomes	Improved micronutrient status	- % of women of childbearing age/pregnant women/children with adequate iron status (e.g., serum ferritin) - % of women of childbearing age/pregnant women/children with adequate folate status (e.g., serum folate, RBC folate) - % of women of childbearing age/pregnant women/children with adequate Vitamin B12 status (e.g., serum B12) - % of women of childbearing age/pregnant women/children with adequate Vitamin A status (e.g., serum retinol)
	Reduced infection, inflammation, and chronic diseases	- Incidence of malaria (per 1000 population at risk) - % children/pregnant women requiring preventive chemotherapy for helminths - % population requiring schistosomiasis chemoprevention - Prevalence of HIV among adults - Incidence of tuberculosis (per 100,000 of population per year)
	Reduced gynecological and obstetric conditions	- Prevalence of postpartum haemorrhage in women 15-49 years - Prevalence of heavy menstrual losses in women 15-49 years
	Improved screening and management of hemoglobinopathies	- % newborns identified as carriers of sickle cell - % newborns identified as carriers of thalassemia - % individuals with sickle cell disease treated - % individuals with thalassemia treated
Process/Output Indicators	Improve micronutrient status	**Dietary diversification** - % women 15-49 attaining Minimum Diet Diversity - % population consuming micronutrient-rich foods
		Fortification - % population consuming adequately fortified foods

		Supplementation - % pregnant women 15-49 years using 90+ iron and folic acid supplements - % pregnant women 15-49 years receiving multimicronutrient supplements - % non-pregnant menstruating girls and women receiving iron supplements - % children 6-24 months receiving iron supplements
		Point-of-use fortification - % children 6-24 months receiving micronutrient powders
		Biofortification - % population consuming biofortified foods
		Promotion of Optimal Breastfeeding and Infant and Young Child Feeding - % children 6-24 months attaining Minimum Acceptable Diet - % Infants under 6 months who are exclusively breastfed
	Reduce infection, inflammation, and chronic diseases	**Malaria** - % households using ITNs/IRS - % children receiving malaria chemoprevention - % pregnant women receiving malaria chemoprevention
		Helminths - % children receiving chemoprevention for helminths - % pregnant women receiving chemoprevention for helminths
		Schistosomiasis - % eligible population receiving schistosomiasis chemoprevention
		HIV - % HIV-affected individuals receiving ART
		Tuberculosis - Tuberculosis treatment success in new patients (% new cases in a year that successfully completed treatment)
	Reduce gynaecological and obstetric conditions	**Heavy menstrual loss** - % women 15-49 years receiving modern contraceptives
		Post-partum haemorrhage - % pregnant women receiving uterotonics

		Cord clamping - % births with delayed cord clamping
		Other indicators for consideration - % births attended by skilled health personnel - % girls and women receiving counseling about birth spacing and family planning - % adolescents receiving education/counseling on prevention of early pregnancy
	Improve screening and management of inherited red blood cell disorders	- % newborns screened for hemoglobinopathies - % individuals with sickle cell disease with access to treatment facilities - % individuals with thalassemia with access to treatment facilities
Action Areas	Analyse data on causes and risk factors of anaemia for effective decision making	**Landscape analysis (existing data sources/national micronutrient or anaemia aetiology survey)** - Data previously collected on anemia and its determinants systematically analyzed and used for decision making.
	Prioritize key prevention and therapeutic interventions	- % trained health workers - % skilled health personnel - % communities with priority interventions available
	Improve integrated service delivery platforms for anaemia prevention and control across sectors	- Integration process across policies conducted - Integration process across M&E conducted
	Strengthen governance, leadership, partnerships, and communication and coordination at all levels	- Multi-sectoral anaemia task force in place - Policies related to anaemia in place and integrated when possible
	Improve evidence-based knowledge generation and dissemination on prevention and control of anaemia	- An anaemia research agenda is developed. - Implementation research is conducted to understand factors influencing coverage, equity, and quality of anaemia program delivery - Food consumption/dietary practice survey implemented.

Path forward

The AUC will oversee the coordination and harmonization of national plans, and support implementation of the Strategic Framework through capacity building, knowledge sharing, advocacy and accountability mechanisms, working closely with AUDA-NEPAD, Africa CDC, Regional Economic Communities and Member States.

Additionally, multiple stakeholders have a role to play in that process and in supporting implementation, monitoring and evaluation.

