

# “Adolescent Nutrition and Anemia”

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# Adolescent Nutrition & Anemia

**Ms Kesso Gabrielle van Zutphen-Küffer, MSc**

Knowledge and Research Manager, *Sight and Life*, Switzerland

PhD Candidate, Wageningen University & Research, the Netherlands

# Anemia – the most off-track World Health Assembly target



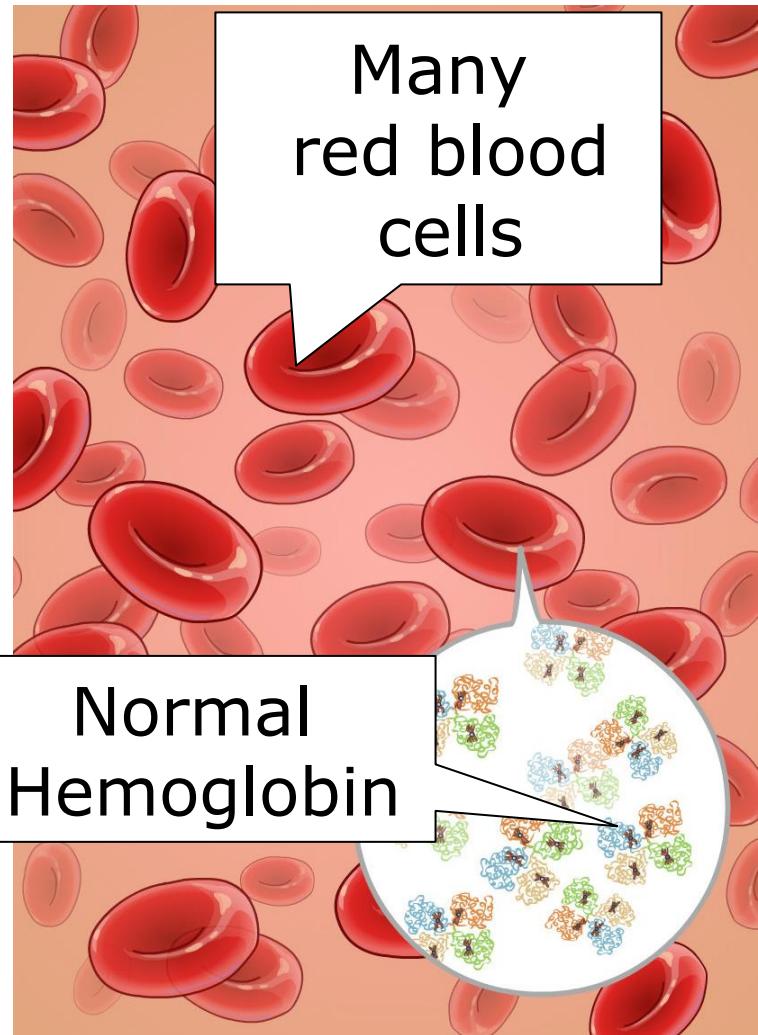
## Women of reproductive age

- Affects 500 million women (pregnant women: **40%**)
- World Health Organization (WHO) target: 50% reduction in prevalence worldwide (1 of 6 2025 global nutrition targets)
- Yet the prevalence is increasing; **only 1/194 countries (Guatemala) is on course to reach WHO target**
- Most off-track world health assembly target; innovative solutions required
- Main cause in women: **menstruation**, pregnancy
- Fatigue, limiting the ability of women to work, affecting national economies

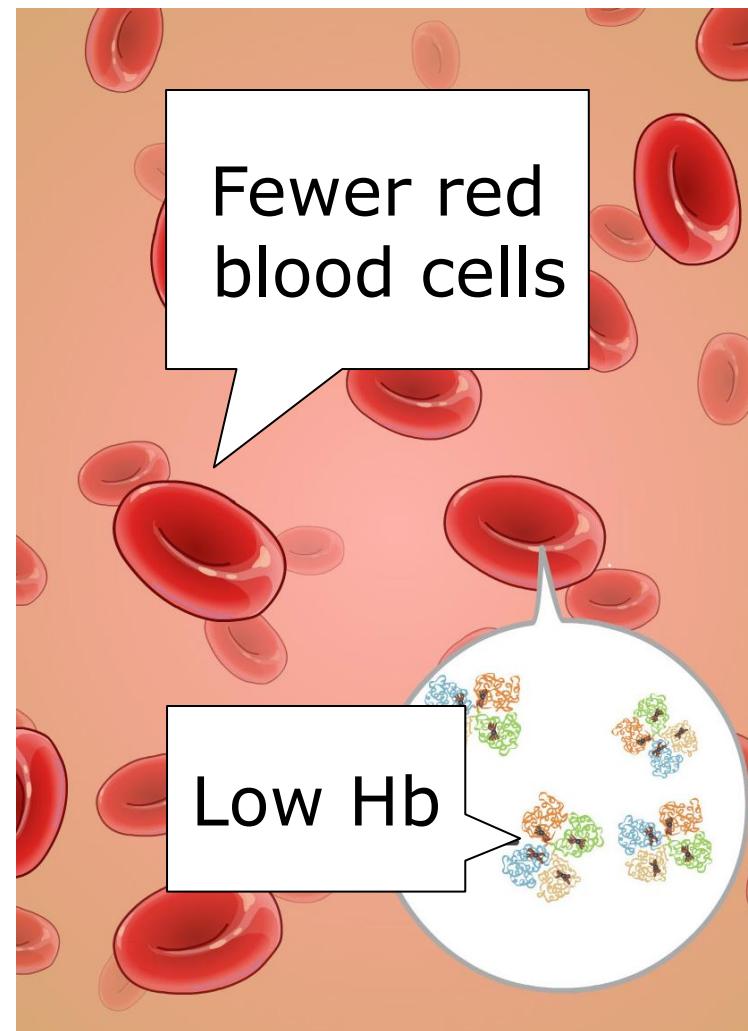
## Adolescent girls

- **Iron deficiency anemia: leading cause of disability-adjusted life-years lost for girls 10–19 years**
- **Neglected issue**
  - Adolescent nutrition overlooked in UN Decade of Action on Nutrition
  - UN Sustainable Development Goals for nutrition: no adolescent-specific targets
- Nutritional goal: build sufficient stores to prepare for pregnancy (serum ferritin >70 µg/L)