African Union Commission	Lead in dissemination of the Strategic Framework; mobilize resources; facilitate advocacy, technical consultations, and policy dialogues; guide harmonization of national plans with continental priorities and frameworks; facilitate shared monitoring and accountability system (scorecard).
Regional Economic Communities (RECs)	Technical and coordination support for Member States; advocate for resources; monitor and report progress.
Member States	Ensure an enabling legislative and policy environment for anaemia prevention and control; establish multi-sectoral coordination mechanisms to develop, implement and monitor anaemia action plan; ensure budget allocations for coordination, intervention delivery and monitoring; report progress to RECs and AUC; participate in regional and continental technical, policy and data-sharing platforms.
Civil Society	Community and citizen engagement; civil society organizations implement, monitor and advocate for anaemia interventions; media channels support communication and advocacy; private sector contributes technology, financing, and skills.
Academia	Design and lead research that advances evidence-based, effective, and feasible strategies, policies and interventions for anaemia prevention and control in Africa.
International Development Partners	Provide technical and financial support to Member States to develop, implement, monitor, and evaluate contextualized multi-sectoral anaemia action plans aligned with AU strategic targets and frameworks.

Monitoring, evaluation, and accountability are essential to the success of this endeavour. Given the complex and multifaceted nature of anaemia, regular data collection in each member state is needed to track anaemia prevalence, main causes, and progress of interventions. Establishing reporting mechanisms at national, regional, and continental levels will strengthen accountability, enhance effectiveness, and facilitate learning in this collective effort to prevent and control anaemia across Africa.

Anaemia is a persistent, cross-cutting health and development issue with a complex aetiology. The burden of anaemia in Africa can be reduced, but only through the concerted efforts of a comprehensive, coordinated, and contextualized multi-sectoral response.

References

1. WHO. Anaemia [Internet]. 2023. Available from: https://www.who.int/health-topics/anaemia

2. Haas, J.D., Brownlie, T. 4th. Iron deficiency and reduced work capacity: a critical review of the research to determine a causal relationship. Journal of Nutrition. 2001 Feb;131(2S-2):676S-688S.

3. Jung J, Rahman MdM, Rahman MdS, Swe KT, Islam MdR, Rahman MdO, et al. Effects of hemoglobin levels during pregnancy on adverse maternal and infant outcomes: a systematic review and meta-analysis. Annals of the New York Academy of Sciences. 2019;1450(1):69–82.

4. Larson LM, Kubes JN, Ramírez-Luzuriaga MJ, Khishen S, H. Shankar A, Prado EL. Effects of increased hemoglobin on child growth, development, and disease: a systematic review and meta-analysis. Annals of the New York Academy of Sciences. 2019;1450(1):83–104.

5. Nutrition International, African Union, WHO. Landscape analysis of anaemia and its determinants in Africa. 2023.

6. GBD 2021 Anaemia Collaborators. Prevalence, years lived with disability, and trends in anaemia burden by severity and cause, 1990-2021: findings from the Global Burden of Disease Study 2021. Lancet Haematology. 10(9):E713–34.

7. African Union. Africa Health Strategy 2016-2030 [Internet]. 2015. Available from: https://au.int/sites/default/files/pages/32895-file-africa_health_strategy.pdf

8. African Union. Africa Regional Nutrition Strategy 2015-2025 [Internet]. 2015. Available from: https://au.int/sites/default/files/pages/32895-file-arns_english.pdf

9. WHO. Sixty-fifth World Health Assemby [Internet]. 2012. Available from: https://apps.who.int/gb/ebwha/pdf_files/WHA65-REC1/A65_REC1-en.pdf

10. Global Nutrition Report. 2021 Global Nutrition Report: The state of global nutrition. Bristol, UK: Development Initiatives; 2021.

11. African Leaders for Nutrition Initiative. Continental Nutrition Accountability Scorecard. Scorecard. Available from: https://afdb-scorecard.invenus.dev/en/scorecard

12. Chaparro CM, Suchdev PS. Anemia epidemiology, pathophysiology, and etiology in low- and middle-income countries. Ann N Y Acad Sci. 2019 Aug;1450(1):15–31.

13. Stevens, Gretchen A., Beal, T., Mbuya, M.N.N., Luo, H., Neufeld, Lynnette M. Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: A pooled analysis of individual-level data from population-representative surveys. The Lancet Global Health. 2022;10(11):e1590–9.

14. WHO. Vitamin and Mineral Information System (VMNIS) Micronutrients database [Internet]. [cited 2023 Jun 20]. Available from: https://www.who.int/teams/nutrition-and-food-safety/databases/vitamin-and-mineral-nutrition-information-system

15. WHO. Estimated number of people (all ages) living with HIV [Internet]. 2023. Available from: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-number-of-people--living-with-hiv

16. WHO. Global Health Observatory. 2023. Tuberculosis. Available from: https://www.who.int/data/gho/data/themes/tuberculosis

17. WHO. Malaria [Internet]. [cited 2023 Jun 23]. Available from: https://www.who.int/news-room/fact-sheets/detail/malaria

18. Bates, I., McKew, S., Sarkinfada, F. Anaemia: A Useful Indicator of Neglected Disease Burden and Control. PLOS Medicine. 2007;4(8):e231.

19. Karlsson, T.S., Marions, L.B., Edlund, M.G. Heavy menstrual bleeding significantly affects quality of life. Acta obstetricia et gynecologica Scandinavica. 2014;93(1):52–7.

20. Fraser, I.S., Mansour, D., Breymann, C., Hoffman, C., Mezzacasa, A., Petraglia, F. Prevalence of heavy menstrual bleeding and experiences of affected women in a European patient survey. International Journal of Gynecology & Obstetrics. 2015;128(3):196–200.

21. Kocaoz, S., Cirpan, R., Degirmencioglu, A.Z. The prevalence and impacts heavy menstrual bleeding on anaemia, fatigue and quality of life in women of reproductive age. Pakistan Journal of Medical Science. 2019 Apr;35(2):365–70.

22. Santos, I.S., Minten, G.C., Valle, N.C., Tuerlinckx, G.C., Silva, A.B., Pereira, G.A., et al. Menstrual bleeding patterns: A community-based cross-sectional study among women aged 18-45 years in Southern Brazil. BMC Women's Health. 2011;11(26).

23. Carroli G, Cuesta C, Abalos E, Gulmezoglu AM. Epidemiology of postpartum haemorrhage: a systematic review. Best Practice & Research Clinical Obstetrics & Gynaecology. 2008 Dec 1;22(6):999–1012.

24. Milman, N. Postpartum anaemia I: definition, prevalence, causes, and consequences. Annals of Hematology. 2011;90(11):1247–53.

25. Forbes G, Akter S, Miller S, Galadanci H, Qureshi Z, Fawcus S, et al. Factors influencing postpartum haemorrhage detection and management and the implementation of a new postpartum haemorrhage care bundle (E-MOTIVE) in Kenya, Nigeria, and South Africa. Implement Sci. 2023 Jan 11;18:1.

26. Mpemba, F., Kampo, S., Zhang, X. Towards 2015: post-partum haemorrhage in sub-Saharan Africa still on the rise. Journal of Clinical Nursing. 2014;23(5–6):774–83.

27. Sefah N, Ndebele S, Prince L, Korasare E, Agbleke M, Nkansah A, et al. Uterine fibroids — Causes, impact, treatment, and lens to the African perspective. Front Pharmacol. 2023 Jan 10;13:1045783.

28. Stewart E, Cookson C, Gandolfo R, Schulze-Rath R. Epidemiology of uterine fibroids: a systematic review. BJOG: An International Journal of Obstetrics & Gynaecology. 2017;124(10):1501–12.

29. Lou Z, Huang Y, Li S, Luo Z, Li C, Chu K, et al. Global, regional, and national time trends in incidence, prevalence, years lived with disability for uterine fibroids, 1990–2019: an age-period-cohort analysis for the global burden of disease 2019 study. BMC Public Health. 2023 May 19;23(1):916.

30. Balarajan, Y., Ramakrishnan, U., Ozaltin, E., Shankar, A.H., Subramanian, S.V. Anaemia in low-income and middle-income countries. Lancet. 2011;378(9809):2123–35.

31. Weatherall, D.J. The inherited diseases of hemoglobin are an emerging global health burden. Blood. 2010 Jun 3;115(22):4331–6.

32. WHO Africa [Internet]. 2022. African health ministers launch drive to curb sickle cell disease toll. Available from: https://www.afro.who.int/news/african-health-ministers-launch-drive-curb-sickle-cell-disease-toll

33. Howes, R.E., Piel, F.B., Patil, A.P., Nyangiri, O.A., Gething, P.W., Dewi, M., et al. G6PD deficiency prevalence and estimates of affected populations in malaria endemic countries: a geostatistical model-based map. PLOS Medicine. 2012;9(11):e1001339.