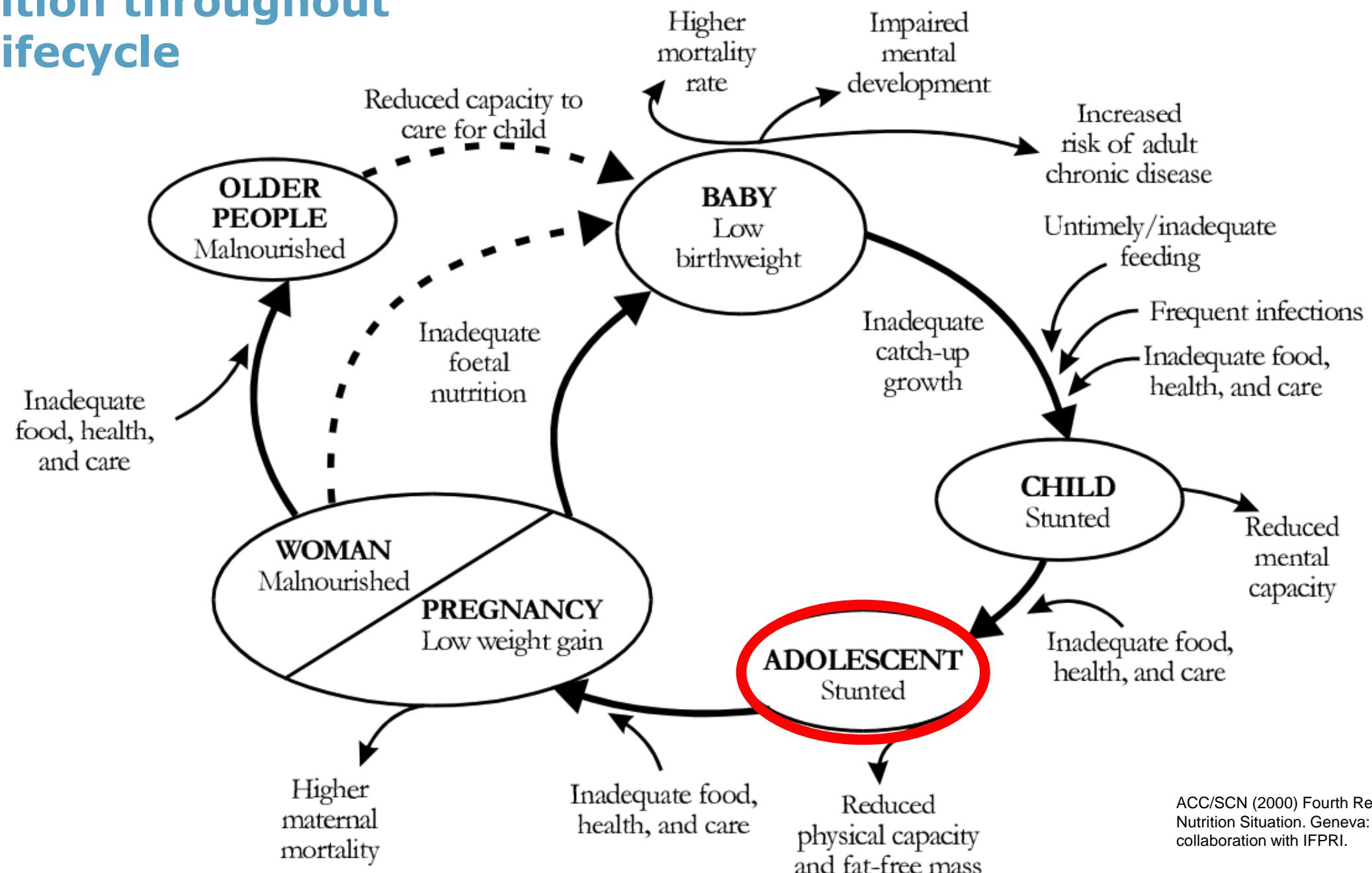
## Normal blood



## Anemic blood



# Nutrition throughout the lifecycle



# Definitions

- The word **etiology** comes from the Greek ***etio-***, which means 'causation' and ***-ology***, which refers to the scientific study of something.
- Merriam-webster definition: "The cause of disease or abnormal condition" "a branch of medical science concerned with the causes and origins of diseases"



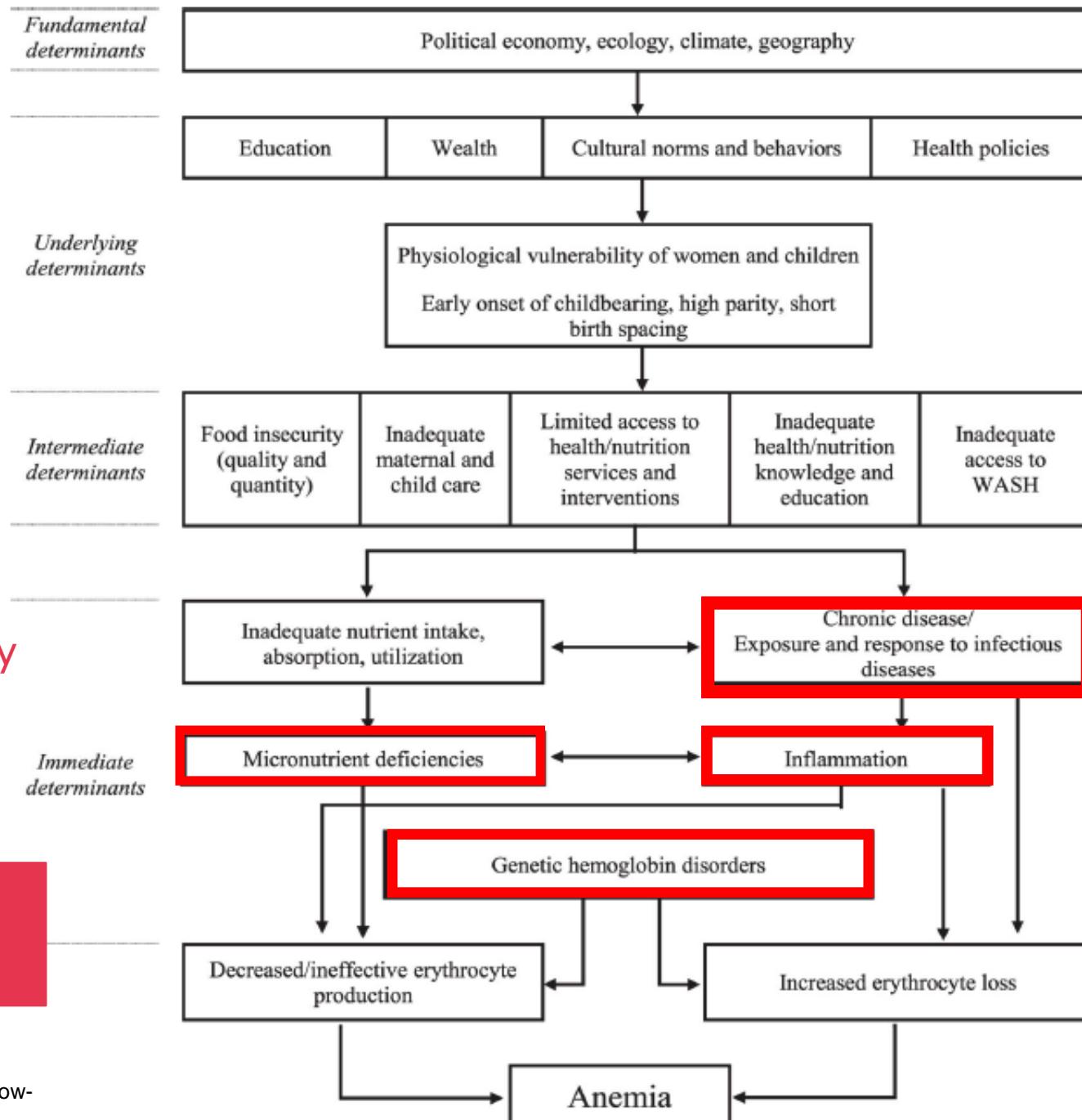
# Anemia etiology

- Fundamental, underlying, intermediate and immediate causes of anemia
- The most proximal risk factors for anemia include:

- **Micronutrient deficiencies**
- **Infection/disease**
- **Inflammation**
- **Genetic hemoglobin disorders**



Anemia etiology is complex and varies by region and context



# Common causes and classifications of anemia

Increased RBC loss/destruction				Deficient/defective erythropoiesis		
Blood loss		Excessive hemolysis				
Acute	Chronic	Acquired	Hereditary	Microcytic	Normocytic, normochromic	Macrocytic
Postpartum hemorrhage	-Gastrointestinal blood loss (hookworm infection, ulcers, schistosomiasis) -Urinary blood loss (schistosomiasis)	-Immune mediated -Microangiopathic -Infection (malaria) -Hypersplenism	-Hemoglobin disorders (sickle cell disorders and thalassemias) -Enzymopathies (G6PD deficiency)	-Iron deficiency -Anemia of inflammation (chronic disease) -Thalassemias -Vitamin A deficiency	-Anemia of inflammation (chronic disease) -Renal disease -Bone marrow failure (aplastic anemia, leukemia)	-Folate deficiency -Vitamin B12 deficiency

# What is the main cause of anemia in LMIC?

*"Until recently, WHO had estimated that about half of the anemia burden of populations was caused by iron deficiency. Although the initial sources of this information are not easy to trace, it seems that the assumption was mainly based on a review conducted by DeMaeyer in 1985"*  
*(Petry et al., 2017)*

**However, the above estimate has important limitations** as such studies:

1. Used proxies to measure IDA (change in Hb following fortification or supplementation)
2. Did not account for inflammation
3. Not solely based on representative surveys

Though iron deficiency remains a primary cause of anemia in most regions, recent work suggests that anemia etiology is complex and context specific

# Global burden of malnutrition among adolescents

- During this period of rapid growth with elevated nutritional demands, **adolescents are at a greater risk of malnutrition**
- There is an **overall lack of data** and there are large gaps in the data that is available assessing global trends in adolescent nutrition
- Undernutrition is among the **top 10 causes of death among children and adolescents**, accounting for 225,906 deaths in 2013
- It is estimated that in some countries as many as **half of all adolescents are stunted**
- Overweight and obesity affect **one in every three** adolescents worldwide

**Table 2** Increase in global age-standardised prevalence of obesity and mean BMI between 1975 and 2016 in children and adolescents age 5–19 years, by gender

	Global age-standardised prevalence of obesity		Global age-standardised mean BMI (kg/m <sup>2</sup> )	
	1975	2016	1975	2016
<b>Girls</b>	0.7% (0.4 – 1.2)	5.6% (4.8 – 6.5)	17.2 (16.8 – 17.6)	18.6 (18.4 – 18.7)
<b>Boys</b>	0.9% (0.5 – 1.3)	7.8% (6.7 – 9.1)	16.8 (16.3 – 17.2)	18.5 (18.3 – 18.7)

Collaboration GBoDP (2016). Global and national burden of diseases and injuries among children and adolescents between 1990 and 2013. JAMA Pediatr. 170: 267–287.

NCD Risk Factor Collaboration. Worldwide trends in body mass index, underweight, overweight and obesity from 1975 to 2016; a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents and adults. Published online The Lancet October 10, 2017. |

Save the Children (2015). Khara T & Mates E. Adolescent nutrition: policy and programming in SUN+ countries.

World Health Organization (2014). World Health Statistics 2014.



# Have we been hooked on iron supply for too long?

*The WHO's current strategies for prevention and control of IDA for adolescents are **heavily skewed towards iron supply...***



Dietary diversity



Iron folic acid and  
multiple micronutrient  
Supplementation



Iron fortification



**What about iron loss  
due to menstruation?  
(no guidelines or policies)**

# Heavy menstrual blood loss – a neglected issue

- Approximately **40% of adolescent girls experience heavy menstrual bleeding** *prolonged bleeding for more than 7 days or blood loss that exceeds 80 ml per menses*
- Approximately **20 to 90% of adolescent girls suffer from dysmenorrhoea**



1. Improves iron status (reduces iron deficiency anemia; builds iron stores)
2. Good for adolescent reproductive health (less menstruation-associated pain; improves quality of life)
3. Keeps girls in school (good for women's dignity and autonomy, triple dividend)



# Menstruation – a neglected issue for a forgotten generation?

- **Period poverty is real**
- Girls use **proxy material** (mud, leaves, animal skins to absorb menstrual flow) that can **cause bacterial vaginosis**, vaginal infections and urinary tract infections
- **Transactional sex** in exchange for pads is common; has led to increased pregnancy during the COVID pandemic
- **20-95%** of adolescent girls suffer from dysmenorrhoea; **20% of young women miss school/university** due to period pain; **41% report decreased performance or concentration** in the classroom
- Girls could be absent from school **12–36 days per year** due to menstrual hygiene and management issues.