34. Africa – Regional Overview of Food Security and Nutrition 2021 [Internet]. FAO; 2021 [cited 2024 Jul 3]. Available from: http://www.fao.org/documents/card/en/c/cb7496en

35. WHO. Global Health Observatory. 2023. Maternal and reproductive health [Internet]. [cited 2024 Jun 17]. Available from: https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/maternal-and-reproductive-health

36. WHO. Global Health Observatory. 2023. Coverage of essential health services [Internet]. [cited 2024 Jun 17]. Available from: https://www.who.int/data/gho/data/themes/topics/service-coverage

37. WHO. Global Health Observatory. 2023. Water, sanitation and hygiene [Internet]. [cited 2024 Jun 17]. Available from: https://www.who.int/data/gho/data/themes/water-sanitation-and-hygiene

38. Nguyen MC, Wu H, Lakner C, Schoch M. March 2021 Update to the Multidimensional Poverty Measure: What's New [Internet]. World Bank; 2021 [cited 2024 Jun 17]. Available from: http://elibrary.worldbank.org/doi/book/10.1596/35390

39. Atinmo T, Mirmiran P, Oyewole OE, Belahsen R, Serra-Majem L. Breaking the poverty/malnutrition cycle in Africa and the Middle East. Nutr Rev. 2009 May;67 Suppl 1:S40-46.

40. Hess S, Owais A, Jefferds M, Cahill A, Rogers L. Accelerating action to reduce anaemia: review of causes and risk factors and related data needs. Annals of the New York Academy of Sciences. 2023;1523:11–23.

41. WHO. Accelerating anaemia reduction A comprehensive framework for action [Internet]. 2023 [cited 2023 Oct 3]. Available from: https://www.who.int/news-room/fact-sheets/detail/anaemia

42. Hess SY, Cahill A, Owais A, Rogers LM, Jefferds MED, Young MF. Accelerating action to reduce anemia: Review of causes and risk factors and related data needs. Ann NY Acad Sci. 2023;(1523):11–23.

43. WHO. Global anaemia reduction efforts among women of reproductive age: impact, achievement of targets and the way forward for optimizing efforts [Internet]. 2020 [cited 2024 Apr 12]. Available from: https://www.who.int/publications-detail-redirect/9789240012202

44. Williams AM, Addo OY, Grosse SD, Kassebaum NJ, Rankin Z, Ballesteros KE, et al. Data needed to respond appropriately to anemia when it is a public health problem. Annals of the New York Academy of Sciences. 2019;1450(1):268–80.

45. Ministry of Health FGS, FMS, Somaliland, UNICEF, Brandpro, GroundWork. Somalia Micronutrient Survey 2019. 2020.

46. Ministry of Health and Sanitation (Sierra Leone), UNICEF, Helen Keller International, WHO. 2013 Sierra Leone Micronutrient Survey [Internet]. 2013. Available from: https://groundworkhealth.org/wp-content/uploads/2016/03/SLMS-Report_FINAL_151203.pdf

47. Ministry of Health, Institut de Technologie Alimentaire (ITA), Nutrition International, Laboratoire de Recherche en Alimentation et Nutrition Humaine de l"Universite Cheikh Anta Diop (LARNAH), Agence Nationale de la Statistiques et de la Demographie (ANSD), FAO, et al. Senegal National Nutrition Survey 2018 [Internet]. 2018. Available from: https://groundworkhealth.org/wp-content/uploads/2023/03/ENGLISH_Senegal-Micronutrient-Survey-2018_Report_230307_FINAL.pdf

48. National Statistical Office, Community Health Services Unit, Centers for Disease Control and Prevention, Emory University. Malawi Micronutrient Survey 2015-16 [Internet]. 2017. Available from: https://dhsprogram.com/pubs/pdf/FR319/FR319.m.final.pdf

49. University of Ghana, GroundWork, University of Wisconsin-Madison, KEMRI-Wellcome Trust, UNICEF. Ghana Micronutrient Survey 2017 [Internet]. 2017. Available from: https://groundworkhealth.org/wp-content/uploads/2018/06/UoG-GroundWork_2017-GHANA-MICRONUTRIENT-SURVEY_Final_180607.pdf

50. National Nutrition Agency - Gambia, UNICEF, Gambia Bureau of Statistics, GroundWork. Gambia National Micronutrient Survey 2018 [Internet]. 2019. Available from: Available from: https://groundworkhealth.org/wp-content/uploads/2019/03/GNMS2018-Final-Report_190325.pdf

51. Andersen CT, Tadesse AW, Bromage S, Fekadu H, Hemler EC, Passarelli S, et al. Anemia Etiology in Ethiopia: Assessment of Nutritional, Infectious Disease, and Other Risk Factors in a Population-Based Cross-Sectional Survey of Women, Men, and Children. The Journal of Nutrition. 2022 Feb;152(2):501–12.