The  
Guardian

'Sex for sanitary pads': how Kenya's lockdown led to a rise in teenage pregnancy

Girls who got free sanitary products at school were pushed to desperate measures in what is being called a shadow pandemic



There is a **drastic gap in high-quality quantitative research** and RCTs which look at the health impacts of menstrual hygiene and management

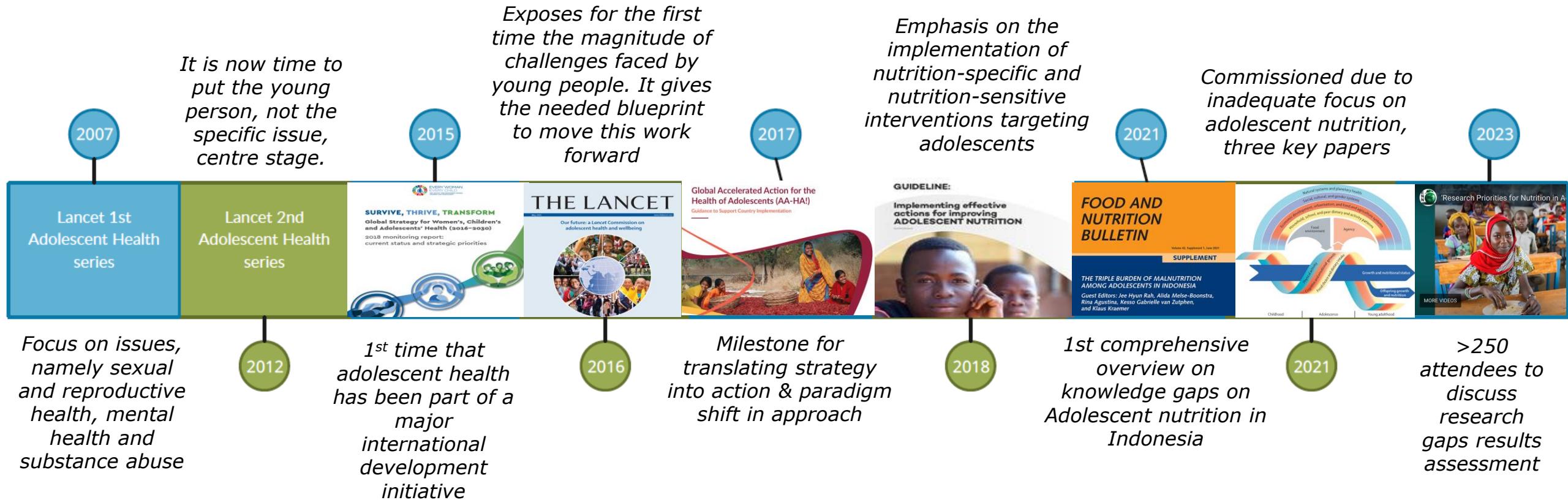
▲ A 17-year-old girl who is seven months pregnant holds a doll at her home in Kibera, Nairobi. Photograph:

# What is next for adolescent nutrition?

1. There is much to uncover regarding the **drivers and the determinants** of adolescent nutrition in many LMIC, and on **how to reach** the most vulnerable groups of adolescents.
2. We need to invest in **research and data gaps**, especially around survey harmonization and sub-national data.
3. We need to invest in **evidence-based interventions** that are supported by **large-scale implementation research and evaluation**.
4. We also need **policies for program sustainability**.
5. Adolescent nutrition is not institutionalized. **Investments and reforms** are urgently needed in nutrition services are needed as adolescents remain an age group with low health coverage.

**The time has come to position adolescent nutrition as central to development and mainstream it into health sector plans, strategies and policies**

# Overview of adolescents in Global Health



**Despite the growing momentum, investments in adolescent health and nutrition have yet to materialize**





*[www.sightandlife.org](http://www.sightandlife.org)*



# Adolescent Nutrition and Anemia: Seqota Declaration Perspectives

**NIPN Webinar**

**Dr. Sisay Sinamo,  
Senior Program Manager,  
Seqota Declaration Federal Program Delivery Unit,  
Scaling Up Nutrition (SUN) Focal Point**

**Jan 26, 2023**



# Seqota Declaration



- Seqota Declaration is a government commitment to end stunting in Ethiopia among **children under 2 years** by 2030 launched in July 2015.
- Seqota Declaration builds on and accelerates the implementation of National Food and Nutrition Strategy.