52. SPRING. Understanding Anemia: Guidance for Conducting a Landscape Analysis [Internet]. Second Edition Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) projec. 2017;

53. SPRING. Multi-sectoral Anemia Efforts at the National Level in Uganda: Process Documentation Findings [Internet]. Second Edition Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) projec [Internet]. 2017; Available from: https://spring-nutrition.org/sites/default/files/publications/reports/uganda_maps_report_2-1-18.pdf

54. SPRING. Multi-sectoral Anemia Efforts at the National Level in Sierra Leone: Process Documentation Findings [Internet]. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project. 2018;

55. Garcia-Casal MN, Dary O, Jefferds ME, Pasricha SR. Diagnosing anemia: Challenges selecting methods, addressing underlying causes, and implementing actions at the public health level. Ann N Y Acad Sci. 2023 Jun;1524(1):37–50.

56. Centers for Disease Control and Prevention, Nutrition International, UNICEF. Micronutrient Survey Manual & Toolkit [Internet]. 2022 [cited 2024 Jun 18]. Available from: https://mnsurvey.nutritionintl.org/

57. WHO. Micronutrient survey manual [Internet]. 2020 [cited 2024 Jun 26]. Available from: https://www.who.int/publications/i/item/9789240012691

58. Intake. Global Diet Quality Score Toolkit. Washington, DC: Intake – Center for Dietary Assessment/FHI Solutions. 2022;

59. Intake. Innovations [Internet]. [cited 2024 Jul 3]. Available from: https://www.intake.org/index.php/innovations

60. Lopez de Romaña D, Mildon A, Golan J, Jefferds MED, Arabi M. Review of intervention products for use in the prevention and control of anemia. Ann N Y Acad Sci. 2023;1529(1):42–60.

61. Da Silva Lopes K, Yamaji N, Rahman MdO, Suto M, Takemoto Y, Garcia-Casal MN, et al. Nutrition-specific interventions for preventing and controlling anaemia throughout the life cycle: an overview of systematic reviews. Cochrane Developmental, Psychosocial and Learning Problems Group, editor. Cochrane Database of Systematic Reviews [Internet]. 2021 Sep 26 [cited 2024 Jun 14];2022(1). Available from: http://doi.wiley.com/10.1002/14651858.CD013092.pub2

62. Moorthy D, Merrill R, Namaste S, Iannotti L. The Impact of Nutrition-Specific and Nutrition-Sensitive Interventions on Hemoglobin Concentrations and Anemia: A Meta-review of Systematic Reviews. Advances in Nutrition. 2020 Nov;11(6):1631–45.

63. African Union Development Agency. Africa Common Position on Food Systems: Regional submission to the UN food systems summit. 2021.

64. Osendarp SJM, Martinez H, Garrett GS, Neufeld LM, De-Regil LM, Vossenaar M, et al. Large-Scale Food Fortification and Biofortification in Low- and Middle-Income Countries: A Review of Programs, Trends, Challenges, and Evidence Gaps. Food Nutr Bull. 2018;39(2):315–31.

65. WHO. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. World Health Organization; 2016. Available from: https://www.who.int/publications/i/item/9789241549912

66. Sununtnasuk C, D'Agostino A, Fiedler JL. Iron+folic acid distribution and consumption through antenatal care: identifying barriers across countries. Public Health Nutr. 2016 Mar;19(4):732–42.

67. Siekmans K, Roche M, Kung'u JK, Desrochers RE, De-Regil LM. Barriers and enablers for iron folic acid (IFA) supplementation in pregnant women. Maternal & Child Nutrition. 2018;14(S5):e12532.

68. WHO. Guideline: Daily iron supplementation in adult women and adolescent girls [Internet]. Geneva: World Health Organization; 2016. Available from: https://www.who.int/publications/i/item/9789241510196

69. WHO. Guideline. Intermittent iron and folic acid supplementation in menstruating women [Internet]. World Health Organization; 2011. Available from: https://www.who.int/publications/i/item/9789241502023

70. Mildon A, Lopez De Romaña D, Jefferds MED, Rogers LM, Golan JM, Arabi M. Integrating and coordinating programs for the management of anemia across the life course. Annals of the New York Academy of Sciences. 2023 Jul;1525(1):160–72.

71. WHO. Guideline: daily iron supplementation in infants and children [Internet]. Geneva: World Health Organization; 2016 [cited 2024 Jun 18]. 44 p. Available from: https://iris.who.int/handle/10665/204712

72. WHO. Guideline: Use of multiple micronutrient powders for point-of-use fortification of foods consumed by infants and young children aged 6-23 months and children 2-12 years. Geneva: World Health Organization; 2016.

73. WHO. Guideline for complementary feeding of infants and young children 6–23 months of age. Geneva: World Health Organization; 2023.

74. WHO. WHO Guidelines for malaria. Geneva: World Health Organization; 2022.

75. UNDP. The Comprehensive Multisectoral Action Framework: Malaria and Sustainable Development [Internet]. United Nations Development Programme; 2022. Available from: https://www.undp.org/publications/comprehensive-multisectoral-action-framework-malaria-and-sustainable-development

76. WHO. Preventive chemotherapy to control soil-transmitted helminth infections in at-risk population groups. Geneva: World Health Organization; 2017.

77. WHO. WHO guideline on control and elimination of human schistosomiasis [Internet]. 2022. Available from: https://www.who.int/publications/i/item/9789240041608

78. WHO. WHO guidelines on preventing early pregnancy and poor reproductive health outcomes among adolescents in developing countries [Internet]. World Health Organization; 2011. Available from: https://iris.who.int/handle/10665/44691

79. WHO. WHO recommendations non-clinical interventions to reduce unnecessary caesarean sections [Internet]. World Health Organization; 2018. Available from: https://iris.who.int/handle/10665/275377

80. African Union Commission. Maputo Plan of Action 2016-2030: Universal access to comprehensive sexual and reproductive health services in Africa. 2015.

81. World Health Organization. Early essential newborn care: clinical practice pocket guide, 2nd edition [Internet]. WHO Regional Office for the Western Pacific; 2022. Available from: https://iris.who.int/handle/10665/361145

82. WHO, editor. IMAI district clinician manual: hospital care for adolescents and adults: guidelines for the management of common illnesses with limited resources. Geneva, Switzerland: World Health Organization; 2011. 2 p.

83. World Health Organization. WHO guideline on health policy and system support to optimize community health worker programmes [Internet]. Geneva: World Health Organization; 2018 [cited 2024 Jun 17]. 112 p. Available from: https://iris.who.int/handle/10665/275474

84. WHO, Regional Office for Europe, European Observatory on Health System and Policies, Sagan A, McDaid D, Rajan S, Farrington J, et al. Screening: when is it appropriate and how can we get it right? [Internet]. World Health Organization. Regional Office for Europe; 2020. Available from: https://iris.who.int/handle/10665/330810 Relation

85. World Health Organization. Pocket book of hospital care for children: guidelines for the management of common childhood illnesses [Internet]. 2nd ed. Pocketbook of hospital care for children. Geneva: World Health Organization; 2013 [cited 2024 Jun 12]. Available from: https://iris.who.int/handle/10665/81170

86. Heidkamp RA, Wilson E, Menon P, Kuo H, Walton S, Gatica-Domínguez G, et al. How can we realise the full potential of health systems for nutrition? BMJ. 2020 Jan 26;l6911.

87. Global Nutrition Report. The first global accountability framework for nutrition – Global Nutrition Report 2022 [Internet]. [cited 2024 Jun 17]. Available from: https://globalnutritionreport.org/reports/2022-global-nutrition-report/first-global-accountability-framework-for-nutrition/

88. Nutrition International. Cost of Inaction Tool: What is the economic cost of stunting, anaemia, and low birthweight per year? [Internet]. 2024 [cited 2024 Jun 18]. Available from: https://www.nutritionintl.org/learning-resource/cost-inaction-tool/

89. Walters D, Kakietek J, Eberwein JD, Shekar M. An Investment Framework for Meeting the Global Nutrition Target for Anemia.

90. Busse H, Covic N, Aakesson A, Jogo W. What Is the Role of Civil Society in Multisectoral Nutrition Governance Systems? A Multicountry Review. Food Nutr Bull. 2020;41(2):244–60.

Annexes

Annex 1: Direct causes of anaemia and data gaps, by African Union Member States (data from Landscape Analysis except where noted)

Country	**Region**	**Iron Deficiency** (children <5)	**Iron Deficiency** (WRA)	**Malaria** (per 1000)	**Helminths** (PC need)	**Schistosomiasis** (PC need)	**Sickle Cell Anaemia** (est. births/yr)*	**G6PD Deficiency**
Central African Republic	Central	-	15.3	300-400	1-4.9M	1-4.9M	1000	>7-13%
Democratic Republic of Congo	Central	-	-	300-400	20-99.9M	>10M	40,000	>13-20%
Democratic Republic of São Tomé and Príncipe	Central	-	-	1-50	<200K	<200K	40	-
Gabonese Republic	Central	-	-	200-300	<1M	<200K	1000	>7-13%
Republic of Burundi	Central	-	-	200-300	<1M	<1 M	800	>7-13%
Republic of Cameroon	Central	20.6	-	200-300	1-4.9M	5-9.9M	7500	>7-13%
Republic of Chad	Central	-	-	200-300	<1M	1-4.9M	2400	>13-20%
Republic of Equatorial Guinea	Central	-	-	200-300	<1M	<200K	450	>7-13%
Republic of the Congo	Central	-	10.0	200-300	<1M	<1M	2000	>20%
Federal Democratic Republic of Ethiopia	Eastern	17.8	-	50-100	20-99.9M	>10M	130	≤7%
Federal Republic of Somalia	Eastern	42.9	-	50-100	1-4.9M	1-4.9M	20	≤7%