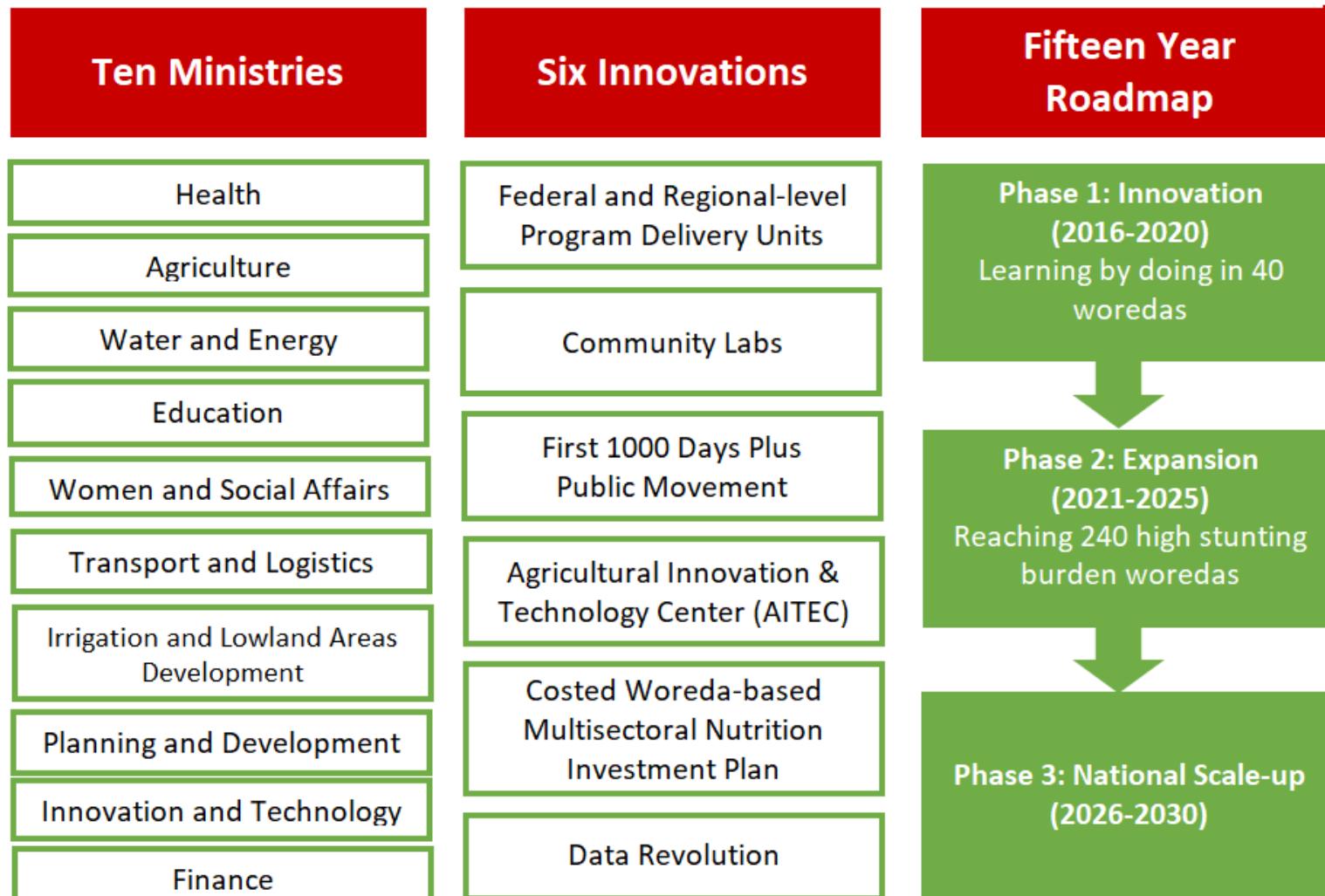




# Seqota Declaration Implementation Strategy



## Implementation Strategy



Source: SD Expansion Phase Roadmap



# Neglect of the Adolescent Nutrition



- Adolescence is a time of rapid changes in both physical growth and development and cognitive and emotional capacities.
- Adolescence is an additional important phase of risks and opportunities for healthy nutrition with lifelong and intergenerational consequences.
- Yet, this age group has been neglected in national and global plans and policies.

Source: <https://www.thelancet.com/series/adolescent-nutrition>

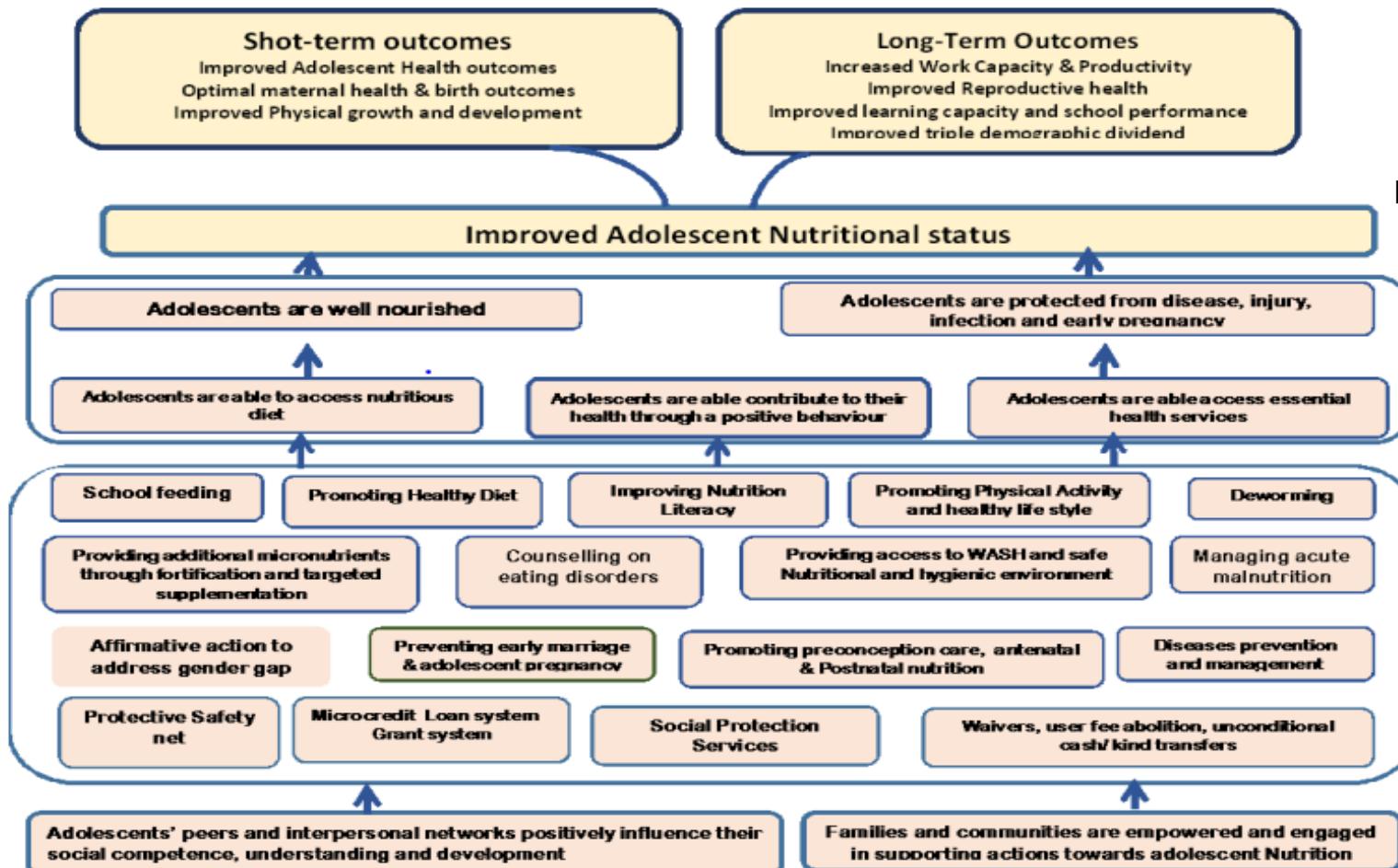
Well-nourished and  
nutrient literate  
adolescent

Well-nourished, nutrient  
literate and healthy  
mothers and fathers

Well-nourished future  
for new-borns and  
infants



# Adolescent Nutrition: Theory of Change



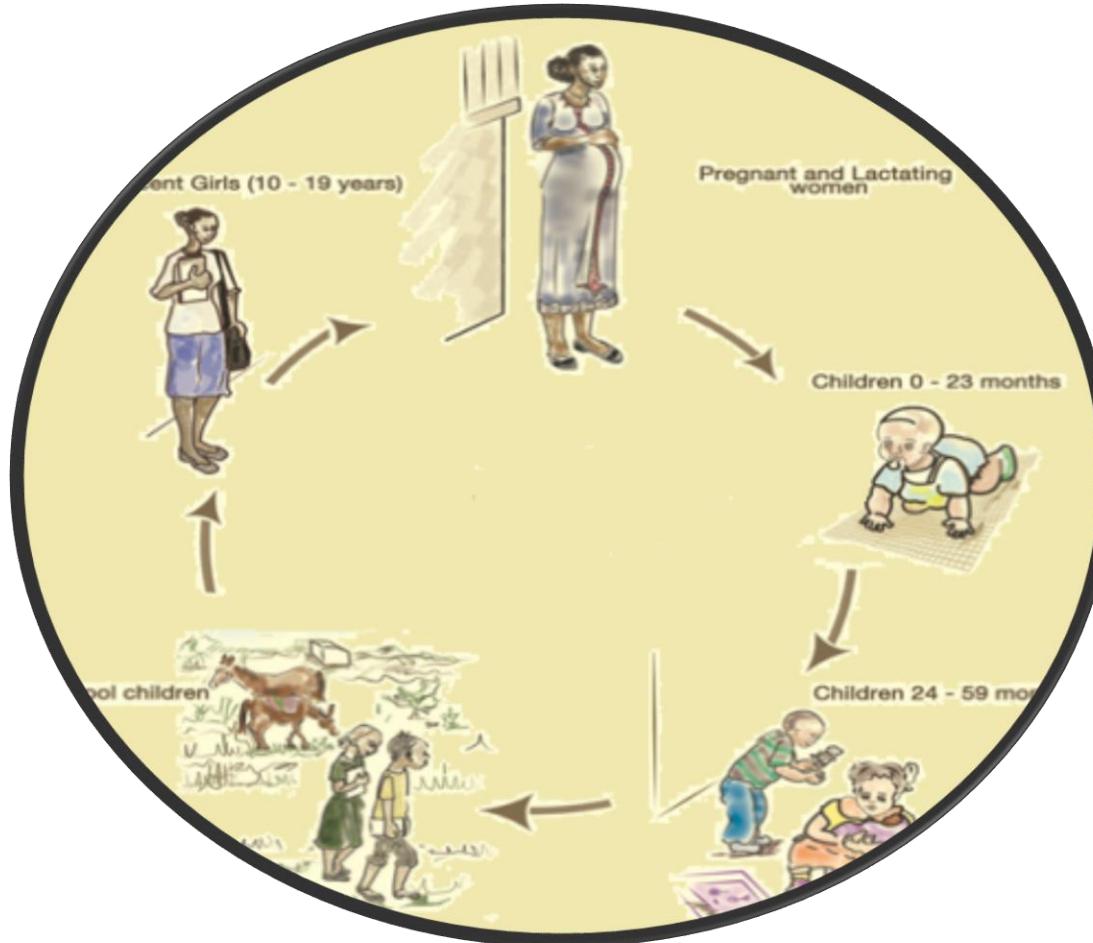
Adolescent nutrition needs to be multi-sectoral, multi-causal and multi-level

Figure 1. Conceptual framework for adolescent nutrition interventions

Source: Adolescent Nutrition Implementation Guideline for Ethiopia, September 2022



# Seqota Declaration: Adolescent Nutrition Interventions



School health and nutrition sensitization and counseling

school gardening; school WASH; MHM;

Deworming and WIFAS;

School feeding;

Prevention of early marriage and pregnancy

Construction of schools to increase adolescent girls stay in school



# Conclusion



- Addressing malnutrition during adolescence requires multi-sectoral and multi-level interventions.
- Understanding the immediate, underlying and root causes of adolescent malnutrition is critical to develop tailored theory of change and interventions.
- In Ethiopia, the Seqota Declaration Innovation Phase provides wide range of adolescent nutrition interventions to effectively utilize the second window of opportunity.
- We look forward for more investment to scale up and show case the impact of adolescent nutrition.