Country	Region	Iron Deficiency (children <5)	Iron Deficiency (WRA)	Malaria (per 1000)	Helminths (PC need)	Schistosomiasis (PC need)	Sickle Cell Anaemia (est. births/yr)*	G6PD Deficiency
Republic of Djibouti	Eastern	-	-	50-100	<200K	No PC required	0	≤7%
Republic of Kenya	Eastern	21.8	41.4	50-100	5-19.9M	1-4.9M	5800	>7-13%
Republic of Madagascar	Eastern	-	-	100-200	5-19.9M	>10M	4900	>13-20%
Republic of Mauritius	Eastern	-	-	Malaria free	No PC required	No PC required	0	-
Republic of Rwanda	Eastern	-	-	100-200	1-4.9M	1-4.9M	770	≤7%
Republic of Seychelles	Eastern	-	-	Malaria free	No PC required	non-endemic	-	-
Republic of South Sudan	Eastern	-	-	200-300	<1M	1-4.9M	-	>13-20%
Republic of The Sudan	Eastern	10.0	58.4	50-100	1-4.9M	5-9.9M	5300	>13-20%
Republic of Uganda	Eastern	-	-	200-300	5-19.9M	>10M	14,000	>13-20%
State of Eritrea	Eastern	-	-	1-50	No PC required	<1M	9	≤7%
Union of the Comoros	Eastern	-	-	1-50	<1M	non-endemic	30	-
United Republic of Tanzania	Eastern	-	-	100-200	20-99.9M	>10M	18,000	>13-20%
Arab Republic of Egypt	Northern	-	-	Malaria free	No PC required	No PC required	1100	-
Islamic Republic of Mauritania	Northern	-	-	1-50	No PC required	<1M	500	>7-13%
Kingdom of Morocco	Northern	23.5	30.3	Malaria free	No PC required	No PC required	35	-
People's Democratic Republic of Algeria	Northern	23.3	28.7	Malaria free	No PC required	No PC required	170	-

Country	Region	Iron Deficiency (children <5)	Iron Deficiency (WRA)	Malaria (per 1000)	Helminths (PC need)	Schistosomiasis (PC need)	Sickle Cell Anaemia (est. births/yr)*	G6PD Deficiency
Republic of Tunisia	Northern	-	-	Malaria free	No PC required	No PC required	75	-
Sahrawi Arab Democratic Republic	Northern	-	-	-	-	-	4	-
State of Libya	Northern	-	-	Malaria free	No PC required	No PC required	160	-
Kingdom of Eswatini	Southern	-	-	<1	<200K	<1M	4	>7-13%
Kingdom of Lesotho	Southern	-	-	Malaria free	<1M	non-endemic	0	-
Republic of Angola	Southern	-	-	100-200	5-19.9M	5-9.9M	9200	>13-20%
Republic of Botswana	Southern	-	-	<1	<200K	1-4.9M	4	≤7%
Republic of Malawi	Southern	21.7	15.1	200-300	5-19.9M	5-9.9M	2900	>20%
Republic of Mozambique	Southern	-	-	300-400	5-19.9M	>10M	2000	>20%
Republic of Namibia	Southern	-	-	1-50	<1M	<200K	30	≤7%
Republic of South Africa	Southern	53.6	-	<1	5-19.9M	1-4.9M	65	≤7%
Republic of Zambia	Southern	-	-	100-200	1-4.9M	1-4.9M	10,700	>20%
Republic of Zimbabwe	Southern	-	-	50-100	<1M	1-4.9M	450	>13-20%
Federal Republic of Nigeria	Western	19.4	12.7	300-400	20-99.9M	>10M	116,000	>13-20%
People's Republic of Burkina Faso	Western	-	-	300-400	No PC required	1-4.9M	4700	>7-13%
Republic of Benin	Western	-	-	300-400	1-4.9M	1-4.9M	5700	>20%