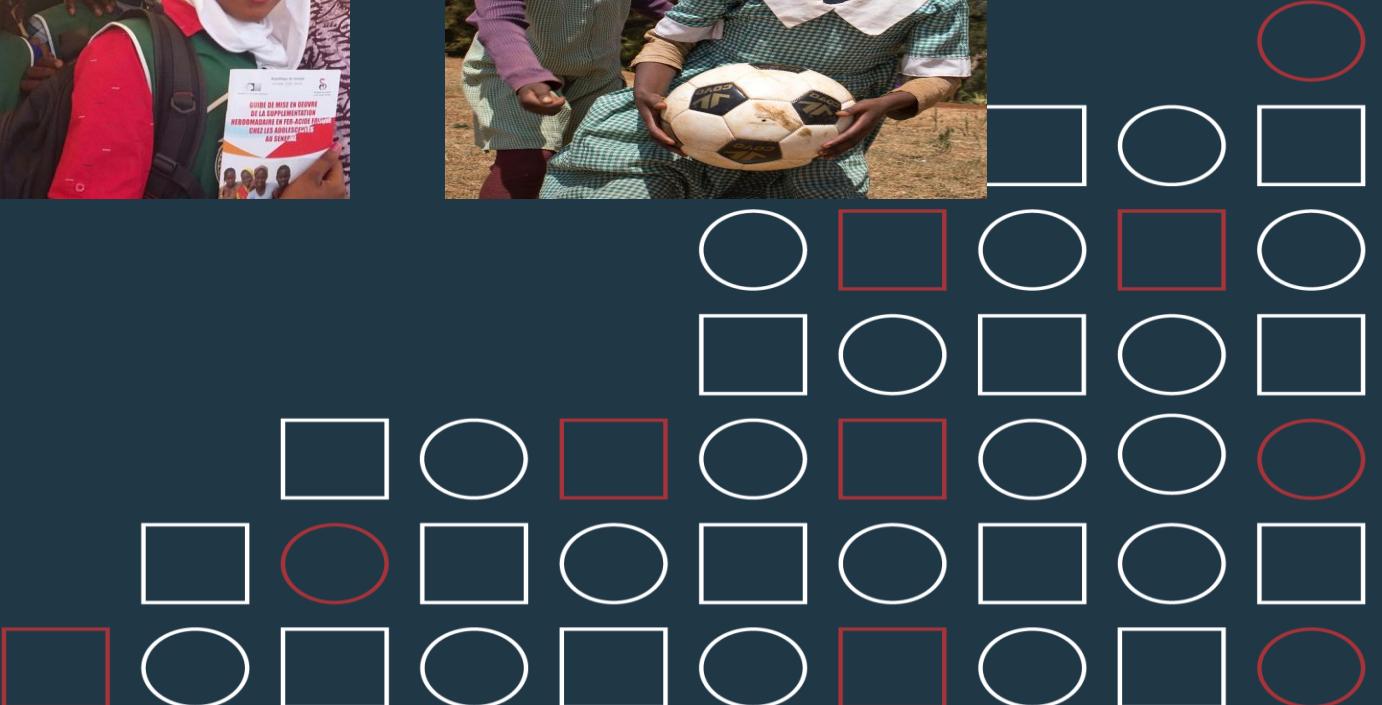
## Invest in Nutrition!



# Adolescents' & Women's Health and Nutrition (AWHN) Overview



Jan 2023



# Why Adolescent Nutrition?

- After infancy, Adolescence (10-19 years) is the most rapid period of growth with highest nutritional needs: bone lengthening, muscle mass development, maturation, puberty
- Ages 15–19 have the greatest total energy requirement compared to any age group (~2,420 kcal/day) - Higher needs for micronutrients: Iron, vitamin D, calcium & Zinc
- 50% of adolescent girls do not eat 3 meals a day; most skip breakfast/morning meal
- Only 24% of boys and 15% of girls meet physical activity recommendations of at least 60 min daily physical activity on at least 5 days per week
- Up to 30% of adolescents are obese in some countries and up to 50% of adolescents are too-short for their age (stunted) in some countries
- Approx 20-30% of adolescents and young adults are living with non-communicable diseases (NCDs) such as diabetes
- Approx 30% of adolescent girls are anemic , >20% is public health concern

# DOUBLE BURDEN OF MALNUTRITION IN AFRICA



**Underweight – Prevalence of thinness - 14.3%**

(Pooled Data; ARISE Adolescent Health Survey)

## Overweight and obesity

- 10% girls & 2.8% boys are obese in E. Africa and 38% girls and 14.3% boys in S. Africa
- 20-30% of adolescents and young adults living with non-communicable diseases (NCDs) such as diabetes

## Micronutrient deficiencies

- In 21 countries assessed by UNICEF, > 1 in 3 girls are anaemic
- 4 of 8 African countries reviewed have >40% anemia in 12-14 years of age
- Anaemia levels among WRA (15-49years) range from 43.6% to 25.9% in ECSA countries

# NI's Approach to Adolescent Nutrition

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## A. Enabling & Equitable Environments

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1. Multisectoral Collaborations with Ministries of Education, Health, Social Protection
2. Reducing Gendered Barriers to School Attendance
  - Advocacy to Keep Girls in School
    - Delayed Marriage, Adolescent Pregnancy, Safety
  - Supporting Menstrual Hygiene Management
  - Female Friendly WASH
3. Advocating for Youth Responsive Health Systems and Identifying Opportunities to reach Vulnerable Adolescent Girls

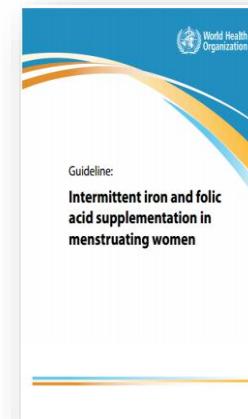
## B. Effective Interventions & Actions

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### 1. Weekly Iron Folic Acid Supplementation

- Anemia Reduction

Effect size for WIFAS estimated  
35% reduction in relative risk of anaemia\*

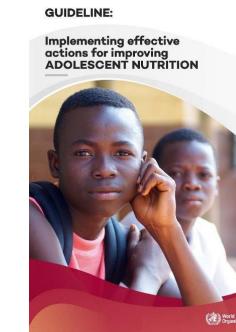


\*Fernández-Gaxiola AC & De-Regil LM, 2020

### 2. Gender Responsive Nutrition Education

- Informed and Empowered Adolescents

Adolescents have an increased understanding of their growth and development and nutritional and health needs



## WIFAS are Effective

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- Reduces Anemia by 35% (RR 0.65)
- Improves Haemoglobin by 5.19 g/L
- Improves ferritin by 7.46 µg/L

Fernández-Gaxiola AC & De-Regil LM, 2020 Cochrane Review

# Iron-deficiency anaemia number one cause of DALYs for adolescent girls

**Figure E.** Estimated top five causes of adolescent disability-adjusted life years (DALYs) lost by sex and age, 2015.

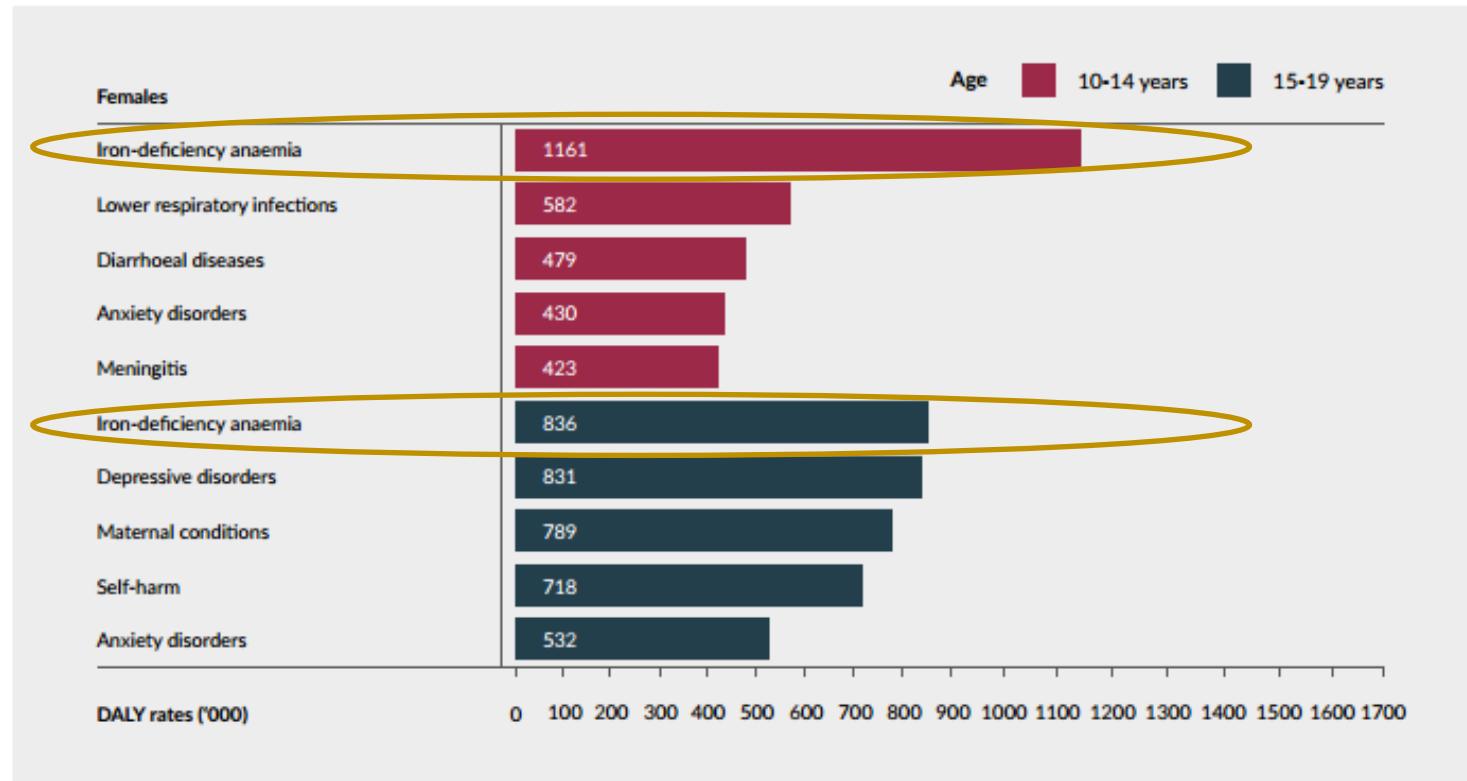


Figure from AA-HA! (Global Accelerated Action for the Health of Adolescents), WHO, 2017.

## C. Empowered & Engaged Adolescents

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- Youth participation in Formative Research
- Support to Girls' Clubs & Youth Clubs
- Peer Leaders Engaged in WIFAS Delivery & Reporting
- Adolescent Youth Nutrition Advocates



# ISG - Adolescent Health and Nutrition

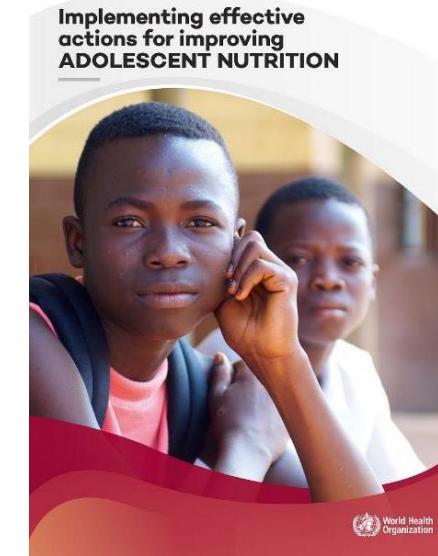
- **Nutrition Specific :**

- Weekly Iron Folic Acid Supplementation &
- Gender sensitive Nutrition Education
  - In school and out of school platforms – girls and boys

- **Nutrition Sensitive & Gender Equality**

- Keeping Girls in School
- Deworming for School Performance (TBD)
- WASH
- Menstrual Hygiene Management, and overcoming Gender barriers to School attendance
- Delaying Early Marriage and Adolescent Pregnancy

**GUIDELINE:**

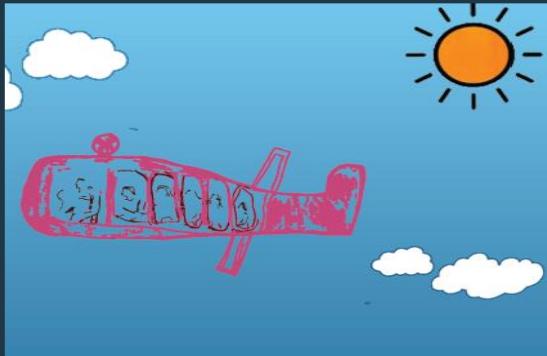


# Opportunities in Adolescence

- 1. Addressing current nutrition & preventing future malnutrition**
- 2. Forming lifelong nutritional and lifestyle behaviors**
- 3. Promoting Gender Equality and Girls' Empowerment**

# Her Voice

This is your body copy



engineers

flight  
attendants

Future Prime  
Minister

teachers

pilots

rich business women

university  
students

civil servants

doctors

artists

# Thank you





# “Adolescent Nutrition and Anemia”

MORE INFO



NIPN: [www.nipn.ephi.gov.et](http://www.nipn.ephi.gov.et)



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