Country	Region	Iron Deficiency (children <5)	Iron Deficiency (WRA)	Malaria (per 1000)	Helminths (PC need)	Schistosomiasis (PC need)	Sickle Cell Anaemia (est. births/yr)*	G6PD Deficiency
Republic of Cabo Verde	Western	-	-		<200K	No PC required	15	-
Republic of Côte d'Ivoire	Western	15.5	16.7	200-300	1-4.9M	1-4.9M	7500	>13-20%
Republic of Ghana	Western	21.5	13.7	100-200	No PC required	>10M	6300	>13-20%
Republic of Guinea	Western	-	-	300-400	1-4.9M	1-4.9M	6300	>7-13%
Republic of Guinea-Bissau	Western	-	-	100-200	<1M	<200K	220	>7-13%
Republic of Liberia	Western	25.7	-	300-400	<1M	1-4.9M	700	>7-13%
Republic of Mali	Western	-	-	300-400	No PC required	5-9.9M	4300	>7-13%
Republic of Senegal	Western	56.3	42.3	50-100	1-4.9M	1-4.9M	3000	>13-20%
Republic of Sierra Leone	Western	5.2	8.3	300-400	1-4.9M	1-4.9M	3000	>7-13%
Republic of The Gambia	Western	59.0	-	50-100	<200K	<1M	500	≤7%
Republic of the Niger	Western	-	-	300-400	No PC required	>10M	8600	≤7%
Togolese Republic	Western	-	-	200-300	1-4.9M	1-4.9M	2000	>20%
Classification of Importance:								
Very Low or None		<1%		<1 or none	none	none	<10	none
Low		<10%		1-50	<200,000	<200,000	10-100	≤7%
Moderate		10-19%		50-100	200-900,000	200-900,000	100-500	>7-13%
High		20-39%		100-200	1-4.9 million	1-4.9 million	500-2000	>13-20%
Very High		≥40%	≥40%	>200	≥5 million	≥5 million	≥2000	>20%
No Data		-	-	-	-	-	-	-

*Piel, F. B., Hay, S. I., Gupta, S., Weatherall, D. J., & Williams, T. N. (2013). Global burden of sickle cell anaemia in children under five, 2010-2050: modelling based on demographics, excess mortality, and interventions. *PLoS medicine*, *10*(7), e1001484. https://doi.org/10.1371/journal.pmed.1001484

Annex 2: Major causes of anaemia based on years lived with disability (YLDs) per 100,000 population for females of all ages in AU regions including Member States

GBD Region	AU Member States included in GBD Region	Major Causes of Anaemia		
		1	2	3
North Africa	Algeria, Egypt, Libya, Morocco, Sudan, Tunisia	Dietary iron deficiency	Haemoglobinopathies & haemolytic anaemias	Other neglected tropical diseases
Central Africa	Angola, Central African Republic, Congo Republic, DR Congo, Equatorial Guinea, Gabon	Dietary iron deficiency	Haemoglobinopathies & haemolytic anaemias	Malaria
Eastern Africa	Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Rwanda, Somalia, South Sudan, Uganda, Tanzania, Zambia	Dietary iron deficiency	Haemoglobinopathies & haemolytic anaemias	Malaria
	Mauritius, Seychelles	Dietary iron deficiency	Haemoglobinopathies & haemolytic anaemias	Chronic kidney disease
Southern Africa	Botswana, Eswatini, Lesotho, Namibia, South Africa, Zimbabwe	Dietary iron deficiency	HIV/AIDS	Haemoglobinopathies & haemolytic anaemias
Western Africa	Benin, Burkina Faso, Cabo Verde, Cameroon, Chad, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Togo	Dietary iron deficiency	Haemoglobinopathies & haemolytic anaemias	Malaria

Note: Mauritius and Seychelles are included in the GBD region of Southeast Asia, and Sahwari Republic is not included in the GBD analysis.

Source: Supplement to: GBD 2021 Anaemia Collaborators. Prevalence, years lived with disability, and trends in anaemia burden by severity and cause, 1990–2021: findings from the Global Burden of Disease Study 2021. *Lancet Haematol* 2023; published online July 31. https://doi.org/10.1016/S2352-3026(23)00160-6

STRATEGIC FRAMEWORK
FOR PREVENTION AND MANAGEMENT OF ANAEMIA IN AFRICA

Empowering African Countries to Reduce Anaemia

This framework sets stage for coordinated implementation of a context-specific, multi-sectoral package of effective and sustainable interventions, empowering African countries to reduce the burden of anaemia through prevention, diagnosis and management of all forms of anaemia that will improve the health and wellbeing of all citizens.

African Union

Agenda 2063 The Africa we Want